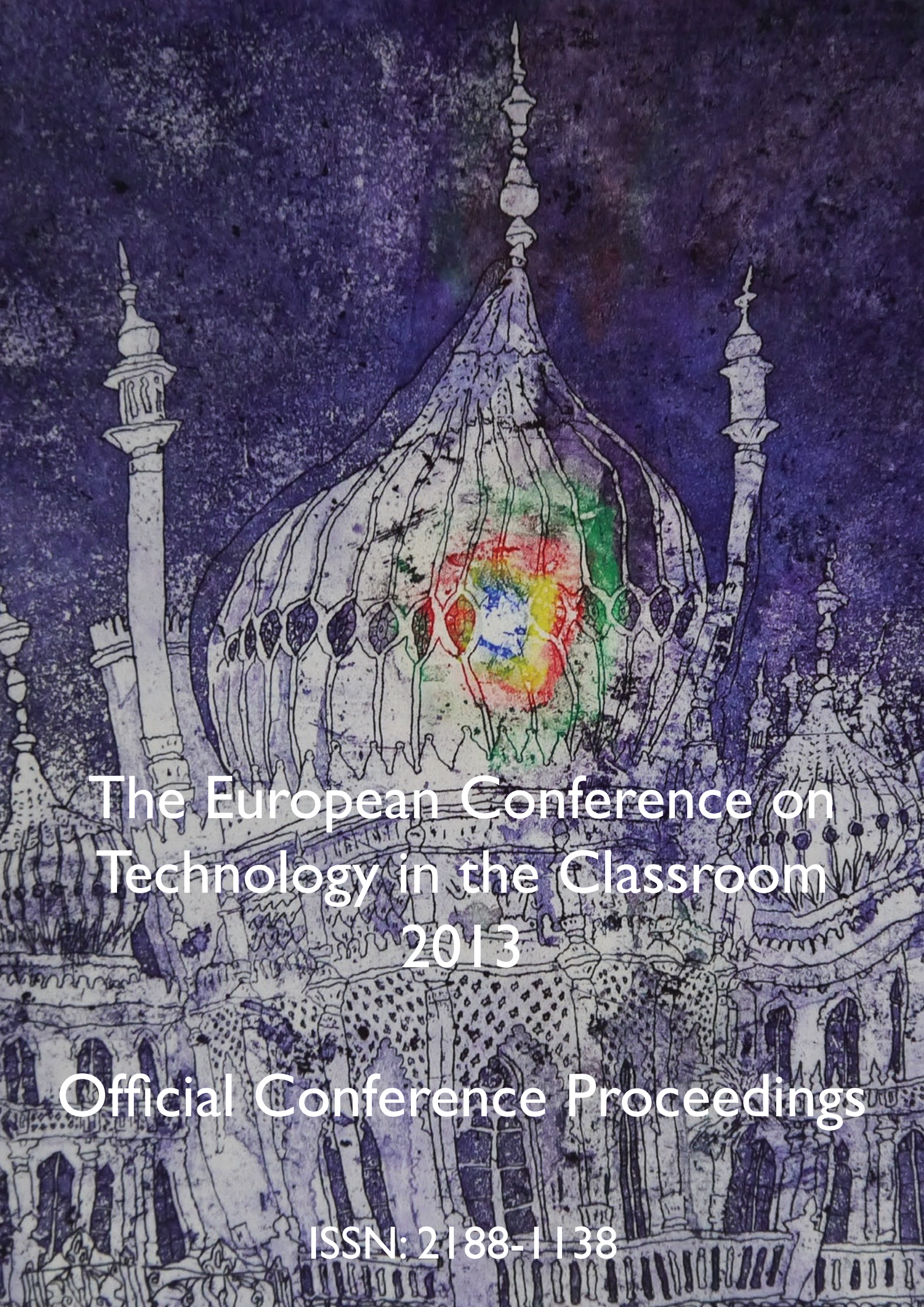

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Social Network Media in the Classroom: Analysing Errors and Teaching Language in Arunachal Pradesh

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0025

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Introduction and Overview

The advent of internet and emergence of social networking has given rise to new linguistic styles and forms. These forms have evolved and received tremendous boost over the years from other forms of electronic media such as e-mail, texting, Internet Relay Chat (IRC), Instant Messaging (IM), etc. The creative aspect of the medium notwithstanding, the primary objective of the proposed study is to show that the Web-mediated and other forms of electronic communication has become a veritable medium to hide the lack of grammatical and stylistic competence. The study hypothesizes that with an increase in the number of English language users, the quality of the language use is on the decline. There is a growing tendency of reductionism towards developing communication abilities at the cost of correctness.

Social Network Media in the classroom: its rationale

Incorporation of technological aid has imparted a major change in the classroom. In the recent years, there has been a major shift in pedagogical practices and teaching theory in that the emphasis is given more on the student-centric facilitative learning. The role of a teacher is to create an environment that would encourage newer streams of thought, incisive arguments and logical deliberations. These apart, one of the foremost challenges for the teacher today is to generate and retain maximum possible interest in the class or the text and also prod the students to be inquisitive. This is challenging given the fact that the whole gamut of knowledge today is made accessible through internet and sharing across multiple virtual platforms is possible using such multidimensional technological tools as Web 2.0. The role of a teacher therefore, is to speak to the students in their language, using their tools in order to make the class ambience productive and interesting.

However, there is a divided opinion amongst the linguists and educators who have expressed their doubts in the plausibility of using social media as a complement to classroom or institutionally systematized learning architecture. Although they concede considerable ground on the issue of retaining classroom interest and providing maximum possible avenues of knowledge, they, however, cite practical problems in teaching, for instance, canonical literature in a multimedia format in the classroom. They are of the opinion that since the electronic medium is characteristically 'devoid of emotivity' (Cicognani, 1998). It would be difficult for the learners to capture the nuances of thought and feeling, and the context in which a poem, drama or a novel is written. While there seems to be some logic in their perspective, yet new methods have to be devised to create a middle ground between embracing technology and imparting knowledge through pedagogic re-contextualization. While teaching a poem like Yeats' 'The Second Coming' for instance, it would be difficult for the teacher make the students relate to the background and the context in which the poem was composed, not to speak of the images and symbols used in the same. Unless the students can relate to something with which they are familiar, it would be an exercise in futility to make them navigate through the maze of gyres and falcons in the poem. The solution to this is the re-appropriated multimedia texts of the same as found in the hypermedia site You tube. Instead of the mythical image drawn from the Spiritus mundi, what one finds in the You tube is the images of 9/11, the Afghanistan war and other contemporary events artistically interspersed with the text along with the desolate images of large-scale destruction and damage. Similarly, the intensity of emotional urgency is perfectly captured and appropriated in the videographic re-presentation of Andrew Marvell's poem 'To His Coy Mistress.' The students find the film adaptation of Shakespeare's 'Romeo and Juliet' more appealing and interesting than the Folio or Clarendon text that is usually prescribed.

Since its launch in 2004, Facebook has emerged as the most popular networking site among the students across disciplines and nationalities. Although it is a public portal, its accessibility

is user controlled and it allows formation of exclusive communities and pages depending on the tastes, likes and preferences of a particular member group. This factor, coupled with a judicious management of its services, Facebook can prove to be a veritable medium to elicit opinions and provide instant feedback. Being user-controlled and options for having closed user groups, class-specific/subject-specific/course specific communities/pages can be formed, ideas can be floated and generated, arguments and counter-arguments can be updated and alternate perspectives can be accommodated and deliberated upon – something which is not possible within the time based limitations of a classroom situations. Similarly, the medium would be a boon for those students who are reticent and hesitant in the class and cannot express their views and opinions openly. Being user-controlled, a new sense of privacy too can be attributed, as only the members of the specific community would have the access to the content. The members of the community may be encouraged to upload their essays on the page for peer viewing and reviewing and at the same time, the teacher too could chip in with his feedback and comments. The page may also be used for the students' feedback on the teacher and the course(s) taught along with options for instantaneous testing, quizzes and results.

Secondly, like the user-controlled accessibility, the creation and sharing of the content in the medium too is user-controlled. With multidimensional options in technology like Web 2.0, the user can load and link his content to several other formats and sites through hyperlinking, web-link sharing and video posts. Such multidimensional convergence, which is practically impossible in a classroom situation, offers the user to have multiple perspectives on his writing as well sources of his research. This also helps the evaluator or the reviewer to arrive at a balanced opinion before providing his feedback.

Thirdly, the language used in the medium can be informal, creative and non-academic. This no-academic diction helps in better expressivity on the part of the students. This is particularly true in case of the L2 users who have the problem of speaking, writing and composing grammatically correct and stylistically/contextually appropriate language. Pointing out their mistakes and giving them rule-based exercise in the classroom have shown limited positive results. Secondly, they fail to act and in many cases, they prefer to remain silent in the class fearing errors and a subsequent blow to their self-esteem. However, the discourse in this medium short and crisp, the chances of committing errors are reduced substantially and students find it easier to express themselves. Being informal, it helps the teacher to point out the errors in a friendly manner and suggest options for correcting the same electronically. For instance, considering their fluency in the use of computers and internet navigation, the teachers may suggest the students to join relevant online forums to handle with their problems without directly pointing out their errors. The web-link may be provided which they can click instantly and get solutions. For example, for the students having problem in the areas of grammar and syntax, the teacher may post the link of the VOA English Learning portal that a student may use instantly and get their confusions cleared.

Fourthly, unlike an institutional system, no systemic push is required. Facebook as a learning media can be truly facilitative as the system is highly non-hierarchical. While in an institutional set up, there is a top-down hierarchical structure with the teacher delivering lecture, preparing notes, evaluating assignments and answer scripts and providing feedback. Each of these steps would have a subjective bearing of the individual that may prove detrimental to the student. Devoid of any parallel options to crosscheck multiple perspectives, the evaluation and feedback would be based on a one-dimensional reading of the text. However, with Facebook, it has been found that the onus gets shifted to the students. They create content, evaluate their answers amongst peers, post comments, and share the learning

process. The notion on power associated with the teacher in a classroom gets minimised resulting in an open and unhindered expression of ideas and opinions.

However, one of the flip sides of using social media as a learning tool ironically lies in the stuff and the content itself! Since the discourse is informal, short, innovative and constantly improvised, it leaves a very little option for expository writing. Instead, what we have are micro-sized knowledge bases, supported by web-links, video and blog posts and tweets. While this may put a big question mark on developing the analytical and logical skills of a user, the medium on the other hand, with its convergence and integration of several other formats is hugely capable of making the process of learning fun and inclusive.

Teaching Language in Arunachal Pradesh

Arunachal Pradesh is a home to around twenty three major tribes and almost an equal number of sub-tribes. The state is a home to unique cultural beliefs and customs. The insularity of the people of the state is further compounded by the remoteness of its location, infrastructural challenges and a predominantly oral linguistic structure. The policy of cultural integration initiated by the Government of India since late 1960s appeared to fill the linguistic void of the region as numerous organizations pitched for the introduction of English and Hindi in the schools and a gradual replacement of Assamese language as the lingua franca. (Chaube, 1973) The geo-political inaccessibility has also affected in the institutionalization of educational system in the state. With no uniform script and language, with the exception of the Buddhists in Kameng and Lower Lohit areas, (as they used Tibetan and Tai-Khampti for the Buddhist religious texts) the tribes of the state had used Assamese as the link language. (Elwin, 1957; Chaube 1973; Barthakur, 2011). During 1970-71, a movement spearheaded by the students at Pasighat demanded a total replacement of Assamese as the medium of instruction in the schools with English and Hindi (Chaube, 1973; Barthakur, 2011). While the movement succeeded in introducing English education in the state as the then administration of NEFA got all its schools affiliated to the Central School system, yet it acted as a catalyst in dividing the entire state on community and linguistic lines; the Wanchos of undivided Tirap district were in favour of retaining Assamese as the medium of instruction primarily because of it being the root language of the NEFAmese creole as well as the link language between the hills and the plainsmen. (Chaube, 1973; Barthakur, 2011) Secondly, as the movement in favour of English and Hindi has proved detrimental in the development of a proper script and printed literature of the tribes of the region. With no script of their own, thus, the written form of communication for the people belonging to these communities has so far remained English or the IPA, while the oral communication varies between tribal dialects, Hindi and Nefamese creole.

Against the backdrop of the tonal variety of their language, coupled with the lack of a script and a lexicon, using CALL for students belonging to these communities require developing tribe specific linguistic and grammatical applications. As of now, no such customized or customizable CALL tools or programmes are available for the English-learning students belonging to these communities.

Teaching English language has further proven to be a challenge to language teachers in the state as syntactic, morphological and phonological rules vary from tribe to tribe. Since there is a lack of printed material for their native grammar and linguistics, the students are largely unaware of the rules governing their own language vis-à-vis English. Of late, however, quite a few dictionaries and grammar written in English are available in the market, yet there is no policy for institutional implementation of the same in the feeder levels.

It has been found that the errors committed by the students have a common pattern and it is reflected in oral as well as written modes of communication particularly in the areas of orthography and syntax. Further the experiment has helped in making students aware about the nature of the errors they commit in English and it has also facilitated an understanding of cross-dialectal lexical and grammatical differences.
This paper deals with some of the findings of a continuing research on Facebook as a collaborative learning tool in Arunachal Pradesh, the north-easternmost state of India.

Methodology
The primary objective of the research was to study the impact of social network on students and how the same can be used productively in the classroom. Secondly, given the backdrop of a non-formal, non-institutional and oral knowledge of their respective mother tongues, the study also aimed at analysing the impact of social media, especially Facebook in their use of English.

An internal project was undertaken involving the undergraduate students of engineering at NERIST, located in the north eastern state of Arunachal Pradesh, India. The students of the institute are required to study selections from English literature along with Professional Communication as compulsory courses. Even with the use of AV slides and video clips, it was observed that the participation of the students in the classroom ranged from being minimal to low. Their written assignments too are dull and lacked in coherence of expression and arrangement of ideas. Lack of proper grammatical and stylistic knowledge has an impact on their levels of interest, understanding and effort which is visible during their oral presentations as well.

In order to make them participative and generate interest on the course, we started using Facebook as a medium to share multiple perspectives on a given text. Branch based closed user-group communities were formed, involving 100 diploma and 200 certificate level of students of six branches of engineering. The selective sample of 300 students provided a representation of seven major tribes of the state of Arunachal Pradesh, viz., Nyishi, Adi, Galo, Apatani, Tagin, Nocte, and Monpa respectively. The students were encouraged to post real time updates which were later analyzed to check their levels of understanding and feedback was posted in the community page. Peer review and correction was allowed along with the posting of tweets and video links on the said text. Secondly, for the students having problems with grammar and vocabulary, they were asked to subscribe to VOA Learning English's Facebook page along with curated content from the You Tube. Online quizzes on grammar and vocabulary were conducted at various levels and remedial measures were suggested.

Findings and Analysis
The research on using social media in the classroom in Arunachal Pradesh has provided some interesting results and it has projected certain trends as far as the use of English as an L2 is concerned. It is found that the students who are usually silent in the class have come out with interesting perspectives on a text while posting comments and responding to feedback on the updates posted by their friends on a given issue. This has also improved their performance as they become vocal and responsive in terms of defending their stand as posted on Facebook. However, this is found to be dependent on the condition that the teacher starts the discussion with a comment or an update posted by a user pertaining to the text on the Facebook wall.

With no rigidity on the grammatical and stylistic rules, although this has resulted in making them open and responsive as against their performance in the classroom, yet it has proved detrimental in making them aware of the grammatical rules and their application in the

language. In terms of orthography and syntax, a whopping 72% of the surveyed students were found to have major problems in the field of orthography, 21% on the other hand, had problems in both orthography and syntax. Only 7% of the surveyed students appear to use language correctly in terms of orthography and syntax. This has also reflected a disturbing position as far as the use of English as L2 by the students in this part of the country. 86% of the surveyed students are found to have problems in the major areas of grammar and this lack of rules prohibits them from expressing their views in the classroom. Their oral expressability is further hindered by acute language anxiety syndrome. However, they find Facebook comfortable and 'increasingly relaxed' in terms of application (or lack of it) as far as the grammatical rules are concerned.

The users' level of comfortability is also evident in their preference of L1 over English and the frequency of code switching and code mixing which is substantially higher than in the offline mode. Interestingly, this is attributed primarily to the differences along their community lines more than anything else. It was found that despite making closed user communities on the basis of their branch affiliations, a tendency to create an intra-group using their unique linguistic code was apparent. For instance, in a user group consisting of students drawn from a heterogeneous mix of communities, it is found that students belonging to Adi community will form a sub-group comprising members of the same community and they show a tendency to communicate more with the members of the sub-group than with the rest. The medium of communication is primarily L1 using IPA with a liberal sprinkling of a creolized Hindi common to the speakers of the North eastern region in particular. The same is true of other communities as well. However, the students with a mixed parentage tend to communicate more in English and with other members of the group quite frequently.

With most of these dialects having no distinctive grammatical markers as we have In English for personal pronouns, gender, singular and plural number, etc., it is found during the survey that their L1 grammar interferes in their use of L2, i.e., English. Lack of certain vowel sounds have also influenced markedly on their orthography. This is also evident from their written assignments as well as their answer scripts of mid and end semester examinations.

Further, most of the students do a literal translation from the oral (which is heavily influenced by their respective mother tongues) to the written mode resulting in orthographic errors such as 'Porty poor' for forty four, 'pibe' for pipe and 'five' etc. as the L1 of most of the dialects don't have sounds like /f/ and /v/. Around 63% of the surveyed students have shown problems in the articulation and writing of consonant clusters. For instance, 'splash' would be pronounced and written as 'ispalash', 'scream' as 'iscream', etc. However, cluster reduction is found to be minimal and almost negligible among the surveyed group of students.

Another notable tendency of the students that has come out is the use of space-fillers. During oral communication, it has been observed that the students make a very liberal use of the space filler 'like' and the Hindi word 'na.' In Hindi, 'na' implies 'no' (in oral communication) as in example 1 below:

/Tumne kaam kiya?/ [Have you done the work?] (Example 1)
/Na/ [No]

or, an interrogative marker, as in the sentence given in example 2:

/usne kaam kiya na?/ (Example 2)
[Has he done the work?] or may be, [He has done the work, right?]

or, at times, used as an emphasis with a pronoun, as in example 3:

/usne na kaam kar diya/ (Example 3)

[He has done the work.] (English doesn't have any equivalent for the emphasised 'na' unlike Hindi.)

It is observed that in the oral communication using English, students use the word /na/ as a pause or as a mark of emphasis and seldom as an interrogative marker. The word /like/ is also used sparingly. The same tendency is reflected in their use of the language online. On being pointed out, while 30% of the surveyed students showed a marked change in reducing the number of such space fillers in their updates and online language, 58% of the 'informed' users have expanded the spaces between words, where they would have otherwise used the word 'na' or 'like.' 3% of the surveyed students resorted to ellipses instead of the verbal space fillers. During oral discourse too, 16% of the 'informed' or conscious users took an extended pause instead of using space fillers. The peer feedback presented online helped in minimising the use of such words in oral and written discourse.

As all these were evident during their use of English language on Facebook, it provided a real time option for the administrator (or the course instructor) and the peers to correct their errors and provide hyperlinks and video links for a further study in that area. The nature of their errors has also provided the administrators with a database to identify and categorize the nature of their errors and offer customized solutions.

Conclusion

A preliminary study of this database shows that there is a definite pattern of errors committed by the students belonging to different communities. This, in return, has helped in focusing on correcting these specific errors instead of giving generalized course/lectures on English grammar.

As there is a lack of institutionalized pattern of imparting mother tongue in respective dialects, a detailed and customized CALL package can be prepared after categorizing the nature of errors committed by the students belonging to different communities. This would also help in highlighting the cross-dialectal differences in their respective use of L1 vis-à-vis English.

With knowledge bases becoming more accessible and content creation becoming relatively easier due to technological interfaces, using social networking sites as Facebook as an instructional tool in such a heterogeneous academic ambience as Arunachal Pradesh would make teaching more integrative and interactive. For this, a re-contextualization of the theories of teaching and pedagogic process is required along with a proper linguistic and content management of these sites. With cloud computing and cloud learning gaining wider acceptance given its ability to provide instant feedback in a de-spatialized manner, feasible scopes of inter-institutional collaboration exist which will provide innovative solutions to the problems faced by the students in similar cultural and socio-academic set ups.

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Keep Blogging? Some Permanent Effects of Teaching Blogging

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Abstract

Keep Blogging?

Blogging may in several ways enhance the perceived level of learning. In this paper we review blogging as an educational tool and investigate the permanent effects of blogging based on surveys from students that had to blog and students that did not have to blog during their studies. An important question is, to what degree does blogging as part of a course influence later blogging activities both in studies and in working life? This is compared to blogging attitudes of those who did not have to blog during their studies.

Introduction

The use of social media forms of communication in teaching has become widespread, and their effects are the subject of many research studies. Blogging as instructor/student and student/student communication in a course was introduced early and several authors have reported positive effects on the learning outcome and perceived learning. A range of characteristics of blogs influences both learning and student's ability to independently gather new knowledge, as well as interaction with peers, knowledge development and group knowledge sharing.

Blogging as an educational tool may exhibit advantages in the learning process, as well as letting the student become familiar with the properties of blogging as a tool in general. Many of the abilities acquired through blogging in courses as a student may also be of value to the student later in her professional career.

The authors have used blogs in a course on business applications of social media for several semesters. In order to find out if the use of blogs in the courses influenced the students' later use of blogs, and thus exploit the inherent advantages, we asked the students about their blogging after the course. Both present and former students answered a questionnaire about their blogging as part of a course, and their blogging activities after finishing the course, both at school and after graduation. A sample of students who had not taken any courses where blogging was mandatory answered a comparable questionnaire about their blogging activities.

Blogging as a teaching tool

The introduction of social software use in courses has opened possibilities for instruction, education material delivery and instructor/student interaction in a number of ways. It has strengthened blended learning, as well as added new dimensions to online learning. Technology changes influences both delivery options and the pedagogy. (Kim, 2008), (Olsen & Horgen, 2013). Technology-based learning has influenced learning theories such as anchored instruction and situated cognition, theories that recognizes that technology affects social interaction, and thus the learning process. (Beldarrain, 2006).

Glogoff regards "blogging as an exceptional learning tool that has enormous potential in the virtual classroom" (Glogoff, 2005). The use of blogs as a teaching tool is widespread, and are reported to increase perceived learning in many cases. Blogs (and other social media tools) can replace earlier computer-mediated communication applications. Several researchers reports results from investigations of blogs as teaching tool, and although conclusions in many of the reports are not definitive, (e.g. Top, 2012), and even contradictive (Kim, 2008), (Halic & al., 2010), the consensus is that blogs may improve the learning process in several ways.

A blog is a powerful tool both for use in teaching, research and other purposes. There are many possibilities for using blogs as pedagogical tools. Blogs allow students to reflect on course topics over time and share experiences with fellow students and others. Blogs can be used to implement peer review, and act as a process tool in project work, e.g. notebook for learning. At Sør-Trøndelag University College we have used blogs in exercises in several online courses. Evaluations and feedback show that most students are motivated by writing publicly and getting comments from others. Student blogs constitute a social arena that fits well in conjunction with online studies. In addition, we see that some students are choosing blog as a documentation and collaboration tool in group projects.

The decentralized feature of blogs has potential to enhance learner communication, interaction and collaboration, and the characteristics elicit many unique pedagogical implications. Learners themselves choose what to write in their blog or how and what they want to comment on other blogs. The openness of the blog, instead of predetermined learning paths and hierarchies, is crucial to learners' use of the technology. (Kang, et al., 2011) (Kim, 2008).

Computer-mediated communication applications (CMC) must appeal to the students, in order to be extensively and voluntarily used. Kim (2008) cites several studies that found that CMC tools fail to engage the students. Many students are familiar with blogs from their personal activity on social media, and thus this communication form may appeal to the students. Learners may use the blog for reflection, communication and contribution to fellow learners' blog posts. The possibility of interaction with other social media, external or internal, may also strengthen the appeal of the blog as a suitable CMC.

As is common for social media tools, blogs can support both active and social learning, and the interactive feature of blogs used for student to teacher and peer to peer communication in a course gives not only textual but also social practice. (Top, 2012), (Halic, et al., 2010).

The inherent features of blogs have potential to make blogging as part of a course more than an educational tool. This form of communication allows students a high degree of independence as well as possibilities for extended interaction with fellow students. By access to each other's blogs, student learning is also made more transparent. Reading other students' blogs may be good help in understanding course concepts.

Blogging has several characteristics that well suited to enhance the learning process in different pedagogical settings. Its inherent interactivity and its cloud-based presence makes it appropriate for both campus and distance learning courses. In a proper pedagogical setting it fosters learner-centered instruction and student content contributions.

Glogoff (2005) points out that blogging used as an educational tool utilizes both receptive instructional techniques (presenting information), directive techniques (student/teacher interaction) and guided discovery techniques (teacher as a guiding mentor/expert).

In order to realize the full potential of blogs as an educational tool, it is important to use it in a suitable educational context. In order to engage and motivate the students for blogging, experience with and interest of social media use in in their personal life are positive. We expect that these factors improve the "social presence" of the students, und thus improves both quantity and quality of blogging interaction. The way blogging will be used in the course, and the expected benefits to the learning process should be clearly explained to the students.

Whoever writes a blog controls the look of the blog, the content itself and when new posts are published. To get readers, it is customary to spread blog posts via social media like Facebook, Twitter, LinkedIn and Google Plus, or simply via e-mail. Blog posts can also show up in the search results on the web. It is usual that the blog author specializes in one or more subjects. Over time, interested people begin to pay attention to what is written in anticipation of more new, interesting blog posts. The ability to leave comments makes the blog an arena for interaction, cooperation and sharing experiences. Many blog posts are short while there may

be a dozen comments that add value to the main post. Interesting blog posts also spread quickly in social media. (Horgen, 2012).

The readily available content on the Internet, and the interactive feature of blogging allows for new ways of finding, collecting and presenting learning material in a cooperative way. Blogs will be an efficient way for students to contribute in this process, and for reflecting and commenting (Top, 2012) (Olsen & Horgen, 2013). Alternative perspectives related to course content may arise from this interactive process. Kang & al. (2011) suggest that "blogs entail a different type of learning attitude that extends education from preset content and rote learning into the realm of open educational resources which learners can quickly access, link to and extend". To foster such an attitude among students will be of great importance during their professional careers in this era of lifelong learning.

Writing their own blogs and commenting on others contributions give students experience with and understanding of the value of collaboration in an "expert" community. In this way the blogs function as a community of practice, knowledge of which may be beneficial later in working life (Beldarrain, 2006) (Kang, et al., 2011).

Social media provides possibilities of new relations between instructor and student, and blogging creates an environment where both can share a repertoire of learning resources on a more equal basis than in the traditional student/teacher setting.

Several authors report on student reactions to blogging as part of the course, and both experience with and opinion of use of blogs varies among students. Students who had earlier experience adapted their blogging to meet the pedagogical and social contexts to their new course. Their previous experience enabled them to do so even in the absence of course-directed blogging activities. Types of blogging behavior varied among the students, from keeping an online journal, blogging as self-motivation to course-directed activities to share. Students who have had blogging in previous courses, started their own blogs in addition to the one provided by the present course, and experience with blogging as part of a course may prompt some students to use blogs for personal purposes (Kerawalla, et al., 2009).

Reading other students' blogs is considered to help understanding course concepts (Top, 2012). Commenting on the course blogs is important, both for content contribution and as a motivation factor. The more comments the student bloggers receive, the higher interest in their contributions, which will motivate the student to engage in more blogging. The absence of comments on the course blog will reduce or eliminate the sense of community (Kim, 2008) (Halic, et al., 2010).

Because of the way a blog kan be used varies very much, it may be advisable to not impose rigid guidelines for blogging, but allow considerable freedom. However, blogging should be a course requirement, not only in order to enhance communication between students, but also to make students familiar with blogging for later use in their professional (and personal life).

In their later professional life, students will use different social media, among them blogging. We wanted to investigate if there are any (perceived) differences in the way they use blogs while at school and later in working life, between students who have been exposed to blogging as part of a course and those who have not.

One of the advantages of using blogging as an educational tool that is often emphasized is that it improves students' level of perceived learning. There are both social and pedagogical reasons for this (Kerawalla, et al., 2009). Discussion patterns on the blog also reveals evidence for the learning value of blogging. The sense of community and social presence may also contribute to higher levels of perceived learning. As discussed earlier the use of blogging let learners take greater responsibility for their learning situation and their learning goals. This is also one of the effects that will be beneficial in a life-long learning environment. An increasing level of reflection over time has been demonstrated among students that blogged, and significantly higher consistently among solitary bloggers.

To sum up, several effects of using blogs in education have been discussed in the literature, and many of them will be beneficial when keeping up blogging after the course, both for students still in college and at work. Some of them are listed below (Top, 2012) (Horgen, 2012) (Kang, et al., 2011) (Kerawalla, et al., 2009) (Kim, 2008) (Olsen & Horgen, 2013).

Interactivity and collaboration:

- Blogs contribute to more interactivity among users.
- Blogs can increase the level of students' participation and strengthen the sense of community.
- The blogging environment influences how strong the sense of community will be.
- Blog comments are essential to the interactive function.
- Blogs improve the learning process in a systematic way and help build a learning community.

Knowledge contribution and sharing:

- Blogging supports collaborative learning both in knowledge development and group sharing.
- It improves critical thinking, problem solving and communication skills.
- Blogging reach out and interact with knowledge communities.
- Blogging is powerful for learning, as well as socially and emotionally engaging.
- Many skills and practices learned through blogging in school are important for the student in her later professional life.

Survey and method

We have two courses where blogging has been used as part of the exercises. The first course is called "ICT in learning" and directed towards teachers (taking the course as an e-learning course). The second course is called "Social media" and is directed towards students, both on campus and online students. In both courses blogging is used more or less in the same way. Blogging is mainly used as an alternative to traditional exercises. As outlined in our previous work, blogging is used both as a personal learning tool and as a platform for sharing knowledge and peer learning (Horgen & Olsen, 2012). The students have to work with the learning material in order to be able to blog to solve the exercises. Their blog posts are commented by fellow students on the blog, and by the teacher in the learning management system. The exercises also instructs the students to either use various social media and Web 2.0 tools as part of the blogging process, or to integrate Web 2.0 content in their blog posts. The idea is to use blogs extensively as a complete learning tool. In the Social media-course, the students were also challenged to build their own PLN (personal learning network) throughout the course. This PLN-activity is reflected in their blog posts, and should ideally strengthen the effects of blogging.

We also offer several other courses where students are not required to blog. An interesting question is to what extent students who have to use blogs as a learning tool in one course, continues to use blogs either in other courses, or later in life. A related question of interest, is whether students that didn´t take a course with blogging as a mandatory activity, still chose blogging as a learning tool, or use blogs later in life.

Two surveys were made and sent to 1133 recipients, a mix of current and previous students. The students would have to choose themselves which survey to complete. Survey A was designed for those that had to use blogging as part of one or more courses, and survey B was designed for those that didn´t have to use blogging as a mandatory activity in any course during their studies. We receied 49 answers from students that had to blog, and 55 answers from students that didn´t have to blog, a total of 104 answers which is about 9 % answer rate. This might seem low, but obviously, when students who have not been exposed to blogging receive an invitation via e-mail to complete a survey on blogging, most of them would probably delete the e-mail, even though the e-mail stated that input from those that had not blogged in a course would also be very valuable.

We formed some hypotheses:

- H1: Students are more likely to use blogging voluntarily as a personal learning tool in other courses if they previously had to blog during one course.
- H2: Those persons that had to use blogging in a course, are more likely to use blogs in working life than those that were not exposed to blogging during their studies.
- H3: Those persons that had to use blogging in a course, will see more advantages of blogging to support lifelong learning in working life than those who didn´t have to blog during their studies.

Results and discussion

According to survey A, out of the 49 students that had to blog, 30 were exposed to blogging in the course “Social media” (for both campus students and online students) and 18 in the course “ICT in learning” (for teachers, studying online). 1 student claimed to have been exposed to blogging in a course that don´t use blogging, and might therefore have misunderstood the question or survey. Prior to being exposed to blogging in a course, 53,1 % had knowledge on blogging and 81,7 % had knowledge on other social media. However, only 30,6 % had knowledge on how to use blogs for learning and 61,2 % had knowledge on how to use other social media for learning. This means that even though most students had good knowledge on social media and thus a good foundation for blogging for learning, most students had to learn how to learn with blogs.

Hypothesis 1

The students that had to use blogging in a course were asked to rate the usefulness of several aspects of blogging, on a scale from 1 (very important) to 5 (not important). The results are summarized in Table 1. The second column contains the fraction sum of respondents that answered very important (1) or important (2) in survey A/group A. The aspects are labeled a-j for easier reference in the below discussion.

Table 1: Question 3 from survey A: “How important was the following aspects of blogging for you when blogging in the course?”

Aspect	Important (1 or 2)
a) Read fellow students blogs in order to learn more about the subject	51 %
b) Use blog as a platform to collect knowledge over time	51 %
c) Comment on fellow students blogs	42,8 %
d) Receive blog comments from others	57,1 %
e) Read expert blogs (not from fellow students) in order to learn more	75,5 %
f) Comment on expert blogs	18,3 %
g) Contribute to knowledge sharing among fellow students	40,8 %
h) Contribute to knowledge sharing on the Internet	44,9 %
i) Be motivated to do high quality work because of the blogging	61,2 %
j) Use the blog as a process tool for learning	57,2 %

The figures from Table 1 show that about 50-60 % of the students find blogging useful for personal learning (aspects a, b, i, j). Various forms of student interaction (aspects c, d, g) are important according to about 40-60 % of the students. Blogging is widely used on the Internet in general. Interestingly, external blogs were regarded as highly valuable as a knowledge source, but only a few students found value in commenting such blogs. Additionally, 44,9 % claims that blogging in the course gave them a new understanding/view on learning (according to question 4 in survey A).

Reading the results from survey A while wearing the "teacher hat", one should be pretty happy with the effects of blogging as a mandatory requirement. We therefore expected an appreciable amount of the students from survey A to see the benefits and keep blogging in other courses as well. However, only 6 out of 49 students that had to blog in a course and 4 out of 55 students that had not been exposed to blogging answered positive to the question "Have you blogged on your own initiative as part of your studies". The fraction of students that used blogging voluntarily is slightly higher in survey A (students that had to blog) than in survey B, but still very small in both surveys. Furthermore, from the 6 in survey A that kept blogging, 3 already had some experience with private blogging before the course, and 1 had some experience with blogging for learning. We therefore conclude that our hypothesis H1 seems to be wrong. The surveys did not ask why they didn´t blog, but one explanation might be that students tend to do exactly what they are told and focus on learning requirements rather than to focus on learning strategies to achieve learning goals. Another explanation, might be that about 75 % of the respondents of both surveys in total were online students taking only one or a few courses as part of their continuing education and training.

Hypothesis 2

44 out of 49 that completed survey A are now working, and from these, 32 persons know about one or more blogging activities within their organization. Private blogging (43,8 %) is most common, but marketing (25 %), internal arena for knowledge sharing (40,6 %) and project blogging (12,5 %) is also used. 43 out of 55 that completed survey B are now working, and from these, 38 persons know about blogging activities within their organization. Private blogging (34,2 %) is most common, but marketing (18,4 %), internal arena for knowledge sharing (28,9 %) and project blogging (15,8 %) is also used.

This gives us some insight into blogging in working life, but it is more interesting to know whether mandatory blogging in the studies influences the likelihood of blogging in working life, as postulated in our hypothesis H2. Both groups A and B were asked to rate the importance of several aspects of blogging in a working situation, on a scale from 1 (very important) to 5 (not important). The results are summarized in Table 2. The second and third columns contain the fraction sum of respondents that answered very important (1) or important (2) in survey A/group A and survey B/group B. The aspects are labeled a-i for easier reference in the below discussion. The aspects have many similarities with those listed in Table 1, but the wording obviously differ, since studying and working is somewhat different.

Table 2: Question 9 from survey A and question 5 from survey B: "How important are the following aspects of blogging for you in a working situation?"

Aspect	**Survey A (1 or 2)**	**Survey B (1 or 2)**
a) Use blog as a platform to collect knowledge over time	51 %	23,6 %
b) Read other blogs in order to learn	67,3 %	50,9 %
c) Comment on other blogs	24,4 %	23,6 %
d) Receive blog comments from others	38,8 %	27,3 %
e) Contribute to knowledge sharing within an organization	67,4 %	47,2 %
f) Contribute to knowledge sharing on the Internet	49 %	43,6 %
g) Use the blog as a process tool for learning and personal reflection	44,9 %	30,9 %
h) Be motivated to do high quality work because of the blogging	51 %	25,4 %
i) using blog as part of a larger toolkit of social media/Web 2.0-tools	53 %	21,9 %

From the comparison of the two surveys we see that those that had to blog during studies (survey A) rate all aspects higher than those that were not exposed to blogging during studies (survey B). Most of the aspects that can be classified as "personal learning" (aspects a, b, g, h, i) are rated considerably higher by group A than group B. Only blog commenting (aspect c) and knowledge sharing on the Internet (aspect f) are quite similar. It is also interesting to note that ± 50 % from survey A finds aspects a, b, e, f, g, h and important in a working situation. We didn´t ask explicitly if those who had to blog in a course planned to use blogging in working life, but Table 2 shows the attitudes towards blogging.

Based on the above discussion and the results from Table 2, our conclusion is that hypothesis H2 is true; those exposed to blogging in a course are more likely to blog during working life than those not exposed to blogging.

Hypothesis 3

The respondents were asked to what extent writing a blog increases various skills, understanding and motivation on a scale from 1 (very important) to 5 (not important). The results are summarized in Table 3. The second and third columns contain the fraction sum of respondents that answered very much (1) or much (2) in survey A/group A and survey B/group B. The statements are labeled a-k for easier reference in the below discussion.

Table 3: Question 13 from survey A and question 10 from survey B: "To what extent do you think writing a blog contributes to the following?"

Statement	**Survey A (1 or 2)**	**Survey B (1 or 2)**
a) Increased writing skills	71,4 %	32,7 %
b) Increased ability to work independently	61,2 %	25,5 %
c) Increased communication skills	69,4 %	31 %
d) Increased collaboration skills	36,7 %	21,8 %
e) Increased quality of work	65,3 %	25,4 %
f) Increased motivation to find, link to and use/build upon open resources	69,4 %	38,2 %
g) Give a deeper understanding of collaboration in an expert environment	49 %	30,9 %
h) Building a network	67,4 %	38,2 %
i) Motivate you in your work	61,2 %	30,9 %
j) Develop digital competence in general	67,4 %	36,4 %
k) Complement your activity in other social media	61,2 %	27,3 %

We see that all statements in Table 3 are rated considerably higher (most are 2-2.5 times higher) by those that completed survey A (that had to blog in a course). Most of these statements could, in general, be said to be one of many requisites for lifelong learning in working life.

Additionally, in a free text question, the respondents of both surveys that had built a PLN (personal learning network) on purpose, were asked what role blog played in the PLN. Using a PLN is one of many possible strategies for informal learning. Only 4 persons from survey B claimed that blogging was useful as a source of information (1), for problem solving (1) or to interact with others with the same interest (2). From survey A, however, 15 people claimed that blogging was useful; spreading a message (1), sharing resources through the PLN (3), source of information (3) or learning tool (7).

We therefore conclude that our hypothesis H3 is true; those exposed to blogging in a course will see more advantages of blogging to support lifelong learning than those not exposed to blogging.

Conclusions

Our survey showed no significant effect of mandatory blogging as part of a course on the students' later use of blogging.

However, the survey results indicate that those who had to blog during studies rated all the personal learning aspects of blogging considerably higher, and they were more likely to use blogs in their working life.

Students who were introduced to blogging in a course had a better understanding of the advantages of blogging as part of lifelong learning.

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Enhancing Listening Skills through Movie Clips on YouTube

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Abstract

This paper investigates students' attitudes towards using short English movie and TV series clips on YouTube to learn English and enhance listening skills. The population were 78 third-year students from the Business Administration Faculty enrolled in English Conversation course. Clips used in this study were chosen based on a selection of skills covered in the English Conversation course curriculum. Clips and comprehension exercises were uploaded to the university's Learning Management System (LMS) and students were instructed to log in each week to watch two clips related to the week's topic and complete the exercises. Students were able to watch the clip as many times as they wished. In addition, one questionnaire was given after each clip and another given at the end of the five week project to determine students' attitudes towards their experience in using the YouTube clips. Results indicate overall positive attitudes towards using the clips to supplement classroom instruction. The majority of students strongly or slightly agreed that watching English movie and TV clips was more useful than using a textbook CD and that the clips helped them to improve their listening skills and better understand vocabulary and phrases used by native speakers. However, some students needed to watch the clips more than five times to finish the task. When analyzing the students' perceptions of each movie and TV clip as well as their general viewing preferences, it can be seen that students were most engaged by clips from comedies and least by clips from dramas.

1. Introduction

1.1 Background

The process of acquiring a native language typically occurs naturally and at an early age. Language is essential for communicating in everyday situations and sharing thoughts and ideas in society. As the world has become more globalized, the ability to speak a foreign language, namely English, has become more necessary, especially in politics, science, and technology. For this reason, many countries throughout the world are making changes to their educational policy to include the learning of English in their curriculum.

Thailand is currently a member of the ASEAN Community and the establishment of the ASEAN Community in 2015 will inevitably affect Thailand in every aspect. To ensure that Thailand is prepared to be an active and contributing participant of ASEAN, the Office of Higher Education Commission (OHEC) launched the Higher Education Strategies for the ASEAN Community in 2015. The goal of the strategies is for Thai graduates to be equipped with professional skills, communication skills, and inter-cultural skills that meet international standards. One aspect of the strategy is a reform of language education in English and other languages used in ASEAN.
Currently in Thailand, English is a required subject taught first at the elementary level with the goal of providing students with a basic knowledge of using English as a foreign language and building on this knowledge at the junior and high school levels. At the post-secondary level, English is a required subject for all majors. However, in some universities such as Rajamanagala University of Technology Srivijaya, Songkhla, Thailand, there are few opportunities for students to use English in real life situations. This results in a lack of English ability despite learning English for more than ten years. It is therefore the challenge for teachers of courses such as English Conversation to improve students' listening and speaking skills.

Listening is obviously a necessary skill when communicating with others, but due to lack of real opportunities to listen to and communicate with native speakers, it is the teachers' duty to provide other learning situations to improve this skill. Traditional ways of listening to and repeating textbook CDs or recordings may not be interesting or realistic examples of communication. Teachers must look to other facets of listening that are typically enjoyable to students such as listening to music and watching movies and TV. Watching carefully chosen scenes and clips from English media can provide students with the opportunity to become engaged in both a visual and audio representation of real life situations with the natural vocabulary, phrases, slang, and intonation used by native speakers. As students become interested in the story line and characters of what they are watching, their motivation to learn English may increase.

As scenes from English movies and TV series are readily found internationally on YouTube, it was the aim of the researcher to investigate a way to enhance her students' listening skills in the English Conversation course.

1.2 Purpose of the Study

1. To investigate whether watching short clips from English movies and TV series enhances students' listening skills.
2. To find out what attitudes the students have towards learning English through media clips on YouTube.

1.3 Context of the Study

The participants consisted of 78 undergraduate students majoring in General Management who studied the English conversation course with the researchers in the second semester of the academic year 2012 at Rajamangala University of Technology Srivijaya, Songkhla. Participants were instructed to log in to the university's LMS to watch short media clips related to topics covered in the English Conversation course. They then completed comprehension exercises and completed a questionnaire to survey their opinion on the clip and its impact on improving their listening skills.

1.4 Definition of Terms

Listening skill is students' ability of understanding the plot of the story, the culture, the pronunciation and the vocabulary use on the language.

Clips are short scenes from a movie or TV series uploaded onto YouTube.

Enhance is to increase in strength or amount (Longman, 1987: p 337).

YouTube is a video-sharing website, created by three former PayPal employees in February 2005, on which users can upload, view and share videos. The company is based in San Bruno, California, and uses Adobe Flash Video and HTML5 technology to display a wide variety of user-generated video content, including movie clips, TV clips, and music videos, as well as amateur content such as video blogging, short original videos, and educational videos. **(**http://en.wikipedia.org/wiki/YouTube)

2. Literature Review

2.1 Listening Skills

Using language to communicate is a necessary part of our daily lives. Listening is one aspect of this process and is comprised of many sub-skills. First, it is important to note the distinction between listening and hearing. As Rixon (1986:28) states, "Hearing is only the recognition of sound, as we say, 'I am sorry. I did not hear exactly what you said.' Listening implies some conscious attention to the message of what was said, as when we say, 'Are you listening to me?'."

Second, it is useful to understand the process of listening. Rost (1991: 3) divides the process into two parts. First listeners integrate component skills such as discriminating between sounds; recognizing words; identifying grammatical group of words; connecting cues such as intonation and stress to gestures; using background knowledge; and recalling important words and ideas. Second listeners must make decisions about what is being listened to such as determining the situation; making a plan for listening; determining the important words and units of meaning; and asking if the message makes sense (Rost, 1994: 4). In addition, Rost states four principles for developing listening ability for English language learners such as the necessity of using face to face interaction; focusing on meaning and trying to learn new

and important content; working on comprehension activities; and acknowledging that listening is an internal process that cannot always be directly observed (Rost, 1991: 70).

Finally, several researchers have investigated additional factors to be considered when designing lessons for the development of listening skills of second language learners. Most are related to the special characteristics of spoken language such as colloquial language, idioms, slang, reduced forms, and shared cultural knowledge (Dunkel, 1991; Ur, 1984). In addition, the learners' perception that native speakers speak too quickly can block comprehension. Students need to be exposed to language delivered at varying rates and speeds in a natural context without pauses (Brown, 1994).

2.2 Audio-visual media

Many of the special characteristics of language noted above are often not found in the standard textbook. Therefore, using media produced by and for native speakers can provide authentic examples of natural speech and can be used to augment English language lessons.

Not only can media provide real life examples of communication, it has been well-documented that audio-visuals appeal to multiple learning styles. According to Fleming's (2001) VARK guide to learning styles, learners can be classified as having one or more of the following learning preferences: *visual* (process knowledge from maps, diagrams, charts, pictures); *aural* (prefer information that is spoken or heard); *reading* (prefer to receive information via the written word); and *kinesthetic* (process knowledge through bodily sensations). Gardner (2006) adds that an important point about kinesthetic learners is that they can learn from *simulated* experiences which can be interpreted as learning from movies or other representations of real life situations.

In addition to appealing to different learning styles, audio-visual media such as movies may be effective in holding students' interest more than using textbooks or educational videos. Canning-Wilson (2000) discovered in a large-scale survey that students tended to prefer action/entertainment movies to documentaries in the classroom. She does note however, that comprehension may be due more to the visual clues than the auditory components.

Though movies may be an effective way that appeals to various learning styles, gives students authentic examples of spoken language, and holds their interest, it is important that educators think carefully about their decision to use media rather than merely put a DVD in the machine and press the play button. Canning-Wilson (2000) provides several questions language teachers should ask themselves before using a video lesson with second language learners. These include considering the benefits of using the video; determining how the visual components will enhance the auditory components; determining by whom and how the video will be selected; determining the length of segments and number of times they will be played; determining the key structures and vocabulary to be taught; and methods of measuring comprehension.

2.3 YouTube

When deciding on the source of visual media to use in the classroom, educators must consider several factors such as cost, appropriateness of content, and relevance to the

learners. In 2001, Marc Prensky coined the term "digital natives" to refer to a person who has grown up with digital technology. Everyday activities for the typical teenager and young adult include on-line video games, text messaging, and using social networking sites for a variety of purposes including communicating. "Digital natives" are used to and interested in Web-based technologies. With this pattern in mind, it may be advantageous to use internet based technology in foreign language lessons. YouTube is one such option.

YouTube was founded in February 2005 by Steve Chen, Chad Hurley, and Jawed Karim as a forum for people to share short video clips online. Daily, there are more than two billion views, 51% of viewers visit the site weekly, and 52% of 18-34 year-olds share videos with other people (YouTube Facts & Figures, YouTube Fact Sheet cited in Terantino, 2011)

YouTube is a free, easy to access source of material that includes ordinary people taking videos of themselves, as well as music, documentaries, and movies produced by the entertainment industry. One can find full-length episodes of TV series and full versions of movies as well as short clips. Short clips can be found by using a topic search, making it a great resource for teachers who want to focus on specific vocabulary or language structures in the foreign language classroom.

3. Research Methodology

3.1 Subjects

The population was comprised of 78 undergraduate students majoring in General Management who studied the English conversation course.

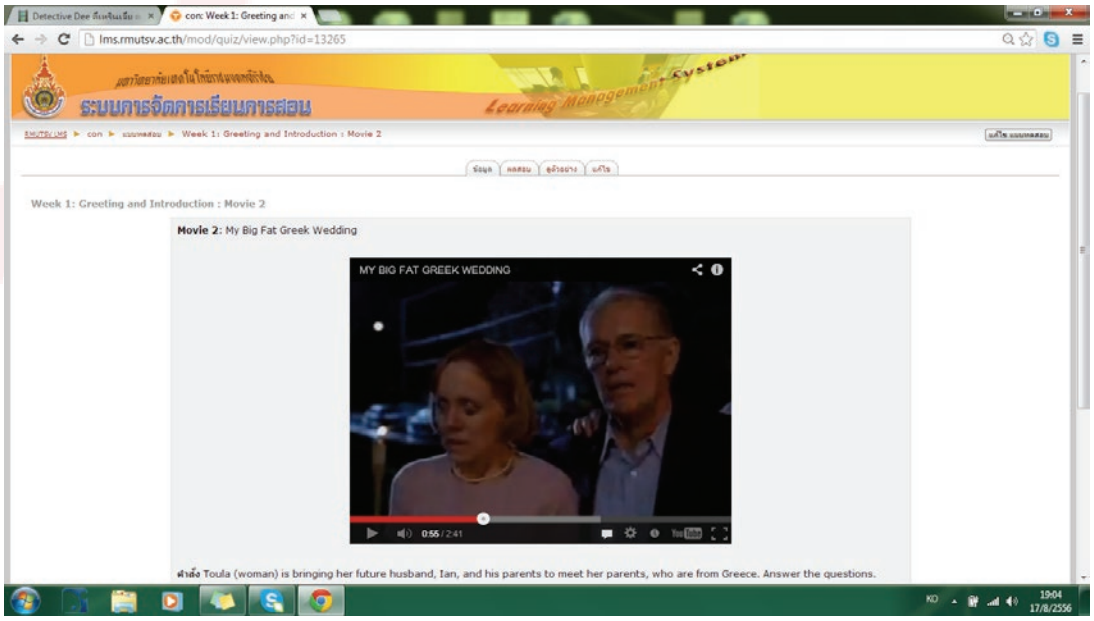
3.2 Instruments

The research instruments were:
1. 10 clips on YouTube from movies, TV series, and education material ranging from approximately two to five minutes in length:

Movie 1: "How to Introduce People in English" (a montage of scenes from TV series)
(http://www.youtube.com/watch?v=NeEJhW0_gqA)
Movie 2: "My Big Fat Greek Wedding" (scene: parents meeting for the first time)
(http://www.youtube.com/watch?v=3vxZHU0oijE**)**
Movie 3: "Rat Race" (scene: giving directions)
(http://www.youtube.com/watch?v=PfgELYaSYhM**)**
Movie 4: "Forrest Gump" (scene: Forest meets Jenny for the first time)
(http://www.youtube.com/watch?v=tvKzyYy6qvY)
Movie 5: "Cracking Up" (scene: ordering dinner at a restaurant)
(http://www.youtube.com/watch?v=J5MpO9grPpk**)**
Movie 6: "When Harry Met Sally" (scene: ordering lunch at a diner)
(http://www.youtube.com/watch?v=cnlm2e3EN78)
Movie 7: "Can I Take A Message?" (Scene 2 from ESL educational video)
(http://www.youtube.com/watch?v=oCbG64PG4LE)
Movie 8: "Swingers" (scene: message left on answering machine)
(http://www.youtube.com/watch?v=vZChD_Gni8U)

Movie 9: "The Bridges of Madison County" (scene: apology)
(http://www.youtube.com/watch?v=OpyT6ysZdB4)
Movie 10: "Seinfeld" (scene: a group of people make plans for the day)
(http://www.youtube.com/watch?v=NGVSIkEi3mM&feature=related)

2. Campus LMS (Learning Management System)
Students are able to access the system at any time by logging in.



3. Questionnaires:
Part 1: Students' attitudes towards watching movie clips on YouTube
Part 2: Students' perceptions of the usefulness of watching movie clips as a supplemental material in an English Conversation course.

3.3 Data Collection

The data collection process for this study included four procedures as follows:
1. The first day of the English conversation class, teachers administered all five sets of the first part of the questionnaire to determine students' attitudes towards watching media clips on YouTube to 78 students and explained how to learn and practice their listening skill by logging in the campus LMS. The items used a 5 point Likert Scale format. All the items in the questionnaires given were explained and translated into Thai.
2. The students independently accessed the campus LMS once a week for 5 weeks.
3. The students submitted the first part of the questionnaire each week for 5 weeks.
4. In the sixth week the students completed the second part of the questionnaire in the class.

3.4 Data Analysis

Quantitative data was collected by means of the questionnaires. Descriptive results (percentages, frequency, and mean) were used in analysing the data.

4. Findings and Discussion

The tables below show the students' attitudes towards watching the media clips; their ability to understand the vocabulary, pronunciation, and intonation; their feeling about the comprehension exercises and the frequency they needed to review the clips to complete the exercises.

Table 1: Students' attitudes towards watching each movie clip on YouTube
Question 1: The movie clip is interesting and enjoyable.

Movie Clips	5 Strongly Agree %	4 Slightly Agree %	3 Neutral %	2 Slightly Disagree %	1 Strongly Disagree %	Total %(N=78)	Mean
1. How to Introduce People in English	14.10 (11)	65.38 (51)	20.51 (16)	0.00 (0)	0.00 (0)	100 (78)	3.94
2. My Big Fat Greek Wedding	35.90 (28)	48.72 (38)	15.38 (12)	0.00 (0)	0.00 (0)	100 (78)	4.21
3. Rat Race	24.36 (19)	56.41 (44)	17.95 (14)	1.28 (1)	0.00 (0)	100 (78)	4.04
4. Forrest Gump	23.08 (18)	53.85 (42)	19.23 (15)	3.85 (3)	0.00 (0)	100 (78)	3.96
5. Cracking Up	25.64 (20)	51.28 (40)	16.67 (13)	6.41 (5)	0.00 (0)	100 (78)	3.96
6 When Harry Met Sally	12.82 (10)	50.00 (39)	35.90 (28)	1.28 (1)	0.00 (0)	100 (78)	3.74
7. Can I Take A Message?	10.26 (8)	60.26 (47)	29.49 (23)	0.00 (0)	0.00 (0)	100 (78)	3.81
8. Swingers	5.13 (4)	50.00 (39)	41.03 (32)	2.56 (2)	1.28 (1)	100 (78)	3.55
9.The Bridges of Madison County	7.69 (6)	53.85 (42)	28.21 (22)	10.26 (8)	0.00 (0)	100 (78)	3.59
10. Seinfeld	16.67 (13)	52.56 (41)	24.36 (19)	5.13 (4)	1.28 (1)	100 (78)	3.78

Question 6: I can understand vocabulary.

Movie Clips	5 Strongly Agree %	4 Slightly Agree %	3 Neutral %	2 Slightly Disagree %	1 Strongly Disagree %	Total %(N=78)	Mean
1. How to Introduce People in English	30.77 (24)	51.28 (40)	15.38 (12)	2.56 (2)	0.00 (0)	100 (78)	4.10
2. My Big Fat Greek Wedding	32.05 (25)	51.28 (40)	16.67 (13)	0.00 (0)	0.00 (0)	100 (78)	4.65
3. Rat Race	17.95	47.44	30.77	3.85	0.00	100	3.79

	(14)	(37)	(24)	(3)	(0)	(78)	
4. Forrest Gump	17.95 (14)	43.59 (34)	33.33 (26)	5.13 (4)	0.00 (0)	100 (78)	3.74
5. Cracking Up	30.77 (24)	38.46 (30)	30.77 (24)	0.00 (0)	0.00 (0)	100 (78)	4.00
6 When Harry Met Sally	15.38 (12)	43.59 (34)	38.46 (30)	1.28 (1)	1.28 (1)	100 (78)	3.71
7. Can I Take A Message?	11.54 (9)	61.54 (48)	24.36 (19)	2.56 (2)	0.00 (0)	100 (78)	3.82
8. Swingers	14.10 (11)	57.69 (45)	24.36 (19)	2.56 (2)	1.28 (1)	100 (78)	3.81
9.The Bridges of Madison County	11.54 (9)	51.28 (40)	28.21 (22)	6.41 (5)	2.56 (2)	100 (78)	3.63
10. Seinfeld	7.69 (6)	52.56 (41)	33.33 (26)	5.13 (4)	1.28 (1)	100 (78)	3.60

Question 7: I can understand pronunciation and intonation.

Movie Clips	5 Strongly Agree %	4 Slightly Agree %	3 Neutral %	2 Slightly Disagree %	1 Strongly Disagree %	Total % (N=78)	Mean
1. How to Introduce People in English	29.49 (23)	47.44 (37)	21.79 (17)	1.28 (1)	0.00 (0)	100 (78)	4.05
2. My Big Fat Greek Wedding	33.33 (26)	44.87 (35)	21.79 (17)	0.00 (0)	0.00 (0)	100 (78)	4.12
3. Rat Race	20.51 (16)	50.00 (39)	25.64 (20)	3.85 (3)	0.00 (0)	100 (78)	3.87
4. Forrest Gump	17.95 (14)	43.59 (34)	32.05 (25)	6.41 (5)	0.00 (0)	100 (78)	3.73
5. Cracking Up	20.51 (16)	44.87 (35)	33.33 (26)	1.28 (1)	0.00 (0)	100 (78)	3.85
6 When Harry Met Sally	11.54 (9)	47.44 (37)	35.90 (28)	3.85 (3)	1.28 (1)	100 (78)	3.64
7. Can I Take A Message?	5.13 (4)	60.26 (47)	30.77 (24)	3.85 (3)	0.00 (0)	100 (78)	3.67
8. Swingers	14.10 (11)	50.00 (39)	26.92 (21)	7.69 (6)	1.28 (1)	100 (78)	3.68
9.The Bridges of Madison County	8.97 (7)	51.28 (40)	28.21 (22)	6.41 (5)	2.56 (2)	100 (78)	3.50
10. Seinfeld	3.85 (3)	65.38 (51)	26.92 (21)	2.56 (2)	1.28 (1)	100 (78)	3.68

Table 2 Number of the students' views of Movie Clips on YouTube

No. of Time / Movie Clips	1	2	3	4	5	More than 5	Unfinished task	Total % (N=78)
1. How to Introduce People in English	24.36 (19)	17.95 (14)	17.95 (14)	11.54 (9)	10.26 (8)	10.26 (8)	7.69 (6)	100 (78)
2. My Big Fat Greek Wedding	39.74 (31)	25.64 (20)	15.38 (12)	6.41 (5)	2.56 (2)	1.28 (1)	8.97 (7)	100 (78)
3. Rat Race	33.33 (26)	16.67 (13)	15.38 (12)	11.54 (9)	3.85 (3)	3.85 (3)	15.38 (12)	100 (78)
4. Forrest Gump	29.49 (23)	15.38 (12)	16.67 (13)	7.69 (6)	2.56 (2)	6.41 (5)	21.79 (17)	100 (78)
5. Cracking Up	51.28 (40)	16.67 (13)	12.84 (10)	5.13 (4)	0.00 (0)	2.56 (2)	11.54 (9)	100 (78)
6. When Harry Met Sally	24.36 (19)	25.64 (20)	20.51 (16)	10.26 (8)	2.56 (2)	3.85 (3)	12.82 (10)	100 (78)
7. Can I Take A Message?	10.26 (8)	35.90 (28)	24.36 (19)	7.69 (6)	3.85 (3)	5.13 (4)	12.82 (10)	100 (78)
8. Swingers	19.23 (15)	19.23 (15)	12.82 (10)	7.69 (6)	2.56 (2)	6.41 (5)	32.05 (25)	100 (78)
9.The Bridges of Madison County	24.36 (19)	26.92 (21)	20.51 (16)	5.13 (4)	5.13 (4)	3.85 (3)	14.10 (11)	100 (78)
10. Seinfeld	21.79 (17)	21.79 (17)	15.38 (12)	8.97 (7)	7.69 (6)	1.28 (1)	23.08 (18)	100 (78)

Table 3 Students' attitudes towards enhancing listening skill through movie clips on YouTube

For the following, make a tick in one column.	5 Strongly Agree %	4 Slightly Agree %	3 Neutral %	2 Slightly Disagree %	1 Strongly Disagree %	Total % (N=78)	Mean
1. Watching English movie clips helps me improve my listening skills.	38.46 (30)	47.44 (37)	12.82 (10)	1.28 (1)	0.00 (0)	100 (78)	4.23
2. Watching English movie clips helps me understand vocabulary and phrases used by native speakers.	12.82 (10)	66.67 (52)	19.23 (15)	1.28 (1)	0.00 (0)	100 (78)	3.91
3. Watching English movie clips helps me understand English speaking culture.	21.79 (17)	55.13 (43)	19.23 (15)	3.85 (3)	0.00 (0)	100 (78)	3.95
4. I would like my teacher to use more English movie clips in class.	29.49 (23)	46.15 (36)	23.08 (18)	0.00 (0)	1.28 (1)	100 (78)	4.03
5. I would prefer to watch movie clips on my own in LMS than in the classroom.	12.82 (10)	50.00 (39)	34.62 (27)	2.56 (2)	0.00 (0)	100 (78)	3.73
6. Watching English movie clips is more useful than listening to a textbook CD.	55.13 (43)	37.18 (29)	6.41 (5)	1.28 (1)	0.00 (0)	100 (78)	4.46
7. The sound of the videos on YouTube go smoothly.	39.74 (31)	34.62 (27)	15.38 (12)	3.85 (3)	6.41 (5)	100 (78)	3.97
8. I felt frustrated when watching the clips.	5.13 (4)	7.69 (6)	57.69 (45)	20.51 (16)	8.97 (7)	100 (78)	2.79
9. The clips should be longer.	2.56 (2)	15.38 (12)	35.90 (28)	14.10 (11)	32.05 (25)	100 (78)	2.42
10. The characters speak too quickly.	38.46 (30)	38.46 (30)	12.82 (10)	10.26 (8)	0.00 (0)	100 (78)	4.05

Table 4: Preferences of English movie or TV program genres

Kinds of English movie or TV program	Comedy %	Action %	Horror %	Drama %	Documentary %	Romantic Comedy %
No of the Students	67.95 (53)	50.00 (39)	25.64 (20)	21.79 (17)	15.38 (12)	42.31 (33)

There are many potential benefits of using media clips to supplement classroom instruction in a foreign language conversation course. First, learning English through movie clips can help the students improve their listening skills. As shown in Table 3, 85.9% of the participants agreed that watching English movie clips helps them improve their listening skills and 75.64% would like their teacher to use more English movie clips in class. 92.31% of the participants agreed that watching English movie clips is more useful than listening to a textbook CD. Moreover, movies can help the learners to improve listening skills because they provide learners with practice listening to different forms of intonation and pronunciation. More than 60% agreed that they understood intonation and pronunciation in all movie clips.

Second, movies can provide the opportunity for vocabulary practice. 83.33% and 82.05% of the participants agreed that they could understand vocabulary. They are usually based around a theme or topic that can provide the context for vocabulary learning. More than 20% of the students were able to correctly answer the questions on the comprehension tasks on 8 out 10 movies in the first round. Though most of the movie clips were frequently repeated in three rounds, this repetition offers greater exposure to the words and can help to improve vocabulary acquisition. However, more than 10% of the participants were not able to finish the tasks. In addition to key vocabulary and structures, the students can learn about cultural issues of English speaking countries through movies. 62 % of the participants agreed or slightly agreed that watching the clips helped to understand vocabulary and phrases used by native speakers. Herron, Cole, Dubreil and Corrie (2000) offer evidence that showing videos in the classroom allows instructors to expose language learners to authentic cultural information. Practicing English listening skills through movies is more applicable for the students who do not get any regular English class to learn cultures in the target language.

Finally, one advantage of using clips and movies to supplement classroom instruction is the enjoyments students can experience when studying a subject that may be difficult. More than

70% of the students agreed that six of the movie clips were interesting and enjoyable. Nearly 50% or more of the students indicated that they could understand 5 of the 10 clips. Most of the participants indicated that watching English movies is an interesting and enjoyable tool for learning the language and improving their listening skills. This practice has the advantage of presenting a 'living language' to learners. Furthermore, watching movies over and over again can seem less monotonous because of the interesting stories of the movies.

Some people may argue that it is difficult to increase the listening skill through movie because it is difficult to understand the language, pronunciation, and intonation used by native speakers when they are speaking at a normal pace. 76.92 % agreed that the characters speak too quickly. However, if the students become used to English spoken at a natural speed, they will be trained to listen to English conversation and have better listening skill. Furthermore, the learners can learn the typical conversational styles used by native speakers.

When analyzing the students' perceptions of each movie and TV clip as well as their general viewing preferences, it can be seen that students were most engaged by clips from comedies and least by clips from dramas. In addition, when examining students' perceptions of the comprehension exercises, it can be seen that in 7 of the 10 clips 55% or fewer of the students agreed they were able to understand the instructions and purpose of the exercises. Additionally, for 6 of the 10 clips, less than one-half of the students agreed that the video-based exercises suited the clips. This indicates the necessity to carefully analyze media clip choices for those that are engaging and relevant to students as well as to develop exercises that suit the clips and the skill level of the students.

5. Conclusion

Most people enjoy watching movies. They can often be a welcome change from the routine of learning a foreign language. For the English learners, using movies for learning English can be really nice because it can help them improving their listening and speaking skills, it can also be useful tools in the learning of vocabulary and cultures, and the great benefit to use movies for learning English is that it is entertain the learners.

It is undeniable that the use of YouTube videos in English language is a valuable resource for teachers and students (Terantino, 2011). It provides linguistic input and encourages students to engage in the target language. There are a lot of advantages of using movies for enhancing students' listening skill. We can conclude that it can help them improving their listening skill, it can also be a useful tool in the learning of vocabulary and cultures, and the great benefit to use movies for learning English is that it is entertain the learners. So, the students should learn English through movies because it is already proven that it has many advantages.

6. Suggestion

It is important to realize that there are some limitations. YouTube is limited to what copyright restrictions allow. For example, after the students had finished their study for 5 weeks, the Rat Race clip **(**http://www.youtube.com/watch?v=PfgELYaSYhM**)** was no longer available on YouTube due to copyright infringement laws.

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Appendix A

Comprehension Exercises for English Conversation Course

Week 1: Greeting and Introduction

Movie 1: How to introduce people in English
(http://www.youtube.com/watch? v=NeEJhW0_gqA)
คำสั่ง Watch the movie and put a tick (/) in table for formal and informal introductions.

Introducing yourself and other people.	Formal	Informal
Conversation 1		
Conversation 2		
Conversation 3		
Conversation 4		
Conversation 5		
Conversation 6		
Conversation 7		
Conversation 8		
Conversation 9		
Conversation 10		
Conversation 11		
Conversation 12		
Conversation 13		
Conversation 14		
Conversation 15		
Conversation 16		
Conversation 17		
Conversation 18		
Conversation 19		

Answers: 1. Formal 2. Formal 3. Formal 4. Formal 5. Formal 6. Informal 7. Informal 8. Informal 9. Informal 10. Formal 11. Informal 12. Formal 13. Informal 14. Informal 15. Informal 16. Informal 17. Informal 18. Informal 19. Informal

Movie 2: My Big Fat Greek Wedding (http://www.youtube.com/watch?v=3vxZHU0oijE**)**

คำสั่ง Toula (woman) is bringing her future husband, Ian, and his parents to meet her parents, who are from Greece. Answer the questions.

1. In the car, everyone looks

a. happy b. excited c. bored d. nervous

2. The first thing Toula's father says is

a. Hello! b. Welcome to my home c. Good evening d. Nice to meet you

3. Toula's father introduces the family. What is the most common name?

a. Nick b. Dan c. Sara d. Tim

4. What does Toula's father do to Ian's father?

a. hugs him b. hits him c. sings to him d. asks him his name

5. What does Toula's mother say?

a. Good evening. Come in b. Hello, I am Maria c. So nice to meet you. d. What is your name?

6. What does Ian's mother give to Toula's mother?

a. pie b. bread c. cake d. bbq pork

Answers: 1. d 2. b 3. a 4. a. 5. b 6. c

Week 2: Giving Direction & Meeting people

Movie 3: rat race, giving directions scene
(http://www.youtube.com/watch?v=PfgELYaSYhM)

□□□□□□ According to the movie you watch, put the number in order to follow the direction.

.....A. Do you or do you not know where the interstate is?

.....B. Go 5.4 miles and you're gonna go up a big hill.

.....C. You want to go straight down here exactly 1.8 miles.

.....D. I'll bring you exit 14. It'll save you 30 miles.

.....E. Take the dirt road on the right. It'll take you to the interstate.

.....F. We're looking for the interstate.

.....G. Make a left at Tolem Pole Ranch.

.....H. Tell them about the shortcut.

.....I. You'll see a big yellow sign with graffiti on it.

.....J. Now they've lost their way.

Answers : 1.F 2.J 3.A 4.H 5.D 6.C 7.G 8.B 9.I 10.E

Movie 4: Forrest Gump (http://www.youtube.com/watch?v=tvKzyYy6qvY)

□□□□□□ This part is about when Forrest (boy) meets Jenny (girl) for the first time. Put the events in the correct order.

_____A. Jenny and Forrest run to a tree.
_____B. Forrest and Jenny hold hands.

_____C. Forrest is a grown man and sits on a bench remembering.

_____D. Jenny and Forrest read a book together.

_____E. Jenny asks Forrest if he is stupid.

_____F. Forrest sits down.

_____G. Jenny invites Forrest to sit next to her on the bus.

_____H. Jenny asks Forrest about his legs.

_____I. Jenny and Forrest shake hands.

_____J. Jenny introduces herself to Forrest.

Answers: 1. c 2. g 3. f 4. h 5. e 6. j 7. i 8. a 9. d 10. b

Week 3: At the restaurant

Movie 5: Cracking Up (http://www.youtube.com/watch?v=J5MpO9grPpk**)**

□□□□□□ The waitress at this restaurant gives the guests ALL the options on the menu. Circle what the man orders.

1. What kind of juice does the man order?

a. Apple b. Pineapple c. Watermelon

2. What kind of salad does the man order?

a. Cesar b. watercress c. lettuce

3. What kind of dressing does the man order for his salad?

a. cheese b. German c. vinegar & oil

4. What does the man order for the main entrée?

a. roast beef b. steak c. ribs

5. What is the last question the waitress asks?

a. dessert b. coffee c. how to pay the bill

Answers: 1. a 2. b 3. c. 4. b 5. c

Movie 6: When Harry Met Sally (http://www.youtube.com/watch?v=cnlm2e3EN78)

□□□□□□ Task 1. Listen to the short clip several times and fill in the gaps in the dialog.

Waitress: Hi. What can I 1) _____ ya?

Harry (man): I'll have a number 3.

Sally (woman): I'd like the chef 2) _____, please with the oil and vinegar on the side and the apple pie a la mode.

Waitress: Chef and apple a la mode.

Sally: But 3) _____ the pie heated and I don't want the ice cream on top. I want it on the side and I want 4) _____ instead of vanilla if you have it. But if not, then no ice cream, just whipped cream, but only if it's real. If it's out of the can, then nothing.

Waitress: Not even the pie?

Sally: No just the pie but then not 5) _____.

Waitress: Uh-huh.

Sally: What?

Task 2. Choose the best answer

1. Sally is very "picky" about ordering her food. Picky means:

a. easy going b. nervous c. careful d. excited

2. After Sally orders, Harry looks at her with what kind of look?

a. shocked b. scared c. romantic d. angry

Answers:

Task 1: 1. get 2. salad 3. I'd like 4. strawberry 5. heated

Task 2: 1. c 2. a

Week 4: Taking & Leaving a message

Movie 7: Can I take a message? Scene 2
(http://www.youtube.com/watch?v=oCbG64PG4LE)

คำสั่ง Watch the video and then answer the following information.

1. Hello, ...

a. I like to speak to a guest. b. I'd like to speak to a guest.

2. How is the hotel?

a. not very nice b. very nice

3. Where is the hotel located?

a. London b. New York c. Los Angeles

4. Her room number is.....

a. 533 b. 514 c. 543

5. Is there any bellman?

a. Yes b. No

6. She wants .....

a. king-size bedroom b. queen-size bedroom

7. She wants.....

a. a smoking room b. non-smoking room

8. Is she in a wrong hotel?

a. Yes b. No

9. Were the towels clean or dirty?

a. clean b. dirty

10. Who can help her to move out?

a. the front desk b. students

Answers: 1. b 2. a 3. c 4. b 5. b 6. a 7. b 8. a 9. b 10. b

Movie 8: Swingers Answering Machine Scene
(http://www.youtube.com/watch?v=vZChD_Gni8U)

คำสั่ง The man tried to leave a message for 6 times. Please find out the following information.

1. The name of the man is.....(CIMK)

2. The woman's name is.....(KNYCI)

3. His telephone number ..... (11 numbers)

4. The woman says.....(call/again/Don't/me/ever)

Answer : 1. MICK 2. NICKY 3. 21355546796 4. Don't ever call me again

Week 5: Apologizing

Movie 9: I apologize- The bridges of Madison County
(http://www.youtube.com/watch?v=OpyT6ysZdB4)

คำสั่ง Write down the words for apologizing that you hear from the movie.

The man: You want to leave your husband.

The woman: No, 1.....

The man: 2..... 3.....

The woman: What makes you have such a question?

The man: It's stupid. 4.....

Answers: 1. of course not 2. I'm sorry about that.3. I apologize.4. I'm sorry.

Movie 10: TV Program: "Seinfeld (Mix :introductions, small talk, invitations, leave taking)

(http://www.youtube.com/watch?v=NGVSIkEi3mM&feature=related)

คำสั่ง In this scene, Jerry (man) is going to introduce two of his friends (Elaine-woman and her boyfriend Aaron-man) to his parents. But there is something strange about the way Aaron talks to people.

1. Elaine rings the buzzer. How does Jerry invite them into the apartment?

a. Come in! b. Come on up! c. Come on! d. Come here!

2. Fill in the blanks

Jerry: She wants to say _____. She's with her new _____.

Mom: What's he _____?

Jerry: He's _____. A bit of a "close talker".

3. How long will Jerry's parents be in town?

a. a few more days b. two more days c. three more days d. four more days

4. Where are Jerry's parents going next?

a. London b. Rome c. Texas d. Paris

5. Aaron invites everyone to the Metropolitan Museum of Art. Tick all the responses you hear.

_____ a)Are you sure? _____ f)Ok. Let me get my bag.

_____ b)Where is it? _____g)Ok. Let me get my coat.

_____c)I'm ready. _____h)I don't think so.

_____d)Right now. _____i)I have a meeting.

_____e)After lunch _____j)I have plans.

6. Aaron and Jerry's parents leave the apartment. Fill in the blanks of the phrases they use.

a. We're _____b. Have a good _____ c. See everybody _____

7. Aaron is a "close talker". A "close talker" is someone who talks too_____

a. far away b. near c. loudly d. quietly

Answers: 1. b 2. hi, boyfriend, like, nice 3. c 4. d 5. a, c, d, g, h, j 6. off, time, later7. b

Media Clips

Movie 1: "How to Introduce People in English" (a montage of scenes from TV series)
(http://www.youtube.com/watch?v=NeEJhW0_gqA)

Movie 2: "My Big Fat Greek Wedding" (scene: parents meeting for the first time)
(http://www.youtube.com/watch?v=3vxZHU0oijE**)**

Movie 3: "Rat Race" (scene: giving directions)
(http://www.youtube.com/watch?v=PfgELYaSYhM**)**

Movie 4: "Forrest Gump" (scene: Forest meets Jenny for the first time)
(http://www.youtube.com/watch?v=tvKzyYy6qvY)

Movie 5: "Cracking Up" (scene: ordering dinner at a restaurant)
(http://www.youtube.com/watch?v=J5MpO9grPpk**)**

Movie 6: "When Harry Met Sally" (scene: ordering lunch at a diner)
(http://www.youtube.com/watch?v=cnlm2e3EN78)

Movie 7: "Can I Take A Message?" (Scene 2 from ESL educational video)
(http://www.youtube.com/watch?v=oCbG64PG4LE)

Movie 8: "Swingers" (scene: message left on answering machine)
(http://www.youtube.com/watch?v=vZChD_Gni8U)

Movie 9: "The Bridges of Madison County" (scene: apology)
(http://www.youtube.com/watch?v=OpyT6ysZdB4)

Movie 10: "Seinfeld" (scene: a group of people make plans for the day)
(http://www.youtube.com/watch?v=NGVSIkEi3mM&feature=related)

Appendix B

Questionnaire Part 1

Name…… Class……..No……

Instruction Please put a tick √ to indicate your opinion to show your attitudes towards your listening skill through movie clips on YouTube

Attitude Measurement	5	means	Strongly Agree
	4	means	Agree
	3	means	Neutral
	2	means	Disagree
	1	means	Strongly Disagree

Week ..... Date……

Movie ..... Title of the movie:.....

	Attitudes				
	5	4	3	2	**1**
1. The movie clip is interesting and enjoyable.					
2. I can understand the movie clip.					
3. I can understand the instructions & purposes of the exercises.					
4. The video-based exercises suit the movie clip.					
5 The exercises are challenging.					
6. I can understand vocabulary.					
7. I can understand pronunciation and intonation.					

Round	1	2	3	4	5	6	7	8	9	10
Points										

Questionnaire Part 2

Name.....Class.....No.....

Questionnaire 2

Purpose: To assess students' perceptions of the usefulness of watching movie clips as a supplemental material in an English Conversation course.

Directions: Please tick the answer that most applies to you.

1. How often do you watch English TV programs?

☐ Everyday ☐ 1-2x/week ☐ 1-2x/month ☐ 2-4x/year ☐ Never

2. How often do you watch English soundtrack movies?

☐ Everyday ☐ 1-2x/week ☐ 1-2x/month ☐ 2-4x/year ☐ Never

How often do you watch….	Always	Usually	Sometimes	Seldom	Never
3. English movies with Thai subtitles?					
4. English movies with English subtitles?					
5. English movie with NO subtitles					

6. What kind of English movie or TV program do you enjoy watching? Circle all that apply.

COMEDY ROMANTIC COMEDY DRAMA

ACTION HORROR DOCUMENTARY

For the following, make a tick in one column.	5 Strongly Agree	4 Slightly Agree	3 Neutral	2 Slightly Disagree	1 Strongly Disagree
1. Watching English movie clips helps me improve my listening skills. (paralinguistics: facial expression and gesture, visuals).					
2. Watching English movie clips helps me understand vocabulary and phrases					

used by native speakers.					
3. Watching English movie clips helps me understand English speaking culture.					
4. I would like my teacher to use more English movie clips in class.					
5. I would prefer to watch movie clips on my own in LMS than in the classroom.					
6. Watching English movie clips is more useful than listening to a textbook CD.					
7. The sound of the videos on YouTube go smoothly.					
8. I felt frustrated when watching the clips.					
9. The clips should be longer.					
10. The characters speak too quickly.					

http://www.scribd.com/doc/17701719/List-Script-bse-bahasa-inggris-kls-8-by-gie 16p.
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http://www.scribd.com/doc/17701675/bab10-bse-bahasa-inggris-kls-8-by-gie
4p.http://www.scribd.com/doc/17701653/exercise-2-bse-bahasa-inggris-kls-8-by-gie 24p.
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http://www.scribd.com/doc/17701490/bab-5-bse-bhs-inggris-kls-8-by-gie 28p.
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http://www.scribd.com/doc/17701362/bab-exercise1-bse-bhs-inggris-kls-8-by-gie 24p.
http://www.scribd.com/doc/17701343/bab-3-bse-bhs-inggris-kls-8-by-gie 20p.
http://www.scribd.com/doc/13486602/Untitled 8p.

Social Media as a Valuable Teaching Tool When Used Alongside Traditional Teaching Methods at ITESI

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Abstract

Currently, most college students have at their disposal an electronic device that allows them to access social networks, blogs, forums and other virtual spaces that approach them to visual content, cultural, leisure and entertainment.

Classes taught in the Engineering Computer Systems in Instituto Tecnológico Superior de Irapuato (ITESI) are in the traditional way, as far as the content allow; those classes that are specifically developed using the technology are in computer labs, environments software development and configuration devices.

Regardless of the classes in question, it is necessary for communication between students and teachers be as rapid, continuous and effective. When present in class, communication is effective, but when you need to answer any questions outside of class, social networks are the solution to a low cost and with satisfactory results. They have been successful both academically and socially, which has resulted in better grades and higher learning in the various areas where these tools are applied.

To successfully implement the use of devices such as social media combined with traditional teaching, it is necessary to have bases, rules and commitments from all involved.

The objective of this research is showing significant learning compare before and after applying the use of devices and social networks. In addition to assessing the impact these tools have on the development of the teaching-learning process. To achieve this, it will take a sample of 25% of the student population and 3 different classes will be the evaluation environment.

Introduction

The information and communication technologies (ICT) can contribute to universal access to education, equality in education, the practice of teaching and learning quality and professional development of teachers, as well as address management and more efficient administration of the education system.

UNESCO is implementing a comprehensive and integrated strategy with regard to the promotion of ICT in education. Access, integration and quality are among the major challenges that ICT can address. The UNESCO Intersectoral Platform for ICT enhanced learning addresses these issues through the joint efforts of its three sectors: Communication and Information, Education and Science. (UNESCO, 2013)

The educational model for the twenty-first century is the model that is currently used and applied in higher education in Mexico. This model suggests that education should be based on the acquisition of skills by the individual. This model, in training and skills development is the response of the National System of Technologic Institutes to the circumstances of today's world, where economic, social, and cultural policies are significantly bounded by globalization, context, this, in the education itself faces the changing era of new technologies of information and communication, and the rapid development of scientific and technological knowledge. (DGEST, 2012)

In the current statistics, both worldwide and in our country, it is clear that is growing significantly the use of the same, which is to regard them as feasible spaces to deliver educational information to students, one once connected, they can use their time to consult educational content and interact with teachers and other students. (Argüelles, 2013)

Experimental design

The Instituto Tecnológico Superior de Irapuato has between its educational offer the Computer Systems Engineering career. This career has approximately 700 students divided into 12 semesters, of which 70% have a mobile device within reach (phone, ipod, tablet, laptop).

This career classes are taught in a traditional way by being a requirement of public education, however, this modality is being supplemented with different and new emerging techniques and methodologies, which expands the opportunity for a greater number of students are the scope of training and information regarding their educational plan.

In this sense, nowadays already available different information sources, which are flexible to adapt to any approach, including education, which, in this case, is the subject of this investigation and thereby increase the utilization claim educational.

This proposal focuses on meaningful learning of students in Computer Systems Engineering from the semesters 3 to 7. The review and evaluate aspects are varied and diverse, among which are the use of mobile devices, the averages of use, access to communication networks, the amount of materials and tasks by group, among others. Before and after the study reviews the conditions for determining the significance of research. (DE HARO, 2012)

It aims to achieve the following benefits:

- Increase student achievement
- Reduce failure rates
- Clarify communication between students - teachers – students
- Generate virtual studio spaces.

Model

A model is a theoretical-conceptual representation, which allows a system approach or set of phenomena in order to facilitate their studies, understand their processes and eventually predict their behavior.

This study was divided into 3 stages to identify the states suitable for achieving the objective. The first stage is the diagnosis of the current situation, the second stage is the design and implementation of strategies and communication and learning metrics. The third stage is the interpretation of the results.

First stage. In a study by the Mexican Internet Association (AMIPCI) indicates the current status of the population with respect to technology and social networking. The following describes some of these data.

Whereas internet users aged 6 to more than 55 years, the divisions by groups are shown in Figure 1. The group we are interested in the study for research are mentioned groups ranging between 12 and 17 and those between 18 and 24 years, indicated with orange and green. Regrouping the same data, it follows that in total are the 43% of users surveyed. This age range between 12 and 24, is where the majority of college students, making useful information collected.

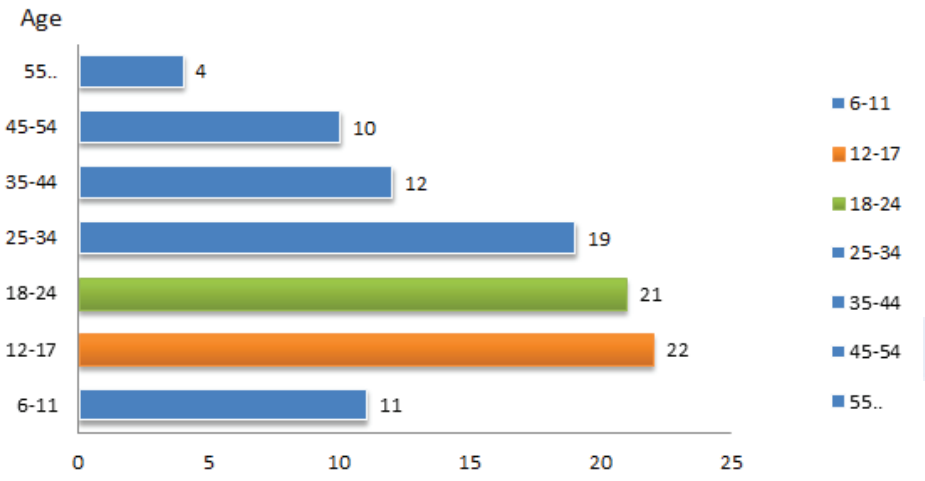

Figure 1 Internet Users. Age groups (Juárez, 2012)

Figure 2, obtained from the same study show the main activities of users each accessing internet. The three main ones are to send or receive e-mail, also for finding information and then to access social networks. Access to social networks corresponds to 82% of the main

activities of Internet users. After this understanding, it is possible to use and use of social networks to focus on activities that result in use of academic content.

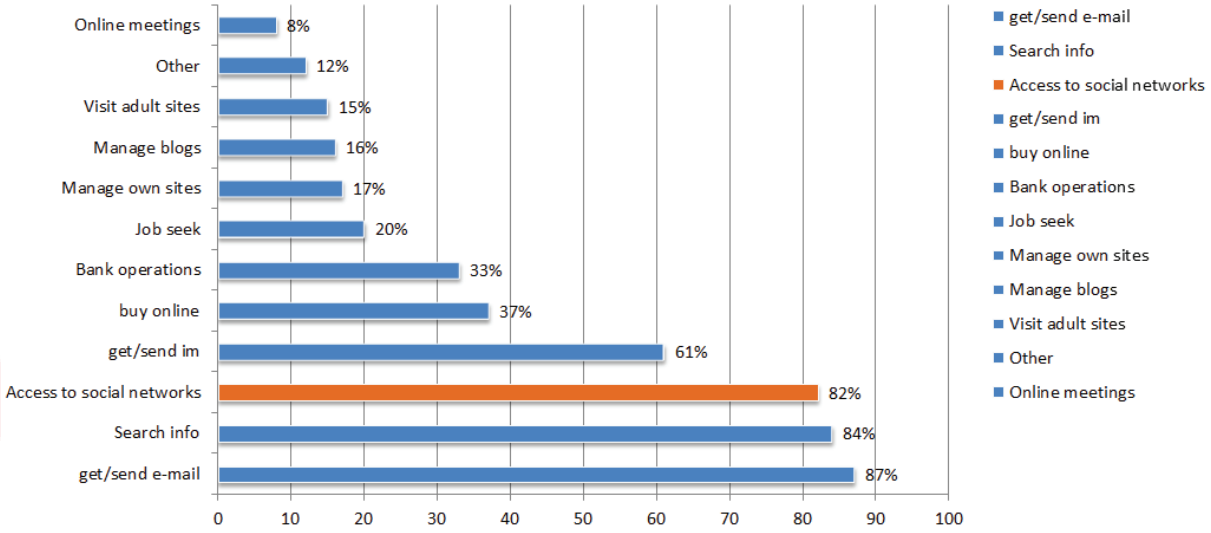

Figure 2 Main activities online (Juárez, 2012)

The intenet users were questioned about their use in social networks, if they have any profile or participated in any of the sites, the results are shown in Figure 3, which shows that 93% of respondents respond positively. Only 7% of respondents have resisted the use of social networks.

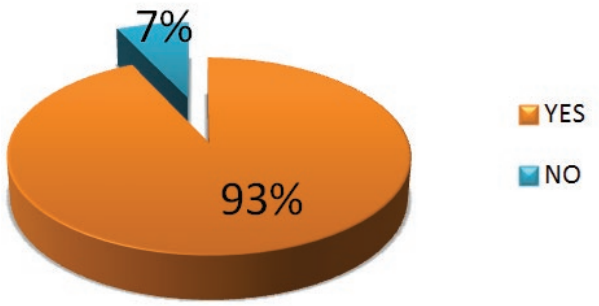

Figure 3 Social networks users (Juárez, 2012)

In traditional classes taught at the engineering career computer systems are developed several different techniques and methods of teaching and learning. The educational activities are used daily in the classroom are:

- Individual and group exhibitions
- Class exercises
- Teamwork
- Laboratory practices
- Homework

These activities allow students and teachers to take advantage as possible of the topics for each subject, which has been achieved to date with more than 10 generations of graduates.

Similarly, students have a social network usage on average 4 hours a day, according to surveys of students in the study group. Half of that time is during the college classes.

This deduction allows research can focus on using the tools provided by social networking and fast communication for effective teaching - learning. At this time the efficiency of communication between students and teachers regarding class activities is at low level. Because the solution of doubts and expansion of information is limited to the classroom.

The study began with the inclusion of basic tools of social media to observe the behavior and measure the efficiency of communication. A survey to offer programming workshops was the first thing was done with the following results.

So later developed other content on the same platform of Facebook and moodle. Some of which were readings, assignments, practical exercises. This aims to bring the content to students so that they were accessible at any time during the course.

Second Stage. In Figure 4 shows the step to create the survey on Facebook with the description of the survey, in which indications are molded so that users of the tool are clear about what should be done. In addition you must define the language of the survey, in this particular case defined in Spanish of Mexico.

Figure 4 Quiz step 1 (FACEBOOK, 2013)

In Figure 5 shows the second stage of construction of the survey, which identifies the questions that will be part of this exercise. Five questions were added to assess the interest of the students in that class will impart additional workshops. In this exercise we chose only collect this data, it will be the guideline for developing classroom activities traditionally.

The advantage of using these tools is that you can have wide dissemination of information and then, with a little luck indications and effective communication is generated. Teachers

give instructions during class to review the survey and students come to the site to answer questions. Once students review the survey and if interested, you generate a direct and effective communication between students and teachers.

Figure 5 Quiz step 2

The last part of the configuration of the survey is to publish it. Share the survey with the entire list of contacts or open to the general public depends on the margin of the population that dese cover. In this exercise it was decided that it was focused on the contacts, which are students and teachers of Engineering in Computer Systems. In Figure 6 illustrates it.

Figure 6 Quiz step 3

The survey was published for two weeks, during which 50 students were invited to participate in the survey. During this period gave rise to various questions and doubts about the outcome of the survey, that is, if they were to conduct the workshops, the usefulness of the results and so on. In the third stage we review the results obtained with this exercise.

Third stage. This stage is very important to exercise because it is the interpretation of survey results. It got good response from students and some teachers. In Figure 7 shows involving 46 people from a group of 50 students who were invited to answer the survey. Was obtained 92% participation. There are several reasons why it was not possible to 100%, within which are:

- Lack of internet
- apathy
- disinterest

- Lack of access to a device / equipment

Even with these details, the percentage obtained is acceptable and it is possible to work significantly with most involved.

Figure 7 Quiz response

The results derived from the application of this exercise are shown in Figure 8, which shows the interest on a particular topic, mobile device programming. The workshop programming mobile devices is chosen to start with the development of these workshops in person.

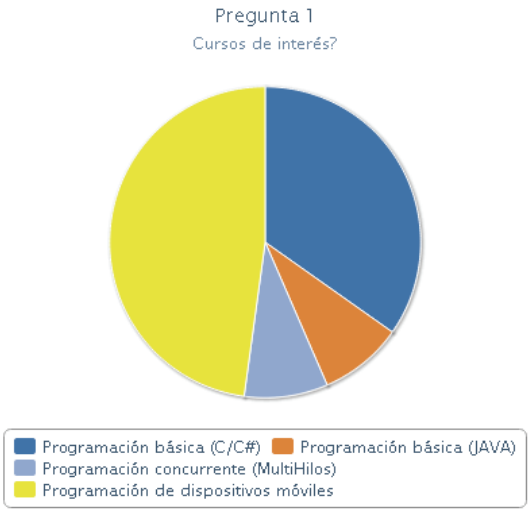

Figure 8 Quiz reply

One of the important aspects of the survey and that depends on the total population of the study is the genus to which it is addressed. In Figure 9 shows that the majority of respondents correspond to the male gender. In Mexico, in engineering careers the population is predominantly male. Approximately 20% of engineering students are women, and in this exercise is quite remarkable this situation.

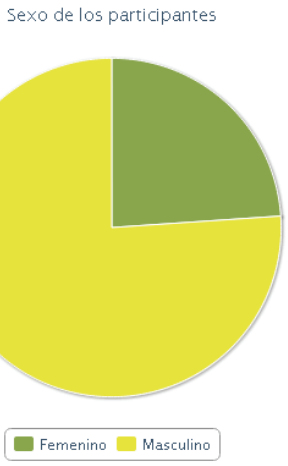

Figure 9 Quiz gender

Finally, another important aspect is the source from where, students review and answer the survey. In Figure 10 shows that approximately 95% of those surveyed use some computer equipment to answer the survey. The rest is done from a mobile device.

Engineering degree in Computer Systems, most students have a laptop computer to perform the exercises and classroom practice. Additionally, the institution has available three computer labs that are used to class, practice or external use. It is understandable then that, access to web platforms will be from any type computer equipment desktop / laptop as seen in the result of this evaluation.

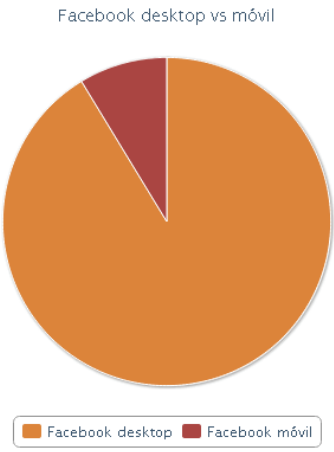

Figure 10 Desktop vs mobile

After performing this exercise and observing the response of students to communication and the interest generated by this participation, additional activities were developed to follow through this platform. Some of them are: lectures, exercises, assignments, among others.

Results

The results of the application of this exercise are acceptable, since 92% stake and the workshops allowed them to generate effective communication between teachers and students without having to be located in the same physical location in a traditional way.

From these activities in social networks has generated greater contact and streamlined the flow of information between the same classmates and teachers who teach a particular class.

Conclusions

Social networks provide a wide range of communication possibilities between students of different grades and the teachers who teach them lessons. In my case, I decided to create groups of students by subject for better information management and avoid mixing the activities between them.

It is recommended to properly review the information that is provided to members of such communication. Whereas copyright and privacy of certain information.

Although at this time, social networks are efficient to streamline communication, should be considered as a work tool without forgetting the traditional ways and methods that, according to history, it has proven to be and will remain the most effective and efficient for this purpose.

The teaching and learning is the responsibility of everyone involved, and social networks are one of the tools that can be used to access content firsthand, checking their sources. It should be ready and responsibility to manage the information that is distributed to achieve this goal, the improvement of teaching-learning process.

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Each of the students and teachers who participated in this study.

"I prefer to think for myself": Upper Secondary School Pupils' Attitudes towards Computer-based Spanish Grammar Exercises

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The European Conference on Technology in the Classroom 2013

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Abstract

There is an increasing pressure from school leaders in many countries for teaching to be based solely on ICT tools. The present study is interested in what this does to pupils' attitudes towards ICT in language classrooms. Is a digital monopoly a good way for pupils to learn languages? Is it what they want?

To understand for which tasks students feel that computers are the appropriate tool, a qualitative survey mapping upper secondary school pupils' attitudes towards the ICT use for learning Spanish has been conducted. The study looks at ICT use for grammar practice. A group of pupils have completed lesson diaries, reflecting upon web-based grammar exercises, comparing them to paper-based exercises, and a questionnaire survey on general attitudes towards ICT in language learning.

The results indicate that the majority of participating pupils ask for a greater variety of tasks and see a need also for traditional forms of grammar practice, especially written exercises which give time to reflect upon grammar, syntax and vocabulary. They want ICT use to be an option, not a constraint. Many complain on flaws in the design of web-based grammar exercises. This shows a need for more research into the effects of different designs of web-based tools. It also becomes clearer that decision-makers and teachers must focus more on the pedagogical purpose of learning tasks and that the first question to ask is: "How can I teach this in a way that suits my pupils?" rather than: "How can I add more ICT to my teaching?".

Introduction and background

I am one of many teachers witnessing the ICT revolution reaching our schools, as an ambitious 1:1-laptop programme is being implemented in the public upper secondary school where I teach. When private schools started offering free laptops, it was seen as a way to attract pupils from public schools (Lund, 2006, 2007; Odlander, 2007). The current 1:1-implementation is motivated otherwise: we need to prepare today's youth for tomorrow's future, increase entrepreneurial thinking and find new teaching methods to enhance pupils' learning (examples from discussions among local school authorities). Educational challenges like these are seemingly all to be solved by putting computers in front of our pupils. As is often the case, much thinking and dreaming goes on before the computers arrive, but fewer efforts are done after that to make something out of the technology (cf. Svärdhagen et al., 2011). A worrying tendency, locally but also reported in international reports (e.g. Zucker et al., 2005), is the wish to use ICT to save money on other teaching material.

Many researchers and opinion-makers seem fairly agreed on the need to use ICT in school. Cobo Romaní & Moravec (2011) discuss how Drucker's (1959) vision of the "knowledge worker" has realised itself and that pupils need to know how to handle the new technique, an opinion expressed also in Motteram (2011). Cobo Romaní and Moravec observe, nevertheless, that this does not necessarily mean that ICT is always the best method. The voices heard on ICT in school are, however, mostly focusing on the need of getting more teachers to use ICT, rather than discussing when, how or why (from a pedagogical point of view) ICT should be used.

Computers are often thought to automatically motivate pupils (Zucker et al., 2005; Ware et al., 2006; Kahraman et al., 2011; Edmunds et al., 2012; AlAmmary, 2012; Tallvid et al., 2009). According to Usta (2011), however, neither traditional nor web-based teaching methods influence on pupils' attitudes towards computers or the Internet; considering this, the methods per se would not automatically constitute a motivating (or demotivating) factor; what is needed is rather a thought-trough and varied teaching adapted to student needs and preferences. There are indications that pupils grow weary of computers as the charm of the novelty wears off (Wiebe et al., 2010; Lim et al., 2006; Warschauer, 1996; Chiu et al., 2013). Few seem to bother, though, to ask pupils what they perceive as instructive methods.

As Svensson (2008) and others (e.g. Enkvist, 2002, 2011; Roszak, 1994) point out, there is sometimes an "almost regularly occurring overconfidence in new media" (Svensson, 2008, p. 145, my translation). This overconfidence may be forcing ICT-based teaching methods prematurely on teachers and students, thus neglecting other ways of teaching and learning, as well as impeding a well thought-out use of ICT tools in classroom practice. Ware et al. (2006) stress that, "Justification for the new uses of technology must be based, not on unmitigated, unrealistic optimism, or on uninformed, a priori rejection, but on empirical data matched to particular uses in specific contexts." (p. 4). Chapelle (2011) also says that it is difficult to conclude what are the effects of ICT use in language instruction, and Buskqvist et al. (2011) write that it is "problematic that implementations of ICT-based forms or elements of instruction are based neither on scientific evidence nor are followed up by scientific studies" (pp. 68 – 69; my translation). In *New Millennium Learners*, the OECD admits the "intrinsic difficulty when researching the effects of technology on educational performance", and mentions "inconclusive results" (OECD, 2008, p. 7; cf. Rosén, 2012), a view shared by Chapelle (2011). According to Nutta (1998), ICT-based grammar instruction can be as effective or more so than traditional one, while Lim et al. (2006), on the other hand, have found that CALL does not necessarily give better results than traditional instruction. Kroksmark (2006) suggests that pupils might prefer traditional teaching. Interestingly, Wiebe

& Kabata, (2010) have found in several studies that teachers perceive ICT use as more useful than many pupils do, and Svärdhagen et al. (2011) point out that school leaders, in their turn, put more faith in it than teachers do. One might suggest it is time to find out more about what the pupils who use the technology actually think.

Aim of the present study

A better understanding of pupils' views on purposeful ICT use in language learning could help us construct better programs and software, and make us understand what needs to be studied more (Larsson, 1986). To be able to perform research on how ICT use changes learning outcomes, we need to gain a better understanding of what pupils do with their computers in school, and what their feelings towards these study methods are (cf. Wiebe et al., 2010).

According to Ayres (2010), ICT is particularly useful for practicing spelling, writing and grammar skills, but less motivating in other cases. The present study is particularly interested in situations where ICT can be perceived of as obstructing or disrupting the learning, or simply not functioning well. This is less studied than ICT as a motivating factor; cf., though, Granath et al. (2008) and Andersson (2010), among others.

The aim of the present study is, thus, to investigate attitudes among Swedish upper secondary school pupils towards ICT use for Spanish grammar learning. In order to clarify these opinions, computer-based learning methods are compared to "paper-based" methods. This can hopefully contribute to a better understanding of learning processes in 1:1 language classrooms and of pupils' views on appropriate ICT use for language learning.

The main research questions are:

- When do pupils see computers as an appropriate tool for learning Spanish grammar?
- When do they not see them as appropriate?
- What didactic and scientific implications can be drawn from these results?

Methods

Data were collected at three occasions during the autumn of 2012, using two lesson diaries and a questionnaire. In both diaries, the pupils evaluated and reflected on the teaching methods and grammar exercises they had worked with. The questionnaire, designed according to guidelines in Dörnyei (2010, chap. 2), focused on general attitudes towards computer-based and paper-based grammar learning. The study shows the pupils' thoughts over a few months, thus reducing the issue of attitudinal changes over time (cf. Dörnyei and Ushioda, 2011).

The diaries and the questionnaire were distributed through a course management system (CMS)[1] used at the school and chosen for practical reasons, being already there, ready to be used and known to the pupils.

For the lesson work preceding the lesson diaries, online exercises were chosen to reflect types of exercises easily accessible on the internet and regularly used at the school of current

[1] See www.itslearning.com. "Courseware", "virtual learning environment", "learning management system" are other terms for this kind of platform (Svensson, 2008; Cavus et al., 2010).

interest.[2] The exercises consist of fill-in-the-blanks, matching, verb conjugations exercises and similar activities, which, according to Tomlinson (2011), still make up the major part of self-access online material for language practice. The paper-based exercises were produced by teachers or taken from a Spanish textbook (Vanäs Hedberg et al., 2008), and other commercially available material such as Grönwald (1999a, 1999b). The main difference between the exercises was that the paper-based ones also contained sentences to translate to and from Spanish, which will be further commented on later.

The analysis of the lesson diaries and the questionnaire follows a theme-based qualitative content analysis, inspired by phenomenographic methods such as described by Larsson (1986).

Participants

Twenty-six pupils in a group of twenty-seven, age 17, gave their informed consent to be part of the study. The average answer rate was 89%. There were 6 boys and 21 girls, reflecting the uneven distribution of Swedish language students at their level (Lannvik Duregård, 2010). The participants being my own pupils, I have avoided to discuss views on learning methods or in other ways alter their opinions. A variety of teaching methods has been used, involving computers as much as other modalities. It has also been clearly pointed out that the study has no relation to grading or other forms of assessing their language skills.

The group was chosen for its mix of pupils from different study programmes: the Arts Programme (henceforth "Arts", 5 pupils); the Business Management and Economics Programme ("Economics", 4 pupils); the Natural Science Programme ("Science", 15 pupils); and the International TIME Programme[3] (1 pupil). The TIME pupil's answers are analysed with the Science pupils'. This is their sixth year of Spanish studies and their Spanish proficiency corresponds approximately to the B1 level of the CEFR scale (cf. Skolverket, 2013). They have their own laptops, provided by their schools.

A note on terminology

Exercises, grammar explanations, etc. in books and on loose sheets of paper are referred to as "paper-based", exercises etc. in digital form as "computer-based". The term "online" is used for explanations and exercises on the Internet. The term "ICT" (information and communication technologies) is used for discussing not only computers but other digital technologies as well (cf. Kern, 2006, p. 185).

Results and reflections

Results from Lesson diaries

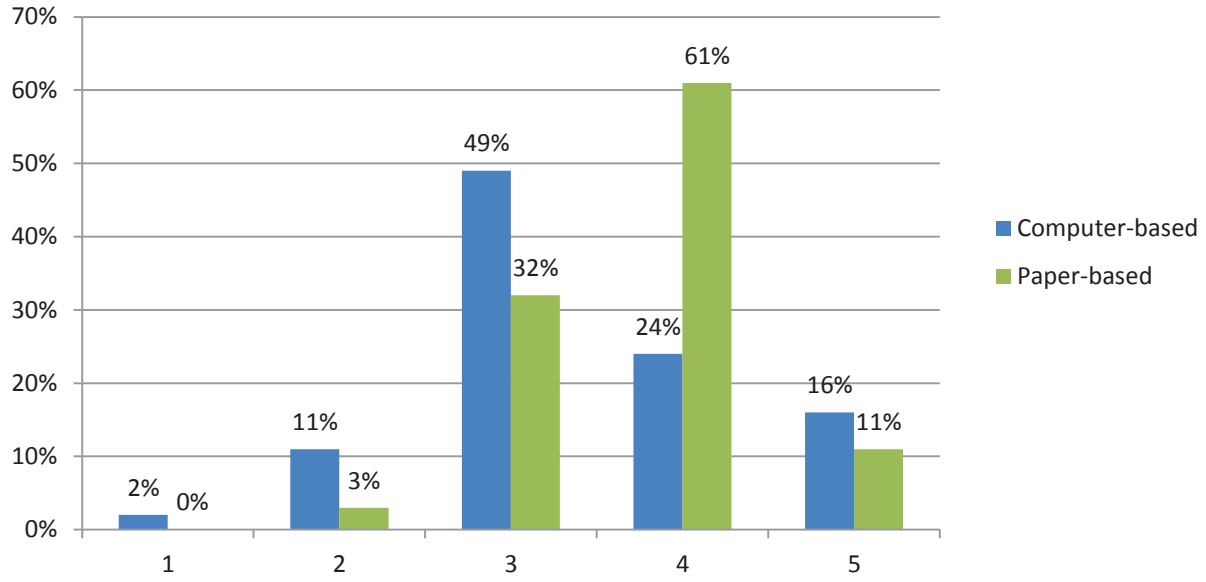
The lesson diaries focused on pupils' perceptions of grammar exercises on the Spanish future tense and gerund constructions.[4]

According to Edmunds et al. (2012), using the "Technology Acceptance Model" developed by Davis (1989), the perceived ease of use and the perceived usefulness influence on the user

[2] Established through personal experience and discussions during language teachers' conferences. The online exercises were mainly from http://cvc.cervantes.es/ensenanza/actividades_ave/aveteca.htm and http://www.ver-taal.com/.
[3] This is a Natural Science programme specialising in "telecommunication, IT, media and interactive entertainment" (Karlstads kommun, 2012).
[4] These areas were part of the participants' on-going curriculum.

acceptance of a technology. Bearing this in mind, the pupils were asked to grade the instructive value of the computer-based exercises, on a Likert-scale from 1 to 5. Diagram 1 shows the mean percentage from both diaries.

Diagram 1 – Perceived instructive value of exercises (group level)

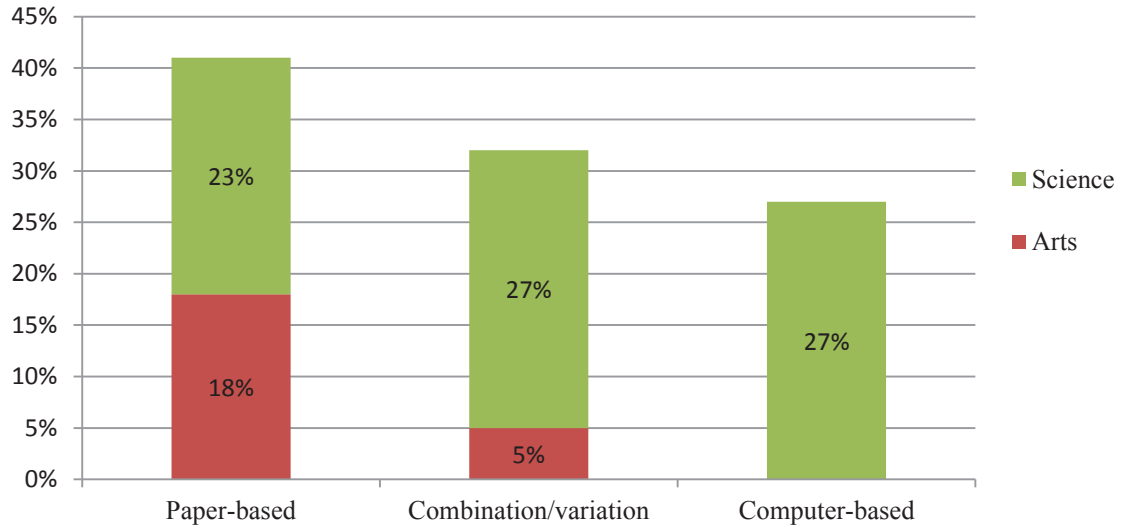


More pupils rated computer-based exercises than paper-based ones "5", but on a whole they preferred the paper-based exercises. Views differed more within the computer-based exercise answers. The Science pupils were more negative to computer-based exercises than the other pupils. It is unlikely that this is due to differing computer skills or experience, as most of the pupils considered their computer skills good (Diagram 3).

The computer-based exercises rated higher in the second diary than in the first. The most common rating was still "3", though, whereas the perceived instructive value of the paper-based exercises continued to rate higher than the computer-based. The increase in popularity for the online exercises can be explained by the fact that they were better structured than the exercises in the first lesson diary. Pupil 8 (Science) commented that the instructions were easy and that her opinion depended "on the quality of the web-sites".

When asked which kind of exercise they generally prefer, (keeping instructive value in mind but also considering other criteria such as being fun, user friendliness, etc.), the pupils answered as in Diagram 2. (No Economics pupils answered this question.)

Diagram 2 – Preferences: computer-based or paper-based exercises



There was a slight preference for paper-based exercises. Some of the motivations for this were that the pupils felt that they learned better when they wrote by hand, that it was easier to focus on the task and that they "sort of get the feeling in the hand" (pupil 16, Arts) when writing by hand.[5] Every Arts pupil but one preferred paper-based exercises, and no one wanted only computer-based exercises. Only 6 out of 22 pupils (27%) preferred to use only the computer, none of them Arts pupils, while the remaining 73% preferred to work with paper-based exercises or with a combination. This wish for combined teaching methods is in line with Motteram's (2011) opinion that web-resources do not cross out the use of text-books but can be a way to enhance them or update their information. These results might also be compared with Wiebe et al. (2010), saying that, "students chose their textbooks to be the most effective for materials in their course" (p. 226) and Hegelheimer et al., (2006) who write that "learners often want to focus on form and wish for a pedagogical tool to serve as a reference and an easy-to-use resource" (p. 259).

In the general comments on computer-based and paper-based exercises, only one pupil thought that the paper-based exercises were "fun"; many appreciated them, however, seeing them as instructive and presenting them with a good opportunity to review old knowledge and learn more. Several pupils mentioned the instructive value of tasks involving translation of entire sentences, (something rarely seen in computer-based exercises), and asked for more of them. In a Swedish school context, this is worth noticing, as the national curriculum for foreign languages does not include translation (Skolverket, 2013; cf. Council of Europe, 2001, chap. 2.1.3).

Several pupils stated that they learned more easily when working with pen and paper. Only three pupils believed that they learned more from online exercises then from paper-based, and some pointed out that a combination of methods is preferable. One pupil (5; Science) said that online exercises facilitate revising grammar at home, but others thought that papers are easier to save for reviewing. The variation of working with both paper-based and computer-based exercises also made it easier for her to work for longer without getting tired or bored. Another pupil (2; Science) commented that being able to choose from many different types of

[5] Cf. Longcamp et al. (2008) and Velay et al. (2004a, 2004b), for neurocognitive studies where young and adult learners recognised and remembered letters better when they had learned them by handwriting, compared to typing on a computer.

exercises makes it easier to cater for different learning styles. A few pupils preferred the online exercises because they did not have to keep any papers, whereas others wanted papers as they felt that it was easier to gather all the papers in one place and keep them for reviewing or studying for tests later.

Results from the Questionnaire survey

The questionnaire focused on general attitudes towards the use of ICT, compared to paper-based methods. Questions were also asked about general computer competence and confidence, and computer use in and outside of school.

Computer competence and general computer use

As indicated in Diagram 3, a majority of the pupils had high or very high confidence in their computer competence. Most of them were frequent computer users at home and at school (Diagrams 4 and 5). Negative attitudes towards the use of ICT can apparently not be explained with lack of computer competence or experience, in this study.

Diagram 3 - Estimated computer competence

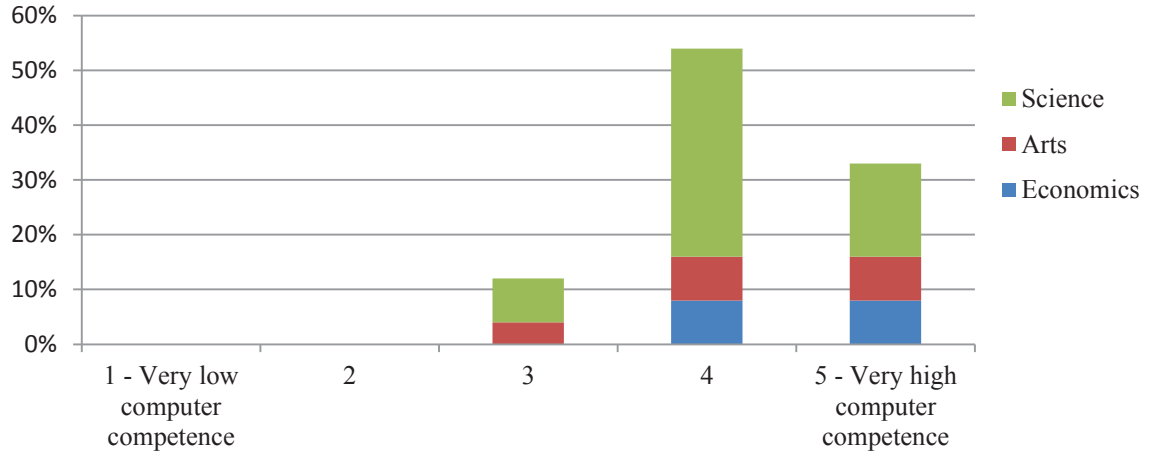


Diagram 4 - Frequency of computer use at home for school purposes

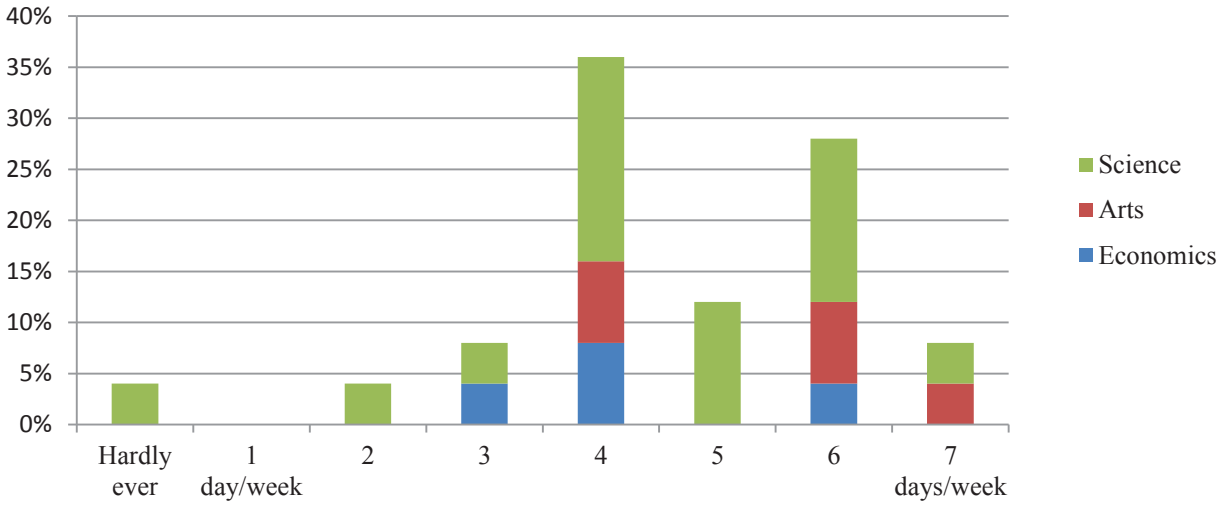
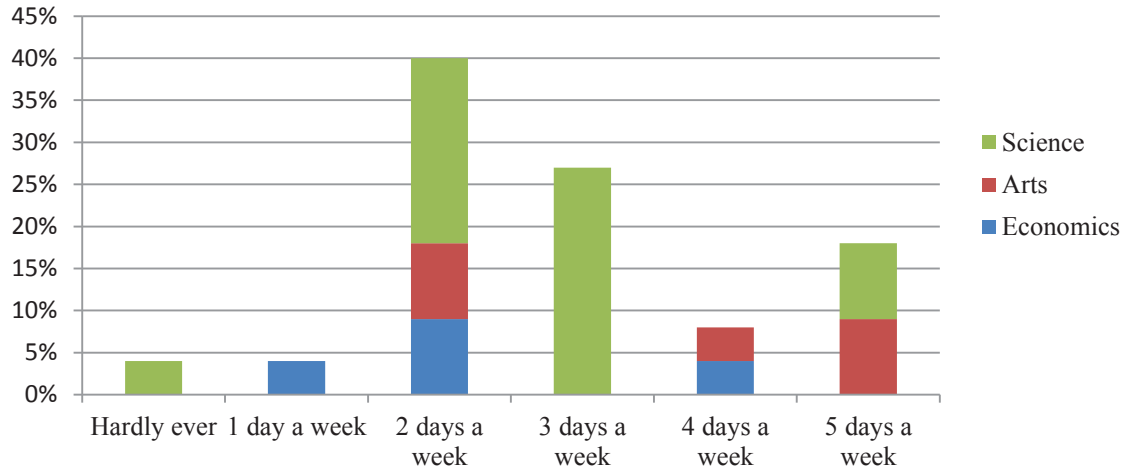
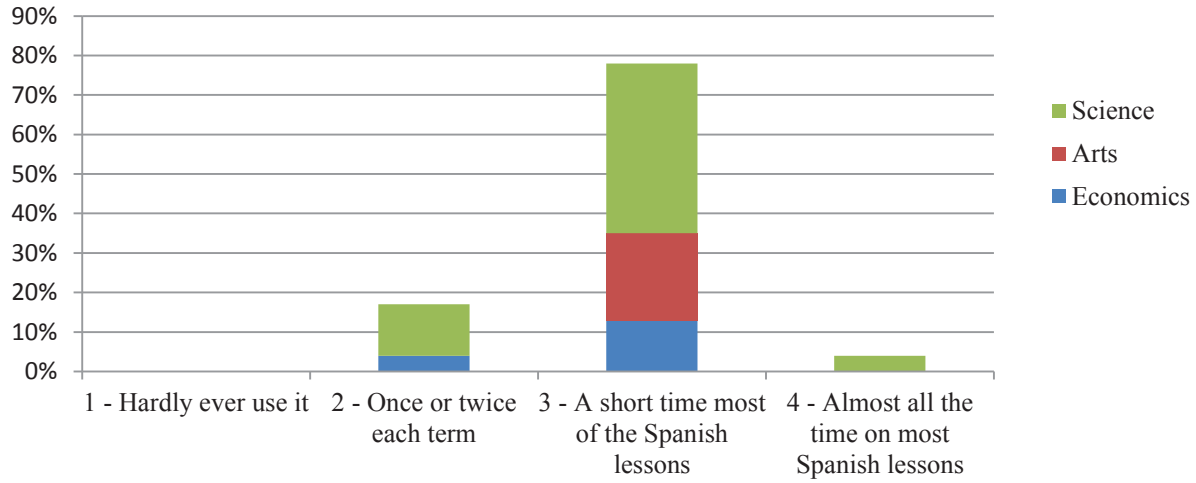


Diagram 5 - Frequency of computer use during lessons (all subjects)



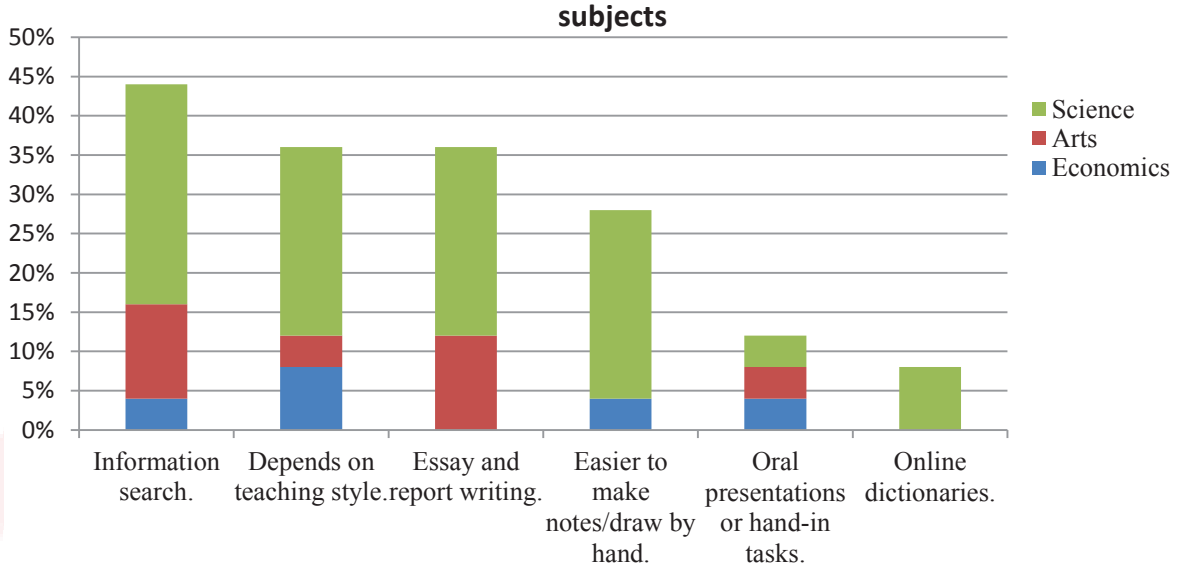
The pupils used computers mostly in language lessons and social sciences. Pupil 21 (Economics) commented that he hardly ever used the computer in any subject, except for oral presentations. He preferred to use his smartphone, as it can perform everything he needs during the lessons and is easier to carry around. He was not alone: most pupils used the computer regularly during Spanish lessons (Diagram 6), but 80% also used smartphones to look up words or other information. More pedagogical uses of the smartphone, such as applications for vocabulary practice or watching instructive videos, were rarely found.

Diagram 6 - Individually chosen computer use during Spanish lessons



Four main reasons to explain differences in computer use between subjects can be distinguished (Diagram 7). Languages and social sciences involve more information search and writing. Several pupils pointed out that it is more difficult in some subjects (mathematics, physics, chemistry) than in others to make notes on the computer, as they require drawing of diagrams, graphs, etc. The computer use also seems to depend on teachers' preferences and ways of teaching (cf. Svärdhagen et al., 2011; Thullberg et al., 2009). Different schools seemingly have different ICT culture; especially the Economics pupils made little use of their computers. Whether this depends on teacher beliefs, lack of teacher training, or other factors, needs to be further investigated.

Diagram 7 - Reasons for differing computer use in different school subjects

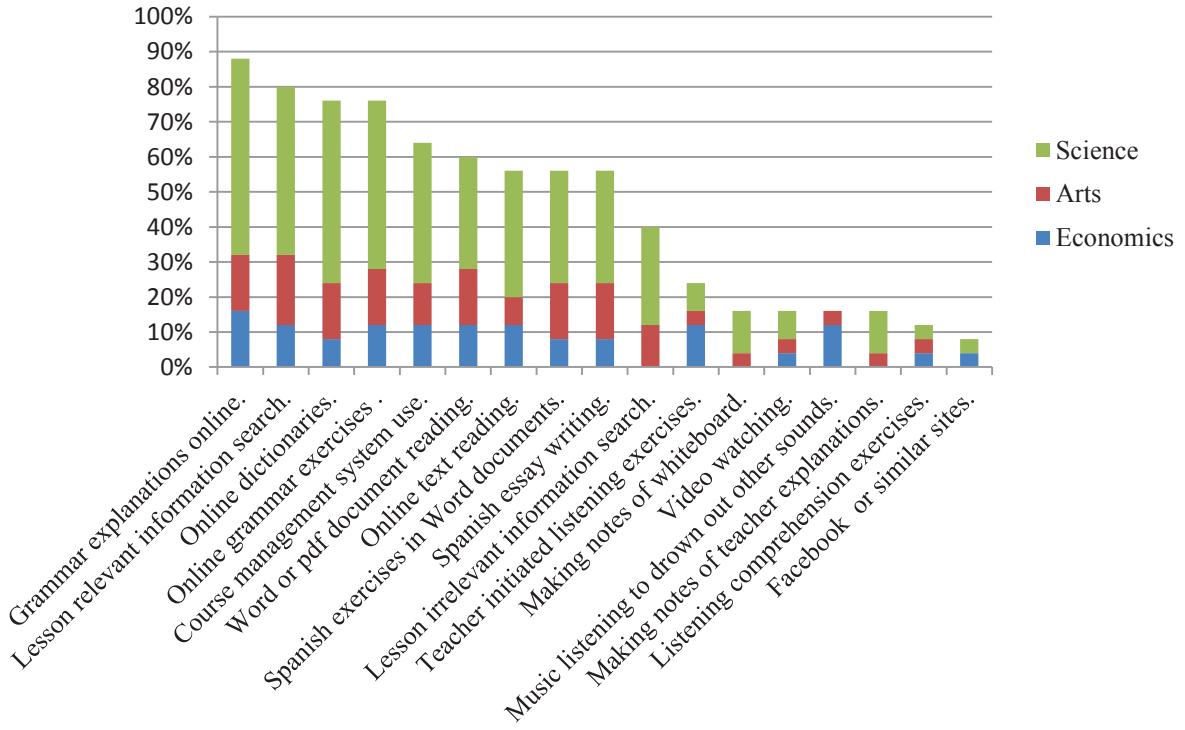


Some pupils did not clearly link their computer use to specific subjects, but rather stated personal reasons for (not) using the computer. Pupil 15 (Science) commented that she starts her computer only if the teacher says that it is going to be used during the lesson; she preferred not to use it as it makes her focus less on the lesson content. Pupil 18 (Science), showing a clear aversion to computers, stated that she chooses to use papers, unless the teacher tells her to use the computer. An Economics pupil (17) wrote that the computer makes storing information from the lessons easier. This can explain why she preferred to use the computer in subjects where the teachers give out digitalised information, but it does not explain why the computer use in those particular subjects is elicited by the teachers.

The pupils reported many uses of their computers during the Spanish lessons (Diagram 8). Facebook interaction, dreaded by many teachers, was scarce, although there was much "lesson irrelevant information search" going on, including looking at the online schedule, finding out what is for lunch, checking bus time tables etc. Again, reading, writing, searching for information and doing exercises were among the main areas of computer use; surprising, though, that essay writing did not score higher. According to Warschauer et al. (2010), "the greatest impact of individual laptop use is on student writing" (p. 221).

Few pupils used the computer for making notes, and many expressed clearly that they saw great disadvantages in using the computer for this. (Only one pupil stated the opposite.)

Diagram 8 - Areas of computer use by pupils during Spanish lessons



Advantages and disadvantages of computer or pen/paper use

As shown in Diagram 9, the most useful use of the computer, according to the pupils, is for writing essays (although, as seen in Diagram 8, this use could increase among the participants). Almost half of the pupils saw online dictionaries as useful, and about a third mentioned grammar exercises and information search; even fewer online grammar explanations (they preferred explanations by the teacher). Only Economics pupils talked about the use of computers for oral presentations, with PowerPoint. Again, this might depend on different school or study programme cultures.

Diagram 9 - Perceived usefulness of computer use in Spanish lessons

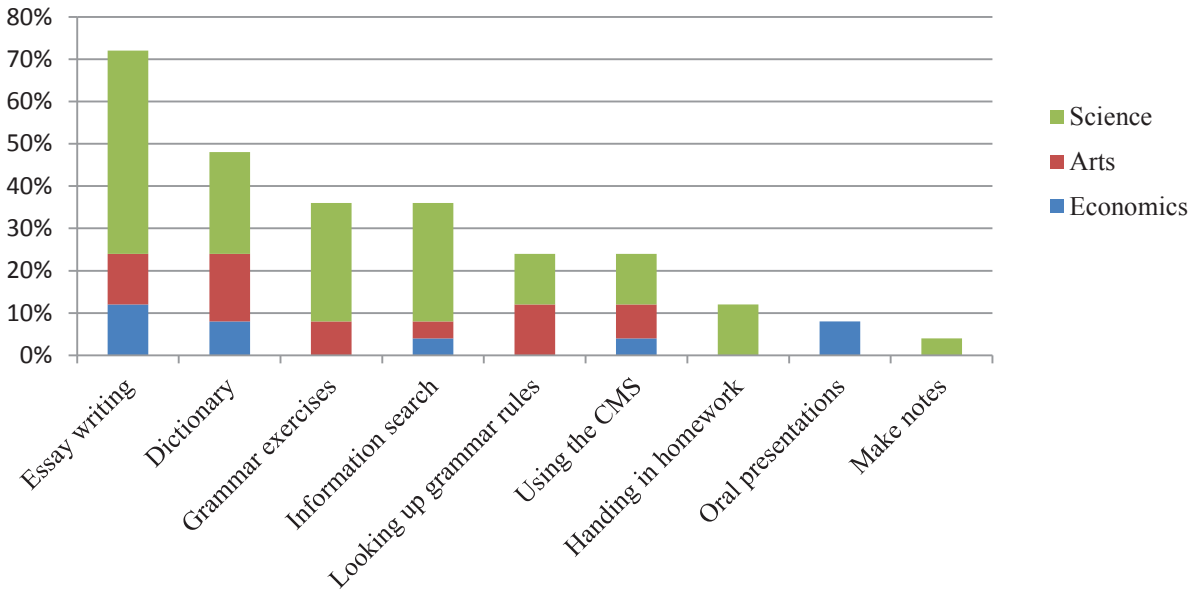
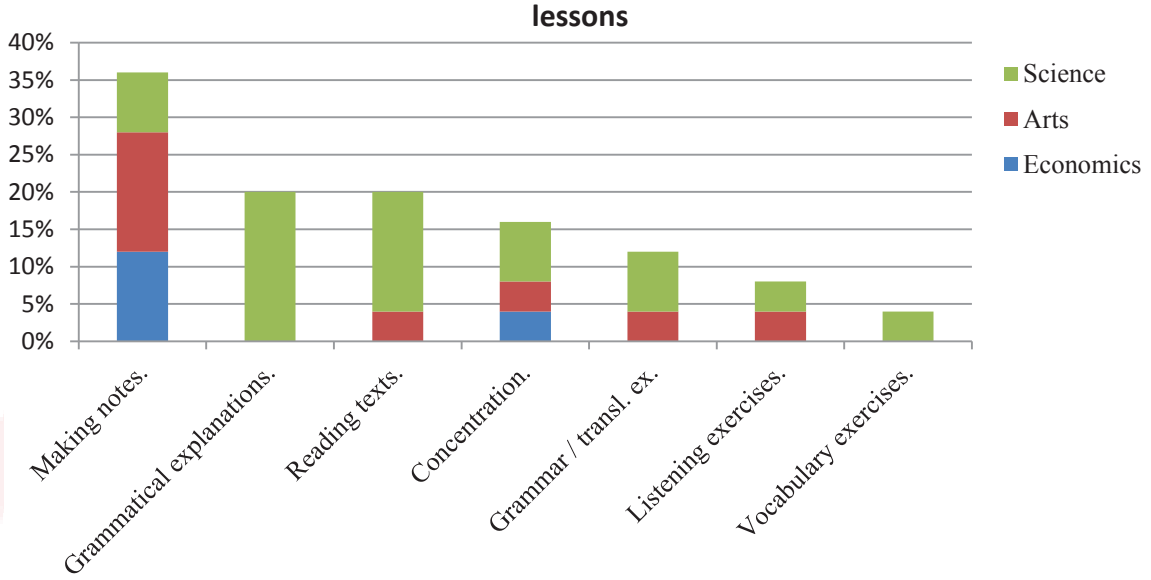


Diagram 10 shows the areas that the pupils did not see as good for computer use.

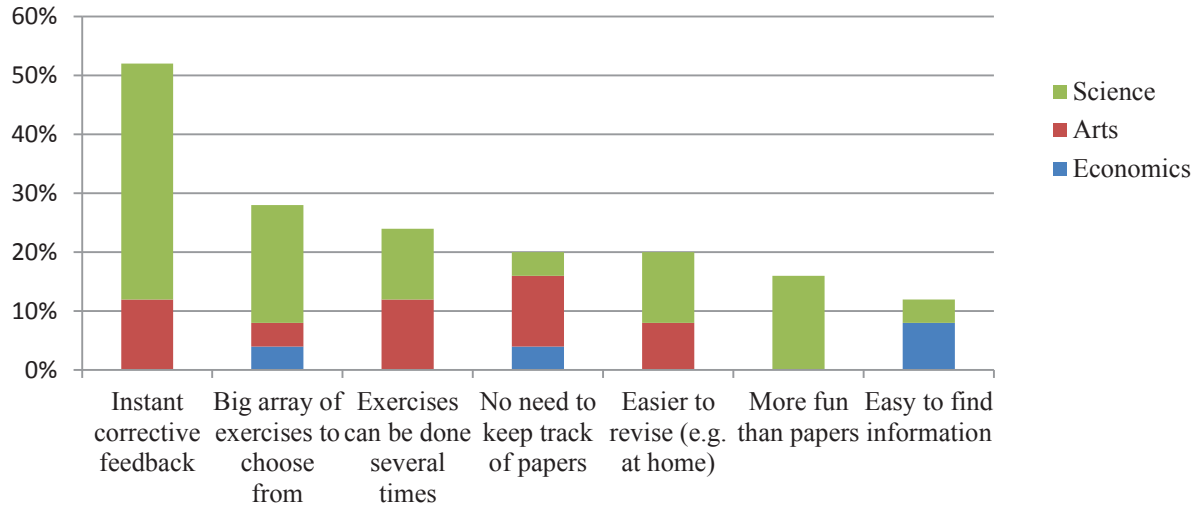
Diagram 10 - Perceived disadvantages of using computers in Spanish lessons



Making notes was repeatedly commented on in the questionnaire. Many pupils found it difficult to make notes on the computer, whereas only one preferred to use the computer. Teachers wishing to increase ICT use in their classes probably need to take this opinion into account and teach suitable techniques for making notes and filing them (be it on computers or by hand). Several pupils also wrote that they did not enjoy reading longer texts on the computer, as it was tiring for the eyes. Working on the computer was also seen as distracting by some pupils. Grammar explanations are also an area not suitable for computer use, according to some pupils, who preferred teacher-led oral explanations at the whiteboard and/or individual explanations by their desks.

The major advantage of online Spanish grammar exercises (Diagram 11), according to many of the pupils, is the instant corrective feedback. One of the Science pupils also mentioned the spell checker function in Word as an advantage.

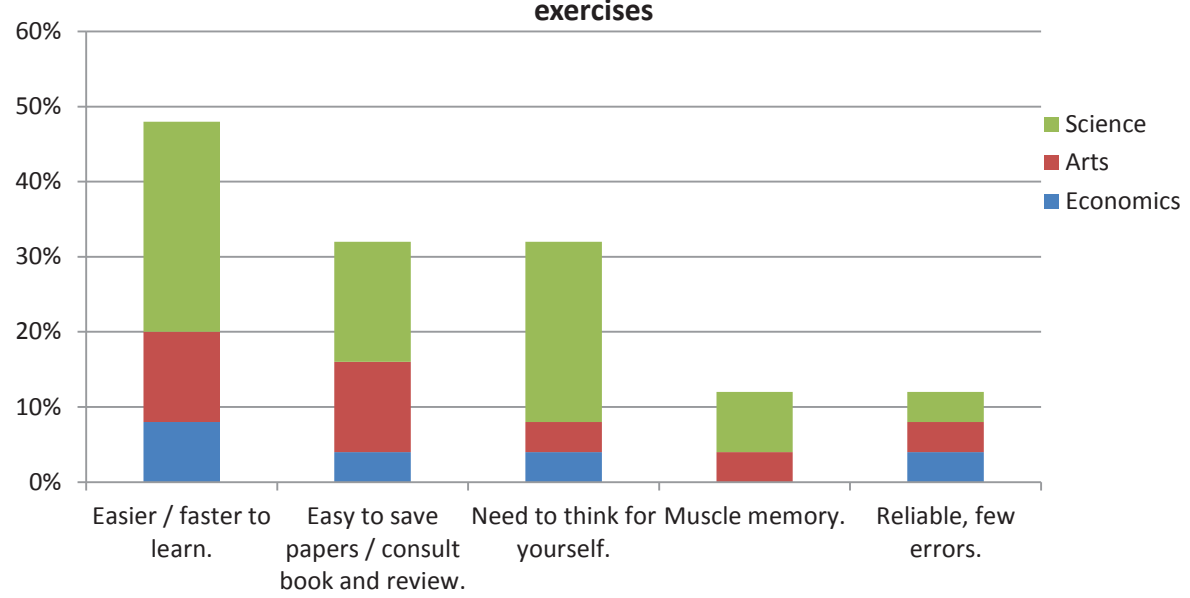
Diagram 11 - Perceived usefulness of using computers for Spanish grammar learning



In a study on electronic feedback and development of writing skills in a second language, Ware et al. (2006) conclude, though, that automated grammar feedback has unclear influences on students' writing skills. Pupils' reactions to this type of automated correction may be further researched. Many pupils enjoyed the automatic feedback but were aware of its drawbacks, and commented that without the automatic correction they were forced to think more for themselves, and performed the paper-based exercises with greater care.

Features such as big variety of exercises to choose from and repeatability (without having to use an eraser) were also mentioned as advantages of computer-based exercises, as opposed to typical paper features (Diagrams 12 and 13).

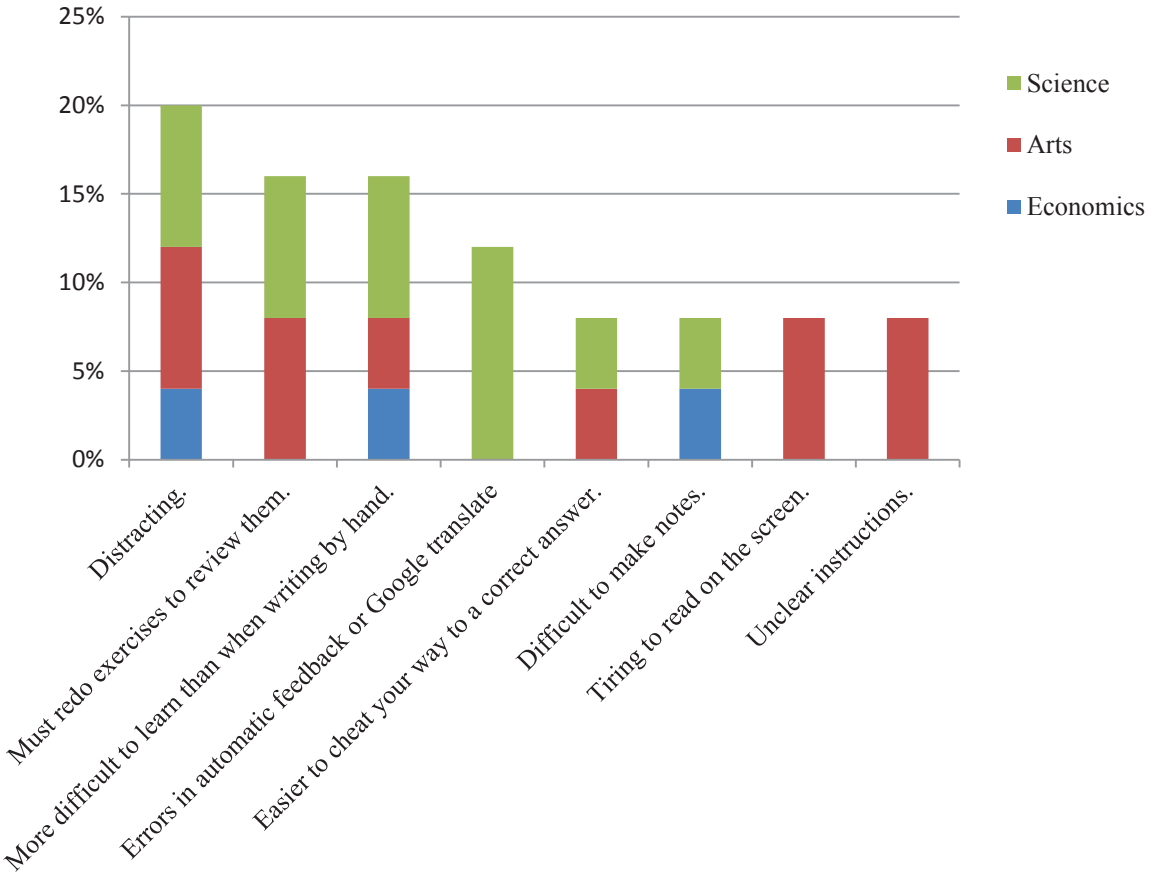
Diagram 12 - Perceived advantages of using paper-based grammar exercises



Several pupils conveyed strong opinions on advantages of paper-based exercises. Pupil 9 (Science): "there's no automatic correction [and] you have to know what you're doing". Pupil 18 (Science): "you get a very concrete feeling, and it absolutely [enters] your brain a hundred per cent faster, when things are in paper-form. You can quickly ask the teacher or look things up on the internet if you've made a mistake." Pupil 14 (Science): "I feel that I learn the spelling better if I can write by hand instead of using the computer". Pupil 17 (Economics) also mentions spelling, and that it is an advantage to have to think for yourself instead of getting the correct spelling from the spell checker in Word. Pupil 16 (Arts) says, "I get a better feeling for the grammar when I write by hand" and "I also think it's important to keep writing by hand so that we don't lose it completely just because the computers soon take over".

Several pupils liked the auto-correction feature of many online exercises, but here, pupils 23 and 13 (Science) said that it is good for learning to have to do your own corrections or revisions.

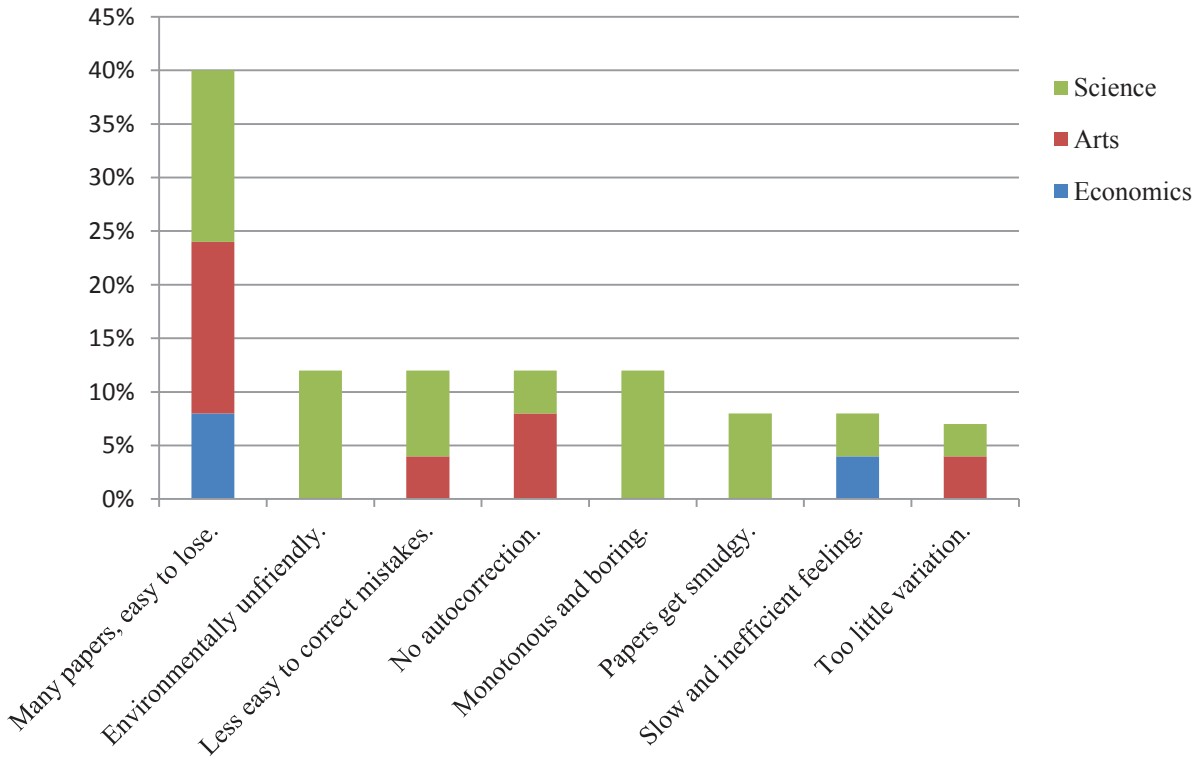
Diagram 13 - Perceived disadvantages of using computers for Spanish grammar learning



Some pupils mentioned the possibility to review online exercises at home as an advantage of computer-based exercises. Nevertheless, when it comes to perceived disadvantages of computer-based exercises (Diagram 13), several pupils pointed out that in order to review the content of many online exercises at a later occasion, you must do them all over again, something not needed with paper-based exercises. They also found computers distracting (either because they were tempted to do other things online, or because the exercises themselves were distracting due to bad structure, irrelevant pictures or other design flaws). Unclear grammar explanations or instructions can also be confusing and take attention away from the instructive purpose of the exercise – pupil 10 (Arts) explained how she sometimes focused more on the exercise layout than on its content. To cite Brett et al. (2011), "Teaching material's design stands out as one of the important questions for pupils, both in paper format and online".

Errors in feedback, online dictionaries or translation sites also annoyed the pupils. Pupil 18 (Science), wrote, "Google translate [...], it's the worst thing I know! Many times it absolutely doesn't work, many times the sentences are incorrectly constructed. I prefer to think for myself!". Discussing advantages and drawbacks of using interactive whiteboards and multimedia in language classrooms, Cutrim Schmid (2008) raise similar thoughts among pupils, pointing out that the technology does provide them with easy answers but makes them think less for themselves, thus not evolving their imagination or learning strategies.

Diagram 14 - Perceived drawbacks of using paper-and-pen grammar exercises



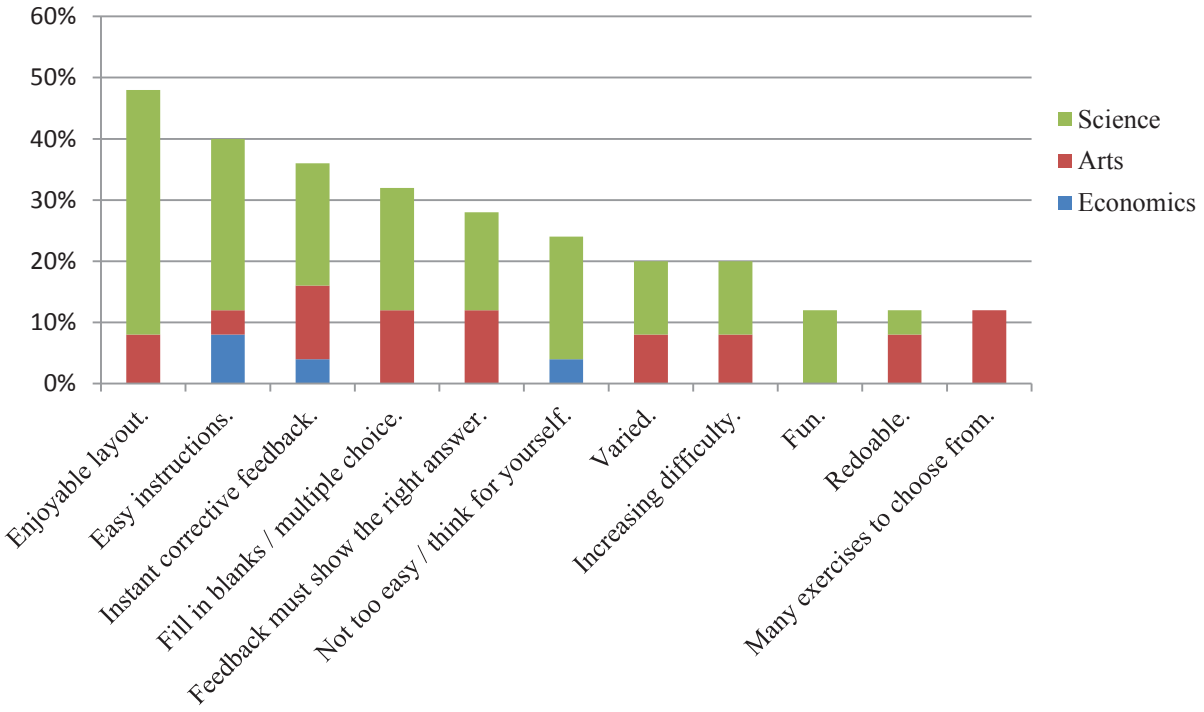
Many pupils saw the fact that papers are easy to lose or forget as the main drawback of paper-based exercises (Diagram 14). Pupil 10 (Arts) pointed out, however, that it is up to the pupil not to lose papers and that he/she can purchase a loose-leaf binder.

Pupil 20 (Science) found it boring to correct the exercises manually, saying that this leads to not doing any corrections and thus not learning as much. Pupil 11 (Arts) had similar thoughts and mentioned that manual corrections are time consuming. Pupil 23 (Science) also thought that paper-based exercises are boring, since "most of the things you do at school are done in paper-form", and she said that this made her less focused. Pupil 12 (Arts) said that paper-based exercises generally are less individualised.

Recommendations for the use of computers or paper and pen

The pupils' most frequent recommendations for computer-based grammar exercises design (Diagram 15) focus on layout, instructions and feedback. The design of exercises influenced greatly on several pupils' opinions on whether they were useful (cf. Brett et al., 2011). The researcher could arguably have found better exercises; however, as mentioned before, efforts were made not only to find exercises with a clear layout and a well thought-out instructional purpose, but also to choose material reflecting what is actually used and easily accessible for teachers.

Diagram 15 - Computer-based exercise design recommendation

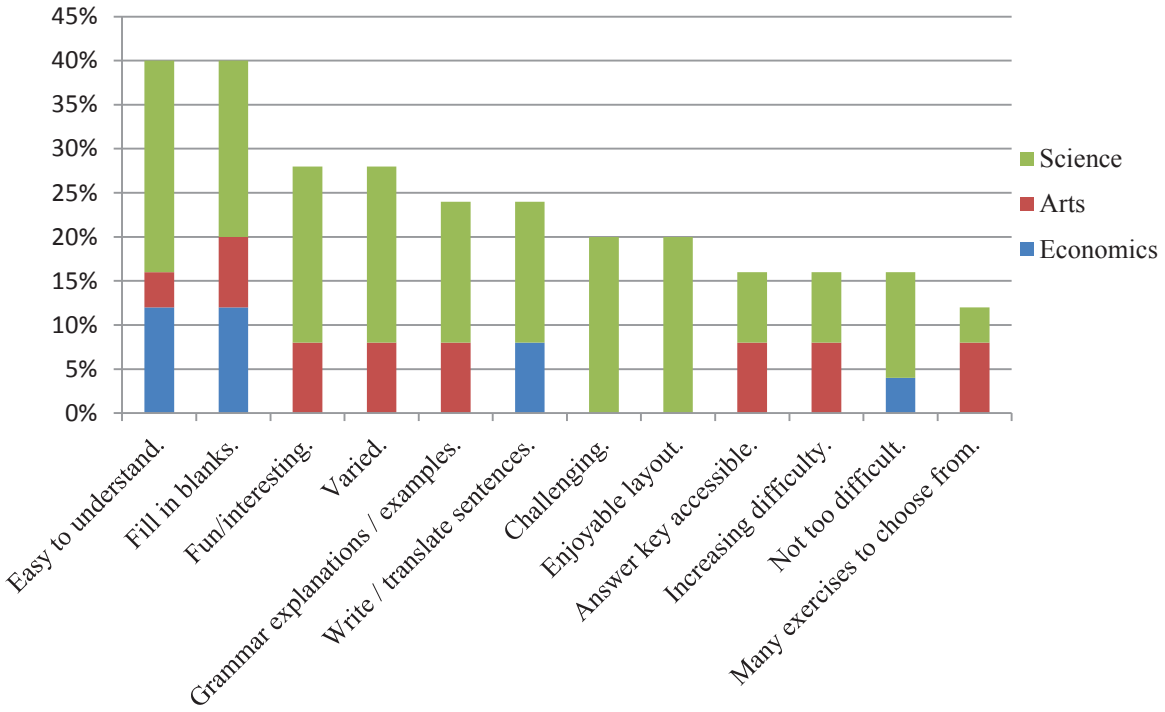


Again, many appreciated the instant corrective feedback. However, automated correction might be most appropriate as a complement to traditional corrections, as the interactive parts of ordinary feedback ought not be underestimated (Ware et al., 2006). Several pupils stressed that the automatic correction is only useful if the feedback is correct (which was not always the case), and if it is not too "picky", i.e. that variations or synonyms should be allowed.[6]

The most frequent recommendations for design of paper-based grammar exercises are shown in Diagram 16.

[6] A good example is an exercise asking pupils to conjugate verbs in the "you"-form. Spanish has five verb endings translatable as "you". Erroneous corrections were not uncommon.

Diagram 16 - Paper-based exercise design recommendations



The diagram sums up some of the main points of the questionnaire and the diaries: pupils prefer varied learning material, with well-structured and easily understood exercises that force them to use their mental capacities, providing them with good explanations of the grammar to learn. They like "fill-in-the-blanks", although not few pupils expressed the feeling that they learn more, better or faster when writing by hand (making notes, doing exercises, translating, writing essays) as this makes them think more. The pupils also asked for more written exercises, computerised or by hand, such as translations and essay writing.

Conclusions and discussion

The main research questions in the present study were:

- When do pupils see computers as an appropriate tool for learning Spanish grammar?
- When do they not see them as appropriate?
- What didactic and scientific implications can be drawn from these results?

To the pupils, some things seem more important than others in computer-based grammar exercises: the corrective feedback (preferably instant, but not too picky; it must on the other hand make no mistakes); the interface design (not confusing or distracting and providing clear instructions). Many of the participants, thus, enjoyed online grammar exercises, if they are well structured, instructive and provide accurate automatic corrective feedback with explanations to the errors. If these wishes for online exercises design are to be met, teachers (and/or pupils) need to be able to modify the exercises, as much of the available material is poorly constructed (Pegrum, 2009; Kervin et al., 2011; Motteram, 2011). The question is whether teachers are – or feel – competent to do so, and if they can find the time for it. If Tomlinson (2011) is correct that these kinds of auto-corrected exercises function best for pupils who learn easily on their own, but less for others who need more teacher explanations, schools need to be aware and not put too much faith in them.

Rosen (2010) writes that pupils "thrive on multimedia, multitasking, social environments for every aspect of their lives *except* education" and that "we must find new tools to engage our students and help them learn in ways that work for them and for teachers" (pp. 3 – 5). The present study contradicts this somewhat, as the participants appreciated traditional learning and teaching styles when they were challenging and well thought-through. One might ask, as Roszak (1994), if "the curriculum [is] to adapt to the computer, or the computer to the curriculum?" (p. 52).

The participating pupils saw computers as useful for writing essays, searching for information and using online dictionaries. These might be the areas of language instruction most suitable for ICT-based learning. As for online dictionaries, it is important that pupils learn how to use them (as well as printed dictionaries), and which ones are reliable. School authorities should invest in good digital dictionaries – probably also for mobile phones – rather than suggest that teachers and pupils rely on non-cost online alternatives. The results of Chiu et al. (2013), finding that the retention of new words is better when pupils have used printed dictionaries, compared to electronic versions of the same dictionaries, ought probably to be taken into account as well.

Most of the pupils saw computers as less useful for making notes. Teachers may teach them better ways to make notes and to file information, if it is desirable that computers be used more. Considering, however, that not few pupils stated clearly that they learn more easily and retain the knowledge better when writing by hand, schools should ask themselves whether computer use is more important than pupils' learning. An open dialogue in the language classroom on learning methods and their advantages or disadvantages is to recommend.

Further research suggestions

The present study does not claim to provide any absolute answers to how or when to use ICT-based teaching methods in the language classroom, but indicates, nevertheless, several paths to follow in future research and for teachers to consider in their daily teaching practice. The field of teaching material design would benefit from further studies, especially comparing the effects of different designs on pupils' attitudes and reactions and the way the design influence on pupils' interactions with the exercises and their experienced learning outcome.[7] Multimodal studies could further elucidate how pupils interact with different learning methods in the language classroom, and for what purposes.

Further studies on how pupils use and perceive automated corrective feedback would be interesting, especially in the context of vocabulary and grammar practice, where few studies have been conducted. Compared outcomes of vocabulary and grammar learning using online exercises and exercises written by hand would be of great interest.

Another perspective benefitting from further studies might be the opposite of the one adopted here: teacher incentives to use ICT in the language classroom. Which ICT practices do teachers choose (or not choose), and why? Mechanisms directing teachers' choice of teaching methods are highly interesting in an era where ICT is often seen as the big promising solution to declining pupil performances. Are choices consciously made or do schools succumb to prevailing ideas and computer company lobbyists?

[7] It is very difficult to evaluate actual learning outcome of a given modality or technique, considering the many other factors involved in any learning situation. Experienced learning outcome may on the other hand have much to say about the appropriateness of different teaching methods.

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http://cvc.cervantes.es/ensenanza/actividades_ave/aveteca.htm

http://www.itslearning.com

http://www.ver-taal.com/

Improving the Language Classroom with Facebook on Mobile Phones

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Abstract

This paper relates an action research conducted in a French language course where Facebook on mobile phones were used instead of the university's dedicated learning management system (LMS). The problems encountered when using the LMS were manifold: students were not able to initiate forum discussions, post multimedia documents and generally lacked the motivation to use the target language in the online environment. A study of the literature revealed that similar problems were resolved through the incorporation of social networking sites in the classroom. Furthermore, past studies have highlighted the pedagogical advantages of mobile learning with anywhere and anytime learning. Therefore, it was anticipated that combining Facebook with mobile phones could provide a solution through the affordances provided by both technologies. A two-cycle action research was conducted over the course of one semester with one cohort of students. Every student was provided with a smartphone and a permanent access to mobile Internet. All activities which were previously conducted on the LMS were transferred to Facebook. At the end of each cycle, semi-guided individual interviews were conducted with ten students to evaluate the new pedagogical setup. Data was subsequently coded and analysed with the ATLAS.ti software. Findings revealed the positive impact of using Facebook and mobile phones to promote motivation and participation. Although this research advocates using alternatives to the more classic LMS, several issues such as lack of privacy and cyber-quarrels were encountered. This paper offers solutions to facilitate the transition to a novel form of LMS empowering the students.

Introduction

In the Malaysian context, French is truly a foreign language since it is virtually non-existent outside of the language classroom. Excluding the Internet, where access is not an issue, French media are not readily available. As a consequence, occasions to use the language in a natural setting are rare. In order to have more learning materials, students readily ask for the course notes from their lecturers. We have observed this practice since the first year we started teaching in a Malaysian public university in 1995. Since that year, requests for course notes have been constant although the technology used to deliver them has evolved. Table 1 lists the various tools that have been used over the past 18 years. For several years, only photocopies were used to distribute the course notes. This practice meant printing out one set which was then duplicated by the faculty's photocopying service at its own cost. The hand-outs were then distributed to each individual student. This low-tech method remained in practice for several years until the arrival of affordable USB thumb drives changed the situation. The advent of thumb drives radically changed the delivery of course notes. From then on, documents were no longer required to be printed as digital distribution became the norm. Rapidly, it became a common sight to see students queuing at the lecturer's desk with their thumb drive in hand. Course notes were digitally transferred, and the cost of printing was shifted to the students. With a rapidly evolving technology, courses became available online on learning management platforms (LMS). Dokeos, the LMS in use in our faculty, enabled the students to readily download the course notes which their lecturers had previously posted on the platform. Price of connection and equipment aside, the delivery became instantaneous and free. Furthermore, handing-out the course notes no longer required the lecturer to be physically present. Moreover, the faculty's LMS offered several teaching tools which had not been available before. Students became more active as they gained the opportunity to communicate in the target language in online forums (Gabarre and Gabarre, 2010a). LMS also offered computer-corrected evaluations and exercises. After several years, the university envisioned to design its own LMS and make do with the various ones which had been used in each faculty. Putra LMS, the university's own-bred platform offered tools and features which were not dissimilar from Dokeos; however, several issues emerged through its use. First, students lost a substantial level of control with the university's LMS as they were no longer able to create forums or post documents. Second, the LMS's environment could only be set to display text in English or Malay. This was a radical change for the students who had grown accustomed to navigating in French with Dokeos. Third, students reported that they did not readily visit the LMS. They explained that this was due to a lack of interest in the platform. Fourth, the university's LMS did not provide the lecturers with sufficient feedback pertaining to each student's individual access of online documents or messages.

Table 1. Delivery of course notes

Year	Medium used to deliver course notes
1995	Photocopies
2006	USB thumb drives
2007	Faculty LMS
2009	University LMS
2009	SMS notes
2009	MMS notes

In order to address these issues, we explored alternative methods of delivery. Inspired by an experiment in Bangladesh (Islam and Doyle, 2008), our first venture revolved around sending lecture notes in text format by way of SMS. However, the limited space available in each SMS proved insufficient to deliver any meaningful information. Multiple SMSs were thus sent to form one lecture not. Difficulties arose as course notes became truncated over several messages. It rapidly became evident that the impracticality of lacking rich text features such as colours or underlining drastically reduced the usability of these notes. Furthermore, students declared that this medium was a far cry from motivating and was plainly dull. Our next focus was on the MMS as it appeared to compensate the SMS's shortcomings by allowing more multimedia opportunities. Our hopes were short-lived as the rising cost of sending MMSs to each student made the delivery through this channel unpractical (Gabarre and Gabarre, 2009). Despite these setbacks with course notes delivery on mobile phones, our research revealed the tremendous potential that these devices offered in term of learning tools for voice recording, picture and video shooting as well as increase in motivation (Gabarre and Gabarre, 2010b). Wishing to capitalise on the potential of mLearning, we sought to combine the devices' advantages with an LMS. As, the university's LMS did not offer mobile integration we decided to explore other possibilities. Failing to identify an easily deployed mobile-friendly open-source LMS, we paid attention to the students' advice to use a social networking site (SNS). An initial survey revealed that 94% of our students were already active members of Facebook, and that 69% of them owned a smartphone which they accessed with a free public Wi-Fi connection.

Literature review

In order to gain further knowledge on past experiences of integration of SNS and mobile devices, we explored the current literature methodically. A meta-analysis of all Scopus and ISI indexed articles published since the year 2010 revealed a balanced distribution between texts which described mLearning experiences (53%) and those which dealt with SNS learning (47%). From all research projects which dealt with mLearning 44% were conducted in the field of language learning, while the remaining 56% shared all other fields of study. Disappointingly, only 1% of studies on SNS learning focused on language learning. Other findings from the meta-analysis showed that despite a majority of project having been conducted in Asia (52%), only 3% of these were conducted in Malaysia. Furthermore, we were unable to identify publications which dealt with both technologies concomitantly. This does by no mean signify that such a research was never conducted previously; it only suggests that reporting on this topic remains rare.

Articles on SNS learning can be divided among three categories: (1) articles which dealt with replacing the LMS with an SNS (LaRue, 2012, Loving and Ochoa, 2011, Wang et al., 2011), (2) the construction of learning communities (Brady et al., 2010, Domínguez-Flores and Wang, 2011), and (3) the effectiveness of SNS in education (Mills and Chandra, 2011, Junco et al., 2013). The literature highlights six distinct advantages afforded by SNS learning: (1) they are mostly beneficial to younger students, (2) they lead directly to an increase in the students' level of motivation, (3) they offer a cheaper alternative to paid LMS, (4) they nurture the development of online communities of practice, (5) they allow a greater allocation of class time, and (6) they increase engagement. In spite of these advantages, two disadvantages brought upon by the use of an SNS in education were identified: (1) they are a main source of distraction when students are multitasking, and (2) they lack the educational tools which are commonly found on standard LMS.

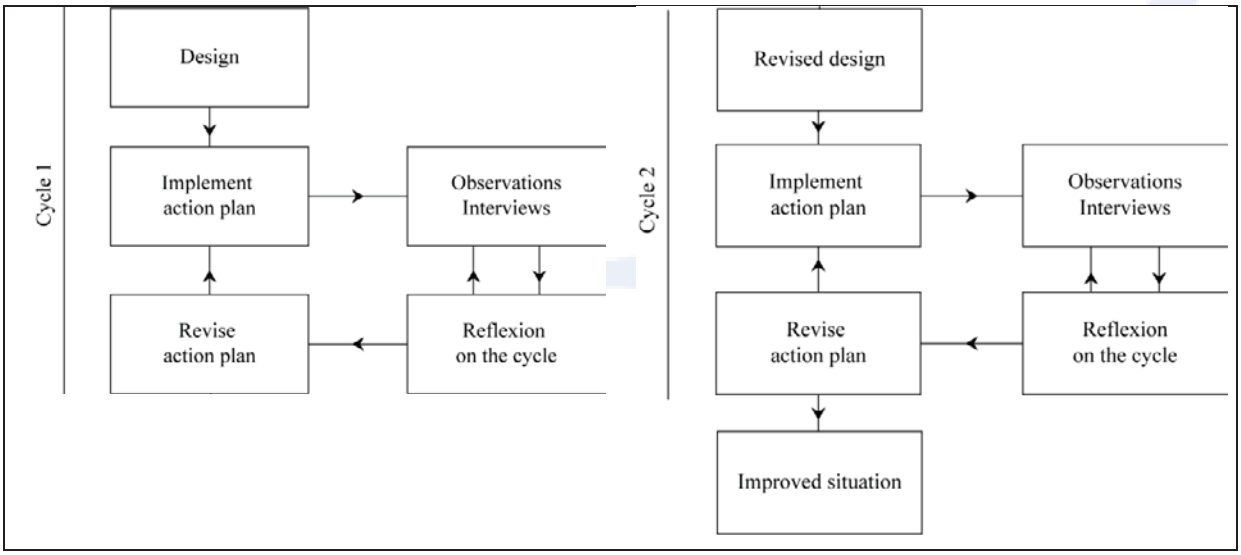
Articles on mLearning are generally divided in two categories: (1) those dealing with the delivery of learning material, and (2) those which highlight the mobile devices in terms of learner-generated content tasks. In the former category, research has highlighted the benefits of mobile Internet and its advantages over other channels of delivery, once the issue of cost has been successfully tackled (Kert, 2011, Goh et al., 2011). In the latter category, prior studies are more specifically concerned with task-based learning, active learning, and generally allows the students to focus their learning on a predetermined purpose (FitzGerald, 2012, Wong et al., 2011).

We believed that by implementing learning with the use of an SNS on a mobile device, students would be able to reap the benefits attributed to each technology. We anticipated that French language students could benefits from the task-based learning activities that would be conducted in class on their mobile phone, and that they would use the SNS as a platform where they could post and exchange comments with their peers. Furthermore, it was hoped that the sum of these advantages would overshadow the inevitable difficulties that would emerge from our implementation.

Methodology

This single site, single cohort action research was conducted in a Malaysian public university. The 16 students (14 females, 2 males) involved in this project attended a second year French language course. All students were French majors who had at least attained the A2 level of the European framework for languages (2001). This study was conducted over a period of 14 weeks corresponding to a full semester. For practicality, the research project was divided in two consecutive cycles of seven weeks. Following Kemmis and McTaggart's (1982) research design, the first cycle consisted of the following five steps: design, implementation of the action plan, observations and interviews, reflexion on the cycle, revision of the action plan. As illustrated in Figure 1, the second cycle followed a similar design of revised design, implementation of the revised action plan, observations and interviews, reflexion on the cycle, revision of the action plan before culminating with an improved situation.

Figure 1: Research design adapted from Kemmis and McTaggart (1982)



The action plan was designed to have two types of intervention. The first intervention consisted in providing course notes on a Facebook page. Our design planned for these notes to be accessed by mobile devices in order to offer the students the possibility to consult them anywhere and anytime. This was achieved by first converting the course notes from their original Microsoft PowerPoint format into PDF files. Using open source software, the PDF files were subsequently converted into the JPEG image format. This set of images was then uploaded onto the Facebook page as a photo album. Students were thus able to browse through the notes on their mobile devices by simply opening the courses' Facebook page and navigating to the photo album. This feature was far superior to the MMS lecture notes we had implemented previously (Gabarre and Gabarre, 2012) as it provided the students with full control over the slide they wished to access. The second intervention consisted in assignments were the students were required to first shoot a short video in French with their mobile phones. These videos were subsequently uploaded by the students to the course's Facebook page so that everyone in the class could view them. Following this, students were required to provide a written feedback in French on their classmates' videos. Having learned from their peer's reviews, the students were then asked to upload a modified version of their video. As can be seen in Figure 2, students generally reviewed their feedback and rapidly replied to acknowledge that they agreed with the comments. These exchanges created an online discussion in French, thus providing the students with additional exposure to the target language. This added exposure in a non-threatening environment has been shown to facilitate language acquisition (Krashen, 2009).

Figure 2: Use of French language in the Facebook page

During the course of this study, data was collected through observations of online interactions and students' artefacts. At the end of each cycle, nine students were selected to be heard in one-on-one interviews. The sampling of the students was based on their ability to provide

rich information during the interviews. A verbatim transcript of each interview was made, and the students' identities were concealed by using anonymous identifiers. Data from the interviews and the observations were subsequently analysed in a two-step method adapted from Strauss and Corbin (1990), which consisted of open and axial coding,. To facilitate the analysis, a computer aided qualitative analysis software (CAQDAS) was used. We decided to analyse the data with ATLAS.ti as it provided us with the flexibility required by the research method we had selected.

Findings and discussion

Our analysis of the data from the first cycle revealed the theme of *lack of privacy*. We had wrongly assumed that the use of a popular SNS such as Facebook would be well accepted by all the students. Indeed from our previous observations (Gabarre and Gabarre, 2010c) of our students' openness on Facebook, we had discovered that they were willing to share a vast amount of information with members of their network. However, it rapidly appeared that this view was partially erroneous as the situation was more complex than previously anticipated. The interviews revealed that the students were disturbed by their online friends who were not learning French. This theme, labelled as *social peer pressure from the network*, can be clearly seen in Zoé's statement:

Not all of my friends are taking French, sometimes, they like to discriminate my course. They will ask: "What will you do after this? What's your future like? If you take medic, you will become a doctor, bla, bla, bla." And I feel like I don't want to make them know what I am doing, and then when I'll succeed, they will be surprised"(Zoé).

In this excerpt, Zoé clearly describes the situation where her online friends are judging her choice of studies. Zoé then went on to explain that she would prefer it if her friends could not see the work that she published on Facebook for her French class assignment. Another form of peer pressure was noted as students explained that their friends criticised their pronunciation. This was particularly surprising as in these instances their friends were non-French speakers. A different respondent informed us of a situation when upon meeting her friends in a public space; they would start acting-out one of the role-plays she had uploaded as a video. This student admitted that she had experienced shame due to her friends' behaviour, although they had previously not made any online comments on her role-play. In other instances, students reported that their friends who were not learning French repeatedly asked them to translate the videos and the comments which had been posted on Facebook. For Tokunaga (2011), this criticism can be attributed to the dual notion of online and offline friendship. It appears that online acquaintances will sometimes unknowingly overstep the boundaries of friendship which are less well defined than their offline equivalents.

As a consequence of these findings, it was decided to take actions to amend the design of our implementation in order to shield the students from their friends who were not learning French. As we still wanted to harness the popularity of Facebook, we sought a way to increase privacy. Ractham, Kaewkitipong and Firpo (2012) advocated the use of a Facebook group instead of a Facebook page. Consequently we opted to redesign our implementation around a Facebook group with two distinct aims: (1) resolve the privacy issue, and (2) investigate the possibility of further improvements.

A Facebook group for the course was thus created. Its privacy level was first set to public in order for the students to become members, and it was subsequently made private once everyone in the class had registered. Similar activities to the first cycle were conducted. Course notes were once again posted to Facebook. After making the switch from the Facebook page to the Facebook group, we realised that additional uploading features had been added. We were able to upload documents in various formats. These enabled us to directly post PowerPoint and Word documents, as well as PDF files. Having more options, we opted to utilise them and posted each course note in three different formats: as a PDF file, as a photo album, and as a Microsoft Office document. At the end of the second cycle of implementation, we conducted a second round of interviews with the same respondents we had listened to previously. As anticipated, students reported that they preferred the added privacy. This was the case with Zoé and Yannick who explained that:

Because it's private, it's different because others that do not learn French, they cannot watch it, so it's better and secure (Zoé).

For example maybe sometimes we can do something crazy like we can play some joke in the group also, just like friends (Yannick).

Unexpectedly, students also reported that they viewed the Facebook group as more organised than the Facebook page. This was due to different approaches in which new information are displayed. With the Facebook page, new posts follow the Timeline format and thus varyingly either appear on the left or the right of centre. On the other hand, the Facebook group displays new posts in a linear fashion from top to bottom. Students explained that following the switch to the group it had become quicker for them to access relevant information. Additionally, they explained that posting video in the Facebook group had become easier. One gripe which had not been previously sufficiently highlighted in the interviews was the difficulties which some experienced when posting videos. For those students, posting a video to the Facebook page required them posting it to their own personal page, before creating a link to it on the page. With the group this was no longer required as students said they could directly post their videos.

Having discovered that students longed for more privacy on Facebook, we sought to find out whether this need still existed after the group had been created. We thus asked them whether they would prefer to directly send their videos to their lecturers through emails or some other private form of communication, so that their peers would not be able to see their work. Replies were unanimous in that no one believed that this would be the best options. For them seeing their peers' work enabled them to learn from each other. Furthermore, they explained that they enjoyed viewing others' videos in French and that they valued their peers' comments. The following excerpt from Valérie depicts this point.

Do I have the same problem as them, or not? Because, like the pronunciation, if other people read like this, are they different from me? I can compare (Valérie).

Although students revealed that the added privacy in the second cycle was appreciated, others explained that it had not initially disturbed them in the Facebook page. They explained that most of their friends were in the class, and consequently were not bothered by a handful of people who were outside of this circle. Others felt that their outside friends could not speak French and thus would not understand their work. As such, they would not be concerned by such interactions. One student explained that she actually preferred her productions in

French to be public rather than restricted to the members of the group. She explained that she believed recruiting agents would see her videos and her ability to speak French. This case was not isolated as other students mentioned that when the work was posted to the page, they could readily show their family members the assignments they had completed for their French course. This was no longer possible with the private group. Another student explained that when his work was public, his friends would comment on it, thus leading to online social exchanges which he enjoyed. For him, posting his videos in French in a public space enabled him to be at the centre of his network. These students who expressed a desire for less privacy explained that this issue could readily be resolved by placing a link to their videos on their own personal Facebook page.

Conclusion

Over the two cycles of implementation a continuous improvement has been observed through the student's rising level of proficiency. This improvement was more visible as the students were gaining confidence in expressing themselves on the online platform. However, we would be hard-pressed to justify whether the students' rising level of proficiency could be attributed to the effect of using Facebook on mobile phones. Indeed, from past observations and experience of teaching French, we can safely state that improved proficiency is always anticipated and witnessed. Similarly, the method that was retained for this research does not allow us to quantify the effect that using Facebook on mobile phones had on the students' learning. We wondered whether a different research method relying on a positivist approach rather than a naturalist one could have been put in place. Conducting a quantitative study with a control and a treatment group could have more clearly evaluated the effect of our implementation. However, an experimental study seemed unpractical in our situation. Conducting a research with a single cohort of 16 students might not have yielded significant findings. Moreover, having a control and a treatment group within the same class might not have been entirely verifiable as students readily share their learning resources.

The qualitative nature of this study yielded rich data which described in depth the process which the students underwent while learning French with Facebook on mobile phones. This data clearly demonstrates that students felt more secure after changes had been applied in the second cycle. Furthermore, due to this added perceived level of security, students were able to push themselves harder without any second thoughts. These finding can be interpreted within the framework of Krashen's (2009) affective filters. As the students felt more secure, their level of anxiety was reduced. Concomitantly, an increase in motivation was noted as students were eager to connect to Facebook. The reduction in these affective filters could thus partly explain the success students had in their language acquisition. The added level of exposure to the target language, which stemmed from both the increased motivation and the reduced anxiety, could as well have enhanced language acquisition.

The increase in motivation to access course material on Facebook that we witnessed throughout these 14 weeks was in stark contrast with access to all other LMS that we had previously used. Having access to their French course's platform on their mobile phones meant that students could easily have a constant access to the lecture notes, but also to their own work, and even to their classmates who provided feedback on their proficiency. By receiving notifications whenever a change had occurred within the group, students were prompted to access Facebook to view these changes. Although such a feature could possibly be realised with an existing LMS, our knowledge of these systems was greatly insufficient to

conduct such an implementation. Using readily available technologies enabled us to permanently connect the students around the course's learning platform. Teaching with Facebook on mobile phones was a far cry from teaching with SMS and MMS. Where the SMS and MMS were marked by the unilateral direction of communication from lecturers to students, using an SNS offered multidirectional exchanges which the students regularly made use of.

Having conducted this action research over these 14 weeks has taught us valuable lessons on teaching with an SNS and mobile devices. This study has changed the way that we now conduct our classes. Having experienced the advantages that Facebook can bring to the foreign language classroom, we are now unable to return to more established LMS. Although using Facebook on mobile phones does not solve every issue a lecturer may face in his classroom, it addresses the problems that we had encountered with the adoption of the university's LMS.

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Action Research to Explore the Future Language Classroom with iPads

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Abstract

In foreign language teaching and learning, technology mediated pedagogy fosters active participation by facilitating access to resources. However, current facilities such as computer laboratories and lecture classrooms often dictate how technology is to be accessed and thus limits the flexibility of course delivery. Ideally, classrooms should bridge the advantages of all settings and provide educators with mobile, versatile and reliable technology. Recent studies have shown that tablet computers can perform as interactive whiteboards, transform into mobile computer laboratories while catering for ubiquitous, individualised and collaborative learning. A qualitative action research was implemented to explore the ease-of-use and usefulness of introducing tablet computers from pedagogical and technological perspectives. The intervention was conducted in a French undergraduate course. The lecturer adapted and designed course material, selected applications and taught using the iPad. The data was collected through observations, artefacts and field notes, interviews, learners' self-reflexive logs as well as lecturers' memos before being analysed and coded using ATLAS.ti. Findings confirmed that the devices' features and applications were relevant to language teaching and learning. Embedded aids such as dictionaries and predictive text-input provided instant support. Multimedia recording and sharing tools engaged the learners in dynamic presentations. Additionally, an active online community provided useful resources for both learners and educators. Although designing and delivering course material necessitated some adaptation, the results outweighed the efforts. Nevertheless, the all-in-one technological and pedagogical advantages are hindered by connectivity issues. It is thus recommended to establish a conducive environment before iPads can be successfully incorporated in the classroom.

Foreign language learning in Malaysia

Teaching French in Malaysia is shaped by the challenges faced by educators to tackle the linguistic and cultural barriers resulting from the status of French as a foreign language in the country. French language and communication rules are very distant from local languages. Therefore, in addition to language skills, Malaysian learners need to adjust to different thinking, communicating and socialising competencies. Furthermore, learners lack exposure due to the absence of media in French and opportunities to practice are limited to the classroom.

Malaysia is a multicultural and multilingual country; consequently, most learners are at least bilinguals having learnt English and Malay at school in addition to their first language. They grew up exposed to local languages in their daily environment and through communicating with their neighbours and schoolmates. Although they studied Malay and English either as their first or second languages, they have never experienced learning a foreign language per se. For second language bilinguals, this situation is destabilising because they may not be able to interact and socialize as fast as they would want to in the new language which can result in frustrations with specific competencies like speaking and listening. This negatively impacts the learners' motivation and confidence.

In our case, all the students joining the French major program are absolute beginners which increases their anxiety rooted in their fear of not being able to understand the lessons. Moreover, the university admission process appoints applicants to the various faculties based on the students' academic background rather than on their expressed choices. For that reason, the majority of the learners enrolled in the French Bachelor program feel forced to learn the language. These learners lack motivation as well as confidence and experience greater apprehensions.

Technology mediated active learning

The French curriculum follows the precepts from the Common European Framework of Reference in regards to the development of cultural and communication skills alongside language proficiency (Barenfanger and Tschirner, 2008). The learning objectives target the four language skills and the lessons emphasise active participation in class. However, discussing one's opinion in public or spontaneously questioning the lecturer is not naturally part of the Malaysian learning culture (Bouvier, 2003, Robert, 2002) where the learners would consult their peers rather than their lecturers. In addition, the textbook, Connexions, niveau 1 (Mérieux and Loiseau, 2004) from the Editions Didier is exclusively in French which increases the learners' confusion and need for support as well as their dependence upon their lecturers during lessons.

Foreign language instruction requires a greater learners' participation to compensate for the lack of exposure outside the classroom. The lessons comprise a succession of micro tasks designed to cover the four language skills while developing linguistic and communication competencies. Meaningful active learning is a learner centred teaching method which cultivates the learners' engagement through the completion of authentic tasks (Dörnyei, 2001). This approach is situated in a social constructivist perspective where learners develop knowledge by tackling real problems with their peers under the guidance of their instructor (Vygotsky, 1934/1962, Wells, 1994). This pedagogy sustains the learners' engagement and

keeps them involved in transforming the language classroom into an interactive French-speaking zone (Gabarre and Gabarre, 2010a). The scaffolding of tasks creates a reassuring environment nurturing the learners' motivation and confidence while learners gradually develop language competencies.

In foreign language learning, technology mediated learning provides instructors and learners with resources as well as creative, communication and sharing tools (Banister, 2010, Conrad and Donaldson, 2004, Manuguerra and Petocz, 2011). Moreover, instructors are able to ubiquitously engage learners during and after contact hours with learning management systems, blogs, social networking sites and cloud computing. These customised environments allow instructors to design attractive and meaningful environments exposing learners to the target language in a learning experience close to immersion learning. Learners have access to technological, peer as well as instructor support on demand. They can view course content, download lecture notes, share their work or comments on posts anywhere anytime. These features give the learners some control over the learning process (Li et al., 2010). The combination of peer, technological and instructor support was found beneficial with Malaysian learners particularly in helping reducing anxiety, thus increasing their confidence and motivation (Gabarre and Gabarre, 2009, 2010b, 2012).

Statement of the problem

In foreign language teaching and learning, technology mediated pedagogy sustains active participation by providing learners with multimedia content, authentic material as well as on demand course references and support. However, current facilities such as computer laboratories and lecture classrooms often dictate how technology is to be accessed and thus limits the flexibility of course delivery. In the computer laboratories, the learners have a complete access to online resources to assist them with brainstorming and language construction; however the seating arrangements maintain the learners isolated from each other thus limiting their participation. On the other hand, classrooms are very flexible and allow multiple work configurations and types of activities. However, the learners are deprived of means to check their answer which inhibits their confidence and restrains their engagement. Ideally, classrooms should bridge the advantages of all settings and provide educators with mobile, versatile and reliable technology.

Over the past ten years, the evolution of the learners' mobile equipment has reflected the market's technological progression from basic hand phones to high-tech smartphones and tablet computers. As demonstrated by global and national market indicators (Choi et al., 2011, The Nielsen Company, 2011), the number of foreign language learners using tablet computers is ever increasing. Likewise, the number of Malaysian foreign language undergraduates in Malaysia relying on iPads for their studies is growing with every intake. These devices' technological features and associated applications have the potentials to bring the foreign language classroom the advantages of both language laboratories and lecture classrooms.

Supporting active learning with iPads

In the case of foreign language learning, the learners need a technology mediated open access to textual, audio and video learning support materials in order to individually and collectively discuss, create and share their productions among classmates and with the world (Meurant,

2010). Recent studies have shown that tablet computers can perform as interactive whiteboards (Garner, 2011), transform into mobile computer laboratories while catering for ubiquitous, individualised and collaborative learning (Melhuish and Falloon, 2010, Murphy, 2011, Poe, 2010). Therefore, these devices allow for greater mobility and flexibility in terms of classroom management.

Light, compact and user-friendly, tablet computers feature all the necessary tools to engage foreign language learners in active learning (Godwin-Jones, 2012, Kinash et al., 2012) such as digital library, audio and video players, multiple languages dictionaries and predictive text input functionality. Therefore, iPad tablet computers have the potential to cater to various learning styles and provide a just-in-time customised learning support (Li et al., 2010, Melhuish and Falloon, 2010, Mock, 2004, Murray and Olcese, 2011).

Research questions

This research aimed a) to explore the technological and pedagogical potentials of tablet computers in fostering active learning for foreign language teaching and learning, and b) to investigate the learners' perceptions of using tablet computers as a foreign language learning tool.

Methodology

This research was implemented over one semester. The participants were a cohort of 25 Malaysian undergraduates majoring in French. The learners were in their second-semester and their proficiency level was within bandwidth 1. Ten students were lower grade learners and thus were facing greater anxiety and confidence issues than the rest of the group. The students were briefed on the research purposes and implications on the first week of the semester. They unanimously consented to participate in the research. Two researchers were involved throughout the design, implementation and analysis of the project. One of the researchers taught the course and was involved as a participant observer for the intervention.

A qualitative action research method was implemented as it best suited the monitoring of the intervention. The first step consisted in the design of the action plan. The university allocated a research grant which enabled the purchase of five iPad 2s. The devices were shared among groups of learners. A Wi-Fi hotspot was set up to connect the iPads to the Internet. The devices were also connected to the classroom projector either through cable or over Wi-Fi. The researchers selected content from the textbook Connexions, niveau 1 (Mérieux and Loiseau, 2004) which needed to be converted into multimedia and interactive formats suitable for the iPads. Permission was graciously granted from the textbook editor, Editions Didier to use the learning sequences and to install them on the iPads. Language learning as well as editing and sharing applications were installed on each device.

The data was collected through observations, field notes, pictures, videos, researchers' memos, learners' self-reflexive logs and focus-group interviews. The bulk of data was in digital format. The learners' reflective logs were scanned. The interviews were transcribed verbatim. All the files were then imported into the ATLAS.ti, qualitative data analysis software. The data was analysed using a three-stage coding method comprising initial, selective and theoretical coding based on grounded theory's principles (Charmaz, 2006). Validity and reliability were ensured with the triangulation of the multiple sources, member checking as well as with reviews from peers and the literature. The research process went

smoothly during the 14 weeks of implementation as the selected research method allowed for flexibility and responsiveness whenever we were faced with unexpected challenges.

Findings

Teaching was facilitated by integrating all the resources in one tool. Besides being able to play multimedia files, the iPads enabled us to use a wide variety of applications. Although these applications were not always designed with a teaching purpose in mind, they fitted our specific teaching requirements. These applications are listed in Table 1.

Table 1. Applications used for teaching

Category	Name of application
Lecture notes	Keynote, GoodNotes
Presenters	Prezi, PageSend
Polling applications	Teacher clicker
Annotations	Goodnotes, Adobe reader
Interactive whiteboard	Educreations, Teach
Ebooks	iBooks
Internet browser	Safari, Puffin, Chrome

Students reported enjoying the control that they had gained by using the iPads. This was marked in instances when students were looking for the meaning of words they had encountered. For them, accessing online resources became a simple process which they performed repeatedly. This added control was also observed during listening comprehension exercises. In a traditional setting, the lecturer controls the audio output and leaves the student with very little control over speed or over the number of times the document is repeated. With the iPad, students became less anxious as they were able to control the audio documents. This was particularly useful for weaker students who generally tended to give up on the exercise once they had lost the thread of the document. Moreover the use of predictive texts enabled the students to correct their mistakes when they were offered a correct alternative by the machine. These control features provided by the iPads are similar to those offered in a full fledge computer laboratory, with the added advantage of being mobile and thus available anywhere the students are learning. Self-regulated learning was facilitated by the devices. Such instances of control are highlighted in the following excerpt from the interviews:

*It is clearer than the class' speakers. I can **replay** the song (Virginie).*

*I use the iPad to search **verbs online** and to **replay** the songs (Sophie).*

*iPad is **like** using the **phone**. Messages can **directly correct** my word when I typed wrongly (Camille)*

For the students, the iPads were considered as an additional resource which did not supersede the others they had grown accustomed to using. As such, the tablets were used concomitantly with their textbooks, their notebooks, their paper dictionaries and even with the computers whenever the class was conducted in the computer laboratory. Additionally, students reported feeling engaged as they viewed their learning with the technology as a game. Although they

viewed their learning seriously, they noted that the ease with which they could create, edit and collaborate made their tasks more game-like. For them, the use of technology enticed their competitiveness. This feeling led to in-class challenges between students in order to produce better works tasking their creativity. These challenges motivated the students to expand their vocabulary in the target language by discovering and memorising new words. In an example of such a task, students were required to search online for a video in French which they though would interest their peers. After having made their selection, they were asked to write a short text to justify their choice. Such a task increases the level of exposure to the target language by allowing the students to view multiple videos and enables them to practice their writing skills. Meaningful exchanges were observed as students replied to the messages posted online by their peers.

In a twist on the traditional role-play task, students used the iPads to record themselves while acting a scene in French. Caught-up in the game-like aspect of the task that was provided by the devices, students went to the extent of recreating a news coverage inspired from the TV5 reports. This was obtained by first viewing the presentation style of that specific channel and subsequently reproducing and adapting it to their needs. Realism was further provided by the iPads as students used iMovie to edit their role-plays. Such activities enabled the students to remain engaged and focused on their learning. On multiple occasions, students reported that they enjoyed the class and felt more confident with their learning.

Across several of the interviews the theme of flexible learning was preeminent. Students explained that due to the iPad's compact design, it was feasible for them to bring it anywhere. Furthermore, they described their learning situation where they can show their work to their peers and engage them to collaborate on a given task. In such assignments, groups of students would place the device in a central position and use it to crystallise their collaboration. Brainstorming was collective, and each member of the group reported his or her ideas on the tablet. Similar collaborative tasks with desktop computers did not yield the same results as students were hindered by the lack of mobility of the technological setup. Although less powerful, the features offered by the iPads enabled the students to use them as substitutes for the desktop computers that were available in the computer laboratories. They emphasised the convenience of the mobile device beyond intra-group collaborative tasks. Indeed the benefits of flexible learning enabled inter-group collaboration as the iPads were physically transported across the classroom to accommodate social constructivist behaviours. In such an instance, the mobile devices were employed to resolve a knowledge gap which could only be resolved with inter-group collaboration. The flexibility of the devices enabled the students to move their chairs in order to work in pairs, groups of four and even larger groups. Once again, these possibilities would be harder to recreate with desktop computers or to a lesser extent with laptop computers.

Conclusion

Findings from this research project were tremendously encouraging. However, we would like to touch on some issues were improvements could still be carried out. In our situation, projecting the learner-created content as well as teaching material with the iPads to the whole classroom could be achieved in two ways. In equipped classes, the iPads could readily be connected with an adaptor into VGA and audio cables available at the lecturer's desk. This setup enabled the projection of the iPad's display onto the lecture hall's white screen via an LCD projector. Sound was amplified before being outputted to the room's speakers. However, most of the classes are not equipped in this manner, and thus require the lecturer to

carry additional cables and connectors in order to obtain the same result. This requires a certain learning curve as classrooms do not have a standardised setup. Furthermore, the additional time taken to install the projection is taken from the class time. Taking time to install before the class is in most instances not feasible as other lectures are conducted in the preceding time slots. Moreover, additional class time is lost as returning the classroom to its original setup for the next lecture requires removing the connections, and ensuring that the sound and video outputs are still operational.

Additional factors which impeded the utmost integration of the iPads in the classroom were related to connectivity issues. Insufficient Wi-Fi coverage remained a problem at all time during the research project. Furthermore, several online applications, such as Skype, Face Time and Messages, were blocked by the university's security system which prevented us from fully exploiting the potential of the mobile devices' communicative tools in the language classroom. This issue was partially resolved by creating a Wi-Fi hotspot which did not use the university's resources. As this ad-hoc connection was far from being sufficient, we experienced time lags when online documents were collaboratively being edited by several students. Whenever the Internet connection was insufficient for the planned activities, we resorted to alternative tasks which did not require online access. Furthermore, students were encouraged to fully utilise the mobility provided by the iPads and to roam freely in the faculty in search of a viable Wi-Fi hotspot. In such situations, communication between students and their lecturers was maintained through real-time status updates in a Facebook group.

Having conducted this action research has enabled us to explore teaching opportunities which could not have been possible otherwise. Mobile learning was experienced outside of the classroom, but more importantly within the classroom. Flexibility of movement and the reorganising of classroom learning spaces have enabled novel activities which resolved several issues which we faced in the more traditional setups. By increasing control over their learning, students have grown accustomed to seeing the iPads as another learning tool in the array that they already employed. As lecturers, we have become seasoned to the improvements in teaching afforded by the mobile devices and are now reluctant to return to lower-tech alternatives. The exploration of future language classroom with iPads has taught us that the tablet is here to stay.

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Applications

Adobe Reader [PDF annotations from Adobe]
ATLAS.ti (version 6) [Qualitative data analysis software]. http://www.atlasti.com/index.html
Clash of Clans [game from Supercell]
Dropbox [Cloud computing application from Dropbox]
Educreations Interactive Whiteboard [Educreations, Inc.]
English-French Dictionary Free [Anna Koroleva]
Facebook [Facebook, Inc.]
FaceTime [videoconferencing application from Apple]
France24 [French television from France24]
GéoFrance [Educational application on French region from Dauran, SARL]
Google Translate [Google, Inc.]
iBooks [ebook reader from Apple]
iMovie [Video editing application from Apple]
iTunes U [Learning management system from Apple]
iWriter [text editor from Serpensoft Group]
Keynote [Presentation application from Apple]
La-conjugaison.fr [verb tables from Nealis]
LeConjugueur [verb tables from LeConjugueur]
Messages [instant messaging application from Apple]
Mobile A2 [French learning App from Editions Didier]
Monoprix Course [online shopping application from Monoprix]
News Republic [News in French from Mobiles Republic]
Offline English French Dictionary [From movin'App]
PageSend [presentation application from PageSend]
Pendu classique [Hangman game from Dominik Walleser]
Prezi [presentation application from Prezi]
Puffin Web Browser [Flash content browser for iPad from CloudMosa, Inc.]
RFI [French radio learning application from Radio France International]

Skitch [Picture editing application from Evernote]
TV5 [French television learning application from TV5]
SlideShark View and Share Presentation [from Brainshark, Inc.]
SPY mouse HD [Game from Electronic arts]
Teacher clicker [polling application from Socrative]
Teach [Interactive whiteboard application from Knowmia]
100 questions orthographe [French learning application from Méthodos Applications]
4 images 1 mot [Vocabulary game from LOTUM GmbH]

DiTraLL: A Wiki Based Course for the Teaching and Learning of Translation

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Abstract

This proposal, which is part of my doctoral thesis[1], aims to discuss about the inclusion of the theme of translation of specialized languages in the English teaching degree curricula and show that a qualified integration of these two areas is possible. In order to illustrate how to integrate both fields, two important research stages were presented: i) a specific data collection methodology which assumed that the concept map is an efficient teaching technological strategy and ii) a theoretical-applied educational proposal for the translation of specialized languages named DiTraLL (Didática de Tradução para Licenciandos em Letras) which was created from the application of this data collection methodology. The development of both stages was based on the areas of Pedagogical Translation (HURTADO-ALBIR, 2005), Translation Studies (COSTA, 2005, PYM, 2008) Assimilation Theory (AUSUBEL, 2000, NOVAK, 2010) and Languages for Specific Purposes (CABRÉ, 2005), which presented both translation theoretical concepts and gradual progress to higher levels of reading and translation proficiency activities. The data collection methodology was tested in four pilot studies - composed of undergraduate students of the English teaching program at a private university[2] - who were invited to translate English scientific texts into Portuguese. The results of the application of this methodology showed that the concept map efficiently helped students with their translation tasks.

[1] Under supervision of Prof. Maria José Bocorny Finatto (Federal University of Porto Alegre, Rio Grande do Sul).
[2] PUCRS - Porto Alegre, Rio Grande do Sul.

INTRODUCTION

This article summarizes my PhD thesis, which was of a qualitative nature; it deals with the inclusion of the theme of translation of specialized languages in the English teaching degree curricula and shows that a qualified integration of these two areas is possible. In order to illustrate how to integrate both fields, a specific data collection methodology is presented as well as a theoretical-applied educational proposal for the translation of specialized languages named DiTraLL[1], which resulted and was created in the light of the application of this data collection methodology.

The development of this methodology and, consequently, the DiTraLL was based on the areas of Pedagogical Translation (HURTADO-ALBIR, 2005), Translation Studies (COSTA, 2005, PYM, 2008), Assimilation Theory (AUSUBEL, 2000, NOVAK, 2010) and Languages for Specific Purposes (CABRÉ, 2005). The data collection methodology was tested in four pilot studies[2], composed of different groups of students of the Letters Course[3], invited to translate English scientific texts[4] about the Bipolar Disorder (hereafter BD) into Portuguese. Their translations were made with and without pedagogical-instrumental resources (conceptual maps)[5] and were compared with the translations of two professionals: a translator and a psychiatrist[6] whose productions served for the qualitative assessment of both the methodology used and the didactic use of the concept map.

It should be said that the scientific text on BD was used due to the following factors: a) the researcher's familiarity with that subject through translations made for psychiatrists of IPPAD (Institute for the Prevention and Research on Alcohol and Drugs), and b) the awareness of the social importance of the topic[7] and its dissemination among college students, given the difficulty of diagnosis and disability that they suffer (MORENO, 2005). Despite the importance of disseminating this knowledge area and the demand for professional translations, our didactic proposal can be conducted with texts of any other areas of knowledge which professors deem appropriate to explore with their students.

Hence, the research presented here aims to uphold the validity of the exploration of the topic of translation in the training of teachers in accordance with a set of strategies previously tested in the four pilot studies conducted. One of the objectives of the presentation of these studies demonstrates that resources such as the concept map – based on the prospect of meaningful learning and accompanied by a proper methodological presentation – can really transform the

[1] Didática de Tradução para Licenciandos em Letras (A didactic proposal for the integration of translation skills into the English teaching degree curriculum).
[2] Pilot Study Zero (PS Zero), Pilot Study One (PS One), Pilot Study Two (PS Two) and Pilot Study Three (PS Three).
[3] Students with pre-intermediate to intermediate proficiency level in English. Pontifical Catholic University of Rio Grande do Sul.
[4] Taken from the American Journal of Psychiatrist and Bipolar Disorder Journal.
[5] Theoretical input about the nature of translation was never provided in the course. This option was due to the concern to influence neither the process-product nor the linguistic behavior or competence of translating, so that the performance of the students would be as natural as possible.
[6] Cristina Heuser and Dr. Carmen Vernetti, respectively.
[7] (i) the significant portion of the population that suffer from larger than normal mood swings - about 1Zero% of the population - with varying degrees of injury, ii) the high rate of suicide risk among bipolar patients (3Zero times higher than other disorders); iii) morbidity; iv) poor life quality; v) the high cost for treatment (Racine Journal, 2009, vol. 19).

performance of students as well as collaborate to improve their learning of English as a foreign language (FL). In addition, we are aware that the distinction between the task of translating as a profession and simply translating in order to learn the language was clear to the students who participated in the pilot studies[8].

That said, we will proceed to the questions which guided our research.

RESEARCH QUESTIONS

Based on the belief that it is good to include the topic of translation in training for the teaching of English[9], and considering that the training of translators and of teachers are different processes, we constructed our research questions as follows:

- Did the methodology of data collection, presented during the pilot studies in this research, positively modify the translations made by the respondent students?
- Can the concept map, which was constructed in the language that will be translated from (in this case, Portuguese) be a useful teaching tool to facilitate the understanding of conceptual nodes of specialized texts, and thereby assist in building a viable translated text?

We believe that the description of the four pilot-studies (two of them described later in the text) that have been conducted can generate data to adequately answer these research questions.

OBJECT OF STUDY AND UNIT OF ANALYSIS

Our object of study consisted of the translations of scientific texts on BD in the language pair English-Portuguese by students of the Letters Course, whose analysis took into account lexical, syntactic and pragmatic aspects under a micro textual perspective, in addition to cohesion and consistency aspects under a macro textual perspective.

With respect to the first perspective, PS Zero showed a concentration of problems related to nominal, verbal and adjectival collocations at lexical and grammatical levels. From this, we decided to investigate how these structures are presented in the specialized language of BD and how they were reproduced in Brazilian Portuguese by the respondents in the other three pilot studies (One, Two and Three). Due to the concentration found in the first study, we chose collocations as our favored unit of analysis in the whole of the students' translations. Thus, we selected a cross-section to examine these translations, and these were compared with the texts translated by the professional translator and the psychiatrist. Regarding the macro textual aspect, we sought to learn if the inadequacy in the equivalence of collocations may (or may not) have had negative influences on the establishment of cohesive relations in the translated texts. It is

[8] According to their oral feedback.
[9] This insertion may also be beneficial to help promote undergraduate and postgraduate translation in the country.

obvious that many other aspects we did not point out in this thesis can be highlighted when our didactic proposal is replicated.

It is worth noting that, according to Hausmann (1985), collocations[10] are made up by a base - the word with the highest semantic load, typically a noun – plus another *collocate*. The collocation is named according to the collocate. Hence, a collocation of **verb + noun** will be a **verbal collocation**, an **adjective + noun** will be an **adjectival collocation**, and a **noun + noun** will be a **nominal collocation**. According to Tagnin (2005), these last two groups constitute the largest part of the sentence inventory of specialized languages, since there are constantly new collocations to name new technologies, processes and theories, and new objects and products.

There are several examples of these types of collocations in original specialized texts on BD, which we used for this research: *adhere to the treatment* (verbal collocation); n*eurocognitive predictors* (adjective collocation) and *bipolar family history* (nominal collocation). Examples of collocations formed by a larger number of collocates were also found in our corpus as, for example, *laboratory-observed behavioral disinhibition*, where the base is *disinhibition*, and the collocates are *laboratory-observed* and *behavioral*. For our data analysis, however, the words *core* (rather than basic) and *determining* (rather than *collocates*) were used, following the theoretical choice of Pagano (2009) and Magalhães (2009) who make use of these terms to analyze collocations in translation.

THEORETICAL BACKGROUND

This thesis falls in the areas of Applied Linguistics, Translation and Education but, here, we will focus on the teaching of translation (HURTADO-ALBIR, 2001, p. 45), which uses the approach of translation tasks. According to the author, the most relevant aspects of this type of focus are:

- It decreases the distance found in other proposals between objectives and methodology, providing a really active methodology.
- It equips the student for the task by presenting (pedagogical) facilitators that help them to achieve the final goal (the translation of a specific genre, for example); consequently, there is a pedagogy centered on monitoring processes (in this thesis, through our methodology for data collection).
- Through the tasks, it enhances a living methodology in which the student acquires learning strategies and learns to solve problems.
- It promotes the achievement of a student-centered pedagogy, which also makes them responsible for their own learning process and therefore makes them more autonomous.
- It allows the constant incorporation of formative assessment tasks for the student (learning to measure their own possibilities) and the teacher (who can evaluate teaching and then modify it).

[10] The literature displays several ways of naming 'a combination of several words,' according to different authors. For instance, Biber et al (1998) have opted for *lexical bundles* while Nattinger and DeCarrico (1992), for *lexical phrases*. In this thesis, we chose the term *collocation*, used by Hausmann (1985) and Tagnin (2005).

This approach, which constitutes the backbone of our teaching activity, was used here as the basis for our methodological proposal, through tasks with graded levels of difficulty, which were structured by means of textual and technological resources, and presented in the methodology of data collection and DiTraLL.

In this context, there is a *focus on translation tasks*[11], which arouses great interest in concentrating on the students, seeing them as the protagonists of the didactic action and being open to a flexible curriculum that can be adapted to the diverse educational situations, depending on the students' needs, and enabling the modification of goals. The design of a course is to be a sequence of tasks that constitute teaching units aimed at learning. According to Zanon (1990), a task is characterized by being i) representative of communication processes in real life, ii) capable of identification as a unit of activity during the class iii) intentionally directed to the language learners, and iv) designed with a purpose, a structure and work sequence.

In this sense, our study deals with *becoming familiar* with the subject of translation through the development of a teaching proposal based on tasks and centered on the learner, inspired in the model of teaching units as presented by Hurtado Albir (2005). Thus, instead of *acquiring translation competence*, as defined by the author, we refer to *becoming familiar and learning translational skills*, an expression which more appropriately reflects our proposal.

The next section outlines the structure of the design of our proposed method, focusing on the PS Two and PS Three, from which subsidies concerning methodological results were more consistent.

PILOT STUDIES TWO AND THREE

This section reports our trajectory in conducting two of the four pilot studies (Zero, One, Two and Three), whose results were used as parameters for the development of our teaching methodology. These results were obtained through an ongoing process of collection and analysis of the translations made by the students, who were the respondents in this survey[12].

- Pilot Study Two[13]

This section describes the third stage of the collection and analysis of data while still focusing on the validation of the concept map as a pedagogical resource for translation. This pilot study consisted of a series of procedures that were intended to provide an autonomous contact of the undergraduates with the following issues:

[11] Organizational units of the learning process.
[12] Before collecting the data, the respondents signed a Consent, as the *de facto* standard for research involving subjects. The names of these respondents are in the Acknowledgments section of the doctoral thesis.
[13] It consisted of a corpus of a 139 word-text *The multidisciplinary team approach to the treatment of bipolar disorder: an overview* (Psychiatry Brazilian Journal, 2004).

i) The importance of being familiar *a priori* with the topic that would be translated, from the broad and easy to understand concepts to the specific and more complex ones;
ii) The nature and role of concept maps, to aid in understanding the subject field to be translated, and in the reading comprehension of texts related to it.

Therefore, we designed this PS through a series of tasks of reading and translation, with graded levels of difficulty, which started from familiarization with the thematic area - BD (in the methodology of data collection) and with the concept maps[14], and finished with translation of abstracts of articles on this topic.

These tasks were performed in a virtual environment, called *wiki*[15], aimed for research and the teaching-learning content from various fields, and sharing this among its users. This virtual space was created i) to standardize information; ii) to serve as a repository for files, reference material and links to tasks; and iii) to serve as a communication channel among the group members (the undergraduates, the psychiatrist and the author of the research).

This virtual environment also constituted i) a means of interaction between students and teachers; ii) a platform in which students were asked to perform tasks[16] (in this case, reading and translation) within deadlines; iii) an environment in which the teacher played the role of mediator and evaluator; and iv) a tool to promote individual work and self-learning, fostering autonomy and awareness of the process of learning. Using this virtual environment was a worthwhile experience for the study, proving an efficient means of communication and organization of content.

As for the data analysis, a number of concepts from different translation theoreticians have been used, but a rather simplified categorization was decided upon when evaluating the performance of the learners, as follows:

a) Equivalence: a problem in lexical matching at the level of the word or term[17];
b) Word class: a problem in identifying the grammatical category of the word;
c) Word order: a problem in identifying the nucleus and its determiners (word arrangement).

The principal aim of this pilot study was to examine the hypothesis that the concept maps constructed by the undergraduates and reviewed by the psychiatrist could serve as a resource for instrumental teaching of translation tasks. In other words, this study aimed to answer the

[14]We asked the respondents of the WM Group to construct their own maps based on the material on BD and on the concept maps. These maps were reviewed and evaluated by the psychiatrist and the author, who suggested the modifications to be made.
[15] To access this environment, go to http://ditrall.pbworks.com/w/page/52551500/DiTraLL.
[16] In this pilot study, the group of six respondents was split into two: one that did not construct maps, called "No Map" (hereafter NM)[16] and one that did so, called "With Map" (hereinafter WM).
[17] There are many definitions and opinions about the status of a term. Our purpose is not to conceptualize or limit it: we use the word *term*, however, only to refer to a word that is in specialized discourse and is used by professionals in a particular subject area (not ruling out the possibility of it also being used among laymen). For DiTraLL, however, we work with the status of the term and how it can be identified and limited within the text.

following question: *Can concept maps promptly assist in understanding lexical, syntactic and pragmatic aspects of specialized language?*

In PS One, for example, R1 and R3[18] found more relevant solutions for the translation of the message conveyed in the original text after having used the concept map constructed by the author and reviewed by the psychiatrist as support for their TTs. From this result, in PS Two we asked the undergraduates to construct their own maps for their translation tasks, in order to assess the extent to which the active participation of these students would be positive and would result in a more adequate understanding of aspects of the language of BD.

From the micro textual analysis of the segments that had been translated, we had the following results (in the tables below), indicating the group (WM and NM), and location of the sentence in its context, the problem type and quantity of each type of problems encountered. Consider:

Table 1– WM- Group Results

Problems found	Place of the phrase in the context						
	Title	P1	P2	P3	P4	P5	Total
Equivalence	2	2	_	3	2	2	11
Word class	1	_	_	_	_	_	1
Word order	2	-	-	4	-	-	6
Total *per* collocation	4	2	0	7	2	2	17
None	0	2	2	0	1	1	6

Source: Delgado, 2011.

Table 2– NM - Group Results

Problems found	Place of the phrase in the context						
	Title	P1	P2	P3	P4	P5	Total
Equivalence	1	3	3	2	1	1	11
Word class	_	_	_	_	_	_	0
Word order	-	1	4	2	-	-	7
Total *per* collocation	1	4	7	4	1	2	19
None	1	0	0	0	2	2	5

Source: Delgado, 2011.

In general, both groups had similar performance and produced good translated texts (hereafter TTs), considering the number of problems identified (WM = 17; NM = 19), and the number of problems in each category. Group WM presented 11 problems of lexical equivalence: one of

[18] R2 presented no significant differences, probably due to previous experience in the reading and comprehension of technical texts.

word class, and 6 of word order. The NM group had 11 problems of lexical equivalence, none of word class, and seven of word order.

It is worth noting that the result of the performance of the NM group is also important because it shows that respondents in this group improved their TTs over the four pilot studies conducted. Such performance indicates that the application of our methodology (used for this student profile), which includes a set of tasks before the pre-translation task itself, was helpful and improved their translation. However, we detected micro textual problems in some segments produced by the two groups: the TTs were less natural and less close to the psychiatrist's TTs, where translational solutions were not "the way they are used" by the medical community.

As it can be seen, the examples referenced above are not directly related to the cohesion problems; however, we deem it appropriate to point them out at this time of the macroscopic analysis. We believe that inadequacies resulting from "failure" at a pragmatic level interfere negatively in the meaning of a text as a whole, whether it is produced in the mother tongue or in a TT. Therefore, pragmatic issues need to be carefully analyzed in the translation process and insistently discussed in the classes.

In the next section, we describe the course of our next experiment, namely, PS Three, which we believe will provide more support for an analysis of this research.

- Pilot Study Three[19]

This section describes the fourth and final stage of the data collection and analysis processes, which sought to extend our hypothesis about the conceptual map as a useful teaching tool to increase translation competence in specialized languages. In the previous pilot studies, it was seen that the strategies and resources presented in our pedagogical proposal helped the two groups (WM and NM) to qualify their TTs. We wished, therefore, to obtain a larger number of investigative subsidies through another translation task: that of a full article on BD. We also used Pym's risk criteria to analyze the respondents' TTs.

In this approach, Pym (2004) stresses the need to think about the purpose of translation and the role it will play in trying to minimize the translation inadequacies, and the author adds that the risks are not necessarily of a linguistic nature. Gouadec (2002), for example, defends the idea of a pre-translation task, which is also considered by Pym (2004). This investigation aims to obtain as much information as possible before the start of the task, so that translation problems are refrained from. The authors point out that pre-translation research effort would be a more efficient way to manage risks than solving problems individually at each new occurrence. Pym (2004) adds that the most needed information is the one related to high-risk options, and that translators should get as much information as possible about these options before translating, in order to eliminate possible "guesses" and reduce the risk of inadequacy.

[19] *Occupational status and social adjustment six months after hospitalization early in the course of bipolar disorder: a prospective study*, a 4,621-word text electronically published in 2010 by the *Bipolar Disorder* Journal.

The point of view of these authors has offered us theoretical support for methodology on the familiarization of translation used in this research, in which we offered our undergraduates various reading activities on BD (in Portuguese), with different terminology densities (from plain to sophisticated language), and also intended for different audiences (lay, medical students and medical professionals). The goal of making this material available to undergraduates was to offer them the tools of the terminology and concepts of this subject area; we also believe that the pre-translation research is the first step to be taken when dealing with an unfamiliar area that needs to be rewritten in another language.

Also with regard to the concept of risk, we included the conceptual map in our familiarization methodology since it is a resource to manage risk; one who constructs it can gradually improve it as new knowledge is grasped. Metaphorically speaking, this feature is the methodological backbone of our work: i) the construction of knowledge preceding the translation task, stemming from general concepts (with lower-density terminology) to specific concepts (with higher-density

terminology); ii) gradual assimilation of contents; iii) learner autonomy for their learning; and iv) the possibility of revising and restructuring concepts that have been previously structured.

The methodology used for data collection consisted of similar steps as PS Two[20].

As for the data analysis, the following criteria were structured based on the data of problems identified in the previous experiments and which made the following risk criteria possible[21]:

Level 1: Problems of no-equivalence of the micro textual order:

- Lexical equivalence of the word: low risk
- Word class: low risk
- Lexical equivalence of the term: medium risk
- Word order: medium risk
- Lexical equivalence of the term and word order: high risk

These criteria also took into account a likely user of these TTs: the medical student who is not familiar with terms and conceptual nodes on BD, which have a high semantic load. Accordingly, the accuracy of the lexical equivalence of a term and collocations in TTs, for example, can be illuminating for the future doctor, if they need to construct qualified knowledge on this disease.

DATA ANALYSIS

[20]The only difference is the insertion of the item *risk criteria*.
[21]As in PS Two, these criteria are categorized in a simplified way, although we are aware that there are other variables at the time of observing a TT, such as the co-text where the structures are placed and our interpretation at the moment of analysis of the TTs. We point out that this is only a categorization proposal. If the translations do not have any problems in any of these criteria, it will be said: no risk presented.

Our first intention was to find out whether this translation task of a complete scientific article presented problems similar to those presented by respondents in the previous steps, which consisted of the translations of parts of an article (the abstract and the introduction).

The results of this analysis (respondents' TTs with reference to the psychiatrist's TT) are in the tables below, with indications of the group (WM and NM), the segment number (according to the titles of the tables), the type of problem (and risk category), and the amount found in each type of problem.

Table 3 –WM Group (2 respondents)

Problems found: risk	Number of Segments														
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
LEW [22] : Low risk	_	_	_	_	_	1	_	_	_	_	_	2	2	_	4
WC[23]: Low risk	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
LET [24] :Medium risk	1	2	1	_	2	1	_	_	_	_	_	_	_	2	2
WO[25]: Medium risk	_	_	_	_	_	_	_	_	_	_	_	_	2	_	_
LETWO[26]: High risk	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Total number per segment	1	2	1	0	2	2	0	0	0	0	0	2	4	2	6
No risk	1	-	1	2	-	-	2	2	2	2	2	-	-	-	-

Source: Delgado, 2011.

Table 4 –NM Group (2 respondents)

Problems Found / risk	Number of Segments														
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S1 Zero	S11	S12	S13	S14	S15
LEW: low risk	_	1	1	1	_	_	2	2	_	1	1	2	_	4	4
WC: Low risk	_	_	_	_	_	_	_	_	_	_	_	_	_	_	2
LET: medium risk	1	2	_	_	1	_	_	1	_	_	1	1	_	_	3
WO: medium risk	-	1	-	-	-	2	-	-	-	-	1	-	1	1	-

[22] Lexical Equivalence of the Word
[23] Word Class
[24] Lexical Equivalence of the Term
[25] Word Order
[26] Lexical Equivalence of the Term and Word Order

LETWO: high risk	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Total number per segment	1	4	1	1	2	2	2	3	Zero	1	3	3	1	5	9
No risk	1	-	1	1	-	-	-	-	2	1	1	-	1	-	8

Source: Delgado, 2011.

Observing the total number of problems encountered regardless of the risk associated with them, we found that the WM group had a significantly lower number (22) as compared to the NM group (38), indicating a greater positive change in the TTs of the first group.

Regarding the similarity of the type of translation problem, we found that the concentration is in the lexical equivalence of the word and the term[27], differing from the previous pilot studies to

some extent, whose most frequent problem occurred in the order (or arrangement) of the words in a collocation. We believe that TTs of this type of structure were less recurrent for two reasons: i) the methodology of data collection, which presented the specialized topic to be translated from broad and general concepts (low-density terminology) to specific and specialized concepts (high-density terminology), using the concept map as a pedagogical resource[28], and ii) the full article, which provided respondents with exposure to all of significance of the content and a possible identification and structuring of that whole into ideational blocks making the relationship between them easier. It was also noted that these two factors caused a positive change in the performance of the two groups[29] in this last stage, as compared to other phases (PS Zero, PS One and PS Two).

With regard to the comparative data of this pilot study, it was observed that the WM group had more risk-free segments[30] (14) than the NM group (8); this basically indicates a more positive change in the TTs of the first group. The subtotal number in the low risk categories was particularly lower in this group (9) than in the second (21), but the subtotal number in the medium risk categories was similar in both groups (13 and 16, respectively). The frequency of high-risk criterion was low: only one in NM, again indicating a positive change in TTs of both groups. Although there was similarity at the medium risk category between the two groups in the context of the micro textual analysis, it is worth considering that an optimistic response to our research questions was obtained: i) the methodology for data collection, presented throughout the pilot studies positively modified the translations made by the respondent students, and ii) the conceptual map, constructed in the language that would be translated from (Portuguese in this case), proved to be a useful teaching tool to facilitate the understanding of conceptual nodes of specialized texts and thus assist in the construction of a viable translated text.

[27] We believe this happened because the original text in this PS presented even higher terminological density than in the previous texts.
[28] The map was inserted in this research from PS ONE, at a time the groups had not been divided, i.e., the three respondents had access to the map constructed by the author and reviewed by the psychiatrist for their TTs.
[29] WM and NM.
[30] Considering the suggestion of risk criteria presented in this study.

So far we have presented the perspective of micro textual analysis of translated texts (TTs), based on issues of lexical and grammatical non-equivalence, and created categories of risk that would deal with these problems, even in a simplified form. We are aware, however, that considering macro textual aspects is equally important both for understanding the original text and for the production of a translated text, as these aspects may include units of genre and rhetorical patterns, for example, as well as the relationship of the text with the context. While these along with many other factors can be evoked, we propose a quick note about the overall performance of the respondents, based on issues of cohesion and coherence. These are two important concepts when working with texts at the discourse level, i.e., the level at which only understanding words or phrases, is not enough. Cohesion is a network of relations found on the surface of the text which sets out the links between words and expressions of the text, whereas coherence is a network of conceptual relations underlying the textual surface and is, therefore, a facet of evaluation of the text by the reader (MAGALHÃES, 2009).

As previously considered, two groups of respondents (NM and WM) showed, in general, positive changes in their TTs throughout the process of data analysis presented in this study, both at the micro textual and macro textual levels. There are obviously factors, such as knowledge of the world, that influence both the process and the product of TTs.

However, the problems of micro textual order (lexical, grammatical) presented by the NM group (and less frequently by the WM group) have given rise to macro textual problems in some segments, and were less natural and less close to the psychiatrist's TTs. These problems are more perceived at the pragmatic level, resulting in inadequacies that do not mirror the language of the medical community, who takes the context of use into consideration.

Hence, the WM group had fewer problems in the "way of saying" than the NM group, strengthening the belief that the analysis of details in a translation is of paramount importance for the analysis of the text as a whole. As seen in the examples above, the problems presented by our respondents are related to the way of expressing specialized scientific knowledge, which arises out of "failures" at the pragmatic level that interfere negatively in the meaning of a text as a whole, whether it is produced in the mother tongue or a translated text.

FINAL REMARKS

In general, however, and taking into account the context of undergraduate students in Letters working on translation tasks, we can say that these TTs proved viable in most cases, especially in the last two experiments. We also conclude that both the methodology of data collection (for both groups) and the inclusion of the concept map as a pedagogical resource of translation (for the WM group) gave a qualitative assistance to the respondents for carrying out the requested tasks. It seems that by including this feature, the WM group produced more natural TTs which were also closer to the TT reference.

It is worth mentioning that our methodology model for data collection, designed and structured for pedagogical purposes (familiarization process), resulted in viable TTs by both groups. All the aspects involved in the translation task are, of course, a complex issue – with idiosyncratic views and numerous important points to be discussed – and they could not be taken into consideration at

this time. We hope, however, that our ideas can be replicated and improved through research addressing the interface between teaching of the English language and translation, since we have shown, at least within the limits of this study, that there is the possibility for a prospective teacher of English to unite their teaching of the language with being a *possible* professional translator on the side, if properly qualified.

The investigation here presented is intended to demonstrate that there is a universe to be researched and debated among professionals in the area, as well as among those indirectly involved in the translation process, such as experts from other fields. The research experience that I had with the psychiatrist who participated in this study was extremely valuable for me as a translator, which confirms our belief that a translation job can and should be interdisciplinary, whenever possible.

Finally, we believe that there is the need to know how the process of TTs of these respondents was conducted, i.e., what resources were used, which difficulties were not identified in our analysis, how the data collection methodology was perceived, and finally, how they understood the process and the product involved in the tasks requested in the pilot studies. In an attempt to learn about these, we developed a questionnaire[31] with multiple choice questions, and options for suggestions. We believe that when this questionnaire is used, it can contribute to qualify our didactic proposal in several ways, perhaps some not even thought of yet.

[31] Available in Portuguese at http://www.lume.ufrgs.br/handle/10183/56030. Annex AP.

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E-learning in Science Classroom: Do Majors vs. Non-Majors Students Respond Differently?

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Abstract

With bad economy and student enrollment at an all time high, there is a major push on campus to start partially online (PNET) courses due to limited classroom space. The need goes beyond space, eLearning is becoming more mainstream and a young crop of high school students enter college classrooms being raised in an online era. It is about time that the educators catch up to the new technology in classrooms. In this paper, the author will discuss how starting biology PNET courses changed the way she viewed science education. Also, how biology majors respond to online learning compared with non-biology majors will be discussed. To the author's surprise, results reveal some differences of how both groups of students respond to the e-learning environment. Both attitudes towards the course as well grades were compared for majors vs. non-majors; another factor of comparison was in person vs. PNET teaching. This is a really positive experience as the author moves forward and views the pedagogy of new roles of mentor-mentee relationship emerging in the e-learning teaching environment.

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Introduction

Queensborough Community College (QCC) is one of the seventeen colleges of City University of New York (CUNY). Located in the most diverse Queens county of New York, QCC enjoys student diversity with approximately 23% White, 27% Black, 24% Asian and 26% Hispanic student population. Total student enrollment is over 15,000 students on the mainly commuter campus.

According to the data collected by our Institutional Research Office, over 75% of our students report having full time or part time jobs and most of them have family obligations as well. With busy lives they do understand the importance of education and therefore want to earn a college degree. QCC is committed to help students succeed in their goals and offers all kinds of high impact activities for them. Faculty and administration joined forces in 2010 and an eLearning Institute was started by our Academic Computing Center. In this two week long intense institute faculty cohorts are introduced to the eLearning environment. Faculty is matched with a mentor who plays an instrumental role in the development of an online course. After following rigorous training and mentor approval faculty implements the course and assesses the course at the start and end of the semester.

So far, 55 Courses are being offered partially online (PNET) and 58 faculty members are involved. 17 new faculty have just received training and the numbers continue to rise steadily. Starting with a PNET non-majors biology course in 2011, the author has since developed a total of three online courses successfully. Feedback from the students and course grades revealed that there might be slight differences in the way students handle the eLearning environment. In this paper, the author would like to explore these differences further and start the discussion if biology majors vs. non-major students respond differently to the PNET environment.

Course Management System

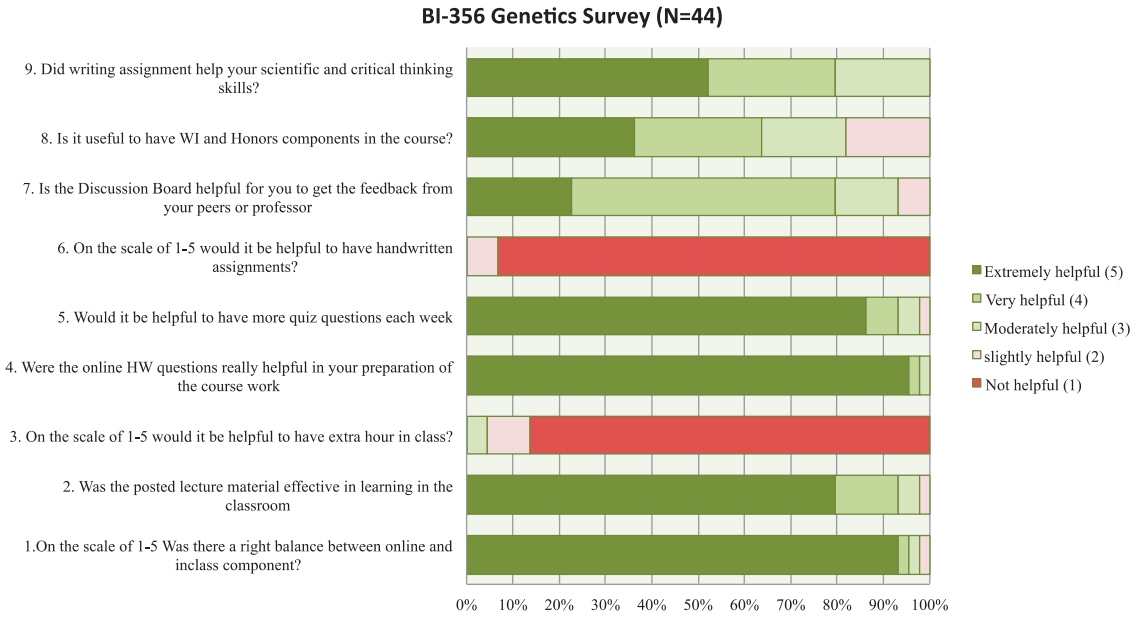
All three courses offered are available to QCC students on Blackboard (Bb). CUNY recently upgraded to Blackboard 9.1 a Learning Management System of Blackboard Inc. Once students are registered for the course, they can access the Bb from any internet offering device.

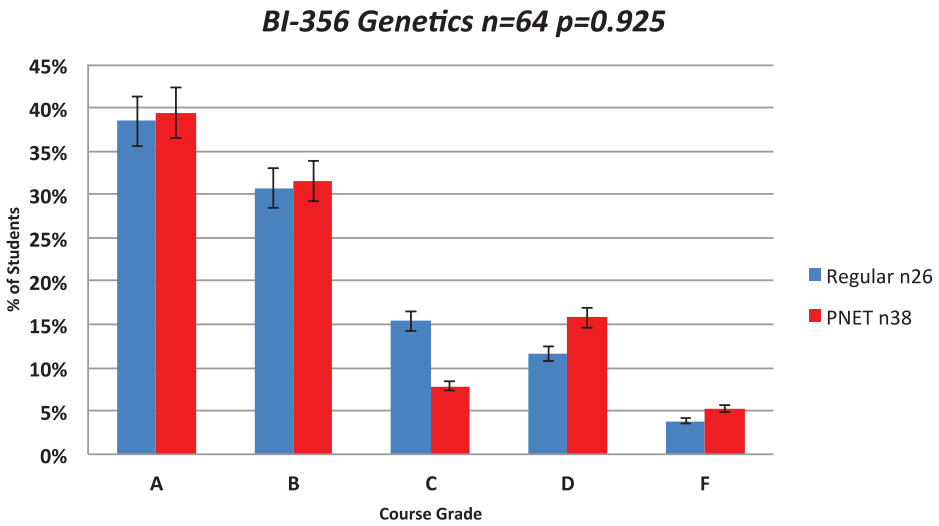
Science Majors Courses Offered

Among the first PNET course offered was a upper division Genetics course BI-356. This course is open to all life science majors (LS1) and is a requirement for biotechnology majors. It is a writing intensive course and students have the option to take it as an honors course as well. The course is a 4 credit normally offered for 4 hours per week for a total of 60 hours per semester. The Asynchronous PNET version of the course was offered for 3 hours in person and 1 hour online.

The PNET version is organized into weekly lectures online followed by a short quiz and discussion board activity on relevant topics. Because it is heavily content driven, the in person time includes in depth discussions, problem solving and exams.

Below is the student survey gathered over the last few semesters followed by the final grades students received in the course (A,B,C,D or F) while being administered similar exams. Error bars for the data that follows indicate the *Chi Square* analysis performed and the probability calculations done.

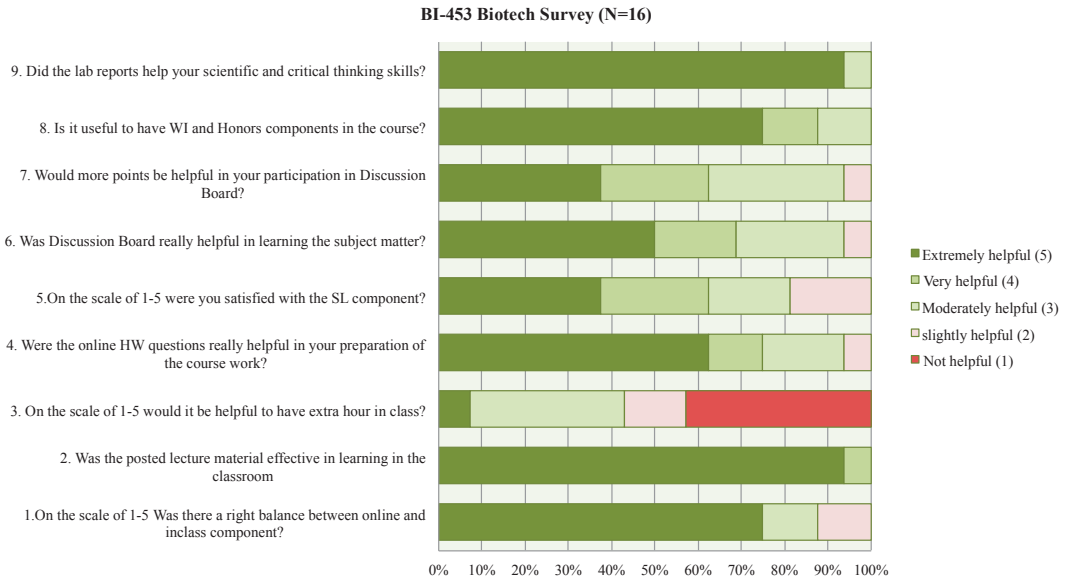


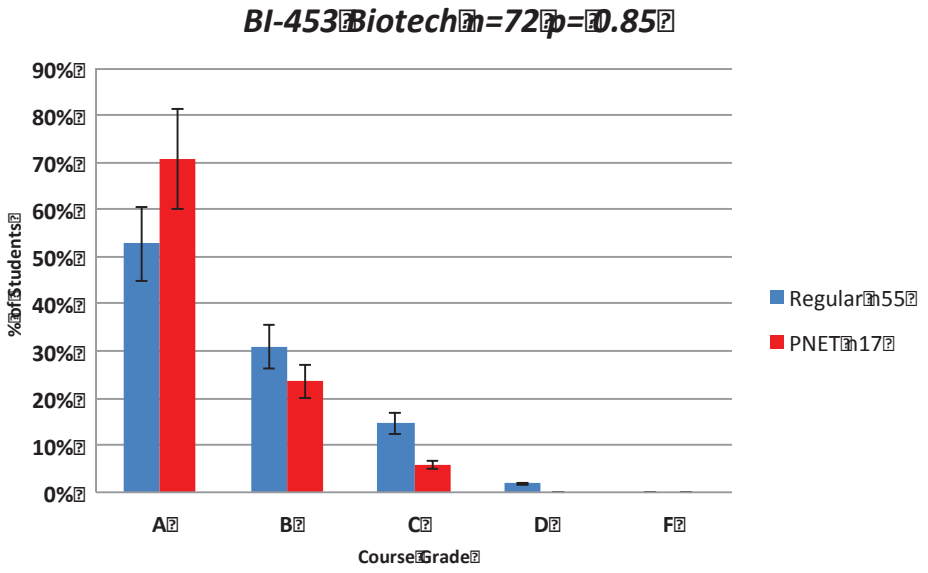


The second majors PNET course that was just recently offered was another upper level biology course for science majors BI-453, Biotechnology. This course can be taken by any science major (LS1) and is a required course for biotechnology majors. This is a writing intensive and honors course. Regular course was offered 3 hours lecture, 4 hours

lab for 5 credits while the PNET version was offered as 2 hours lecture component online followed by 1 hour in class discussion and 4 hours lab. This asynchronous 2 hour PNET component includes students listening to lectures before they come to class. Online lectures are also followed by a short online quiz and discussion board activity. Discussion board covers the topic of study for that week where all students post their comments and relevant links on any animations or videos found online. The one hour in class time is used for in depth discussions as well as exams.

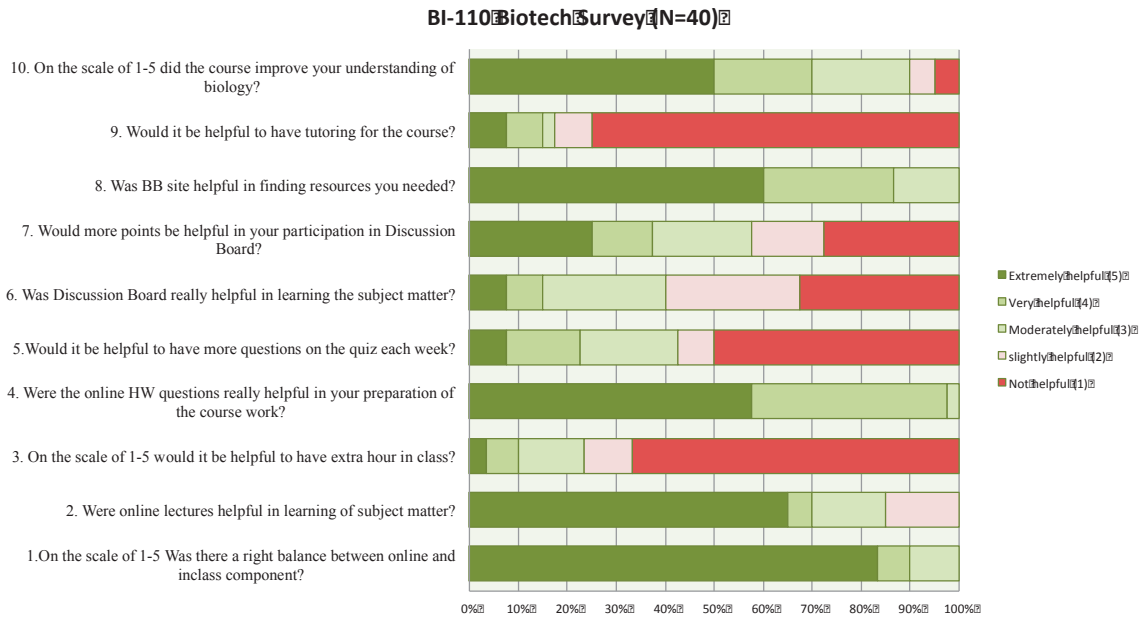
Below is the student survey gathered for the last few semesters followed by the grade comparison for the course with similar exam questions.

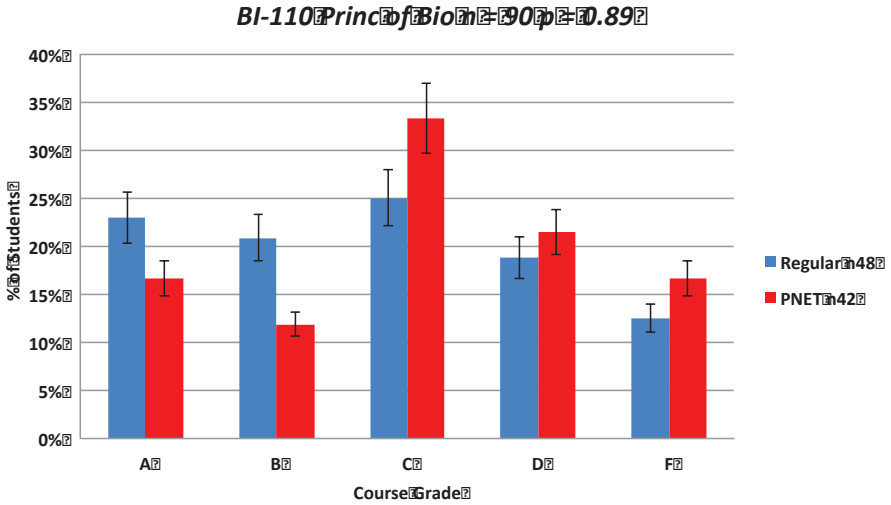




Non-Majors Course Offered

Principles of Biology, BI-110 is a class offered to non-majors as part of the general education requirement for graduation. This is a 3 hours, 3 credit course and a PNET version was offered 2 hours lecture online followed by a quiz and discussion board activity while the 1 hour face to face time was used for discussion and exams. Student survey and grades are shown below.





Student Quotes

The last question in the survey asks students to share comments about the online experience and advise for other students.

- *"I was able to listen to lectures multiple times as English is not my first language."*
- *"Make sure you keep up with it and don't slack!"*
- *"Online is easier with a busy schedule."*
- *"Come prepared to the class by listening to lectures ahead of time and ask questions."*

- *"Make sure you take the online quizzes, homework and lectures very seriously because they are a big part of the grade."*
- *"Keep up with the work!"*
- *"Be prepared to work hard, I loved the experience."*
- *"There is nothing about the class that I would change!"*
- *"Online lectures were great due to busy schedule."*
- *"Organize yourself from day one."*
- *"Keep up with weekly assignments, be attentive, it's crucial."*
- *"It was really great to exchange ideas with the whole class on Discussion Board."*
- *"This was the most structured and organized class I have ever taken in my life."*

Discussion

- For Biology Majors:

As is expected from upper level biology majors, students were serious about the course work. PNET or regular course had minor impact on student grades and attitude towards the course. For both Genetics and Biotechnology course the final course grades didn't change much. Some grade differences in Biotechnology course can be because *n* is still low and the grades will even out with more student data. However, overall attitude towards the course and learning material didn't change. Students engaged in the discussion board with great enthusiasm, they didn't have to be reminded to take weekly quizzes or listen to the lectures before coming to class.

- For Non-majors:

About 25% think they need more face to face time in classroom. These students were less engaged on Discussion Board. They didn't want to participate in weekly quizzes nor did they want tutoring. They had to be reminded several times to listen to the lecture before coming to class and to take their weekly quizzes before the due date. There was an overall lack of motivation. Over a third of the class surveyed at the start of the semester didn't even realize that they had registered for a PNET course.

Conclusion

Most students agreed that there was a perfect balance between online and face to face time. Given our diverse student body, most students appreciated that they can listen to lectures when they want and as many times as they want. This was particularly beneficial for foreign and ESL students. Most students commented that courses were really structured and kept them disciplined. Given a slight shift in grades for non-majors, face to face time will be increased for the non-majors course to see if that helps balance the grades closer to the regular course. Other activities to keep non-majors more engaged and motivated will also be looked into. Since most city high schools are changing to online course and homework components, the author strongly believes that it is just a matter a of time that in the coming years students entering college classrooms will not view online class components as something foreign and will readily embrace the PNET pedagogy.

Integration of CALL with Traditional Classroom Pedagogy in Teaching English as a Second Language to the students of the University of Jaffna

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Abstract

The purpose of the study was to examine the effectiveness of the integration of CALL with traditional classroom pedagogy to promote the level of ESL to undergraduates of the University of Jaffna. The present day students of the University of Jaffna find the traditional methods of teaching English boring. So they lack basic language skills, in particular, vocabulary, speaking skills and usage of grammar. As a result, they are unable to excel in their academic activities and to satisfy the interviewers in job interviews. So, there is a need to develop their language through the most scientific methods of teaching especially through the newly advanced methods of using the multimedia and the Web.

The study involved qualitative methods of data collection which involved pilot testing which is used in the development of quantitative survey items. Survey items are piloted on study participants to test the reliability and validity of the items and to assess the learning process of the third year students of Arts Faculty in the University of Jaffna when using technology and traditional classroom pedagogy without technology.

The data collected from the subjects' responses were analyzed and the findings were derived. The findings will be beneficial for material development and ESL teaching and learning process in future. A better understanding of the difficulties of students in learning ESL and the problems faced by the language teachers would help to incorporate new strategies and latest technology in language teaching popularly known as CALL.

Key Words: - scientific methods, visual – aids, English proficiency, individual differences, Computer Assisted Language Learning (CALL), language skills.

Introduction

No change can be brought without a change in the teaching strategies and approaches. Presently, our teachers seem to have exhausted with the methods and techniques of traditional teaching. They want a new methodology that is modern and effective. The emergence of new technology and research about how people think is changing the classroom. New generations of educational technology are moving towards models and theories that are expected to provide the insights necessary to advance educational technology research in promising new directions (Samaras, Giouvanakis, Bousiou, & Tarabanis, 2006). New tools are thought to empower educators to change the way teaching and learning occurs. Considering these demands, the only way out seems to be the computer. This new field is called Computer Assisted Language Learning. The researcher himself went through many articles in these areas. And at this point, he feels that language ought to be taught with the help of the computer. Already a variety of ideas and pictures are represented through the computer for those who use them. The internet is an effective source of ideas and picture display. Thus the hypothesis that language can be taught through the computers is put forward here.

This study discusses the nature of interaction and the definition of CALL and its applications. The researcher highlights the method of promoting qualitative interaction amongst students, teachers and computer software. This project evidences the fact that computer pair work enhances interaction. -D.Healy says,

> "The complexity of teaching and learning – is a systematic research .The technical details of the mouse are simple but the teaching principles are complicated; for that reason we need to consider the effectiveness of learning through multimedia" (***(An extract from:*Computer Assisted Language Learning (CALL)–www. Monografias.com)**

Definition of CALL and its implications

Computer Assisted Language Learning (CALL) is a new approach which focuses on using computer technology in learning and teaching a second language or foreign language to students in the classrooms. It has significant impact on education and has been more and more integrated into classroom for promoting effective learning and teaching processes in the field of education. It is the new approach which can be used in the language classes along with the traditional classroom pedagogy or with the substitution of traditional classroom pedagogy in teaching second or foreign languages to the students and it shows how language can be taught and learned very effectively through the interactional process between the students, teachers and computers; the students can share, learn or work with each other. However, the success and achievement of methodological and pedagogical goals depend on teachers' preparation to incorporate computers into classrooms. If the goal of teaching with computer technology is to transform the teaching and learning processes, this must be foundation in teacher preparation programmes. Teachers need time and guidance while using technology in general; however, while the computer technology is integrated, teachers need to develop a particular philosophy about how to use CALL to support their instruction.

The main role of CALL is to enable learners to achieve education goals first. Language learning and teaching has been impacted by growing social requirements and the need of knowledge. Although still traditional methods are used in teaching a second or foreign language in the classroom, CALL stresses how to develop thinking skills in learners when being out of the classroom. Both children and adult learners are expected to develop and follow individual, effective thinking that results in processing of the language information. Such development should also bring autonomy and independence in students' learning. So the role of computers in

the language classroom is to support traditional methods of teaching and trying to fulfill individual needs. A learner becomes more and more aware of learning strategies and is able to use them to achieve effective communication.

Computer Technology in ESL Education

The advent of technology has found a welcome home in foreign language education. Language instruction that combines technology has become popular and has had a tremendous impact on language education. Numerous ESL research studies suggest that integration of technology can improve academic performance, enhance motivation, and promote learning. To examine how technology supports ESL teaching and learning, a similar research studies done by Chatel (2002) and Lasagabaster and Sierra (2003) revealed that the students had a positive attitude toward learning language with computers. Results from some research studies also suggest the value of incorporating technology into ESL teaching and found a shift in research focus.

Current research was centered on how to integrate technology to make teaching and learning more effective. It increases the participation when it is used in classroom environment (Sullivan and Pratt, 1996; Warschauer, 1996). For instance, it was found that the ESL learners produce more sentences when it compared to the situation in classroom environment. It also useful not only for the quantity but also the quality of language: Learners have a great variety of speech discourse (Sullivan and Pratt, 1996) and use more complex language (Warschauer, 1996).

Pedagogical Benefits of CALL Language Learning and Teaching

Interest and Motivation

It is often necessary, in a language learning classroom, to provide repeated practice to meet important objectives. Because this can be boring, painful, and frustrating, many students lose interest and motivation to learn foreign languages. CALL programmes present the learner with a novelty. They teach the language in different and more interesting, attractive ways and present language through games, animated graphics and problem-solving techniques. As a result even tedious drills become more interesting. In fact, CALL motivates the students to go beyond the point of initial mastery and practice activity until they become automatic.

Individualization

Many students need additional time and individualized practice to meet learning objectives. The computer offers students self-instructional tasks that let them master prerequisite skills and course objectives at a speed and level dictated by their own needs. Besides, additional programmes can be made available for students who master objectives quickly. These additional programmes can provide more intense study of the same objectives, proceed to higher objectives, or integrate the objectives covered in the unit with other objectives. In this manner, a computer gives individual attention to the learner and replies immediately to questions or commands. It acts as a tutor and guides the learner towards the correct answer while adapting the material to his performance.

A Compatible Learning Style

Students differ in their preferred styles of learning. Many students seem to learn much more effectively when they are able to use a compatible learning style than when they are forced to employ an incompatible one. Serious conflicts may arise when a teacher employs a style that is incompatible with a student's. In this regard, the computer can be used for adapting instruction to the unique styles of individual students. To cite an instance, the computer can provide an exciting rapid-fire drill for one student and a calm, slow-paced mode of presentation for another.

Optimal Use of Learning Time

By using the computer, students are often able to use their Academic Learning Time (ALT) more fruitfully. Academic Learning Time (ALT) is the amount of time a student spends attending to relevant academic tasks while performing those tasks with a high rate of success. For example, not all the time officially scheduled for studying a foreign language is likely to be allocated to it. If an hour is assigned to working on a topic, but the teacher devotes five minutes at the beginning of the session to returning papers and five minutes at the end to reading announcements, then only fifty minutes have been allocated to working on the topic. Therefore, even when they are actively engaged in studying the foreign language, students learn effectively only when they are performing at a high rate of success. Computers enhance second and foreign language academic learning time by permitting learners to acquire specific information and practice specific skills and by helping students develop basic tools of learning which they can apply in a wide variety of settings. Traditional instruction holds time constant and allows achievement to vary within a group. Computer-assisted learning reverses this relationship by holding achievement constant and letting the time students spend in pursuit of the objectives vary.

Immediate Feedback

Learners receive maximum benefit from feedback only when it is supplied immediately. Their interest and receptivity decline when the information on their performance is delayed. Yet, for various reasons, classroom feedback is often delayed and at times denied. A deferment of positive feedback, though important to act as encouragement and reinforcement, may not harm the progress of the learners.

Nonetheless, any delay in offering negative feedback, the knowledge that one is wrong, will become crucial. A blissfully ignorant student may continue mispronouncing a word or applying a misconception before discovering the nature of this error. In such case, the computer can give instantaneous feedback and help the learner ward off his misconception at the initial stage itself. In addition to this, the computer can look for certain types of errors and give specific feedback.

Error Analysis

Computer database can be used by the instructor to classify and differentiate the type of general errors as well as errors committed by learners on account of the influence of the first language. And thus determine the most common errors cross-linguistically and more specifically, the particular form of a particular error type within a particular language group. One such study conducted reveals interesting findings, for example, that in subject-verb agreement errors the base form of verb was over generalized incorrectly more often than the -s form by all speakers. Also, students typically omitted the articles a/an more often. A computer can thus analyze the specific mistakes the student has made and can react in a different way from the usual teacher--this leads the student not only to self-correction, but also to understanding the principles behind the correct solution.

Guided and Free Writing

A word-processor in the computer can be very effective in teaching guided and free writing activities. The ability to create and manipulate text easily is the principle on which the word-processor programmes are founded. In this manner, the word-processor encourages practice in guided or free writing activities together with a number of sub-skills which comprise the writing process. Aspects of paragraphing, register, style, cohesion, rhetorical structure, lexical choice and expression can all receive attention without requiring the user to learn different programmes. The advantage is that the teacher can direct the student's writing without exerting total and rigid control, allowing for freedom of expression within certain bounds. Insights into grammar, vocabulary and punctuation, can also be developed.

Review of Literature

There has been a significant value on computer technology in the field of education. Because of technology's pervasive impact, many teachers have been under substantial pressure to increase computer use in the classroom activities. Education moved slowly to integrate technology and would benefit from guidance regarding how to provide seamless movement between technology and traditional classroom pedagogy in the classrooms. Researchers have identified a broad range of factors necessary to facilitate technology integration in the instructional processes.

Dillon-Marble and Valentine (2006) indicated that computers significantly improved certain aspects of instruction. His findings of the study took the form of four classroom characteristics which defined the integration of computer technology use in the classrooms. The characteristics included; seamless computer use, computer use appropriate to the learner, computer use that was facilitated and computer use that empowered the learner.

Maninger (2006) conducted a study that explored the impact of technology integration in the English language class. He pointed out that the successful technology integration study revealed a connection between computer use and the passing rates of the students in the high school English class.

Berger (2005) explored what teachers perceived was the impact of adopting technology into classroom. The results of his study indicated teachers perceived three broad areas of impact of adopting the internet into classroom; student empowerment, collaborative classroom and a shift in the teachers' role.

Statement of the problem

While there has been little debate on the instructional function of resources such as books, study guides or lectures, no such consensus has been established for interactive learning materials. There appears to be no common set of standards for the learner-computer interface, the strategies for presentation of interactive material is variable and the influx of newer technologies (such as multimedia and web-based resources) have only added to the complexity of developing effective interactive learning materials. Given this situation, it is important to assess the assumptions which are inherent in both research analyses and courseware applications to determine their reliability and validity for educational technology in language learning situations.

Methodology

This study was undertaken using qualitative method of data collection which involved pilot testing which is used in the development of quantitative survey items. Survey items are piloted on study participants to test the reliability and validity of the items and to assess the learning process of the third year students of Arts, faculty in the University.

Research Questions

1. Is there a significant difference in learning ESL among the students who receive CALL instruction, with the comparison of students who receive traditional instruction alone?

The researcher established the following null hypothesis, to examine the research question:

2. There is no statistically significant difference in learning ESL among students who receive CALL instruction, with the comparison of students who receive traditional instruction alone?

Research Design

This study involved a control group and an experimental group which contained sixty students with similar English proficiency in writing. The duration of treatment in this study was one semester, three hours a week, for both groups. The students in the control group were taught by the researcher in a traditional classroom, while those in the experimental group were taught in a computer lab, with one computer per student. The content of the language teaching covered word order, articles, pronouns, tenses, adjectives, adverbs, prepositions, coordination, and subordination. In addition to grammar explanation, exercises were provided as well. Exercises in the control group were done by paper and pencil, whereas exercises in the experimental group were practiced via the computer tutorial with immediate feedback on students' answers. Finally, the students of both control and experimental groups were given a picture (printed picture for control group and picture displayed using multi media for experimental group) in order to assess their writing.

Results

The data collected from the pretest and posttest by the researcher during the instruction made in both control and experimental groups were analyzed.

	N	M	SD
With technology	30	26.47	8.15
Without technology	29	28.14	6.36

Df = 57 t score= 0.8761 Probability > 0.3847

Table 1. t-Test for pretest scores comparing students in classes with technology and classes without technology

The pretest scores of each classroom were compared. Table 1 indicates that there was no statistical significance between the two groups of classrooms. The students in each classroom were found to have similar proficiency in English at the beginning of the study.

	N	M	SD
Pretest	30	26.86	7.99
posttest	30	31.13	7.08

Df = 57 t score= 2.1738 Probability > 0.0339

Table 2. t-Test comparing pretest and posttest scores for significant progress in class without technology

After comparing the students pretest and post scores, table 2 indicates that there was greater than expected growth in the students' progress when technology was not used in the classroom.

	N	M	SD
Pretest	30	27.80	6.52
posttest	30	44.93	6.73

Df = 57 t score= 9.9318 Probability < 0.0001

Table 3.t-Test comparing pretest and posttest scores for significant progress in class with technology.

After comparing the students pretest and post scores, table 3 indicates that there was greater than expected growth in the students' progress when using technology in the classroom.

	N	M	SD
With technology	29	44.93	6.73
Without technology	30	31.13	7.08

Df = 57 t score= 7.6653 Probability < 0.0001

Table 4t-Test comparing posttest scores for significant progress in class with technology and class without technology

The posttest scores of each classroom were compared. Table 4 indicates that there was considerable statistical significance found between the two groups. The students in class with technology were found to have achieved higher proficiency level in English at the end of the study measured by posttest.

The study reveals the significant difference between the control and experimental groups who were taught employing traditional and computer technology respectively. The experimental group has been found very enthusiastic in learning English and showed considerable progress in the assessment made by the researcher when comparing with the control group. So the study validated the effect of CALL in second language teaching. The researcher believes that computers can be used to make classes more effective. There are two ways to use them. One way is for the teacher to present pictures, videos and written text with or without sound. The presentation can be programmed in advance or handled manually. The other way to use computers is to have students use the computers themselves. The researchers find the second method of using computers which lead the students a better understanding of computers as well as language learning. In this method, the students work individually on their own interest. The computer provides materials to study and students can interact with the computer as if they are doing with a tutor or a library. The students here are encouraged to do the work either in groups or in pairs, so that they can get a spirit of cooperation and confidence in finding the answers. Interaction among the students is as important as that with a computer in learning. The researcher suggests that students work at a computer during the class, can do assignments drills, tutorials, games, simulations and even reviewing and preparing for the class. Using computers gives way to their knowledge and promotes the nature of independence. The researcher is of the view that the

computer education is a beneficial one for both the slow learners and the advanced learners, as it encourages to work at their own pace. Slower learners can catch up, and advanced learners can do extra assignments.

Discussion

An ideal CALL courseware remains not an alternative but a complementary tool in reinforcing classroom activities. Apart from relying on the ability of educators to create suitable CALL courseware, the effectiveness of CALL depends on the teacher's readiness to adopt new attitudes and approaches toward language teaching. The teacher should avoid being skeptical about the use of computer in language teaching and begin to re-evaluate his methods in the light of computer's tremendous teaching potential and boldly address to the challenges offered. The computer can best assist teachers if it is seen not as a replacement for their work but as a supplement to it. By the way, the computer, will not replace the language teachers, but, used creatively, it will relieve them of tedious tasks and will enable students to receive individualized attention from both teachers and machines to a degree that has hitherto been impossible.

The advantages of CALL can be outlined as providing motivation and autonomy for learner, compatible and time flexible learning, immediate and detailed feedback, error analysis, and a process syllabus. Some considerations must be given to the disadvantages of CALL, such as less handy equipment, high cost of education, lack of trained teachers and of CALL programs of perfect quality, and limited capacity of computers to handle unexpected situations.

CALL has certain advantages and disadvantages and teachers should know the strengths and weaknesses in applying CALL in ESL classrooms. It is agreeable that technological advancement and development has enabled the application of CALL programs in language learning and instruction, and it has become a new trend recently. Even so, computer technology still has its limitation and weaknesses. Therefore, we must first realize the advantages and disadvantages of current CALL programs before applying them to improve our teaching or to help student learning. In the end, we can avoid the mistake in employing CALL program and get the maximum benefit for our ESL teaching and learning.

To make a student be more self-reliant, the typical classroom situation in which students very often learn second language does not seem to be adequate. All the more it is a very important task of a teacher to help the students develop and improve their learner strategies. In order to improve second language learning and make it more effective, he or she should prepare the students both practically and psychologically. The practical preparation is the teaching itself, for example of grammar rules or vocabulary. Besides that, it is practical knowledge like how to use a dictionary or where to find information like an appropriate grammar rule. The psychological preparation, however, includes also learner training.

Learner training is a classroom process which is organized by the teacher and which helps the students to become a better, self-directed learner. It includes the improvement of classroom learning, but also of self-access learning and independent learning at home. Facilities for self-access learning are for example CALL (Computer Assisted Language Learning), tapes, written texts and articles, the library, the radio and the TV, games, exam material, grammar banks or the language lab. By providing or explaining them, the teacher can take away the fear of the students to use them.

Besides that, the teacher should constantly encourage the students to monitor their learning and check its progress. This can be achieved for example through group work or talks in pairs in which the students consciously have to speak about their learning.

Conclusion

Presently, many students are tired of traditional English classes and are interested in a new style of learning. The researcher rightly accepts the suggestions made by Kitao (1995),

> "Students think materials are new and fresh, if they are presented on computers, and they are often interested even in routine tasks such as learning to type. They seem to be willing to spend more hours and do more exercises on a computer than by hand".(***(An extract from:*Computer Assisted Language Learning (CALL)–www. Monografias.com)**

Learning can be individualized using computers. Students can study materials related to their individual goals and interests, with the appropriate difficulty level and at their own pace.

"Computers can analyze the problems of each student and the teacher can help individual students with their problems based on the analysis"

The role of interaction in second language curriculum has grown since its beginning. Interactivity in learning is "a necessary and fundamental mechanism for knowledge acquisition and the development of both cognitive and physical skills" (Barker, 1994). Today, computer technology helps the communicative approach of learning that is concerned with the interaction between the teacher and learner, and in which the teaching strategy is dependent upon students' learning needs and learning styles.

Due to the significant changes in second language teaching and learning (the role of the teacher, the role of the learner, the role of multimedia, and the way the learning process has to occur in the language laboratory settings), interaction has become an increasingly important and relevant area of study in the field of second language acquisition since it reflects what goes on in formal learning and teaching processes.

The role of interaction in the foreign language curriculum is increasing with influential works like the one done by Warschauer, M., & Healey, D. (1998) about software-related research in CALL such as the amount and type of interaction at the computer and attitudes toward computers and CALL. Interaction is intrinsic to success, effective instructional practice as well as individual discovery. The implementation of interactivity can be perceived as an art (Sims 1997) because it requires a comprehensive range of skills, including an understanding of the learner, an appreciation of software engineering capabilities, the importance of rigorous instructional design and the application of appropriate graphical interfaces.

The increased quality interaction is directly translated into increased performance. This expectancy theory of the value of interaction states that a learner's performance is based upon a quality interaction between the learner's and a qualitative input. The source of qualitative input ranges from pair, teacher and multimedia. The introduction of multimedia technology into the education process in higher education not only provides an opportunity to reconsider teaching strategies to be adopted but also requires reconsideration. This reconsideration should address the opportunities for promoting the efficiency and effectiveness of learning through the use of this new technology.

A language teacher may not know the definitions and descriptions of technical terms and the processes related to Technology. The teacher is expected to be familiar with those matters, before the teacher enters into the class. As the blooming generation is efficient in gathering new ideas on science and facts, they try to cross- check the teacher, whether the teacher knows about the latest technology. So, the language teacher in the institution needs to be efficient and confident while responding to the students. At this point, the researcher concludes that students tend to enjoy using computers and the teachers need much more work, to identify the factors involved in using software efficiently, for language teaching.

Researches on Computer-Assisted Language Learning (CALL) propose that the integration of CALL into ESL/EFL learning can provide learners with more authentic input and more opportunities to participate in the target sociocultural contexts; both linguistic and pragmatic knowledge can be promoted. Moreover, motivation, learner autonomy, social equality, and identity can also be encouraged through the use of CALL inside and outside of the classroom.

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Innovative Assessments for Innovative e-Learning Courses in a Developing Country

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Abstract

Creating meaningful learning activities and assessments in an online environment is a challenging and very rewarding aspect of online teaching. At the Virtual Centre for Innovative Learning Technologies (VCILT), we preach socio-constructivist learning theories combined with learner-centred instructional strategies to our students who are mostly in-service educators themselves, allowing our teaching to "be embedded in the social and physical context within which it will be used", as from Brown et al (1989). However most of these students are newcomers to the online teaching and learning environment. In an attempt to evaluate whether we "walk our talk" and to what extent our teaching practices cater for 21st Century learning skills, this paper analyses and evaluates a random selection of assessment activities- both continuous assessments and examination papers- from the Masters in Educational Technologies (MSc Ed.Tech) programme at the University of Mauritius. The analysis takes into consideration innovative learning design principles that have been used for 3 main topics (ILT 6012 Interaction Design, ILT 6013 Principles of Learning Design and ILT 6014 Applied Visual Communication) spanning over 3 cohorts. The findings will help to provide constructive comments and recommendations that will be more learner-centred and our students to bridge the digital divide they often face.

Key Words: Mauritius, Innovative teaching and learning, situated learning, assessments, examinations,

1. Introduction

Assessment forms an integral part of all learning processes. The Quality Assurance Agency for Higher Education (QAA) United Kingdom in its Code of Practice [i] defines higher education assessment as "any process that appraises an individual's knowledge, understanding, abilities or skills". There are many different forms of assessment, serving a variety of purposes and we tend to classify assessments as diagnostic, formative or summative in their functions:

- diagnostic since possible learning problems can be identified which indicate a learner's aptitude and level of preparedness for a course –
- formative since this type of assessment is done during the course of a lecture or learner-teacher interaction providing both parties information about progress made and further teaching or training needs. Formative assessment does not contribute towards overall assessment, but does assist the learner towards better preparation of the summative assessments,
- summative- providing a quantitative measure of achievement or failure with respect to the intended learning outcomes of the unit or programme of study.

In an online environment, formative assessments play a very important role as educational technologies allow for prompt, timely and increasingly transparent feedback mechanisms. Mateo and Sangra[ii] (2007) clearly point out that "one of the most important concerns of distance education institutions is to develop a formative assessment system. Assessment must help to identify and apply improvements in the student learning process, through permanent feedback. Online assessments go beyond automated quizzes and accessing structured pdfs. and more so if we ask of students to achieve higher levels of the cognitive learning domains, demonstrate physical skills in the psychomotor learning domain, or to evaluate attitudes in the affective learning domain. Kelly in Iyoshi and Kumar[iii] (2010) confirms that "authentic assessments- assessing student abilities to apply knowledge skills and attitudes to real world problems- is not only possible in an online environment- it is getting increasingly popular."

2. Background - Innovative Learning Programmes at the UoM.

2.1 Virtual Centre for Innovative Learning Technologies (VCILT)

The VCILT is currently the only centre in Mauritius actively engaged in parallel into teaching, research, consultancy and administration of e-education/e-learning/educational technology related activities. After successfully running the MSc Computer-mediated Communication and Pedagogies (MSc CMCP- Now revamped into the MSc Educational Technologies) since 2004, and in view of building capacity and allowing more students to be able to enter the MSc programmes, we launched the BSc Instructional and Educational Technologies (Top-Up) programme for in-service teachers who had studied only up to diploma level. Both the BSc and MSc programmes are geared towards knowledge construction, socialization and collaboration based on a set of authentic activities that will help the student develop an understanding of the subject matter, formulate personal learning goals. The Master's programme comprises of the following modules:

MSc Educational Technologies
Core modules

1. ILT 6019 Research in Learning Technologies
2. ILT 6023 Social Networking
3. ILT 6012 Interaction Design
4. ILT 6013 Principles of Learning Design
5. ILT 6014 Applied Visual Communication
6. ILT 6018 Masters Research project.

Elective modules

7. ILT 6015 Multimedia Learning Objects
8. ILT 6016 Web Development & Technologies
9. ILT 6017 Digital Media Project in Science/Technology/Language Education

BSc Instructional And Educational Technologies (Top-up) programme :

1. ILT 3000 : Foundations of Educational and Instructional Technologies
2. ILT 3100Y : Instructional Design
3. ILT 3200Y : Intellectual Property and Copyright in Educational Processes
4. ILT 3300Y : Design and Development of Educational websites
5. ILT 3400: Open-Educational Resources and Technologies
6. ILT 3500: Technology Leadership and Management
7. ILT 3700: Educational Technology Project.

All of these modules are delivered fully online through the Moodle e-learning platform and learners are assessed 40% to 100% through continuous assessments compared to the more traditional face-to-face courses at the University that normally tend to have 30% continuous assessment and 70 % examinations. Visibly these modules have strong application components and we try to create learning activities that require students to be able to evaluate, analyse and create tangible artefacts that demonstrate learning has occurred. This goes beyond classic e-learning through well-structured websites, diffusion of contents online with structured chapters and classic activities such as open-ended questions and Multiple Choice Questions. The tendancy is to use e-learning technologies to foster innovative pedagogies and to promote knowledge construction and autonomous development of the student (Santally & Senteni, 2004)[iv].

2.2 Innovative Assessment issues

Innovative assessment is about 'the redistribution of educational power' when assessment becomes not just something which is 'done to' learners but also 'done with' and 'done by' learners Harris and Bell[v], (1990). Assessment should be primarily for the learners and for learning. As defined by Rowntree[vi] (1977), it is about getting to know students and the quality of their learning. Obviously here, class –size is a real issue and based on research

about online class-sizes, the MSc cohorts range from 10 to 17 students which are very ideal class sizes and allow us to get to know the students well, set meaningful assessment activities and recognise the quality of their products. In the figure 1 below, Hornby (2003) organised different assessment practices according to their educational effectiveness and how efficient these were in terms of mobilising resources.

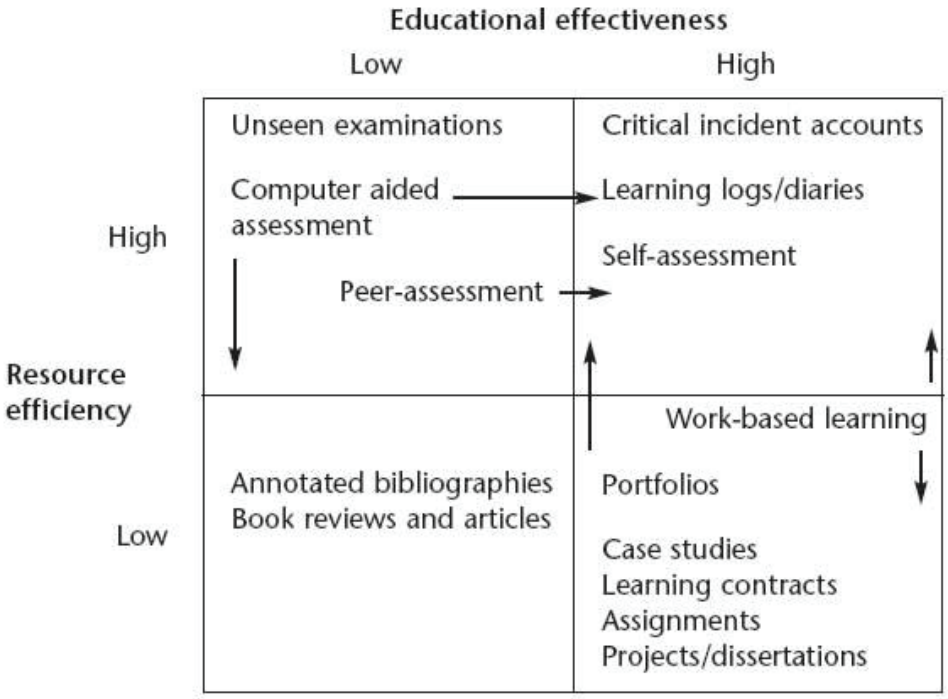

Figure 1: Survey of some assessment methods -Summary of Findings. Source Hornby (2003)

In these days of dwindling resources and the need to be more cost-effective, we find that we can still be innovative, effective and efficient about our teaching and learning through the use of online technologies. In his Innovative Student Assessment guide, Mowl[vii] (1996) clearly mentions that "unlike traditional assessment, innovative assessment does not rely on exams as a measure of the students' ability, it involves a range of methods and utilises many different media, including: essays, seminars, projects, role plays, simulations, group work, problem solving, presentations, work placements, portfolios, reflective diaries etc." Indeed, one of our duties as innovative lecturers involves keeping track of new teaching methods and imagining some very challenging assessment practices which involve the latest web tools and technologies. The advent of social networking sites has brought up a lot of discussions around the use of these as educational tools for the students. Increasingly we find students interacting more on Facebook than in classrooms or even at home. So how to reconcile the 21st Century learners' need for social interaction and at the same time motivate and engage into learning activities calls for the creation of "Social Learning Events". Figure 2 below demonstrates a post on Wikispaces showing the ways "Social learning tools" can be mapped onto Anderson and Krathwohl's Taxonomies.

It is interesting to note that most of these tools are incorporated into our own teachings – The Social Networking module asks students to test out most of these and create a Prezi or PowerPoint presentation to highlight their features. In the Foundations of Instructional and Educational, VoiceThread is used as an asynchrounous tool for students to collaborate and create a powerpoint presentation as a teamwork. Each of the students were asked to comment on each other's tools- coherently with the diagram above to analyse each other's contributions towards the production of the final PowerPoint. VoiceThread also allowed for Peer –review evaluations. It is also remarkable to note that the Moodle platform allows for attaining the highest level of cognitive skills, given the possibilities it allows for collaboration, interaction, self-reflection and peer-evaluation processes. While connectivity and bandwidth issues still prevail in Mauritius, a judicious choice and balance of different learning events is recommended to deliver high-quality learning experiences for our students. In the end, however, Social Networking software and sites still remain tools that enhance and facilitate the learning process- learning which is verified and ascertained during more formal and summative assessment methods.

In the next section, we will analyse the summative learning activities more deeply for the MSc and BSc modules based on Anderson and Krathwohl's taxonomies by evaluating a few examination papers to gauge the levels at which they were pitched.

2.3 Summative Assessments

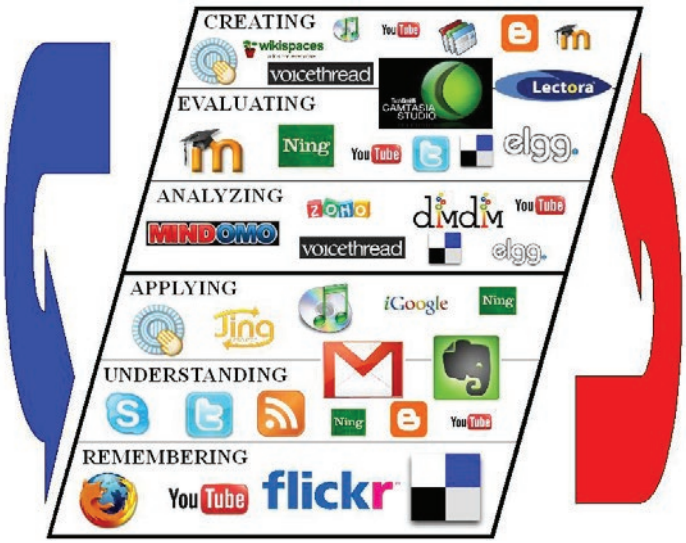

Figure 2: Social learning tools mapped onto Anderson and Krathwohl's Taxonomies. Available at http://visualblooms.wikispaces.com/

The University of Mauritius has a long way to go before considering to do away with written examinations. Being extremely exam-oriented is a cultural reality that has been inherited from the British educational system prevailing at the time of our independence and perhaps worsened because of our insular perspectives, but this will surely diminish with time as new blood and new technologies enter the system. The most fundamental problem with an exam-oriented education system is that examinations distort students' motivation and learning by over-emphasising the importance of the scores as outcomes and measures of students' abilities (Paris[viii], S., 1995). However, according to Ip[ix] (2003) " if we adopt the learner-

centred approach in teaching, exams should elicit productive strategies and positive motivation, so that students can maximise their performance. These positive features of exam might be attained through its replacement by performance testing or portfolios of work samples where assessment is linked to the classroom curriculum and is part of an ongoing process in which students monitor their personal progress." Reference, here, is clearly made to higher order thinking skills, asking students to perform and create explicit artifacts during the semester continuous assessments.

Anderson and Krathwohl [x] (2001) proposed nineteen cognitive process dimensions that represent an extension of Bloom's taxonomy. The Cognitive Process dimensions integrate the knowledge dimensions to put forward a continuum of increasingly complex cognition structures from remembering to creating knowledge. For instance at the basic factual knowledge dimension, in the creative cognitive process dimension, one might ask of a student to generate a log of daily activities. The Table 1 below provides some examples of learning artefacts that can be generated at each of the dimensions of Anderson and Krathwohl's taxonomy.

The Knowledge dimension	The Cognitive Process Dimension					
	Remember	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
Factual	List of items, fact charts, glossary, coding	Worksheets Developing action scripts	Illustration, Examples, Developing action scripts	Questionnaire, Spreadsheet,	Judgement, opinion, summary, news item	Logs,
Conceptual	Drawings, Paraphrases	Seminars, Case studies	Movies Models, Maps	Chart, graph	Critique	Multimedia presentations, Articles,
Procedural				Survey, report		
Meta-cognitive			Diary	Self-evaluation Peer teaching		Blog post, story, podcast

Table 1: The Revised Anderson and Krathwohl Taxonomy table with examples of activities and artefacts that can be associated.

Table 1 can thus guide us for evaluating summative assessments according to the actual outcomes of the examination questions. The three papers under scrutiny comprise of Applied Visual Communications and Web Technologies and Development at MSc level, Open educational Resources at BSc level. On a general observation, most of the questions for the MSc level ask for explaining particular concepts and providing examples to supplement the definitions, label design principles on from a given image and pitched at the analysis and application levels of cognitive skills. However the Open educational Resources paper is based on a case study, which the students have already accessed two days prior to the exams. A discussion forum was also open on the Moodle platform for students to discuss about the paper. However it has to be noted that only two students had participated constructively.

Module	Question number	Cognitive Process dimension	Artefacts created
Applied Visual Communications	1	Remembering factual information	Lists and descriptions
	2	Understanding differences, distinguishing features.	Descriptions and Examples
	3	Remembering procedures, Understanding Concepts, Analysing facts	Examples of Benefits Distinguishing features.
	4	Remembering concepts -Labelling	Worksheet
	5	Provide views and opinions- Evaluating factual information	Examples of visual design strategies and application in an e-learning environment
	6	Analysing and evaluating concepts	Critique of an image
	7	Analysing and evaluating concept	Highlighting effectiveness of design principles.
Open educational Resources	1	Remembering factual information	Lists and descriptions
	2	Creating a visual display of concepts and their links with each other.	Concept map
	3	Applying factual knowledge to local context	Personal experiences and stories
	4	Recalling facts and applying	Examples
	5	Based on continuous assessment	Experiential knowledge
	6	Differentiate conceptual information	Examples
Web technologies and development	1	Discussion of a particular syntax	Opinions
	2	Application of concepts to local situation	Descriptions and Examples
	3	Application	Debating on a particular application
	4	Applying and Creating factual information	Report and diagram
	5	Understanding concepts	Definitions

Table 2: Analysis of Modules according to Cognitive processes required and artefacts created.

Analyses of three examination papers at the VCILT are made using a tabular format (Table 2) and noting the particular cognitive processes that were required from the students and at the same time seeing the artefacts that were expected.

Inferences and Conclusions

At Masters level, one would expect that questions pertaining to higher levels of cognitive processes would be entertained, and this is fairly true from the evidence of Table 2 below. It should be noted that these modules have high level of practical aspects and accordingly the continuous assessment percentage ranges 60% for OERs for instance. However at MSc level, the exams still have a 70% weightage and this does not seem quite fair, especially for the ILT 6016 Web technologies and development module which involves lots of procedural knowledge such as programming and debugging (after running and testing the program). While the Visual design module does involve quite some practical knowledge, at MSc level students are expected to be able to apply these design concepts to particular projects and perhaps more reference to the activities during the semester could be made which would be easier for the students to relate to and demonstrate how knowledge and learning was applied- thus implying deeper knowledge transfers. The innovative initiatives taken while designing and delivering the courses (for instance using the web 2.0 tools for delivery of the modules) should not be hampered by exams. The OER module is an example of how written examinations can still be innovative and students are still in learning mode - and not just realising how much they do not know, but rather how much they have learnt, and can still discover.

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Cross-border Collaboration in History among Nordic Students: A Case Study about Creating Innovative ICT-didactic Models

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Abstract

The larger Nordic project (GNU) aims at developing innovative cross-border teaching models in different subject domains i.e. math, language, science and social studies/history. This paper provides an in-depth description and analysis of how four social science/history teachers and their 70 students (5th-7th grade) worked together between November 2011 and December 2012. Previous research regarding use of ICT in history education in primary schools is limited (Haydn 2001, Lipscomb 2002) thus calling for contemporary investigations in this particular subject domain.

The TPACK model, enhancing the combination of teachers pedagogical, content and technical competence (Koehler & Mishra 2006 and 2009) , was used as analytical framework together with nation specific curriculum and EU recommendations regarding students skills for lifelong learning (Recommendation 2006/962/EC).

A range of empirical material was analyzed such as classroom observations, students video productions, texts and photos distributed and shared on a mutual blog, real time interaction (Adobe Connect) and teachers' communication (e-mail, Google docs, wikis).

The teachers tried out two ICT didactic models. In the asynchronous model, the major focus was on form and content of the video productions being shared whereas working with the synchronous model the major focus was on content and quality of the communication. Notwithstanding obstacles, cross-border collaboration provided added value. The nation specific differences triggered curiosity and motivation to produce digital presentations of history content to be understood by the students in the three nations and facilitating goal fulfillment in communication skills and digital competence. However, reaching subject specific goals in history persisted challenging.

Keywords: E-learning; collaborative learning; cross-border; TPACK

Background

The GNU-project, an abbreviation for Cross Border Nordic Education [Gränsöverskridande Nordisk Undervisning/Utdanelse] is an EU-funded project related to cross-border collaborations for educational purposes supported by information and communication technologies (ICT) between Danish, Norwegian and Swedish schools. The project began in 2011 and extends to 2014. The aim of the project is to develop innovative cross-border teaching models by means of user-driven, practice-based co-design processes between practitioners and researchers (Lundh-Snis et. al. 2012). All project participants, students, teachers and researchers are required to communicate in their own Nordic mother tongue since the three languages are each other language neighbors and in the various Nordic curricula there is an emphasis to be trained in the Nordic languages. In the first year, 18 classes from 13 schools in Denmark, Norway and Sweden in the Öresund-Kattegatt-Skagerak region participated. The teachers and students were organized in Nordic class-match groups (consisting of students and teachers from one class in each country). In these class-match groups, new cross-border teaching models were co-created, tested and evaluated using iterative processes as pointed out in Design Based Research (Kali 2008) in several subject domains, i.e. math, language, science and social studies/history. This article deals with history.

Previous research on the use of digital tools in history classes

This paper focus on project activities linked to the subject of history in Nordic cross-border settings, including a range of new learning situations and challenges. Recent research shows that the subject of history is often one of many students least favorite subject (Turan 2010). Many students find history "simple, irrelevant, and boring" (Turan 2010) but studies have found that the use of ICT increases the students motivation regarding active participation, recall rate and achievement (Haydn 2001, Turan 2010). Different studies show that the use of technologies in history has a positive effect on students' historical and critical thinking and their understanding of various historical subject (Brown, 2001; Haydn, 2002; Taylor, 2003). However, problematic issues has also been identified such as finding out how to improve history education when using ICT (Hayden 2001) as well as difficulties to plan for and use suitable ICT-tools to support rather than distract students learning goal achievement in history (Lipscomb 2002, Hofer & Swan 2008). Questions remain regarding when and how to use which types of digital technologies to support and enhance students learning in history. Thus, teachers competence becomes essential to focus on since previous research has shown that didactic situations becomes even more complex when digital tools are used in history classes (Hofer & Swan 2008, Swan & Locascio 2008) and when teachers and students are working together in a cross-border setting the complexity increases further. Cross-border collaboration in educational practice has been regarded as one of the major shifts that will permeate educational institutions in the near future (Lee 2012) highlighting need for research in actual cross-border teaching situations.

Purpose

This paper describes and analyses how four social science/history teachers and their 70 students (5th-7th grade) worked together during November 2011 and December 2012. The purpose was detecting how to didactically work with and improve history education via cross-border collaboration using various digital technologies. We wanted to find out the specific challenges the Nordic history class-match groups encountered during the different activities they were engaged in while trying to reach specific goals for history learning. A Nordic class-match group consists of students from all three countries.

Theoretical framework: The TPCK-model

The TPCK-model, enhancing the combination of pedagogical content and technical knowledge of teachers in learning situations (Koehler & Mishra 2006, Koehler & Mishra 2009), was used as an analytical framework in order to position the teacher teams' activities with the students detecting where ICT didactic strengths as well as difficulties could be found. This model has been successfully used in previous studies in history education (Hofer & Swan 2008, Swan & Locascio 2008, Schul 2010). The TPCK model separates three specific skills among teachers linked to pedagogical- (PK), content- (CK) and technical knowledge (TK) in learning situations within given contexts. These three specific skills can be combined in various ways such as pedagogical and content knowledge (PCK), pedagogical and technical knowledge (PTK) and so forth.

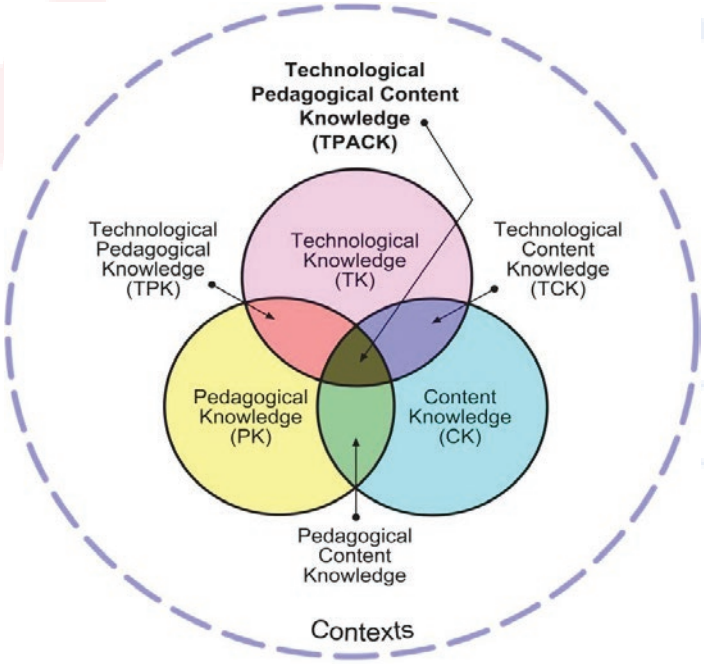

Fig. 1: The TPCK-model (Koehler & Mishra 2006)

When a combination of all three skills is present, the TPCK combination is present in a given learning situation. TPCK is a complex competence to achieve but possible to develop. In combination with the analytical model, we also used nation specific curriculum from the three countries and the EU recommendations regarding students' skills for lifelong learning enhancing digital competence, collaboration, collaboration and analytical skills (Recommendation 2006/962/EC).

Methodology

Aiming for sustainability in novel teaching models (Wang & Hannafin 2005) the combination of design-based research (Kali 2008) and action-research, as a methodology for stimulation and support of innovation in learning and teaching models, has shown to be a strength (Majgaard et. al. 2011). During this collaborative process a range of actions and documentations emerged. The empirical material consists of students productions of videos texts and photos distributed and shared on a mutual blog, teachers' communication via e-mail and google docs documents as well as wikis, video uptakes from students real time interaction on a digital system supporting video, voice and texts (AdobeConnect). In addition, there were documentations from classroom observations by the researchers as well as interviews with teachers and students from the three Nordic nations. The material was analyzed by all

researchers and focused on the activities of the teachers and the actions of the students and their expressed experiences.

Didactical models planned for and used by the history teachers in the GNU- project
A series of activities went on during this specific period of time and the activities are presented linked to the two general models the teachers arranged for i.e. the asynchronous model and the synchronous model.

The asynchronous model
The overall aim of the project is to improve history education through cross-border collaboration and work out new didactic ways of teaching history. The asynchronous work consisted of three forms of activities.

In the first activity the Nordic teachers collaboratively planned to let the students produce a film organized in national student groups with the purpose of mainly saying hello to the students in the two other countries. Each video was then placed on a shared blog and the students from the other countries posted comments about the produced videos. This was done so that the students could start out in a safe environment (as the teachers put it) and get the chance to get to know each other and read texts presented in the three different Nordic languages.

The second activity was to make a video presentation of their school, their town and the specific part of the country they lived in.

During the third activity, they were going to answer questions they got from the other countries about local historical, persons, buildings etc. The answer had to be in the form of a video.

This last activity was carried out in a way, where the students composed questions to each other - and then made the answer in a filmic language in order to awaken an interest not only in a presentation of their own country and culture but also in the neighboring countries. Danish students made questions to Swedish students to answer via video production. Swedish students made questions to Norwegian students to answer via video production, and Norwegian students made questions to Danish students via video production.

The students were encouraged to reflect on the historical aspect and cultural identity in their well-known surroundings and were confronted with (missing) knowledge about their Nordic neighbors (Nortvig & Christiansen 2013).

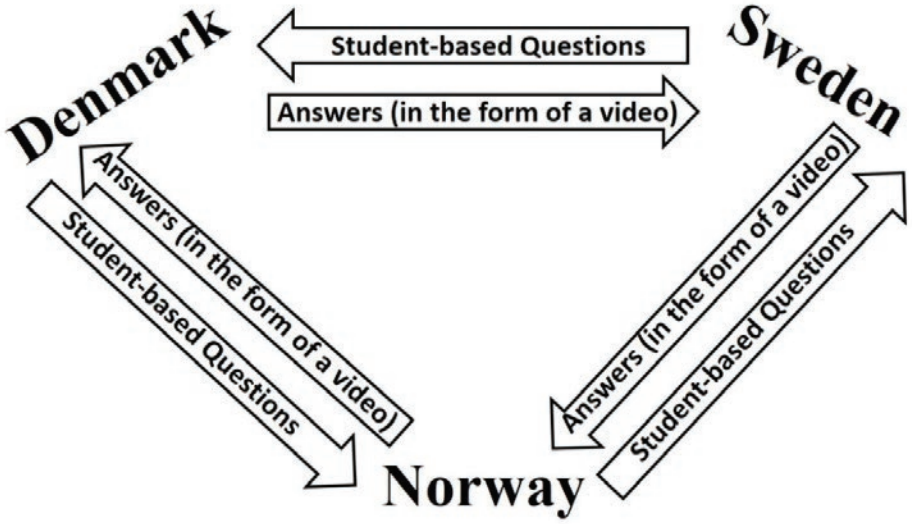

Fig. 2: Model for exchanging questions and video answers in the Nordic collaborative work.

The students worked in groups in their respective schools planning for and producing the videos later to be shared on the common blog. Some of the student-based questions that was going to be answers as a video were;

Tell us about one important historical person from your town?
Tell us about an important historical building?
Tell us about an important historical person, the most important king in Norway?
What did Denmark do in the Second World War?

During classroom observations it was observed that the students worked concentrated to prepare the videos. The videos - alongside the questions - were then placed on the common blog, so that the teachers and students were able to comment on the questions and the video as a result.

Technology

Technological skills are important when a task require the making of a video. A lot of the students already knew and liked to use Microsoft MovieMaker or iMovie to make the video and they used the schools' digital cameras to produce photos. Even though many students were familiar with different types of digital tool and information and communication systems it was still needed for the teachers to guide and support the students during their production activities such as how to save pictures and how to make videos with MovieMaker/iMovie, how to use Audacity and Wikipedia etc.

The group of teachers had planned to let the students discuss and make comments on the video in Skype. But that proved too difficult because of technical problems primarily because the school in Norway was not allowed to download and use Skype due to restricted rules in that particular municipality. The students got a bit frustrated about that because they wanted to talk and collaborate with each other in real time and they wanted to see their peer students and they asked several times if we could solve these problems. Our observations told us that their motivation to collaborate over national borders was on a high level. An asynchronous way of working did not to a full extent fulfill this need.

Content and Pedagogy
In this part of the asynchronous period the plan was that the students should discuss the content in the videos regarding the historical focus. This discussion took place between their respective classmates in each nation. However, we observed in the students' feedback to each other was that they were more focused on how they generally experienced the video and how they understood each other's spoken language than the history related content of the videos. A few of the students statements read:

"You talked very distinctly, we understood what you said! The videos were good!»

"It is hard to catch what you are saying, but the videos are great!"

"A lot of good facts, but please speak more slowly! You have done a good job, but speak a bit louder too, please!"

Our empirical work showed that the students had difficulties in understanding what was said in the videos. They became aware of the importance of speaking slowly and clear which could be a help for them in the synchronous meetings to come. The asynchronous period made them ask for a closer encounter with students from the other two countries, which eventually led to a synchronous period, where the students could interact in real-time.

TPCK and the asynchronous model
In the first phase of the Gnu project, the collaborative activities planned for and executed by teachers and students were all organized according to various asynchronous set ups. These activities will be positioned in relation to the analytical framework of the TPCK model presented by Koehler and Mishra (2006 and 2009).

Technology
In the asynchronous model the use of a range of technologies was involved. In particular technologies linked to tools and systems needed for video production. In general, the four Nordic teachers demonstrated skillfulness regarding use of these various tools and systems while guiding their students in their work. Accordingly, we argue that the involved teachers could be described as very competent regarding technology knowledge (TK) following the TPCK model (Koehler & Mishra 2006, Koehler & Mishra 2009).

Content and Pedagogy
The strong focus on student driven question formulation and video presentation working in groups were evaluated as activities following the recommendations regarding development of collaborative and communicative skills found both in national curricula (Denmark: Fælles Mål 2009 Samfundsfag (Faghæfte 5), Sweden: Kursplan i samhällskunskap för gundskolan, Norway: Læreplan i Samfunnsfag) and EU recommendations (Recommendation 2006/962/EC). The focus on group work in the assignments was also evaluated as a sign of teachers being highly competent regarding PK (pedagogical knowledge) facilitating and supporting project based learning (Grant 2002). However, the rather superficial presentation of the historical content in the videos as well as the lack of focus on the history content in the discussion of the videos were interpreted as a sign of a rather low score for the teachers in this particular activity linked to the CK (content knowledge). However, important to note is that this critical evaluation is only based on the actual content in the videos produced in this situation and says nothing about the general content knowledge. The teachers also said in follow up interviews that the time devoted to the specific GNU assignment became more of a technical focus when they were helping the students rather than guiding them towards a more

insightful historical content focus, thus highlighting the necessity for content focus in the next phase of the GNU project.

The synchronous model
The teachers wanted more focus on history content in the cross-border collaboration after working with local history and the asynchronous set up. They also wanted to address the students' wishes to work in real time situations with each other.

Technology
Due to different municipality regulation in the three nations as well as varying school IT policies (Lundh-Snis et.al. 2012), finding an accepted real-time communication system proved to be a tricky task. In order to be able to work synchronously at all, AdobeConnect (AC) turned out to be the only option since the overall GNU project could guarantee a secure and free access to the particular program.

AC allows users to communicate via chat, voice and video. It is possible to present PowerPoint and PDF documents, pictures, movies and cooperate with common notes and whiteboard. Additionally, users can share a common view of screens and programs. It is also possible to divide students into different breakout rooms and make recordings of meetings.

Content and Pedagogy
The four teachers collaborated on the basis of their national curriculum to find a common denominator to work with. Children's conditions in the 20th century was part of each country's curriculum in the subject and became the content focus. The teachers focused their planning on these questions: How did the children live their lives in the previous century? What similarities and differences could be identified in the three Nordic countries during this period? What events have been significant in improving children's lives during the 20th century in the Nordic countries?

The three classes worked on these issues with the idea that cross-border cooperation would help the students to connect major historical events with children's everyday conditions during the 20th century with special focus on the conditions for children in the school. Students worked in class match teams of a number of students from each school. Each group consisted of students from Norway, Denmark and Sweden. The idea was that students would present and compare their findings to learn from each other, and to draw conclusions based on each other's presentations. Each group consisted of a total of about 12 students (about four from each country with some variation) and there were 6 groups in total, two groups for each assigned time period i.e. early, middle and late 1900s. The ambition was to work actively with the understanding that history is not just about a number of events without connections but also linked to experience and everyday life.

The three Nordic teachers designed the task for the student in a three step sequential model:

Task 1) students should find out how it was in their own country, with emphasis on schooling. Inspired by the flipped classroom model, teachers placed presentations about parts of the content on the common blog where students could take part of each country's presentation.

Task 2) students would connect in AC to share what they found in their respective class-match group in different breakout rooms in AC.

Task 3) students should identify similarities and differences based on the information they

received.

Students' activities
Before the students met in AC, they prepared their work in their respective nation classrooms with their group members. Then they teamed up in their breakout room in AC to start to share and discuss their findings.

First AC meeting
The first time in the AC setup it was apparent that the students had gotten different instructions on what the task would involve and how they should have prepared the first meeting. The Danish students had prepared to talk about their own school day today. The Norwegian students had prepared PowerPoint's with statements regarding the conditions of children in each part of the 20th century, and the Swedish students had prepared to have a conversation about what they have investigated linked to their designated time period having handwritten notes as a reminder what to say to the other students. This variation was difficult for the students to deal with. Despite the variation, they made a good effort and tried to do the best they could to work with their task struggling with echo problems in the systems as well as having problems of managing how to organize their online turn taking so that they could talk one at the time instead of all at once.

Second AC meeting
The second time, all groups had prepared PowerPoint presentations about the conditions for children in schools in each country during the designated period of time to be shared in AC. In spite of the improved and combined activities various problems continued for the students. All groups experienced difficulties how to present and share written text in AC. Due to this lack of knowledge how to present text material in AC it became almost impossible for them to read each other's presentation. The echo problem from the first time was still a big issue and the difficulties to have a well-functioning turn taking model while communicating was also this time hard to achieve. The students tried to overcome echo problem as well as turn taking difficulties by using the chat function in AC instead. However, their enthusiasm to be in contact with each other seemed to have diminished compared to the first time in the AC meetings when the enthusiasm was interpreted as high despite of the obstacles.

Third AC meeting
The third time they tried again to present the same pre-prepared presentation as the second time. They still encountered difficulties when trying to share the presentations and now there were clear signs among the students that their patience was challenged. They were now loudly complaining about sound quality and how their fellow students were moving their text on the screen in AC. They paid more attention to their classmates in their school rather than paying attention to those they worked with in the Nordic class match group setting, yet still trying though, but seemingly more driven by duty than motivation.

TPCK and the synchronous model
The lessons learnt from this synchronous phase and the model of synchronous cross-border cooperation was that the assignment ended up being too difficult for the students. There were too many (technological, communicative and language-based) obstacles to overcome.

Technology
The selected real time communication and collaboration tool was not really suitable to support the complex task the students was about to do. Relating that analysis to the TPCK model (Koehler & Mishra 2006, Koehler & Mishra 2009), we claim that the TPK (techno-

pedagogical knowledge) using AdobeConnect was evaluated as fairly inaccurate and give room for further improvements for all involved parties in the coming project activities.

Content and Pedagogy

The idea to have students work in groups, to be given themes to work in relation to, selecting relevant information as well as the idea of trying to diagnose differences and similarities in the historical events and impact for children in the 20th century is very much in line with parts of the national curriculum in each country calling for the development of communication, collaboration and analytical skills (Denmark: Fælles Mål 2009 Samfundsfag (Faghæfte 5), Sweden: Kursplan i samhällskunskap för gundskolan, Norway: Læreplan i Samfunnsfag). However, what looked like a structured yet creative plan turned out in reality to be far too complex in execution. Additional burden to work alongside with the pedagogical plan was the teachers' initial misunderstanding regarding what the task really was about. This came as a total surprise for all involved parties, teachers as well as researchers, since the three teachers had established good relations, experienced previous co-planning sessions before and were all keen on having a communication going using mail, google docs and wikis to plan for and agree upon what to do and when to do it. In relation to this we suggest that the pedagogical-content knowledge, PCK following TPCK (Koehler & Mishra 2006, Koehler & Mishra 2009), was evaluated as fairly high while planning but turned out to be too difficult for the students in the cross-border setting. Talking to the teachers after the performed activities in the synchronous model they all said that they were too ambitious and really learnt the importance of designing tasks that challenge their students more moderately, still keeping the idea of communication, collaboration and analysis, but perhaps not necessarily in real time set ups for all activities in AC.

Combining technology-pedagogy-content knowledge

Judging from the experiences from the synchronous model set up in this cross-border collaboration setting, we can see that so called TPCK competence (Koehler & Mishra 2006, Koehler & Mishra 2009) proved to be quite a challenge for the teachers. The challenge was linked to successfully combine pedagogical planning with technical affordance and subject content. The added complexity of the synchronous model planned for and used here suggests that the level of ambition needs to be carefully managed. In this case, the learning content was defined but still not supported with a pedagogical model that ensured that cross-borders collaboration could provide structure and guidance in the learning process. It has become clear that the importance of investing time to carefully prepare is essential regarding what content to present and how to present it as well as finding out a collaborative model that supports rather that distracts focus of the subject.

Discussion

The question remains how our understanding of technological pedagogical content knowledge can support collaborative work in history? How can we think about the connections and interactions between the knowledge of content, pedagogy, and technology with respect to teaching history? And how can technology tools help scaffolding the students' development in historical consciousness with cross-border collaboration? It is important to emphasize that the use of ICT in education needs an understanding and reflection about what is good teaching in relation to both pedagogy and content. The pedagogical knowledge is also about being able to see how ICT can support the content and improve the learning outcome, following the arguments presented in the TPCK model calling for an integrated competence among teachers combining skillful use of ICT, pedagogy and subject content.

Digital technology plays a role as multimodal facilitator of the students' communication and collaboration. When the neighboring languages - even if they are very close both phonetically and grammatically - are difficult to understand, the students find it a bit easier if "the neighbors" express themselves e.g. both orally and in writing.

On the other hand, the digital technology plays the role of obstacle too because the students often experience very bad sound like echoes, noise or silenced microphones. We see that the students are extremely patient with these technical challenges but when the sound is bad and the neighboring languages are hard to understand, they start addressing their classmates instead of the students in the other countries, and the added value of cross-border collaboration is then fading away.

Conclusion

We see different challenges to be addressed in the asynchronous and synchronous model. Starting with the asynchronous model we conclude that since video production became in focus, students needed teachers guidance to implement content into their productions. When productions are made and shared, the historical content need to really be discussed and analyzed in order to support learning otherwise they risk paying more attention to form than content. Students seem eager to have real time communication, thus the asynchronous model needs to be clearly argued for and motivated as a cross-border collaboration model. Since it was hard to understand each other's spoken languages, it is good for the communication and future collaboration to use text in combination with voice in video productions.

Turning to the synchronous model, based on the observed activities and the outcome, tasks in a synchronous set-up need strict preparation and sharp limitations in order to give added value to the learning situation. The number of students working together should preferably be quite limited when dealing with complex tasks and all involved users need to know how to use the chosen technological tool to support communication and collaboration.

Notwithstanding obstacles, the major conclusion is that added value was located with cross-border collaboration because the differences triggered curiosity and motivation to produce presentations to and work with 'the neighbors'. Thus, we can see clear indications of goals being reached regarding both communication skills and digital competence as they are written in the three nations curricula as well as formulated in EU recommendations. However, there are more work to be done to more clearly reach the subject specific goals in cross-border collaboration. We find that the Nordic team of teachers was technical, pedagogical and content competent but had difficulties to combine these competences with the history content, following the TPCK model (Koehler & Mishra 2006, Koehler & Mishra 2009) in the cross-border setting. The collaboration between the three classes could not be possible if technology was not involved but at the same time difficulties with technology alongside with occasional language problems sometimes dominated the scene more than pedagogy and history did. More effort is required to pin down in what way technology can be used to support history teaching when it is carried out in both asynchronous and synchronous learning environments.

Additionally, cross-border collaboration provides added workload. Therefore, it becomes of uttermost importance to provide supporting actions to both students and teachers so that technical and organizational issues do not overshadow the added value that cross-border collaboration provides. However, it becomes highly important to work actively *with* the obstacles that emerges, i.e. to actively enhance the obstacles as a learning situation. We can also see how these obstacle reveals differences that makes learning about 'the other' possible

in a more rich and real situations compared to reading about these differences in textbooks or other types of material used for learning purposes in history education.

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The TPCK-model can be located at http://www.tpck.org/

Students' Use of Semiotic Structures in Synchronous Computer-Mediated Communication - An Inter-Scandinavian Study

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Abstract

Synchronous computer-mediated communication is often used as a means to achieve active learning through collaboration. This paper is based on an ethnographic case study of synchronous communication. The synchronous communication is carried out between students in lower secondary school collaborating in a cross-border project involving the native language subjects Danish, Norwegian and Swedish. The project is aimed at promoting the students` Scandinavian inter-comprehension skills. The objective is for the students to use their own native languages in their communication whilst trying to understand the neighbouring languages used by their interlocutors. The aim of this paper is to analyse the students` use of situated semiotic structures in order to solve comprehension difficulties as well as emergent technical problems. In the emergent situations where the students face technical or language-based problems they use an interplay of different semiotic structures. They creatively and spontaneously use oral and written communication in different ways by using smileys, colours, gestures, grimaces, talking slowly and by sending smartphone pictures. Furthermore, they make use of different conversational forms such as online chats, Google Translate, and webcams. Synchronous communication is vulnerable because of the dependency relationship arising between the connected classrooms in different schools and countries. The multiple forms of conversation are dependent on the emergent situation and are dominated by the written mode.

Keywords: e-learning and collaborative learning, Integrating e-learning in classroom based language teaching

Introduction

Social environments and interactive situations are prerequisites for learning through collaboration. Most research has so far focused on asynchronous computer-mediated communication (CMC), such as discussion boards and e-mail (Hrastinski, Keller & Carlsson, 2010). Synchronous CMC offers the opportunity to engage students in collaborative learning activities and is often used as a means to achieve active learning and authentic knowledge sharing (Schullo et al., 2005). Especially when the teaching subject is culture or language, synchronous communication seems to have a high learning potential. The situated character of the communicative process encourages students to apply the communicative strategies they use in their everyday social life. Students can make use of all four linguistic activities: speaking, listening, reading and writing in the computer-mediated communication. Different semiotic resources other than language can also be used within synchronous CMC. Hence, new information and communication technologies have implied changes in the meaning making across different conversational forms (Coffin, 2009). However, most synchronous activities need structures such as task assignments and discussion frameworks that support individuals participating in the interactive collaborations (Garrison & Anderson, 2003).

This paper is based on a study included in the GNU project (Gränsöverskridande Nordisk Undervisning/Utdannelse) [Cross Border Nordic/Scandinavian Education] initiated in August 2011 and funded by the European Regional Development Fund *Interreg IVA Öresund-Kattegat-Skagerrak*. The aim of the GNU-project in general is to develop innovative cross-border teaching models by the means of *user-driven* and *co-design* processes between practitioners and researchers. The focus on the subjects' pedagogical approaches using ICT and digital technology involves students and teachers in collaborative teaching practices.

In the GNU project, the lower secondary school students and teachers are organized in so called Nordic class-match groups, whereby each group consists of students and teachers from one class within each country. The groups use a variety of synchronous and asynchronous ICT-tools for the communication, as for example wikis, Skype, Adobe Connect, Google Documents and VoiceThread. The three languages Danish, Norwegian and Swedish are linguistically close; the communication in the project is thus presumed to be held in the participants' native languages. Inter-comprehension and semi-communication are terms used to describe communicative situations where the participants speak their own native languages whilst at the same time try to understand the languages spoken by the other speakers to the best of their ability (Zeevart 2007; Doyé 2005).

The focus of this paper lies on synchronous communication between students collaborating in cross-border projects involving Danish, Norwegian and Swedish students and teachers.

We have observed that problems related to the ICT-tools tend to occur especially when synchronous communication is taking place. Therefore different situated solutions must be developed. The aim of this paper is to analyse the semiotic structures that the students employ during synchronous communication in order to solve both emergent technical problems as well as comprehension difficulties due to linguistic barriers. The central research question is thus: What conversational forms emerge and which semiotic resources are used by the students to

make linguistic meaning and resolve emergent problems within the synchronous computer-mediated communication?

Theoretical framework

Our theoretical framework is based on the methodology of conversational analysis (CA) and social semiotics. CA has been used since the mid-1960s in the study of everyday life social interaction. According to CA social interaction can be understood as a sense-making activity where the participants collaborate to make their communication work. From the perspective of CA, belonging to a particular culture implies knowing and employing certain communicative rules, routines and actions (Pomerantz & Fehr 2011). Inter-Scandinavian communication can be conceived as a special instance of a communicative culture, where the participants adhere to certain social rules. The most important rule is that participants use their own native language when expressing themselves, whilst attempting to understand the neighboring languages of their interlocutors to the best of their ability. The important concepts within conversational analysis used in this paper is talk, turn taking, action and understanding, sequence, back channel response as well as opening and closing, related to the interaction in the synchronous meeting.

One central study in the field of inter-Scandinavian interaction was conducted by the sociolinguist Ulla Börestam Uhlmann in her thesis from 1994 (Börestam 1994). Börestam's aim was to find out how interaction actually takes places when speakers from different Scandinavian countries communicate using their native languages. A central finding in her study was that inter-Scandinavian communication is characterised by a relatively high level of conversational repair, extended use of gestures, accommodation strategies and attempts to adjust ways of expression to the lowest common denominator. These findings and analytic concepts are expected to be of central relevance to our study. There is, however, an important difference between our case and Börestams study that must be taken into account. In our case, the participating students communicate through a videoconference system (Adobe Connect). Videoconference tools offers different semiotic resources in addition to face-to-face communication and this must be expected to influence the students` conversations in a number of ways.

Studies of inter-comprehension between related languages have already shown that the communicating participants do not only rely on their formal linguistic competences but also use all additional semiotic resources available (Doyé, 2004). In an attempt to understand the interplay of conversational strategies and the use of semiotic resources we seek to combine the central analytic concepts from conversational analysis with social semiotics. Seen from the point of social semiotics verbal expression is just one possible way to represent meaning. The representational and communicational resources of images, action, sounds, etc. also contribute to the construction of meaning in different ways (Kress & Leeuwen, 2001; Jewitt, 2008). Modes "as organised sets of semiotic resources for meaning making" (Jewitt, 2008:246) and their material, physical, and environmental affordances provide often complex ways in which image, gesture, gaze, interaction with objects, writing, and speech interrelate. Applying new communicative arenas in the teaching practice also has an impact on the form of meaning making. Cope & Kalantzis (2000) discuss *a transformed practice* in the ways students recreate

and recontextualise meaning across contexts. Moreover, as Clark and Brennan (1991) have pointed out, different media offer different possibilities for back-channel responses. Back-channel responses are verbal and nonverbal signs of understanding, and they are of central importance for the establishment of inter-subjective understanding, especially in inter-Scandinavian communication. Video conferences share central features such as co-presence, visibility and audibility with ordinary face-to-face communication (Clark & Brennan, 1991). Moreover, video conferences offer in addition the possibility of chatting and screen sharing.

The Empirical Setting

The paper is based on a study of four different cross-border class-matches involving Danish, Norwegian and Swedish students and teachers who perform collaborative projects within the course subject native language. The collaboration between the students in each of the cross-border class-matches has been studied during the period October 2012 to January 2013. The projects have been structured as learning activities in a cross-border setting within each native course subject. All of the collaborative projects have had different themes and have consisted of short stories, prose, newspaper and comic series. The students have co-produced texts, exchanged and discussed text analyses, performed recitals as well as peer critique. In the synchronous activities the students have both communicated orally via Skype and Adobe Connect as well as in written form via chats. The collaborative projects have generally had a high subject-related quality. The added value of the cross-border collaboration has been evident based on the students oral mediation of texts to each other, as the students have been used the interplay between texts and speech in order to understand their neighboring languages.

Students received instructions in advance on the topic planned for each specific synchronous class-match meeting. Between two and four students at each site shared one laptop. Each student had the opportunity to contribute more or less depending on the setting. The students sat beside each other in front of the laptop, or one or two students were sitting or standing behind the others. Sometimes the students were not using a microphone, sometimes only one student at one site had a microphone, and sometimes they were using a conference microphone.

A general problem within the synchronous communication was the use of the communication technology. The software Adobe Connect was causing different problems. The most severe problems were related to the sound quality, since unexpected disruptions frequently occurred. The sound quality also suffered from lags and echoes, and sometimes no sound could be detected from one of the sites. Furthermore, Adobe Connect requires sound setting adjustments each time it is connected from a computer or laptop. It also requires the use of one or more headset or conference microphones. The problem in this case, however, is even worse, since the communicating participants are children trying to comprehend a neighboring language. The combination of sub-optimal technical solutions and the use of semi-communication make the whole situation vulnerable to disturbances.

Methodology

Our methodological approach is founded in classroom ethnography. Central to the ethnography approach is the ambition to get as close to the student`s perspective as possible. In this sense, classroom research shares the ontological foundation with conversational analysis, which also has roots in ethnomethodology and European phenomenology.

The empirical material collected includes video uptakes, classroom observations and photos from students' real-time interaction. The synchronous activities took place on the web conferencing system Adobe Connect. In addition, written documents from the observations by the researchers as well as from the interviews with students and teachers participating in the synchronous learning activities were used in the analysis. The empirical material was collaboratively analyzed by the Danish, Norwegian and Swedish researchers. Content analysis was conducted based on the recorded interactions on Adobe Connect and the researchers' written material, by using the analytical concepts of CA and social semiotics.

In our analysis we specifically focus on one of the synchronous communication activities in one of the cross-border class-matches. Twelve groups consisting of students from Denmark, Norway and Sweden evaluate self-produced comic series using Adobe Connect as a video conferencing system. This activity will represent some of the obvious challenges found within the different synchronous communication activities performed within the project.

Evaluating comics

The project of special focus in this paper is the self-produced comic series within the cross-border class-matches in the project. The conference system Adobe Connect was used during the activities. This project will represent some of the obvious challenges found within the different synchronous activities studied within the project.

Students in grades 4-6 (between 10 and 12 years old) were introduced to the genre of comics by creating comic series online in the context of the cross-border collaboration. During a two-weeks period the classes read comic series, shared their experiences and examined the forms of expression (colour, images, perspectives). They created comics of their own in the match-groups in the program Pixton, a piece of interactive software enabling the production of comic strips online (www.pixton.com). During the synchronous meetings the students together agreed on a main character for their story as well as a plot and a setting. They then created comic strips separately in each country and posted their final series on a shared wiki space. Feedback took place in synchronous match group-meetings on Adobe Connect and afterwards also at the wiki where they had to give constructive criticism in relation to the task.

In this specific project, with regards to the synchronous meetings in Adobe Connect, the following preparatory work and instructions were given to the students:

1. Read and listen carefully to the series
2. Note the words you do not understand. Find out what they mean and make a word list

3. Answer the following questions:
   - Has the group remembered to include all the agreed elements (characters, setting, plot)?
   - Find at least three characteristics of a comics.
   - Find at least three differences between the other group's comic strips and yours.
   - What works well in comics?

Placed in front of a computer (see Figure 1), the students log on to the three-part conversational environment country by country, set up their cameras and sound, and greet each other. When it is clear that the students at all three sites can hear each other they start to ask questions in accordance with the instructions.

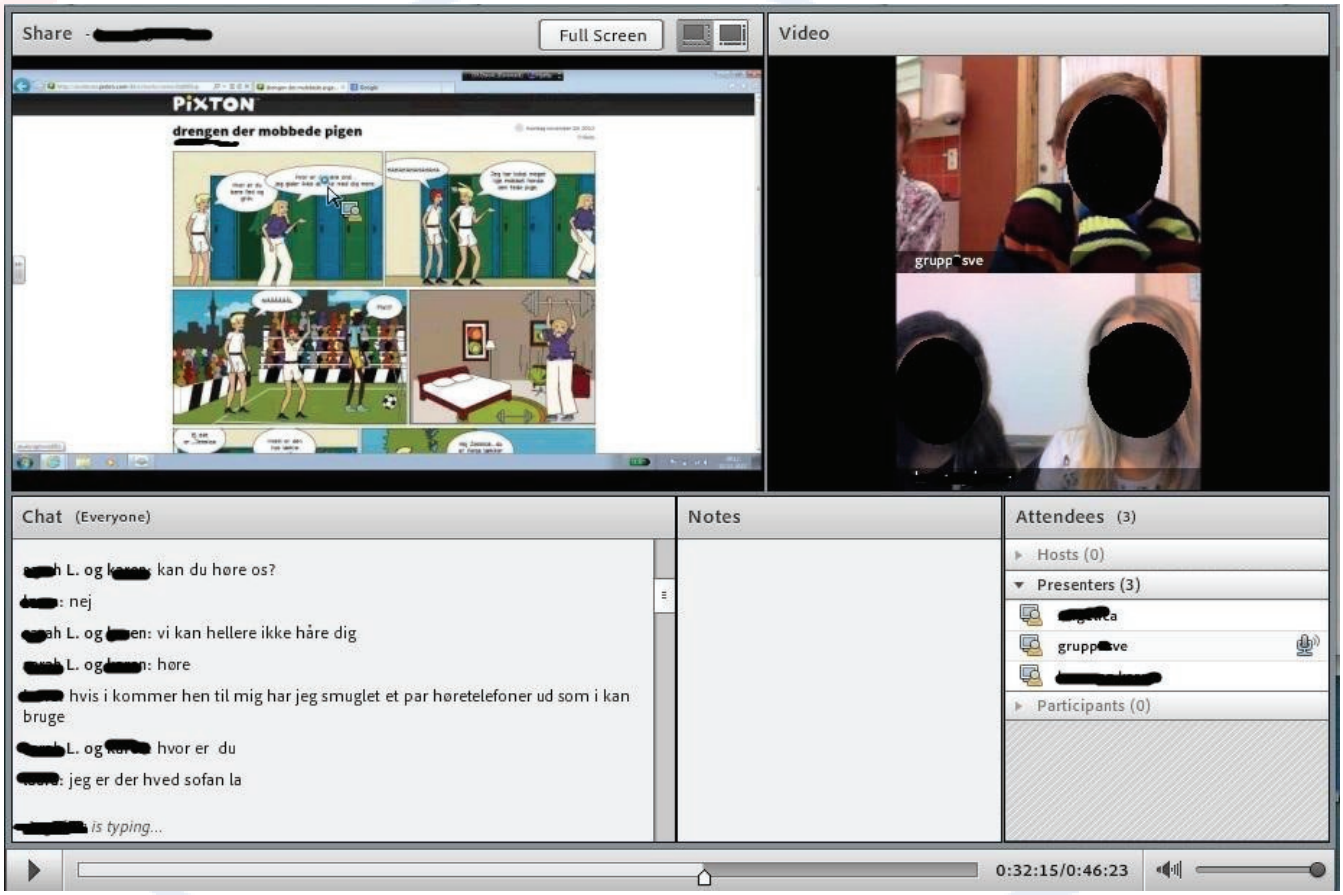

Figure 1: Peer feedback in synchronous meeting.

TIME	SPEECH	CHAT	NOTES	ACTION
09:06	- Hi - Hi, Hi - Where were you? - Why did you hang up? - Could we talk about comics?			Norwegian group comes back Lots of talk and laughter in the local groups Noise (high frequency)
10:05	- Why did you kill a cat? - Now we can not talk to you anymore	➢ Why did you kill a icat ➢ cat		Talk in local groups
10:36	- Will you listen now - Now we will tell you what we think about your comics - Can you be quiet - They do not listen - Can you be quiet - We'll tell you what we think about your comics	➢ no ➢ she was evil	have you seen our comics	Swedish group calls several times to the others to be quiet Showing with finger in front of mouth

Figure 2: Transcript of conversation: Dk – orange, Sw – blue, No – green.

In the excerpt above from a conversation in one of the match-groups in Figure 2, the Norwegian students had previously left the scene and now returned. Greeting takes place and questions are raised about their absence, before a quickly turning to the assignment regarding questions about the comics. The Norwegian students ask for attention to their comics but, since they arrive in the middle of the conversation, the Swedish students continue to question the Danish students. Questions are raised orally and clarified by typing in the chat- or note-windows. Answers are given in the chat in this excerpt. The students thus have to pay attention to several channels for answers, which often make them frustrated. Moreover, students talk noisily in the background in each country about what they understood from the other groups and their strategies for their next moves in the conversation (not transcribed here). Acoustic disturbance are present as well. At a first glance, the transcript shows that speech is the primary communication channel and that the chat is used to complement and/or clarify the talk. Nevertheless, as will be shown in our analysis below, a closer look at the conversational structures indicate that in many cases only the written communication seems to be understood by the recipients. Seen from the perspective of understanding in the actual communication, the chat can therefore be said to be the main channel of interaction. In some of the groups, though not in all, the students clearly rely on verbal communication to begin with, but as the conversation develops, they seem to rely more and more on other semiotic modes. This apparent shift in modality shows how the students seek meaning and are able to adjust their communicative strategies to the demands of the setting.

The synchronous meetings were about 20 minutes long and followed the structure of a short greeting followed by a sound and video check, which usually took a substantial part of the conversation. Then the actual assignment concerning the students' view on their produced comics on Pixton took place. The answers were in general positive and were both simple and more developed as exemplified in the paragraph below.

Negative feedback was also raised, and the students asked specific questions regarding the storyline. The closing of each session was quite short, consisting of a simple greeting followed by departure from the conferencing room.

Summary and examples of the general progress in the synchronous conversations:

1. Mutual greeting, sound and video check
2. Asks for views on their series
   Simple answers such as:
   - *Den var bra*
     [It was good]

   or more developed:
   - *Den var god, med mange forskellige virkemidler og mange gode effekter*
     [It was good, with many different actions and many good effects]
   - *Jeres tegneserie manglede sammen hæng og var kedelig*
     [Your cartoon lacked coherence and was boring]
3. Asks specific questions to the comics and answers:
   Varför döda ni en katt? – Den var ond…
   [Why you kill a cat? - It was evil …]
4. Closing – *Good bye*

As previously mentioned, all of the twelve collaborating cross-border match-groups chose to use the chat function in addition to, or instead of, oral communication and other available semiotic resources of meaning making. The number of chat comments in each group ranged from 36 to 173. The chat messages show simple syntactic structures consisting of short sentences, phrases or words, single letters and icons. Different categories of speech acts appear: questions, statements and short answers, many of them directed towards concrete action and technological problems such as: *Varför stängde ni av kameran* [Why did you close the camera], *okay har i slået mikrofonen til* [OK have you activated the microphone?] or: *ok konstigt tästa att kobla bort head sättet* [OK strange test it by deactivating the headset]. Many of the back-channel responses indicate that utterances have not been fully comprehended or that further explanations is required: *vi hører dere ikke* [We do not hear you], or *vad betyder det?* [what does that mean]. However, positive comments can also be found, as *Okey bra! :)* [Okey, good! :)].

In the chat, the most common adjacency pair is question and answer. The syntax of the questions is often minimised to shorten phrases and mostly no question marks are used. The answers are often very short, formed in just a few words without nexus such as “yes”, “no” or “ok”. Exclamation marks are used creatively in an attempt to establish contact and catch the attention of the addressee. Some exclamation marks can be understood as expressions of impatience *kan i høre mig???/Hör ni oss!! hallå!!!!!!!!!!* [Do you hear us!! Hello!!!!!!!], others as an amplification of a statement *jeg kan virkelig ikke høre jer!!!!!!!!!!* [I can really not hear you!!!!!!!!!!]. Punctuation, icons, short follow-up questions and clarifying words or phrases can be seen as examples of spontaneous and improvised communication.The possibility of receiving input prompt is seen when the students present themselves *skriv vad ni heter??* [Write down

your names??] and in questions like *vad brukar ni göra på fritiden?* [What do you do in your spare time?] and *ok var kommer ni ifrån?* [ok where do you come from?].

As concerns the semiotic resources and communicative channels used, the speech is enhanced by typing a repetition of the phrases and words in the chat or in the notes window. Here, sometimes English is used, and sometimes the students merely cry out keywords (e.g. Pixton). Occasionally the students even make signs in front of the camera (e.g. OK). Smileys and CMC-abbreviations occur (e.g. LOL - *laughing out loud)*. Colour is used in the chat, signalling the different speakers (see Figure 3):

Figure 3: Excerpt from chat and application of colour.

As regards how the students manage to complete the assignment, the students` main task was to evaluate each other`s comics. A closer look at the synchronous interactions shows that they had severe problems reaching this goal. Three out of the twelve groups did not mention the comics at all in their interactions. Another three groups only referred briefly to the comics during their conversations. The remaining six groups more or less managed to solve the task by giving each other short comments of assessment such as *eran pixton var bra* [Your pixton comic was fine], *men inte färdig* [but not finished] or *det var ikke det vi havde avtalt* [this was not what we had agreed].

A likely explanation of the lack of communicative success may be that the assignment was too abstract and difficult for the students, when taking the linguistic resources of the students and the communicative barriers into consideration. Furthermore, the three-part setup is technically challenging because all three participating groups have to present at the same time and have to manage the camera and sound in order for the communication to work properly. As shown in the transcript above, the students in the three countries did not always appear simultaneously in the

conference room due to technical problems. This resulted in the establishment of two-part conversations, which seems to have made it difficult for the later arriving third part group to contribute on equal terms. Moreover, the conversations were often disrupted by acoustic disturbances and distractions in the conversational flow, e.g. when the students found it necessary to explain the addressee of a particular question.

Other factors of importance, which are not the main focus of this article, however, might be matters of power relations between the students. The students from Denmark and Sweden were a couple of years older that the Norwegians, and this age difference could explain some of the asymmetry found in the conversational patterns, especially in some of the groups. Another factor is the issue of politeness. In the recorded conversations one can find examples of what appears to be both intended and unintended instances of rude behaviour or lack of politeness. In part, the students` deliberate violation of social rules may emanate from boredom with or frustration over the assigned task, comprehension problems and technical disturbances. Other experiences of lacking politeness might stem from cultural differences, e.g. differences in school culture and classroom behaviour. The overall picture is, however, that most students strived to establish meaning, solve the assignment and communicate even if the framework conditions were less than optimal.

Discussion

Certain practical arrangements had to be prepared in advance before a synchronous communication could take place. Some coordination activities have been carried out in order to plan what computer-mediated tools to use, to agree on a specific time slot for all students and teachers involved and to prepare a communication structure. All these activities make up the framework for the communication and collaboration between the students. However, when the use of the computer-mediated tool, such as Adobe Connect, suffers from an unsatisfactory functionality in this case, the students will find themselves in an unexpected situation. This is an emergent situation based on the co-production between the learner and the learning environment. The findings in this case show that the synchronous chat seems to affect the participation in the synchronous communication positively, as it make the learners contribute even more. The perceived participation is considered as stronger and the learners contribute more within synchronous chat discussions. The learning continues as a dialogue, through the use of different semiotic structures and by social negotiation (Hrastinski, Keller & Carlsson, 2010). Thus, the students' adaptation to the technical problems faced within the synchronous communication is in different ways facilitating the multilingual inter-comprehension when different semiotic structures come into play in an ad hoc-based manner, together with the multimodal use of the technological facilities available. There are, however, also a number of students who are more likely to give up or misbehave when the assignment is too hard or there are too many obstacles reducing the chances of communicative success.

Synchronous communication is characterised by a situation where there is a connection between the perceived situation and the situated actions. The students are tightly coupled to the real-time situation where the synchronous communication is being carried out. The patterns and the progress of the situated actions will be decided on by the students based on the contextualised

occasion of the on-going synchronous communication (Säljö, 2003). In this way, it is unpredictable to a certain extent what students may learn in a specific situation. In any case, synchronous communication is of particular interest in language teaching, since the students are given an opportunity to develop and try out real-time communication strategies, as shown in this case. However, this is somewhat contrary to Palloff and Pratt (1999, p. 47) as they argue that synchronous IT-tools "rarely provides for productive discussion or participation". Synchronous communication is more vulnerable than e.g. the use of asynchronous communication tools because of the dependency relationship arising between the connected classrooms. A particular problem is that both linguistic and technical communication systems automatically adjust to the lowest common denominator (Börestam 1994), meaning that if there is a problem with e.g. Adobe Connect or language understanding in one classroom then all participants will experience the same problem.

The communicative forms that the students apply in the synchronous meetings are dominated by the written mode. The students speak and negotiate in their national groups but mostly prefer to address their partners through the chat function. That could be to compensate for an actual or perceived lack in the mode of oral communication, due to comprehension problems and poor sound quality. Moreover, the students seem to prefer the chat, as a more stable way of communicating in this setting. However, other visual forms of semiotic resources in a video conferencing setting such as facial expressions and gesticulating, or using colours in the chat to distinguish turns and speakers also play a significant role. The potential for collaborative learning seems to lie in offering the students multiple forms of conversation forms for making meaning, forms that can be used simultaneously for strengthening the learning (Hampel & Stickler, 2012).

Conclusions

It can be concluded from this study that synchronous communication within a learning activity is challenging. The nature and the content of the interaction cannot be taken for granted, since the students must find alternative semiotic structures to communicate if the ICT-tool used fails. The study shows that most students are capable of finding alternatives in order to reach the goal of the learning activities and seem motivated to overcome linguistic and technical barriers. A variety of semiotic resources, as images, gestures, smileys, colours, CMC-abbreviations and making signs, are used simultaneously within the synchronous communication. However, the multiple forms of conversation are dependent on the emergent situation and are dominated by the written mode in favour of the oral mode, due to comprehension problems and poor sound quality offered within the ICT-tool.

The study also shows that the use of synchronous communication in three-part teaching demands quite a lot of planning from the teachers involved. Even though problems in synchronous communication can be annoying to both teachers and students, the students' experience of being able to repair communication and find alternative solutions can be useful in the development of their communicative competencies, for example in the domain of inter-Scandinavian communication as in this case. This is because the problems experienced in synchronous

computer-mediated interaction in many ways resemble the problems the students are likely to meet when they use foreign languages outside the classroom.

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Mobile Technologies for in-class Interaction and Assessment for Learning

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Abstract

In recent years, the demand of in-class interaction and assessment for learning is rising. There is more emphasis on using electronic tools for assessment for learning in order to facilitate teachers seeking to identify and diagnose student learning problems, and providing quality feedback for students on how to improve their work. This paper discusses the challenges of e-assessment and introduced a few e-assessment tools developed in Hong Kong. These tools include classroom interaction, peer review module, real-time quiz with analytic and a pen-based home feedback system. The tools can provide an efficient and effective channel for providing feedback so as to monitor any learning difficulties and help teachers to diagnose students' prior skills and abilities, providing feedback for them to adjust the curriculum or provide additional assistance accordingly.

Keywords: Cloud-based Learning and Assessment, Learning Analystics, School of the Future, Future Classroom

Introduction

Assessment drives student to learn in education. "Students can escape bad teaching: they can't avoid bad assessment" (Boud, 1995)[1]. Assessment is an essential element in education whether it is used for the purpose of diagnosing student needs, giving feedback or collecting evidence of student learning. Assessment influences student approach to learning (Trigwell & Prosser, 1991) and it gives students feedback on their progress, providing them opportunities to demonstrate whether or not they have achieved the Intended Learning Outcomes and at what level they have achieved them. At the University of Hong Kong (HKU), an assessment policy has been approved at the institutional level to provide quality assurance and standards for both teachers and students. With such teaching and learning policy in place, it is important to ensure that teachers will have the means and tools to collect evidence of student learning to make a judgment on what level a student has performed against the Intended Learning Outcomes in order to proceed to the next level of study and to protect our academic standards. In addition, it is important to have an efficient and effective channel for providing prompt feedback for students so as to address any learning difficulties observed. Some analytical and statistical tools which can provide feedback for teachers to diagnose students' prior skills and abilities and adjust the curriculum or provide additional assistance accordingly are also essential in the new curriculum.

To cope with the aforementioned challenges, some new e-learning tools are being developed in the e-Learning Technology Development Laboratory of the University of Hong Kong. These tools provide the means and tools for teachers to assess, record and analyze class performance.

Challenges of assessment

In many colleges and universities, students are asked to submit their assignments through the on-line platform. Since most assignments are handwritten, teachers or tutors have difficulty providing feedback and marks on the assignments in softcopies. They are required to either print out the assignments and mark on the physical copies, or just give an overall text base feedback in the comment field of the assignments. Teachers cannot write comments, circle mistakes, or underline keywords on the assignment as conveniently as marking a hardcopy assignment. Being able to draw and write while providing feedback is especially important for those courses which involve diagrams, graphs or flowcharts. A system that can facilitate teachers to mark assignments directly through a pen-based on-line system would save workload, encouraging teachers to provide more feedback.

Assessing large classes formatively has always been a challenge in higher education. With the new curriculum, there are a lot more large classes with over 100 students. It is difficult and time-consuming to assess the level of understanding of all students in a large class in an effective and efficient way, and conducting tests through traditional assessment methods may take up too many contact hours. It would be extremely useful if there is a system or process that would enable teachers to easily assess student understanding in a large class, allowing them to effectively identify common mistakes and provide appropriate learning activities for students accordingly.

Electronic tool for the assessment for learning

In recent years, there is a great demand to change assessment practices. Educators have been putting more emphasis on assessment for learning, a process in which teachers seek to

identify and diagnose student learning problems, and provide quality feedback for students on how to improve their work. The concept of assessment for learning is not new. It is underpinned by the confidence and belief that every student is unique and possess the ability to learn, and that we should develop their multiple intelligences and potentials. To promote better learning, assessment is conducted as an integral part of the curriculum, learning and teaching, and feedback cycle.

Assessment, as a practice of collecting evidence of student learning, should be designed in a way that assesses what students are expected to learn and the learning processes that lead there. Different modes of assessment are to be used whenever appropriate for a comprehensive understanding of student learning in various aspects. Feedback can then be given to students and teachers to form basis on decisions as to what to do to improve learning and teaching. These modes can be classified as: (1) Assessment for learning; (2) Assessment as learning, and (3) Assessment of learning.

Assessment in school can be formative and summative depending on the purpose for which the assessment is designed. Formative assessment is carried out informally or formally in daily classroom learning and teaching throughout the school term/year. The primary purpose is to provide feedback to learning and teaching. Summative assessment is conducted at the end of the learning and teaching process. It focuses on the product of learning mainly and is primarily used for measuring what a student has learned and how much has been achieved at the end of the school term/year[3].

The new e-assessment tools

To cope with the aforementioned challenges and new demands on assessment for learning, a few new e-learning tools are developed to address the needs of the different assessment modes. The objectives of these tools are:

1. To provide a user-friendly tool for teachers to collect, mark, give feedback and redistribute the marked assignments to students in an effective way.
2. To facilitate real-time in-class assessment for large class.
3. To provide an efficient and effective channel for providing feedback so as to monitor any learning difficulties.
4. To provide some analytical and statistical tools which can help teachers diagnose students' prior skills and abilities, providing feedback for them to adjust the curriculum or provide additional assistance accordingly.

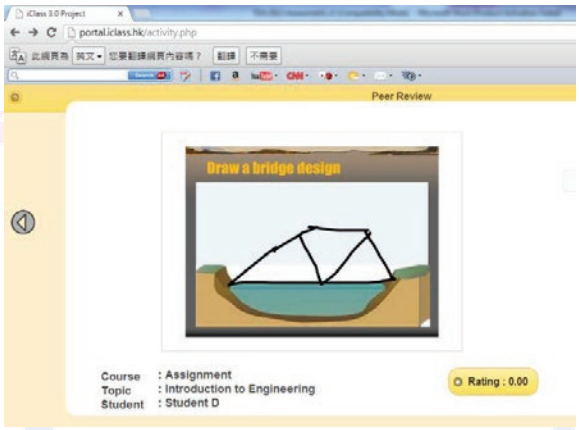
To address the requirements of different mode of assessments, different tools were developed

1. Assessment for learning - a Peer Review module for students to view and learn from other peers' works, make comments and rate on their works
2. Assessment as learning - a real-time on-line interactive quiz platform for students to test their understanding with an analytical tools for teachers to monitor the learning progress and reflect on the results
3. Assessment of learning - Pen-based assignment marking module for teachers to mark and give feedback to the submitted assignment effectively

Assessment for Learning – Peer Review

Assessment for learning can be based on a variety of information sources (e.g., portfolios, works in progress, in-class work submission...etc.). With the use of the interactive e-learning tool iClass, students can submit their works to the teachers' screen to share their ideas. A

module which enables students to share, view, assess and comment their peers' work will be developed so that students can learn from one another. They can also rate on their peers' work and the score can be recorded as part of the peer assessment result.



Assessment as learning – interactive quiz

An in-class interactive quiz module is equipped with real-time analytical functions. Students can use iClass to answer quiz questions in different types such as multiple choices and fill-in-the-blanks. Different questions can be assigned with different attribute. By the end of the assessment exercise, students' individual performance and the class overall performance can be displayed in a histogram (see Figure 1) and radar chart (see Figure 2) respectively. Teachers can then use this tool to know more about the learning progress and make appropriate reflections on the results.

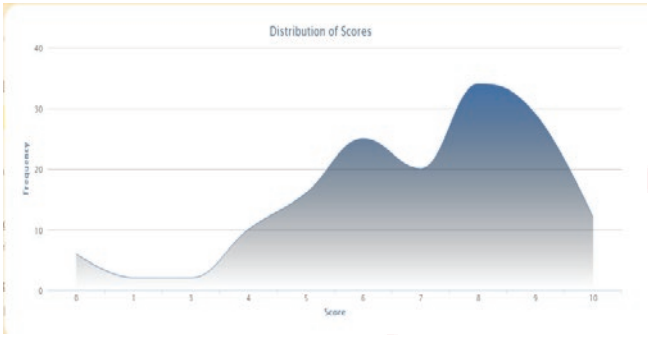


Figure 1. Distribution of the class performance result (Total score (x-axis) vs No. of students (y-axis))

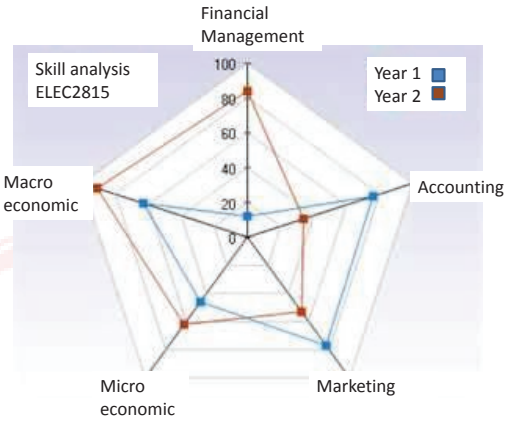


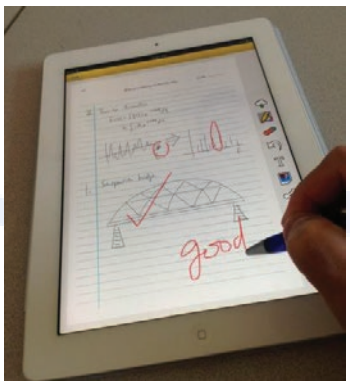
Figure 2. Radar chart showing the performance of different attributes in different stage of each student.

Assessment of learning – pen-based written feedback

One of the main assessment aims is to provide timely and adequate feedbacks for students so that they can learn from their mistake and know what to improve next time. However many homework submission system can only allow teachers to give a general comment on the assignment using textual feedback. It is not possible, or very difficult, for teachers or tutors to write feedback and mark on the softcopy. They are required to print out the assignment and mark on the physical copies, then re-scan the marked copies and upload it to the system again. Such complicated processes had often discouraged teachers to give adequate feedback.

An on-line pen-based assessment tool is developed. Teachers can use this system to mark assignments, write comments, circle mistakes, or underline keywords on the assignment as convenient as marking a hardcopy assignment. These requirements are especially important for those courses which involve diagrams, graphs or flowcharts. It can maintain the quality and convenience of giving feedback even when all assignments are going to be submitted on-line.

Some convenient features such as standard answer stickers, highlight pen, standard comments, will also be developed so as to simplify the feedback writing process and encourage teachers to give in-depth feedback to students. The feedback can be easily distributed back to students after the assessment process by just a simple click.



Summaries

The new electronic tools can facilitate the use of technologies to enrich the quality and efficiency of assessment, shorten the feedback loop and provide a more convenient and in-depth analysis on the students strengths and weaknesses.

In the new curriculum, the demands on teacher-students interactions are raising. However, it is difficult to conduct efficient and effective assessment in a large lecture environment. This project provided a platform to cope with the demand so that assessment feedback, score grading and performance distribution information can be collected and recorded on a large scale and in a convenient way. The solution also enriched the functionality of the Learning Management System and catalyzed the adoption of e-learning in higher education.

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The Role/Importance of Personal Computers to Support Learning in Higher Education

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Abstract

This scoping study examines the degree to which students use their personal computers to support their undergraduate academic practice in their daily study habits. Three data sources were collected from two groups of students who self-reported as being skilled computer users. Data on student's perceived degree of computer usage was gathered from a questionnaire. Computer activity data was harvested from their personal computers. And thirdly video data was gathered by students of their personal study activity within their homes. Three core themes emerged: (1) Academic Use vs Non-academic Use; (2) Computer Orientated vs Paper Orientated; and (3) Self-reports of Practice vs Actual Practice. An analysis of these themes revealed that for the participants involved: 1] they were more likely to engage in non-academic work than academic work while using their personal computer; 2] they were more inclined to use paper-based approaches compared to digital despite the high rate of personal computer ownership and internet access; 3] there was a disparity between students' self-reports of the degree to which they used their laptops for academic and non-academic purposes. The findings of this exploratory study illustrate the students' low academic use of their personal computers compared to the much higher non-academic use. Their preference of paper-based approach for academic work indicated that personal computers were not as crucial to their undergraduate study as was expected. This was further supported by the considerable disparity that appeared between what the students thought they used their computers for and what they actually did use them for in their daily academic practice.

Introduction

As computer technologies become increasingly sophisticated and ubiquitous, understanding the extent to which students integrate these technologies into their study practice is essential (Butson and Thomson, 2011). Nevertheless, there has been little research to date that explores students' first-hand experiences of using new technologies to support their academic practice (Sharpe et al., 2005). For example, the degree to which students today can be regarded as competent computer users in terms of utilising academic software in order to excel in their studies is hazy. While the literature shows an increasing number of undergraduate students own a computer and have a broadband connection (Aspden and Thorpe, 2009, Guidry and BrckaLorenz, 2010, Smith and Caruso, 2010, Dahlstrom, 2011), it is unclear to what extent these personal computers are utilised in their academic study. The typical assumption is that these 'digital natives' (Prensky, 2001) have a high level of computer literacy and are therefore likely to utilise their laptops to support their learning in advanced ways.

The primary endeavour in regard to this investigation was to situate the data collection as close as possible to students' daily studying practices with their personal computer. The investigation focused on understanding:

- The degree to which students utilised their personal computers for academic purposes as compared with non-academic use,
- The extent to which computer use had been adopted over traditional paper-based approaches,
- The degree to which student self-reports (post-event recollections) align with data capture of their actual practice.

Three datasets were created in this study from 1) a student self-report survey, 2) Computer Activity Data captured from logs on their laptops and 3) Cohort Behavioural Data captured using video camera situated in the students' home study space. The core findings from each of these datasets were analysed within the three core themes: Academic Use versus Non-academic Use; Computer Orientated versus Paper Orientated; and Self-Reports versus Actual Practice.

Methods

Emerging from a social constructivist perspective, the theoretical framework for this study drew on an interpretive, naturalist enquiry approach (Guba and Lincoln, 1989), which was underpinned by Constructivist Grounded Theory (Charmaz, 2006). Using this research design, actual practice data-gathering methods were employed in order to reveal students' daily technological academic practices rather than relying solely on the more traditional approaches of questionnaires/surveys and interviews.

Data source 1: (Self-report Data) a short questionnaire to ascertain the student perceptions of their degree of computer use.

Data source 2: (Computer Activity Data) refers to data that were captured from 18 students' personal computers, who self-reported as being skilled computer users (Self-report e-literacy questionnaire), about the applications they used, the websites they visited via browsers and

the documents they accessed from their system. Thirty third-year students were invited to complete a questionnaire to assess their degree of computer literacy for selection. Of these, 25 of them agreed to do so and the students with the top highest scores were selected for the study (n=18). Software (ManicTime) was used to extract computer usage data from these participants' laptops over the duration of their first six studying weeks in semester one 2012 at the University of Otago in New Zealand. This naturally-occurring data, gathered as a result of students using their computers, was seen as an accurate method of revealing application types used and their computer technology engagement over the duration of this study period (6 weeks = 1008 hours). The focus was on the context(s), the degree to which software applications and web services were used to support undergraduate study with personal computers in terms of at what times, and for how long. Through this computer activity data, it was expected to elicit students' actual technology practices, as opposed to their reported ones.

Data source 3: (Cohort Behavioural Data) is a collection of video and audio clips created by a second cohort of four students who also rated themselves as being skilled computer users. Thirty-five third-year students who rated themselves as proficient computer users were invited to complete a quick survey in response to measure their degree of computer literacy (Self-report e-literacy questionnaire). From this group, four students were selected based on a balance of ability, gender and department distributions (Commerce, Health Science, Humanities and Sciences). With appropriate ethical approval, this dataset consisted of over 12 hours of video and audio files, captured by four third-year students, of their personal study sessions at home in 2009. The focus was on the context(s): to what extent did the participants integrate and interact with computer technology in their daily undergraduate study habits. Through this Cohort Behavioural Data, how computer technology plays a role in undergraduate students' personal studying time was examined.

The two core datasets were a mixture of observation of students' actual computer practices (Computer Activity Data) and a focus on students' actual learning experiences with computer technology (Cohort Behavioural Data). While Computer Activity Data captured what students used their computers for, Cohort Behavioural Data was used to elicit data on how students used their computers within their study routines through capturing their practice on video. These datasets monitored students' practice as it occurred, in comparison to their self-reports of what they recall they did (post-event recollections). The focus was thus on capturing what students did (and did not do) rather than what they said they did or did not do. As Starr and Fernandez (2007) noted, self-reported behaviours can be quite inaccurate for describing practice and thus the veracity of studies that use post-event capture to represent actual practice can be questioned. Furthermore, participants' "perspectives in action" (records of behaviour) and/or "perspectives of action" (accounts of behaviour) (Belk and Kozinets, 2005, p. 132) should be taken into consideration in analysis. This can only be achieved with the use of actual practice data.

Findings

The Computer Activity Data revealed the top three software applications and top three web services used. The usage was then categorised as client-side software programmes (e.g., Adobe Reader or Microsoft Power Point) or browser-based services (i.e., YouTube or University Library site) followed by academic or non-academic. Academic refers to software, documents or web services that were related to the participants' academic study. Non-academic includes all other uses, such as banking, entertainment sites, Facebook groups, etc.

The Computer Activity Data was automatically generated on the students' laptop as a result of their daily use. The data showed a significant difference between the students' use of client-side software applications (low use) and browser-based services (high use) – see Table 1. The top two browser-based services were Facebook and YouTube, which accounted for about 52.74% of students' overall computer activities. Google, which represented 2.92%, was the next on the list. In terms of client-side applications, Microsoft Office had the highest ranking but only at the average of 7.18%. It was followed by the file management application – Windows Explorer – at an average of 4.92% and Adobe/Foxit Reader with the average of 3.48%. Following this, Computer Activity Data (Table 2 and Table 3) suggested that there is a considerable difference between students' self-reports to express practice in regard to computer use and their actual practice. While students perceived that they either struck a balance in the use of computer technology between study and other aspects of life or had a higher computer technology usage for study in their questionnaire, their actual practice from the computer activities revealed the opposite.

The 12 hours of filming created by the four participants in Cohort Behavioural Data were coded by activity under the following behavioural trait: Academic vs Non-academic Work. As with Computer Activity Data, the Academic and Non-academic work in this behavioural trait explains the same. The behavioural trait showed that, for computer activity across all participants, there was a higher percentage of Non-academic Work with the involvement of technology (39.56% as opposed to 35.39% - see Table 4), but a lower percentage of Academic Work when there was involvement of technology (35.44% as opposed to 44.81% - see Table 4). In other words, students were found to be more paper orientated while studying.

While Computer Activity Data determined what was actually used (e.g., software programmes and/or websites) to support students' daily academic practices, Cohort Behavioural Data (self-filming clips) showed us

> "what students "defined as 'study' (what they selected to record), what they defined as a study period (the duration of the recordings), what they were thinking about as they studied (verbal interactions with the camera) and what they defined as the study space (capture angle)". (Butson and Thomson, 2011)

With the contraposition between these two cohort datasets (Computer Activity and Cohort Behavioural Data), a summary of the findings is listed below based on the three main themes.

1. *Academic Use vs Non-academic Use:* Students do more academic work when studying without the involvement of technology, which means paper-based approaches are favoured.

2. *Paper Orientated vs Computer Orientated:* Students preferred to work in a paper-based manner where possible. The routine behaviour of transferring digital to print was more prevalent than had been expected.

3. *Self-Reports of Practice vs Actual Practice:* Students' use of computer technology and computer literacy in their academic activities is actually less and more limited, than they self-reported.

Discussion

As mentioned, the core findings contributed to the development of the three main themes, namely, Academic Use vs Non-academic Use, Paper Orientated vs Computer Orientated, and Self-Reports vs Actual Practice. These themes were expected to inter-osculate with the research questions about students' academic and non-academic use of personal computer while studying, the query about the preferred use of paper-based approaches as well as the concern about the discrepancy between self-reported and actual use of computer technology.

Theme-1: Academic Use vs Non-academic Use

All the participants in Computer Activity and Cohort Behavioural Data agreed that computer technology plays an important role in their undergraduate academic practice. This is not surprising given the rapid increase in the ownership of personal computers over the past five years (Aspden and Thorpe, 2009, Guidry and BrckaLorenz, 2010, Smith and Caruso, 2010, Dahlstrom, 2011). It seems reasonable then to assume that students are likely to employ computer technologies to support their studies. However, the findings of this study revealed that, for the group of students involved, their primary use of these devices was for non-academic purposes.

Given the high level of belief and confidence expressed by the participants (Computer Activity and Cohort Behavioural Data) regarding the importance of computer technology in supporting their higher education endeavours, it would have been expected that they would be avid users of both client-side software and web-based services for academic use (Sim and Butson, 2013). The low level use of academic-related software/web services compared with non-academic use sends a clear message that for these computer competent third year students, personal computers were not as crucial to their academic study as had been expected or as current research has argued (Aspden and Thorpe, 2009, Dahlstrom, 2011, Guidry and BrckaLorenz, 2010, Smith and Caruso, 2010). For example, the dominant use of personal computers by these undergraduate students was for socialising (social networks, such as, Facebook, and email), personal web services (auction sites and online banking) and entertainment (YouTube, music, and movies) as shown in the Computer Activity Data (Sim and Butson, 2013). At the same time, the findings generated from Cohort Behavioural Data suggest that students' use of their personal computer for non-academic purposes is higher than the academic. While their academic use was generally limited to Microsoft Word and browser-based searching, they were active users in non-academic contexts, such as social networks, online banking, purchasing and auction sites. The use of the web, outside academia, as the first port of call for information (news, health, television, movies, information on pubs, air tickets, etc.) is not surprising and it is easy to underestimate the extent to which the web has entered the students' daily lives. Given resources, such as PowerPoint slides, academic articles, and assignment guidelines are supplied in digital formats, the researchers were expecting a higher academic use instead of the higher non-academic use.

Another unexpected part was that the students' proficiency was higher in non-academic context. Computer Activity and Cohort Behavioural Data showed that students spend more time online for communication purposes. Facebook rated over 96% in 2010 and 90% in 2011 (Dahlstrom, 2011, Smith and Caruso, 2010) and an average of 53% in this study (Computer Activity Data). The main use of the personal computer by the participants of this study was for communication (Twitter, Facebook, email, messenger, Skype etc.). However, the focus on

documents and information, while present, was relatively low. This raises an interesting question regarding higher education: if computers are primarily used for communication, what is their role within higher education?

While the findings showed that computer technology has a dominant place within students' daily lives outside their studies, such as social communication, they did not show that these practices have found their way into academia (Cowan, 2011). Claims such as "I love IT, IT is my life, my laptop is my life, without IT I would be a very unhappy person, IT allows us to do so many things, and those of us who are natural at it would not be the same without it" (Smith and Caruso, 2010) could have led us to assume that students' computer literacy in academic practice is high. However, the Computer Activity and Cohort Behavioural Data captured in this study, while supporting these claims concerning non-academic use, do not support this view in relation to academic use.

Theme-2: Paper Orientated vs Computer Orientated

As noted earlier, it is easy for us to consider that the widespread ownership of personal computers by students in higher education is due to the importance of these devices in supporting their undergraduate studies. However, the findings in this study (especially Cohort Behavioural Data) showed that students were more paper orientated in their daily study routines. This highlights a difference between how they perceive computer technology, as opposed to how they use it.

It is interesting to speculate whether students' preference for paper-based approaches is the result of their unease with the technology or whether it is due to a dependence on paper-based approaches inherent in higher education. It seems reasonable to assume that the way in which an institution embraces and implements technology is going to have a bearing on the way in which students will engage with technology in their higher education learning. Although students are comfortable with technology and see it as integral to higher education (Dahlstrom, 2011), they expect that teaching staff will model the academic use of technology (Smith and Caruso, 2010).

Most institutions now deliver resources in digital formats (i.e., Microsoft Word and portable document formats), but all of the participants in this study downloaded and printed relevant resources. It could be suggested that these students' preference for printed material is due to a lack of awareness of mark-up facilities, storage, and retrieval capabilities that digital formats offer. An analysis of both Computer Activity and Cohort Behavioural Data revealed that the participants exhibited only rudimentary awareness and skills concerning the capabilities of their computers to enhance their academic work (e.g., file management, bibliographies, planning, word-processing, databases, and analytical packages). In fact, the students in this study were completely unaware of the academic-related software applications such as bibliography programmes (i.e., Endnote, Outlook, and OneNote), analysis packages (e.g., SPSS, NVivo, and MATLAB), and the applications' relevance to academic practice (i.e., spread sheets, graphics software, and computer maintenance). The dominance and reliance on paper-based approaches, as revealed in the film clips (Cohort Behavioural Data), certainly raises questions about assumptions often made about students' level of computer literacy in higher education.

The preference for paper-based approaches is best exemplified by a staff member's comment implying that students need, and generally have, two devices for academic study: a personal computer and a printer, of which the printer is the most important. The computer is simply a device that is used to access documents that the student then prints out and stores in a ring binder. All of the participants in this study indicated their preference for, and dependence on, paper-based approaches to support their study practice and incidentally all used ring binders to store and categorise their resources. While not suggesting that the use of ring binders is inappropriate, this anecdotal comment simply points out that personal computers in this process only seem to be a device that connects digital resources to a printer and that printed material is central.

Theme-3: Self-Reports of Practice vs Actual Practice

Much of the literature on the place of computer technology in supporting learning in higher education is based on perception data. Part of this study was to explore the validity of this approach by examining whether there is a difference between students' perceptions and actual practice in relation to their computer use and their computer literacy. The results from Computer Activity Data (see Table 2 and Table 3) suggest that there is a considerable difference. While the literature claims that students "expect to use technology in academia to give them access to resources and progress reports, make them more efficient as students, facilitate connecting with others, and make learning more relevant and engaging" (Dahlstrom, 2011), the naturally-occurring practice data in this study (Computer Activity and Cohort Behavioural Data) did not support such claims. This highlights a clear difference in outcomes from these distinct approaches and questions the current dependence on perception data to reveal authentic, situated practice.

Studies employing perception data might have led to the assumption that the extent of computer use to support higher education study is high (Sim and Butson, 2013). A considerable portion of the current literature on computer use in academia suggests that student use of technology will result in students being efficient in their learning (Smith et al., 2009). In addition, a number of studies claim that computer technology now plays a significant role in supporting undergraduate study (Aspden and Thorpe, 2009, Dahlstrom, 2011, Guidry and BrckaLorenz, 2010, Smith and Caruso, 2010). Nevertheless, the findings of this study show a significant difference from the current literature on this topic due to the focus in this study on actual practice. The difference between the students' beliefs about their personal computer use and their actual computer use highlights that self-report data or post-event recollections should not be relied on to represent actual practice. For instance, the perception data gathered from students in the current study - questionnaire data in Computer Activity Data and survey data in Cohort Behavioural Data - were similar to the findings presented in the literature (Sim and Butson, 2013). However, the data gathered on actual practice (computer activity logs in Computer Activity Data and students' behaviour in Cohort Behavioural Data) showed something very different.

In addition, this study also found that very few of these perception-based studies distinguish between academic and non-academic use, creating a confusing picture given the difference I found between the two. At the same time, many of the contemporary studies did not consider the relevance of paper-based approaches in students' academic practice as well. The naturally

occurring data collected in this study revealed that computer use for academic purposes was very low and students were actually more paper orientated when it came to academic work.

In summary

Computer Activity and Cohort Behavioural Data in this study captured third year undergraduate students' practice of using their personal computers in their independent study sessions at the University of Otago. From the findings generated from these two datasets, it is clear that the students' autonomous learning behaviours with their personal computer are actually different from common assumptions and views often reported in the current literature. Furthermore, the study sought to elicit students' points of view by asking them to engage in self-surveillance techniques through computer activity and computer engagement capture. These approaches offered a glimpse into study behaviours that are normally concealed.

While the findings from this study are specific to the cohort groups involved and are therefore not generalisable, the results do offer new understandings and insights into the use of computers to support undergraduate study. From this study, students were found to be active computer technology users and highly computer literate in non-academic use. Their academic use, in terms of practice and literacy, however, was low and limited. Students were also found to favour paper-based approaches when studying and to favour computer technology for non-academic work in their daily practice.

We are confident that this study will promote a deeper conversation about the role of technology in higher education and the use students currently make of personal computers/devices to support their study. Perhaps more research on larger and more diverse groups of students could be considered. Additionally, authentic and situated behavioural data should be employed in researching technology use. The difference found between perception and practice data signals the need for a substantial shift in the way we understand and gather data in this emerging field.

Acknowlegements

The study presented in this paper has been derived from two of the datasets in KwongNui Sim's MA research project completed at Higher Education Development Centre, University of Otago, New Zealand in 2012.

Two findings from Computer Activity Data (Dataset-1) in this paper have been used to present at 13th International Educational Technology Conference 2013 Kuala Lumpur, Malaysia in May 2013 in a different manner. The proceeding paper "Do Undergraduates Use Their Personal Computers to Support Learning?" is now published online at http://www.iet-c.net/publications/ietc2013.pdf

The kindness of Carla Thomson for providing the video and audio data, including video footage and comments (Dataset-2: Cohort Behavioural Data in this study).

The support and generosity of Dr Sarah Stein (Senior Lecturer at HEDC), without which the presentation at The European Conference on Technology in the Classroom (ECTC) in Brighton, UK on 11th-14th July 2013 could not have been completed.

Tables

Table 1: *Student use of client-side software and browser-based services*

Participants	Percentage (%)	
	Client-side Software	**Browser-based Services**
1	13.42	86.58
2	98.86	1.14
3	12.25	87.75
4	19.05	80.95
5	17.53	82.47
6	12.05	87.95
7	14.21	85.79
8	13.93	86.07
9	3.87	96.13
10	26.25	73.75
11	24.70	75.30
12	21.00	79.00
13	14.31	85.69
14	27.95	72.05
15	47.15	52.85
16	44.72	55.28
17	17.65	82.35
18	22.03	77.97

Table 2: *Student self-perception measure of their academic and non-academic computer use* (Sim and Butson, 2013)

Participants	Percentage (%)	
	Academic Use	**Non Academic Use**
1	60	40
2	60	40
3	70	30
4	50	50
5	50	50
6	50	50
7	50	50
8	50	50
9	50	50
10	40	60
11	40	60
12	40	60
13	40	60
14	40	60
15	40	60
16	40	60
15	40	60
16	40	60
17	30	70
18	20	80

Table 3: *Computer activities for comparison of academic vs non-academic use* (Sim and Butson, 2013)

Participants	Percentage (%)	
	Academic	**Non-academic**
1	10	90
2	90	10
3	10	90
4	10	90
5	20	80
6	10	90
7	10	90
8	10	90
9	10	90
10	10	90
11	20	80
12	10	90
13	10	90
14	10	90
15	10	90
16	10	90
17	10	90
18	10	90

Table 4: *A summary of each participant's academic and non-academic work with/without technology involvement*

Participant	Academic Work		Non-Academic Work	
	with technology	without technology	with technology	without technology
Participant 1	65.37%	13.96%	34.63%	6.83%
Participant 2	19.30%	56.25%	80.70%	43.75%
Participant 3	0.00%	91.83%	0.00%	8.17%
Participant 4	57.10%	17.20%	42.90%	82.80%
Total average	**35.44%**	**44.81%**	**39.56%**	**35.39%**

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Pocket Mobile Learning: Second Language Acquisition

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Abstract

Imagine yourself stuck in a busy airport chock full of business commuters, watching delay after delay post to the digital screen that announces incoming and departing flights. Rather than allowing you time to be completely wasted by circumstances beyond your control, you are absorbing some continuing education with posted learning materials, or better yet a live instructor from hundreds if not thousands of miles away. What if, in the not-too-distant future, you could gain back hours of such useful time each day. How can this be possible? M-learning combines the technologies of mobile communications with e-Learning, which allows you to develop learning content that integrates with mobile applications and provides learning and performance in a just-in-time, just-in-place dynamic. This paper is excited to present some opportunities to look at ways that learning and performance support the improvement of English as a second language. Most English as a foreign Language contexts have been characterized as traditional language learning settings in which teachers direct the learning process, and students are the assumed as passive receptors of knowledge. This research aims to examine the development of mobile applications in order to provide more flexible possibilities for student's learning.

Introduction

Today, new iPhone or Android phone users face the quandary of which of the hundreds of thousands of apps (applications) they should choose. This phenomenon, not surprisingly has led to tremendous interest among educators. Mobile learning (often "m-learning") is in itself not new, but new devices with enhanced capabilities have increased the interest level, including among language educators. Interest in the use of a mobile phone to access the Internet for learning English in general, and listening skills in particular, has been increasing over the last years. This paper represents a work in progress that would demonstrate that it is possible to improve the learning of English as a L2 through the using of the mobile applications. Generally mobile application for learning a second language are designed for all learners, whether the learner is a beginner or an expert. The paper investigates the potential of mobile phones in maintaining effective learning environments and explore whether mobile phones can assist language learners in establishing a collaborative mobile phones. The integration of mobile phones technologies into tertiary education holds both opportunities and risks for the quality of mobile learning .Technology in education is not new but times are changing as we move into more distributed contexts with a variety of pedagogical motivations. Early efforts focused on collaboration within a more traditional learning environment. Further questions exist as to what degree and in what ways institutions can become a part of this emerging student-centered learning environment and how they can maximize the impact of that involvement. Students have a variety of alternative uses for any mobile device. In particular, a question exists as to the characteristics of learning applications that will be accepted and meaningful to students in a collaborative learning space with a variety of interaction channels. This short paper is excited to present some opportunities to look at ways that learning and performance support the improvement of English as a second language. Most English as a foreign Language contexts have been characterized as traditional language learning settings in which teachers direct the learning process, and students are the assumed as passive receptors of knowledge. In addition, ELF (English as a Foreign Language) learning has also been criticized as an in-class-only learning practice due to the rare opportunities an EFL learner is expected to encounter outside the boundaries of the classroom. This indicates the need for practice incorporation of a student-centered approach and contextualized language learning. Thus, mobile technology is examined here as a means to enhance different student-centered practices and to create meaningful outside-classroom and contextualized learning opportunities. Effective use of students' out-of-class time is a basic goal of recent computer-based language instruction, particularly in a university environment, where in-class language practice time is limited. When an out-of-class practice is limited in class time can be indicated to face communication and useful guidance for students on how to exploit out-of-class learning opportunities and to support students' development as independent strategic learners. Technology can also be integrated to provide ELF learners with authentic and meaningful dialogic engagement with contextual elements of an out-of-class learning environment. Indeed, technology can be used to engage language learners with broader communities and local and international cultures and enhances their sense of community by participating in the community outside the classroom . Examples of technological tools that can provide rich out-of-class learning opportunities for EFL learners include email, blogs, podcasting, and mobile technologies, the well –known application or app. The integration of mobile technology, particularly, for contextualizing language learning is potentially valuable. The sheer mobility of mobile technologies enables student interaction with such a wide range of location-based contexts. Mobile phones, for example, can effectively connect between the culture of student home life and student experiences , and can integrate home cultures of students into their classroom learning. Furthermore, mobile

phones can bridge the divide between the technologies students use at home and what they use in school. Besides, the mobile generation, current young students have developed extensive social communities outside the classroom that can be harnessed for contextually based out-of-class EFL activities. In this paper, we explore the impact on learning of these applications designed for use outside the classroom.

Mobile learning and Context awareness

Petersen, Divitini, and Chabert (2008) considered a socio-constructivist authentic language learning approach to mobile language learning. Their learning design was highly supported by collaboration, interaction, and developing a sense of community through mobile community blogs, particularly when students were physically present in the target language setting and culture, and/or when they were away from their classmates. The researchers found that participants‟ sense of community “and belonging to the language learner community is not high, and participants‟ identity “is not well identified. Researchers attributed this to the lack of identity among members as a community and believed that the blogs are incapable of strengthening new, rather than existing communities. It is also noticed that participants are not eager to collaborate in the mobile blog due to the hesitation and the lack of confidence among students. For the current paper, however, it is important to point out that the sense of community and belonging to the learning context among students should be high, and that students are keen to engage in authentic learning activities outside the classroom. Mobile devices, e.g., PDAs and “smartphones,” are a categorically different form of technology with different behavioral consequences. The ubiquitous nature of these mobile technologies in terms of being constantly within reach of the users and continuously connected to a broader communications network give them a unique status in the realm of technology support for education and learning. In this sense, these devices become a form of “wearable” technology that places students in the center of their own unique learning environment. They have the opportunity to choose what to access, when and where, and with more degrees of freedom than other forms of technology support e.g., PCs. Self-guided exploration has been found to be conducive to the development of intrinsic motivation in more traditional educational settings. We can enhance learning motivation by emphasizing the importance and applicability of the material and by trying to connect the material to students’ intrinsic motivation. It is particularly noticed that learning motivation is likely to be greater if a student feels a particular class is consistent with their interests and with personally satisfying career goals. The early development of high learning motivation is critical. Thus it is important to focus on building learning motivation for education in general, as well as for specific classes . Mobile devices, e.g., PDAs and “smartphones,” are increasingly pervasive, especially in student populations. In some parts of the world this exceeds 100%, i.e., each student may have more than one such device. The pervasive nature of these devices provides an unprecedented opportunity for creation of learning applications. As with research, we can increasingly expect that our students will (or can be mandated to) have personal access to a mobile device to complement their traditional learning activities.

Research environment

During the ongoing of the research the development of mobile applications will be focused on providing more flexible possibilities for student learning. Students in Bari are like most others, juggling busy lives and moving in and out of wired and wireless environments. I would like to suggest a model for the manner in which one may consider the elements of

mobile computing which is more congruent with current practice and infrastructure. Students move between the:

- *connected mode* (at the University),
- *nomadic mode* (at home or connect to a desktop computer in class or at home), and
- *disconnected mode* (on public transport, away from wired or wireless connections).

The current project is a holistic approach that seeks to:

1.Develop the technical infrastructure that enables academics and students to collaborative activities to the web or personal digital assistants or smart phones;

2. Develop the technical infrastructure to allow lecturers to monitor student activity, record student learning outcomes about student interactions on their PDAs to the lecturers from within the university learning management system (LMS), BlackBoard and provide advice (mainly pedagogical) and support (with examples) for developing content suitable for mobile learning.

3. To create an environment for application and research, assessments of usefulness and acceptance will be made during the semester, while at the same time, existing infrastructure, support, and adoption problems will be addressed. The experiences should prove that students will successfully equipped with PDAs, and were using them every week in their core courses. A mobile Exercise application has been developed and evaluated.

Procedure

Students will need to answer an interview in order to identify any difficulties they may have experienced while studying English, thus thinking over their current study plan. For three days a week, students are expected to interact with a mobile application aimed at improving English learning skills. Mobile phones will facilitate the ways in which students reflect on one another's uploaded material (apps). They will be instructed on how to add captions, descriptive tag lines and starter questions to their uploaded material and, also, on how to add all these to the discussion board. The applications are intended to give students a chance to reflect on social events occurring outside of the classroom and to point out their social and cultural relevant features. Moreover, the participants in this research are supposed to have relatively different cultural backgrounds and habits. Once all participants have mastered the use of the applications, they will need to provide feedback on the uploaded apps. Each participant can use up to 5 comments and 3 answers over the six-week timeframe. During this particular activity the researcher will facilitate discussion and provide guidance when this is needed. For this reason, both the students and the researcher will jointly single out from the discussion elements that have linguistic significance and can benefit the learning process. Additionally, the students will be able to switch simultaneously between the applications and the traditional language exercises conducted in class. Application logs and discussion board contents from the previous week will be integrated into discussions conducted in the classroom. Mobile phones will help students to find ways of learning that fit in with their typical everyday mobile phone usage, which is the actual key distinction between computer-based and mobile-based language instructions. Moreover, using informal social media (e.g. The Learn English app), should increase the students' active involvement in the learning process as it invites them to implement contextual elements from their own environment. By the same token, integrating local cultural norms into the study plan would bring students to cooperating with one another through and within the language they study. Now you can choose when and how to learn: anytime, anywhere, 30 seconds or 30 minutes, at home or on the go. Teach yourself the basics, or give yourself a challenge. Explore our apps to find out more. dictionary apps are ideal for looking up words on the move, and you can use the audio to learn how to say the words correctly. Accessing dictionaries, either

online or dictionary applications they had downloaded, was a common activity. Many teachers are enthusiastic about this because it means that students don't have to carry around heavy dictionaries and also because the dictionaries they are accessing often have audio examples of pronunciation. The obstacles mentioned are cost, mainly charges for mobile connectivity, and worries about students or the teachers themselves having to pay to access their mobile course materials. Another problem is the variety of different mobile devices being used by students and the fact that not all students have them. Last, and possibly the most significant, is the lack of available content specifically designed for language learning. Whereas teachers and students seem willing to embrace this technology, ELT publishers are lagging behind. Services such as iTunes now provide simple payment and distribution platforms as well as the digital rights security that should allow publishers to start to generate large-scale online sales of e-products at much lower prices (many mobile applications cost between 10% to 20% of their desktop equivalents). Yet the response from many publishers has been slow. This is the ideal time for publishers to jump on the mobile wave and start delivering interactive and affordable mobile content.

Students will answer to an interview in order to identify any difficulties they might have encountered while learning English and to reflect on the current design of the study. Over three days in a week, all students will schedule to upload mobile application aimed to improve the learning of English. Students are expected to reflect on each other's uploaded materials (app) using mobile phone as well. Students will be informed that uploaded materials should be associated with captions, descriptions, or starter questions to the discussion board created by the uploading student. Application also should let students reflect on some social occasion or event that occurs out of the class, or have some local or cultural characteristics. Specifically participants in this research are believed to have relatively different cultural backgrounds and customs. When all the participants in the research will be familiar to the using of applications, they will be required to respond and comment on uploaded app with 5 comments and 3 responses as a minimum for each participant over the six week duration. The researchers' role in this activity is to facilitate discussion and to provide guidance when it will be necessary. Moreover, both the students and the researcher will be able to identify, from the discussion, elements that have linguistic characteristic that could benefit language learning. The students also will be able to connect between in class linguistic activities and the mobile exercise contextual topics. In other words, the application activity and the discussion board content from the week prior will be integrated into in-class discussion. Mobile phones will assist students more broadly to find ways of learning that fit with their mobile lifestyle out of class hours. This is the key distinction between computer-assisted and mobile-assisted language instruction. Moreover, the utilization of informal social media, such as Learn English Grammar app, should increase student's engagement in the learning task, and motivated them to implement contextual elements form their own environment. In addition, the integration of local cultural norms into the learning design would assist students to collaborate with each other in the target language.

Thanks to mobile phones technologies, students develop their own interests and abilities to create learning resources that reflect the learning context and students' own choices. Most importantly , the utilization of tools that students are already familiar with, such as mobile phone play an important role in maintaining a positive sense of community and authentic learning opportunities outside the classroom. Thus, it is important to point out that the implementation of learning tools , that students are already accustomed to save both students' and teachers' time, and does not require additional training. So far as student-generated

content is concerned , this research draws out what the learning context offer to students in ways that allowed them to create meaningful learning resources during their daily interaction with external environment. Student-generated learning content not only may support collaboration and a community of practice among students, but it also may foster their individual creativity and competitiveness. This study may lead student's mobile learning initiatives by creating their learning content and resources and manipulating their mobile social interaction. However, future mobile language learning design should consider students who might be unaware of the potential of their mobile phones for learning. The anytime/anyplace/any pace availability of mobile devices is felt to provide an environment in which barriers to participation are accordingly lowered. There is also an element of extrinsic motivation in conjunction with the e-token approach and availability of support designed to help students prepare for their final exam.

Conclusion

Empirically, we should affirm that those students who are motivated to use the mobile applications may tend to achieve higher levels of performance as indicated on the mid-term exam, final exam and ultimate course grade, and this dependent of whether the motivation is intrinsic or extrinsic. However, we caution that the results we should be analyze as preliminary and not necessarily demonstrative of enhanced learning on the part of the students. For example, there is no special way to discern from the results that the pool of students who may choose the use the mobile applications are not just simply better performing students compared to those who may choose to not use the mobile applications, or that their learning style is more compatible with PDA use in accordance with application characteristics. Further, it is questionable whether exam performance has any special correlation with learning. Whether constructive alignment is confirmatively a moderator on performance also remains a question. There was no stratification in the sample that enabled such level of detailed comparison. How to get students to explore a domain beyond the scope of a particular instance is also a remaining challenge**.** In summary, learning interventions require a prodigious amount of concerted effort with iterative and prolonged student and staff involvement and interaction as process and technology join in pedagogical evolution. Lacking a concerted level of effort and seamless integration of technology, the students do not change habits and engage in new forms of learning. Overall, general use of the mobile applications leaves much room for improvement, both in terms of the existing applications and, especially, the newer applications that have yet to be evaluated. From this perspective, mobile applications can become an increasingly important segment of the student learning time and space. We will not suggest that PDAs will replace books. In fact, expecting students to read a traditional text on a PDA is even less feasible than expecting them to read from a book. What it does suggest is a pedagogical rethink of the way we educate "digital natives" to include the kinds of learning activities that excite them and, from which, they may indeed learn. This paper will explore the impact on learning of a portfolio of mobile applications designed for their use outside the classroom. I conclude that the future is challenging but bright with respect to mobile application effect on learning a second language.

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Students' Perceptions of Integrating Mobile Learning Technologies Cell Phone in the Classroom for Improving Active Learning: A Case Study of Delta State University, Abraka, Nigeria

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Abstract

The purpose of this study was to determine student's perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning. A case study of Delta State University, Abraka, Nigeria. 265 male and female 100 level students of 2012/2013 academic session were used for the study. 22-items questionnaire tagged students perceptions of integrating mobile learning technologies cell phone (SPIMCAL) based on Faust & Paulson (1998) catalog of active learning strategy was used in gathering data. The data were analyzed using frequency counts and percentages. Chi-square at 0.05 level of significant was used to test the hypothesis raised. Findings revealed that 81.1% of the students owned mobile cell phone, students generally supports the integration of mobile learning technologies cell phone for active learning as evidenced from 80.4% of students responses, the null hypothesis was rejected indicating a significant difference between male and female students perceptions as the test of significant value of .000 was less than 0.05. The paper concludes that generally students supported the integration of mobile learning technologies cell phone in the classroom for active learning. It was recommended among others that the use of mobile learning technologies cell phone should be integrated into teaching-learning process in Delta State University, as a first step to integrate other forms of mobile learning technologies in the classroom, to enhance the preparation of pre-service teachers for technology integration in the classroom.

Keywords: mobile learning technologies cell phone, integration, active learning.

Introduction

The emergence of computer and internet has ushered in various forms of information and communication technologies use in the classroom, among which are mobile learning technologies cell phone. Mobile learning technologies cell phones are small portable devices that can be used at anywhere and anytime. Muhanna, (2011) defines them as the use of wireless handheld devices for learning. Examples of these wireless devices include mobile cell phones, smart phones, personal digital assistant phones (PDA), ipad among others. Prensky (2005) asserts that these devices are embedded with the following features such as voice, short text messages, graphic displays, download programs, internet browsers, cameras, video clips and global position systems (CPPS).

These common features have led to their widely use for social interactions, business and education. In agreement Heiphetz (2011) asserts that mobile learning technology cell phone can become an engine for learning in the same way as the World Wide Web. The following potential benefits have been highlighted as inherent in the use of mobile learning technologies in teaching and learning:

- Learners can interact with each other and with the practitioner instead of hiding behind large monitors
- It is much easier to accommodate several mobile devices in a classroom than several desktop computers
- PDAs or tablets holdings notes and e-books are higher and less bulky than bags full of files, paper and textbooks, or even laptops.
- Handwriting with the styles pen is more intensive than using keyboard and mouse
- It's possible to share assignment and work collaborate, learners and practitioners can e-mail, cut, copy and paste text, pass the device around a group or beam the work to each other using the infrared function of a PDA or wireless network such as blue tooth (Adedoja & Oyekola 2006:4)

In another report presented to the common wealth of learning, a classification of the use of mobile learning technologies for learning in education at all levels includes among others:

1. Monitoring students progress and being proactive to encourage students and support retention
2. Learner –content interaction
3. Teaching 'niche' subject e.g. languages
4. Quizzes and games designed to enhance learning
5. Context specific activities (e.g. museum visits) and as a tool to enhance classroom learning
6. Whole course delivery including assignment and accreditation (Cambridge, 2009:15)

These features, potentials benefits and their use for learning in education at all levels inherent in mobile learning technologies cell phones can be utilized to achieve the four significant kinds of interactions that influence learning such as: 1. Learner –content interactions 2. Learner – instructor 3. Learner –learner (Moore) 4. Learner interface interactions (Hillman, Willis & Gunawardena in Cui, G., Chen, X; Li; Wi Wang, S; Yang, Z & Meng C; 2012) if properly integrated in the classroom for active learning activities.

Jerry, (2004) defines integration as a means of using technologies as an instructional tool for delivering subject matter in the curriculum in place. While Sheingold in Gorder (2008) asserts that integrating technology in the classroom is not about teaching student to operate computer, but integrating technology is about helping teachers to use technology as a tool for learning. These views of integration have the implication that mobile learning technologies cell phone can be effectively use for improving active learning.

Prince (2004) viewed active learning as activities introduced into classroom. While Bonwell and Elson in Michel, Cater and Varela (2009) described active learning as a process in which students engage in doing things and thinking about what they are doing. In other words active learning is the activities introduced by the instructor and integrated into the teaching-learning process in the classroom to be carried out by the students.

Against this background Faust and Paulson (1998:5-13) in their study active learning in the college classroom provided a catalog of twenty (20) active learning strategy that can be used in engaging students in a teaching-learning process as follows:

1. Clarification pauses
2. One minute paper
3. Muddiest (or clearest) point
4. Affective response
5. Student response to a demonstration (or other teacher-centred activity)
6. Daily (or weekly) journal
7. Reading quiz
8. Wait time
9. Students answers
10. Student summary of another students answer
11. The fish bowl
12. Quiz /test questions
13. Finger signals
14. Flash cards
15. Quotations
16. The pre-theoretic intuitions quiz
17. Puzzles/ paradoxes
18. Discussion
19. Note comparison/ sharing
20. Evaluation of another students work

Review of related literature

Few studies exists on the use of mobile learning technology cell phone in the developed countries and non in developing countries like Nigeria. Adomi (2006) in his study mobile phone usage patterns of library and information science students at Delta State University Abraka Nigeria, finding revealed that students use mobile phones for different purposes including discussing with /passing information about class assignment to their mates. Majority of them use it to communicate with members of their family. In another study Olayinka and Bamidele (2012) teacher's perceptions of integrating these of mobile phones into teaching in public senior secondary schools in Oyo and Lagos state Nigeria. Their findings indicate that teachers use mobile phones for their personal use but not willing to use it for teaching.

ECAR (2005) study in United States and Canada on using mobile technology for enhancing students educational experiences in an on line survey with 35 high school and university students, the findings indicates that students are experienced mobile phones and computer users. They use these technologies daily and with great ease. Mobile phones are not used for educational reasons but only privately.

Attewell, (2005) mobile learning project in UK, Italy and Sweden with 128 learners within the ages of 17-19 revealed that learners were mostly enthusiastic about mobile learning. While Motiwalla (2007) study on the usage of mobile technologies (wireless phones and handheld devices (W/H) in distance learning or traditional classroom environments findings indicate that students in general support the use of (W/H) devices in learning and for sees a strong role for these devices in improving flexibility and efficiency of the learning environment.

Cui, Chen, Li, Wang, Yana, and Meng (2012) in their study Chinese college students perceptions on usefulness of cell phone integration in language learning, generally the findings revealed that students showed great interest in using cell phones in their EFL learning and believed that cell phones could be an effective tool in their EFL education. In Diemer, Fernander and Streepey (2012). Student perceptions of classroom engagement and learning using ipads with 209 undergraduate's students from several degree programmes in Indiana and Purdue University. Their findings revealed large number of students (83:7%) reported high comfort levels using handheld mobile computing devices prior to using ipads in the classroom. Most students (73.7%) owned a mobile device with internet access.

The educational benefits of mobile learning technologies cell phone and its features have been widely discussed in the literature. Its application was mostly for social interactions. The few studies that explored it for learning were especially in the developed countries. None of the studies in developing countries like Nigeria used mobile learning technologies cell phone for educational purpose inspite of the wide coverage of wireless network in Nigeria, high percentage of students with mobile phones and the educational potential inherent in them. It is therefore relevant to investigate students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning.

Statement of the problem

Over 60% of Nigeria has been covered with different wireless networks, such as MTN, GLO, STARCOM, AIRTEL and ETISALITE, with 65.8 percent of the population owing mobile learning technologies cell phone (NCC, 2012). This availability of different wireless networks and high percentage coverage has led to students' carriage of various categories of mobile learning technologies cell phone into the classroom for social interactions. Unfortunately beyond this function of social interactions mobile learning technologies cell phone remain dormant. Studies have showed that mobile learning technologies cell phone has the potentials for learning and one of its unique features is individuality. Learning is no longer a standard process it has transform into a personalized process (Akinoglu & Tandogan, 2007).

Educational institutions in Nigeria need to avail these potentials and the availability of mobile learning technologies cell phone in the classroom and re-direct its purpose to learning resource. 100 level undergraduate students' positive perceptions to engage in Faust and Paulson (1998) catalog of active learning strategies with cell phone will be a positive step to integrating mobile learning technologies in the classroom. Hence the study seeks to examine students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning in Delta State University Abraka, Nigeria.

Purpose of the study

The purpose of the study was to determine the following:

1. Students' perception of integrating mobile learning technologies cell phone in the classroom for active learning activities.
2. The percentage of students with mobile learning technologies cell phone in the classroom
3. Compare male and female students' perception of integrating mobile learning technologies cell phone in the classroom for active learning activities.

Research questions

The following research questions were answered by the study:

1. What is the perception of student's of integrating mobile learning technologies cell phone in the classroom for active learning activities?
2. What is the percentage of students with mobile learning technologies cell phone in the classroom?
3. What is the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning?
4.

Research hypothesis

The following null hypothesis was raised to guide the study:

There is no significant difference in the perceptions of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning activities

Methodology

The study is a descriptive survey design. Two hundred and sixty-fives (265) 100 level undergraduate students, 141 males accounting for 53.2% of the respondents by sex and 124 female accounting 46.8% of the respondents for 2012/13 academic session who had been screened at the time of the study constituted the population for the study.

An alternate yes or no 22 items questionnaire titled students perceptions of integrating mobile learning technologies cell phone in the classroom for active learning activities (SPIMCAL) was used as instrument for data collection. The instrument consists of two sections. Section A: consists of demographic questions such as sex, age and activities performed with cell phone. The demographic summary of the population is as showed below.

Table 1: demographic descriptive of the population.

Demographic Category		Frequency	Percentage (%)
Gender			
	Female	124	46.8
	Male	141	53.2
Age			
	14-17	10	4.0
	18-21	138	55.9
	22-25	67	27.1
	26-29	9	3.6
	30-33	3	1.2
	34-37	1	0.4
	38+	19	7.2
Activities done with mobile technology			
	Browsing the internet	64	37.4
	Research	27	15.8
	Social network	1	0.6
	Calls	26	15.2
	Assignment	9	5.3
	Call, browsing, assignment, Social networking	44	25.7

Section B: consists of 22 items based on Faust and Paulson (1998) catalog of active learning strategy in the classroom. The content validity of the instrument was established by three experts in the department of curriculum and integrated Science Delta State University, Abraka, Nigeria. The initial 35 items raised were modified to 22 items.

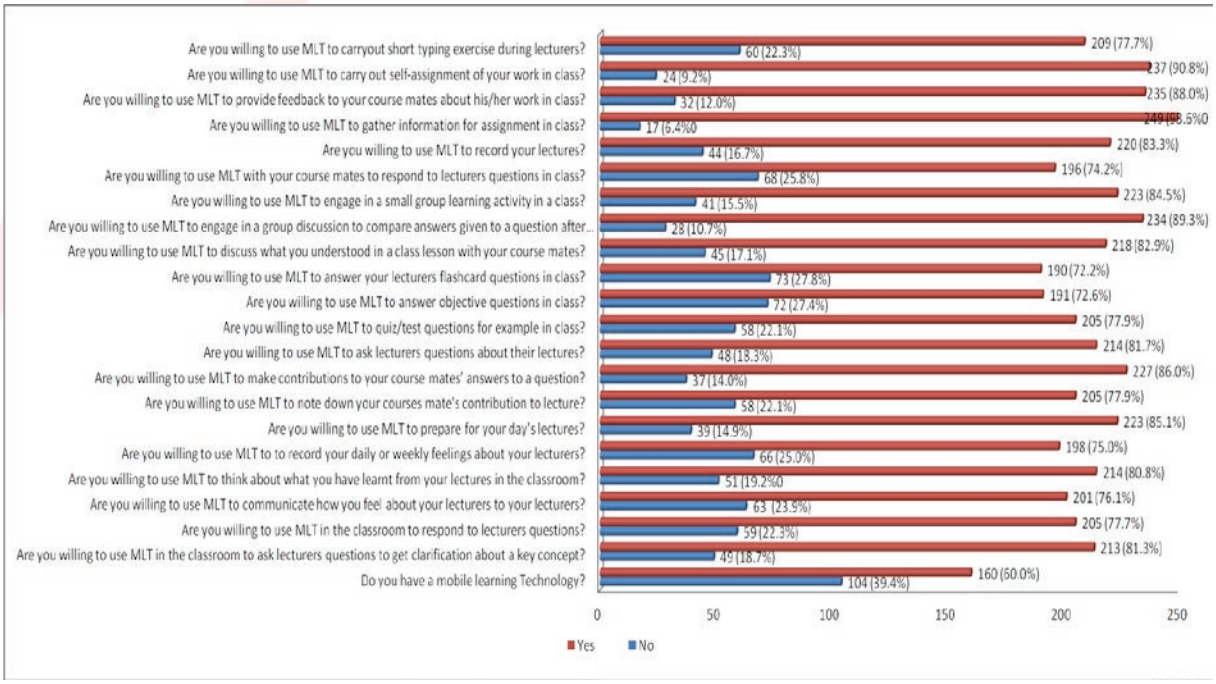
To ascertain the reliability of the instrument, test-retest method was used. The instrument was administrated to 20 students who were not part of the population. After two weeks the instrument was re-administered to them. The generated paired scores gave a Pearson correlation co-efficient of 0.60 at 0.01 levels.

The instrument was administered to the students at the point of screening with the aid of their screening officers and collected back immediately. The three research questions raised for the study were answered using frequency counts and percentages. Chi-square was used to test the hypothesis raised for the study at 0.05 level of significant. Tables and histograph were used for the presentation of results.

Results

Research question 1: What is the perception of students' of integrating mobile learning technologies cell phone in the classroom for active learning activities?

Figure 1: Histogram depicting frequency count and percentage representation of students' perceptions



From figure 1 above 160 (60.6%) of the students have MLT while 104 (39.4%) do not. 213 (81.3%) of the students are willing to use MLT in the classroom to ask lecturers questions to get clarification about a key concept, 205 (77.7%) are willing to use MLT in the classroom to respond to lecturers questions, 201 (76.1%) are willing to use MLT to communicate how they feel about your lecturers to your lectures, 214 (80.8%) will use MLT to think about what they have learnt from your lectures in the classroom, 198 (75.0%) will use MLT to record their daily or weekly feelings about their lectures, 223 (85.1%) will use MLT to prepare for their day's lectures, 205 (77.9%) are willing to use MLT to note down their course mate's contribution to lecture, 227 (86.0%) are willing to use MLT to make contributions to their course mates' answers to a question, 214 (81.7%) are willing to use MLT to ask lecturers questions about their lectures, 205 (77.9%) will use MLT to answer quiz/test questions for in class, 191 (72.6%) will use MLT to answer objective questions in class, 190 (72.2%) will use MLT to answer your lecturers flashcard questions in class, 218 (82.9%) will use MLT to discuss what they understood in a class lesson with their course mates, 234 (89.3%) will use MLT to engage in a group discussion to compare answers given to a question after lectures, 223 (84.5%) will use MLT to engage in a small group learning activity in class, 196 (74.2%) will use MLT with your course mates to respond to lecturers questions in class, 220 (83.3%) will use MLT to record their lectures, 249 (93.6%) will use MLT to gather information for assignment in class, 235 (88.0%) will use MLT to provide feedback to their course mates about his/her work in class, 237 (90.8%) will use MLT to carry out self-assignment of their work in class, 209 (77.7%) are willing to use MLT to carryout short typing exercise during lecturers. Generally, 80.4% of the students support the integration of mobile learning technologies cell phone in the classroom for active learning as against 19.6 % of the students

who do not support the idea. It is therefore students' perception that mobile learning technology be integrated into classroom for active learning.

Research question 2: What is the percentage of students with mobile learning technologies cell phone in the classroom?

Table 2: Frequency count and Percentage of students with a mobile learning technologies cell phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mobile Cell Phone	146	55.1	81.1	81.1
	Laptop	25	9.4	13.9	95.0
	computer & Phone	9	3.4	5.0	100.0
	Total	180	67.9	100.0	
Missing	System	85	32.1		
Total		265	100.0		

Table 2 indicate that 146 (81.1%) students own mobile cell phone in the classroom, 25 (13.9) uses laptop, whereas 9 (5.0%) use both mobile cell phone and laptop. 85 students did not specify the kind of mobile learning technology they use.

Research question 3: What is the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning?

Table 3: Frequency count and percentage response of students' perceptions

		Male responses		Total	Female Response		Total
		no	yes		no	Yes	
item 1	Count	67	80	147	39	81	120
	% within ITEMS	45.6%	54.4%	100.0%	32.5%	67.5%	100.0%
item 2	Count	30	115	145	19	101	120
	% within ITEMS	20.7%	79.3%	100.0%	15.8%	84.2%	100.0%
iteem 3	Count	33	114	147	27	93	120
	% within ITEMS	22.4%	77.6%	100.0%	22.5%	77.5%	100.0%
item 4	Count	31	116	147	32	88	120
	% within ITEMS	21.1%	78.9%	100.0%	26.7%	73.3%	100.0%
item 5	Count	29	119	148	23	97	120
	% within ITEMS	19.6%	80.4%	100.0%	19.2%	80.8%	100.0%
item 6	Count	34	113	147	32	88	120
	% within ITEMS	23.1%	76.9%	100.0%	26.7%	73.3%	100.0%
item 7	Count	24	121	145	15	105	120
	% within ITEMS	16.6%	83.4%	100.0%	12.5%	87.5%	100.0%
item 8	Count	28	118	146	30	90	120
	% within ITEMS	19.2%	80.8%	100.0%	25.0%	75.0%	100.0%
item 9	Count	22	125	147	15	105	120
	% within ITEMS	15.0%	85.0%	100.0%	12.5%	87.5%	100.0%
item 10	Count	27	119	146	21	98	119
	% within ITEMS	18.5%	81.5%	100.0%	17.6%	82.4%	100.0%
item 11	Count	31	115	146	28	92	120
	% within ITEMS	21.2%	78.8%	100.0%	23.3%	76.7%	100.0%
item 12	Count	37	109	146	36	84	120
	% within ITEMS	25.3%	74.7%	100.0%	30.0%	70.0%	100.0%
item 13	Count	35	111	146	38	82	120
	% within ITEMS	24.0%	76.0%	100.0%	31.7%	68.3%	100.0%
item 14	Count	20	126	146	25	95	120
	% within ITEMS	13.7%	86.3%	100.0%	20.8%	79.2%	100.0%
item 15	Count	11	134	145	17	103	120
	% within ITEMS	7.6%	92.4%	100.0%	14.2%	85.8%	100.0%
item 16	Count	25	121	146	17	104	121
	% within ITEMS	17.1%	82.9%	100.0%	14.0%	86.0%	100.0%
item 17	Count	35	111	146	34	87	121
	% within ITEMS	24.0%	76.0%	100.0%	28.1%	71.9%	100.0%
item 18	Count	26	120	146	19	102	121
	% within ITEMS	17.8%	82.2%	100.0%	15.7%	84.3%	100.0%
item 19	Count	12	135	147	5	117	122
	% within ITEMS	8.2%	91.8%	100.0%	4.1%	95.9%	100.0%
item 20	Count	21	127	148	11	111	122
	% within ITEMS	14.2%	85.8%	100.0%	9.0%	91.0%	100.0%
item 21	Count	14	129	143	10	111	121
	% within ITEMS	9.8%	90.2%	100.0%	8.3%	91.7%	100.0%
item 22	Count	34	113	147	26	99	125
	% within ITEMS	23.1%	76.9%	100.0%	20.8%	79.2%	100.0%
T. Count		519	3218	3827	519	2133	2652
% within ITEMS		16.0%	84.0%	100.0%	19.6%	80.4%	100.0%

Table 3 above indicate 80 (54.4%) males, 81 (67.5%) female students were willing to use MLT in the classroom to ask lecturers questions to get clarification about a key concept, 115 (79.3%) males, 101 (84.2%) females were willing to use MLT in the classroom to respond to lecturers questions, 114 (77.6%) males, 93 (77.5%) female students were willing to use MLT to communicate how they feel about your lectures to their lecturers, 116 (78.9%) will males, 88 (73.3%) will use MLT to think about what they have learnt from your lectures in the classroom, 119 (80.4%) males, 97 (80.8%) will use MLT to record their daily or weekly feelings about their lecturers, 113 (76.9%) males, 88 (73.3%) female will use MLT to prepare for your day's lectures, 121 (83.4%) males, 87.5 (90%) females are willing to use MLT to

note down their course mate's contribution to lecture, 118 (80.8%) males, 90 (75.0%) females are willing to use MLT to make contributions to their course mates' answers to a question, 125 (85.0%) males, 105 (87.5%) females are willing to use MLT to ask lecturers questions about their lectures, 119 (81.5%), 98 (82.4%) female students are willing to use MLT to answer quiz/test questions in class, 115 (78.8%) males, 92 (76.7%) female students were willing to use MLT to answer objective questions in class, 109 (74.4%) males, 84 (70%) females will use MLT to answer their lecturers flashcard questions in class, 111 (76%) males, 82 (68.3%) females will use MLT to discuss what they understood in a class lesson with their course mates, 126 (86.3%) males, 95 (79.2%) females will use MLT to engage in a group discussion to compare answers given to a question after lectures, 134 (92.4%) males, 103 (85.8%) females will use MLT to engage in a small group learning activity in class, 121 (82.9%) males, 104 (86%) females will use MLT with their course mates to respond to lecturers questions in class, 111 (76%) males, 87 (71.9%) females will use MLT to record their lectures, 249 (93.6%) will use MLT to gather information for assignment in class, 120 (82.2%) males, 102 (84.3%) females will use MLT to provide feedback to their course mates about his/her work in class, 135 (91.8%) males, 117 (95.9%) females will use MLT to carry out self-assignment of their work in class, 127 (85.8%) males, 111 (91%) females are willing to use MLT to carryout short typing exercise during lecturers. Generally, 84% of the male students and 80.4% of female students supported the integration of mobile learning technologies cell phone in the classroom for active learning as against 19.6 % of the students who do not support the idea. It is therefore students' perception that mobile learning technology be integrated into classroom for active learning.

Research hypothesis: There is no significant difference in the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning activities

Table 4: Chi-Square analysis of significant difference between male and female students' perceptions

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.667[a]	9	.000
Likelihood Ratio	50.643	9	.000
Linear-by-Linear Association	4.497	1	.034
N of Valid Cases	265		

a. 10 cells (50.0%) have expected count less than 5. The minimum expected count is .94.

From table 4 above, N = 265, P≤0.05 at 95% level of significance. The significant test value of .000 is less than 0.05 the null hypothesis is therefore rejected. Thus, there is a significant difference between male and female students' perceptions of integrating mobile learning technologies in the classroom for active learning activities.

Discussion of results

The purpose of the study was to determine students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning. It is evidence from the results in tables 2, 3 and 4 that 80.4% of the students the integration of mobile learning technologies cell phone in the classroom for active learning activities. As clearly depicted in the students own mobile cell phones and both male and female students

supported the integration of mobile learning technologies cell phone in the classroom for active learning activities as depicted in by their percentage response of 84% and 80.4% respectively.

These findings are in consonance with the findings of Motiwalla (2007) his findings revealed that students in general support the use of wireless handheld devices. White the findings of Diemer, Fernander, and Streepey (2012) indicate 83.7% of the students reported high comfort levels using handheld mobile computing device in the classroom and 73.7% of the students own a mobile phone. Also Che, X., Li, W., Wang, S., Yang, Z., and Meng, C., (2012) their findings indicated that college students showed great interest in using cell phones in their English first language learning (EFL). These findings might be due to the high percentage of the students who already own a mobile cell phone. And young people find this type of technology motivating because it fits in with their normal behaviour, custom and practice (Harvey, 2007). Finally, it is evident from table 4 that there was a significant difference between male and female student's perceptions of integrating mobile learning technologies in the classroom for active learning activities. For the significance test value of .000 was less than 0.05 the hypothesis was therefore rejected. These findings might be due to the fact that male students are more ICT compliance than female students Tortora and Rheault (2011) average phone owner is more likely to be male, educated and urban.

Conclusion

The findings of the study revealed that 100 level undergraduate students in Delta State University generally supported the integration of mobile learning technologies cell phone in the classroom for active learning.

Recommendations

Based on the findings the following recommendations were made.

1. The use of mobile learning technologies cell phone should be integrated into teaching-learning process in Delta State University, as a step to integrate other forms of mobile learning technologies cell phone in the classroom, to enhance the preparation of pre-service teachers for technology integration in the classroom.
2. Workshop and conference should be organized for teachers on how to integrate mobile learning technologies cell phone to improve active learning.
3. Lecturers of higher institutions should plan the integration of mobile learning technologies into their lectures to enrich and transform the teaching –learning process.

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Efficacy of Online Social Networks on Language Teaching: A Bangladeshi Perspective

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0276

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Abstract

It is now an established fact that the use of technology facilitates teaching and learning in language classrooms. With the advancement of technology, social networking websites have emerged too. Social networking sites have been quite popular among various age group users particularly the young users since their invention. Also, they are conceived to be able to motivate (Greenhow, Robelia, & Hughes, 2009) and expose learners to the authentic use of the target language (Baralt, 2011) .However, very little research has been done, especially in Bangladesh, on how much these websites can contribute to language learning and teaching though they seem to offer ample opportunities. Therefore,this study aims at investigating the effect of using 'The Facebook', a social networking website, in language classrooms at tertiary level in Bangladesh. Participants of this study were first year first semester university students doing a foundation course in English focusing to improve their listening, speaking and writing skills. The participants had been divided into two groups. Group 1 was the control group who was taught traditionally and non-digitally without using facebook. Group 2,along with classroom teaching, received help from the instructor through facebook and did tasks assigned on facebook. At the end of the three months semester a test was taken and the result of both groups was compared. Thus, this study shall try to provide an answer regarding to what extent online social networks can facilitate second language acquisition.

Introduction

Today's young generation is referred as the "Z-generation" or "Net-generation" as technology and the World Wide Web are the two most familiar objects to them (Horovitz,2012).This "Net-generation" has been found to be applying different methods of learning from the earlier generations (Sandars and Morrison, 2007) as they are more "experiential, engaged and constantly connected" (Ramaley and Zia, 2005). It has also been suggested that the Net Generation students prefer independent learning style and take the benefits of technology for better learning (Carlson, 2005).

The innovation and advancement of social networking sites e.g. Facebook, MySpace, Orkut, Twitter, Hi5 etc. has increased further use of technology in this generation's day to day life. These social networking websites have also proven to be useful in language learning as they are more engaging and inspiring for learners to use the target language, and minimizes learners' fear and nervousness and authority of the instructor (Gilbert, Fiske, & Lindzey, 1998; Beauvois, 1998 cited in Millis 2011).

However, the prospects and opportunities of the social networking sites in language teaching and learning are yet to be discovered in the context of a south-Asian country like Bangladesh. Thus with this trait in mind, it is quite intriguing to understand if using this kind of technology in education and classrooms can be proven to be beneficial. Therefore, the aim of this study is to investigate the role and effectiveness of using the 'Facebook' (a social networking site) in tertiary level English language classrooms in Bangladesh. The paper also attempts to provide theoretical framework to the use of such online social networks and to gain an understanding of further possibilities of the usage of social networking websites in second language acquisition.

English Language Teaching in Bangladesh and use of social networking websites in Bangladesh

Bangladesh, being a post-colonial country has always seen the English language to be viewed with high regard socially and economically. Competency in English is seen as an opportunity provider for higher education and it is a requirement for better employment (Sarwar, 2005). Therefore, English plays a very important role in the education system of Bangladesh. It is mandatory from grade 1 and is the medium of instruction for tertiary level education in both public and private universities (Hossain and Tollefson, 2007). Unfortunately, the three types of schooling system prevailing in Bangladesh- English medium, Bangla medium and Islamic education produces students with different level of competency in English (Hossain and Tollefson 2007). Also, the standard of teaching English varies greatly between urban and rural schools which reflects in the result of public examinations and is the cause of failure for many students in university admission tests (Khan 2013). All these factors contribute to a class of mixed ability students in tertiary level language classrooms. This 'mixed bag' of students in the tertiary level education system has posed such a great problem in modern Bangladesh, that universities, specially the private ones, have introduced foundation level English courses, just to overcome this language barrier and make the students able to compete with the 'better-language-equipped' students in the technical subjects pertaining to their respective degrees.

Such two courses being taught at the moment in the Independent University, Bangladesh are English 101 and English 102.

English 101 is an elementary course designed to improved students' listening, speaking, writing skill and grammar. The grammar done in this course is of very basic level e.g. present tense, past tense, use of preposition, modal verbs, character/ personality words, describing physical features of people, etc. which are taught at the school level. However, as mentioned before, due to varied proficiency level of students coming from different types of schools, it is pertinent to revise and reinforce their English language skills to operate in the university courses. English 102 focuses extensively on improving students' reading skills.

Thus for the sake of getting a clearer picture of what improvements can be achieved by any new methods or technics in teaching, this study has chosen one such course, the English 101 as the experiential grounds for the investigation. The selection process of the course students will be elaborated in later sections.

Boyd and Ellision (2008) defined Social networking websites as "web-based services that allow individuals to construct a public or semi-public profile within a bounded system"- where people can communicate with others. Such a social networking website called the 'Facebook' is immensely popular among Bangladeshi youngsters and adults alike. With an approximate number of over 37 million users of Facebook in Bangladesh and more than 50% of them being within the age range of 18-24 years (www.socialbakes.com), this website enjoys a popularity in the country that by far supersedes any other site in its league.

Figure 1

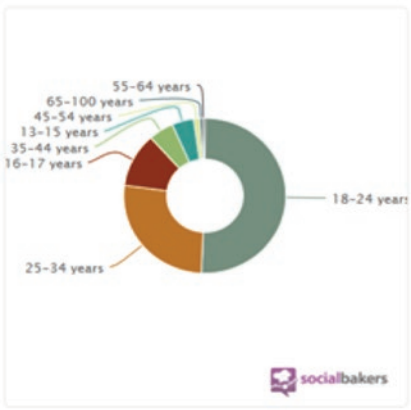


Figure 1 - % Facebook user age distribution in Bangladesh (www.socialbakers.com)

A class consensus of two English 101 course batches was also taken and results indicated that every one of the students was familiar with the social networking website: Facebook. Naturally this caused the selection of the said site as grounds for the investigation.

Theoretical Underpinning to the Use of Social Networking Websites in Language Teaching

The aim of this research is to determine whether the online social network, Facebook can facilitate English language learning and teaching for Bangladeshi tertiary level students.

The incorporation of social networking websites into language teaching evidently derives support from second language acquisition theories. The theory of Task- Based Language Teaching (TBLT) motivates and provides background to the use of online social networks for language teaching. TBLT is an approach to language teaching which emphasizes on using tasks "as the core unit of planning and instruction" (Richards and Rodgers, 2011). Feez (1998, p.17 cited in Richards and Rodgers, 2011, p. 224) pointed out some important aspects of TBLT. He states that the tasks in TBLT focus more on "communication and meaning" where "learners learn language by interacting communicatively and purposefully". According to Ellis (2013, p. 16) a task "requires learners to process language pragmatically" and to be able to communicate the "appropriate content" Nunan (1989, p.10) defines, tasks should be able to "involve learners in comprehending, manipulating, producing or interacting in the target language". Larsen and Freeman (2000, p. 144) suggest that the tasks in TBLT enable learners to use the target language in a "natural context". Considering the above mentioned definition of Task- Based Language Teaching approach and tasks, a clear connection can be drawn with the activities on online social networks. The online social network, Facebook provides the facility of individual and group interaction to its users. Users can also upload pictures, songs, create groups, sends messages, etc. on Facebook and be therefore exposed to the authentic language (Baralt, 2011). It also provides a platform to the learners to use the target language outside classroom for practical interaction purpose. Use of online social networks may motivate (Greenhow, Robelia, & Hughes, 2009) and engage learners more with language practice as the activities on the social network Facebook, establishes immediate communication and result. Incorporating Facebook in language teaching may also cater to the preference and need of independent learners of the Net Generation by boosting their autonomous learning style.

Methodology

This research was conducted among two groups of undergraduate university students. These students were all in their first year and first semester with a median age of 18. The university of choice is known as Independent University, Bangladesh and is considered as one of the top five (5) private universities of Bangladesh.

At this university, every student has to go through an admission process of testing and selection through their previous school-leaving results (up to 12th standard). After the selection process, the students are divided into two groups, the first group is considered as the group who can proceed directly to the main course curriculum of their chosen degrees while the second group of students go through a series of compulsory foundation courses. These foundation courses assist the second group of "weaker" students to increase their level of competency to be at par with their counterparts in the first group. Of these foundation courses, emphasis is given mainly on their mathematical and English Language aptitude.

One such course as mentioned earlier is the English 101. Since the number of students taking such foundation courses has traditionally been quite high, the students are then subdivided into smaller "sections" to maintain a class population of average 30 students per instructor at any one time.

This study has been conducted between two such sections of English 101, which were instructed by the same instructor, the author. This course basically focuses on improving students' listening, speaking, writing and grammar skills to enable them to converse in English and to understand class lectures as the medium of instruction and study materials are in English. All the examinations are also conducted in English. This research emphasized more on improving students' writing skill and grammar.

The two sections comprised of a total of 57 Students. The first group has 30 students in it and the second group comprised of a population of 27students. A gender analysis of the population of both groups was conducted and the results showed fairly even distribution of both genders in the group. Thus the first group was taken as the "**Control**" group and the second group was taken as the "**Experiment**" group

Figure 2 - Control Group population %

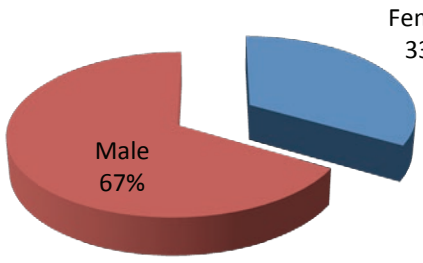
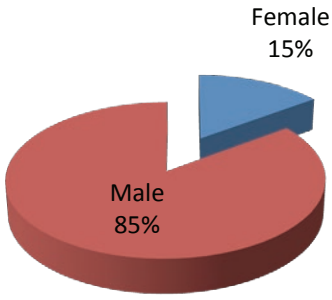
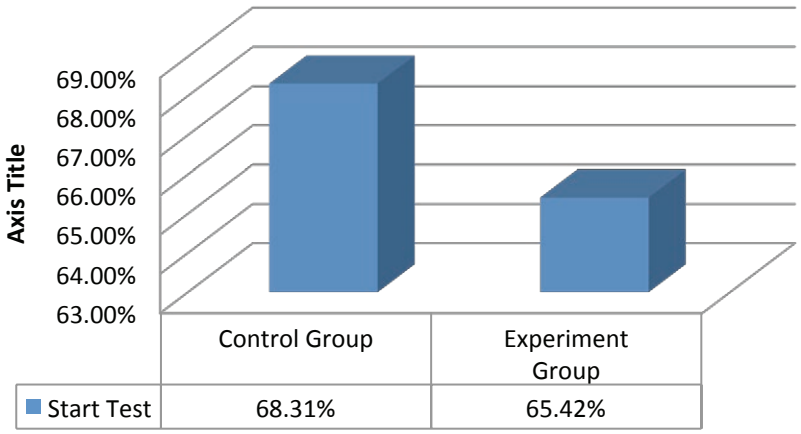


Figure 3- Experiment Group population %



To ensure a fair distribution of the ability of students, both groups were subjected to a diagnostic test which measured the level of English Language aptitude of the students. For simplicity purposes, these tests were called as the "**Start**" test. The test contained a series of questions from the English 101 course content which would later be taught over the semester. The results revealed that the Control group were more apt in the Language achieving a class average of 68.31% marks while the Experiment group achieved a lower average mark of 65.42%.

Figure 4 - Average marks of the diagnostic "Start" tests of the students



A questionnaire survey was also conducted between both groups regarding their educational background, results in Board Exams- Secondary School Certificate and Higher Secondary School Certificate, location of their schools and colleges (if in rural or urban area) etc.

An analysis of the groups' School leaving English Language results further confirmed this difference in result between the Experiment group and the Control Group. It is noteworthy to mention here that, the English language test results of school leaving examinations are divided into four broad categories with "A" being the highest and "D" being the lowest before a student fails and achieves an "F" in their exam.

Figure 5 - Control Group School leaving English examination results

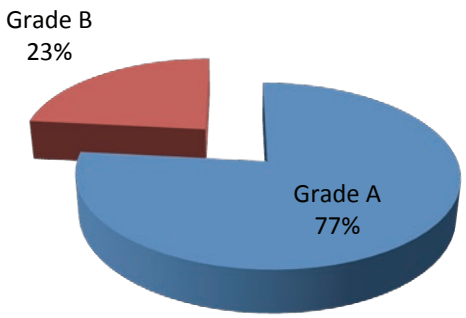
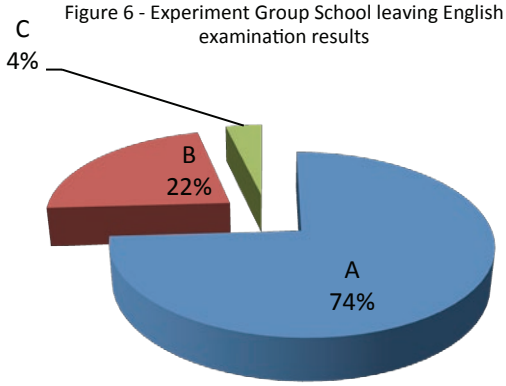


Figure 6 - Experiment Group School leaving English examination results



As shown above, the Control group showed a considerably better result in their school leaving examinations when compared with the Experiment group, further supporting their results achieved in the Start test that was conducted.

An analysis of the urban: rural education of both the groups revealed identical results with both groups clocking 70% of their students with urban education and 30% from rural education systems respectively. Finally a survey of the number of Facebook users in the

class revealed that every student was familiar to and a frequent user (more than 3 times weekly) of the social networking website facebook.com.

When deciding the method of incorporating Facebook into the course instruction of the Experiment group, very close scrutiny was given to the amount of time the students would make contact with the course instructor. A clearer picture of the calculation is given as below:-

Table 1 - Lecture time calculation

No. of lectures in 12 week period	24
Contact hours per lecture	1.5
Total Contact hours (24x 1.5)	36
Hours lost due to mid-term exam	(1.5)
Hours lost due to diagnostic test	(1.5)
Hours lost due to Class quizzes (6 x 15 min)	(1.5)
Hours Lost due to survey & introductory class	(1.5)
Net contact hours in any group	30.0
EXPERIMENTAL GROUP	
Expected hours gained by each Facebook activity	0.5
Number of Facebook Activities	20
Total Hours Gained	10
Therefore average contact hours each class for experiment group (30-10=20/20=1)	1

As shown above, traditionally there are a total of 24 lectures (or 2 lectures per week) designated for each group in a 12 week semester. Each lecture would last 90 minutes or 1.5 hours. However, with six class quizzes of 15 minutes each to be taken during the semester means that (6x15=90) 90 minutes or 1 lecture worth of actual teaching time is lost each semester. 1 full lecture is used up to conduct a "mid-term" examination, whilst for this study, 2 Lectures were used up for the diagnostic test, survey and introductory class. This would mean that a total of 4 lectures were lost during the semester leaving a net total of 20 lectures or 30 hours of class contact time for the students. Whilst, this was the case for both the groups, the Experiment group was also subjected to Facebook activities which were considered to add around 30 minutes of contact time each. There were a total of 20 Facebook "activities", which will be explained more elaborately later on, meaning that there would be an extra contact time of almost 10 hours for the Experiment group. This "extra" contact time was however minimized by shortening each of the twenty lectures of the Experiment group by 30 minutes to stand at 1 hour each.

Incorporating Facebook into Teaching

As discussed earlier, it was decided to use the Facebook along with formal classroom teaching with the experimental group whereas the control group would only be taught through traditional classroom teaching. A Facebook group was created for the experimental group at the start of the semester. As Facebook is immensely popular with the young generation, students showed great enthusiasm about this initiative.

The teaching through Facebook with the experimental group followed a method. Every week, a task was posted on Facebook based on the lesson in the class. Students were given tasks on grammar, description of pictures, writing on specific topics etc. These tasks were called 'Contests'. In addition, 'Help Files' were also posted on the same topics to clarify students' understanding and increase their engagement with the topics. Typically each help file would receive students' discussions about the topic of the help file. Students were also encouraged to interact spontaneously in the group. In addition, student used to post status, comments or news freely which maintained the practical life interaction on Facebok. Every student's comments were corrected by the author if there was any spelling or grammar mistake. It was observed that, even students were correcting each other's mistakes, which re-affirms the notion suggested by Greenhow, Robelia, & Hughes (2009). As mentioned before, the tasks or activities on online social networks are thought to "motivate" and engage the learners to learn the language with less dependence on instructors. The Experiment group members were also able to use the language in "natural context" where the primary focus was on meaningful communication which connects the theory of Task- Based Language Teaching and using online social networks for language teaching. For example, a group member would usually post a status about their day or some unexpected life event whereby other members of the group would give feedback comments on the status. The only rule to be followed in the Facebook group was that each and every member would have to post whatever they liked in English.

The Contest tasks were normally associated with Help posts and were comprised of questions regarding to the topics that were being taught in the classroom. So basically, instead of asking verbal questions in the classroom to re-affirm the understanding of a topic in a traditional setting where only a few students would be able to communicate with the lecturer, these Contests allowed every student equal chance to take part in the communication process. The Contest tasks assigned to the group members had a time limit. Students were given two days' time to finish each task. After two days, the result was announced. Also, the response of each student containing grammatical or theoretical mistakes was corrected and explained to the students either on Facebook or in the classroom.

At the end of the three months semester, a total of ten tasks were given to the students. It was announced beforehand in the class that the three top winners will be rewarded with material gifts based on the number of wins. At the end, three winners, who had completed and won the tasks most of the time were rewarded. The first prize was given to the student who had maximum number of wins, followed by second and third position. A sample of the Contest posts, Help posts and winner announcing posts are given in the appendix.

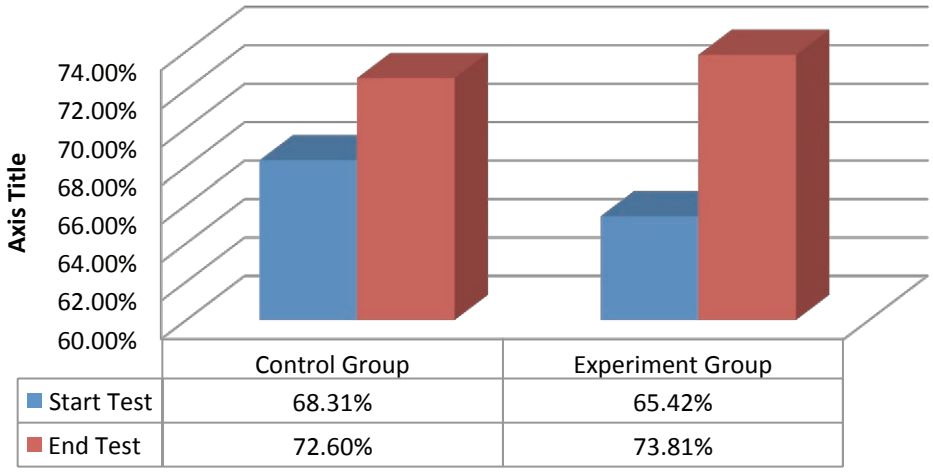
At the end of the three month semester, a final examination was taken with an array of questions styled in the same way as the diagnostic test. This marked test was conducted again to measure the aptitude of the students in both groups and their development in the topics taught during the semester.

Findings and Discussion

As mentioned before, a diagnostic test consisting of items from the English 101 course content was taken in the beginning of the semester with both control and experimental group. A similar test was taken in the end of the semester with both groups again to assess their progress.

The average result of both the start and end test of the control and experimental group is shown below in the chart.

Figure 7 - Average marks of the "Start" and "End" tests of the students

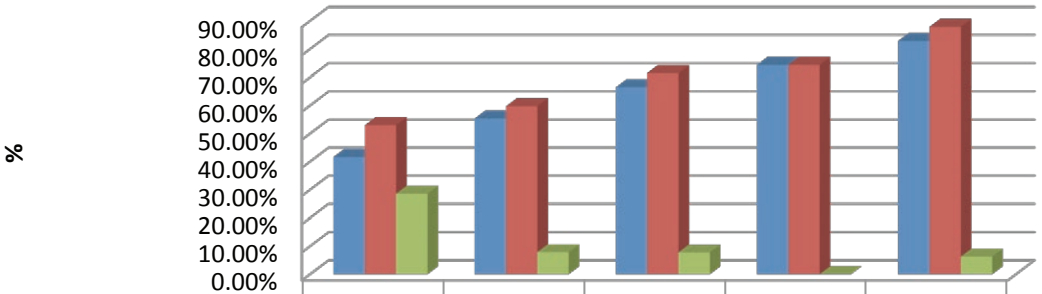


	Control Group	Experiment Group
Start Test	68.31%	65.42%
End Test	72.60%	73.81%

It can be observed that the control group outperformed the experimental group in the first test with an average score of 68.31% whereas the experimental group achieved an average score of 65.42%. However, after three months, in the end test, the control group achieved a score of 72.60% whilst the experimental group is seen to have improved slightly more and outperformed the control group with an average score of 73.81%. This meant that the average improvement in the Control group was 6.28% while that of the Experiment group stood at 12.82% which was almost double. This result almost evidently presents itself to prove that usage of social networking websites is an efficient medium of technic when teaching English to second language learners. However, a closer look at the scores of each group revealed some interesting facts which would prove this theory otherwise. As a first step of the investigation firstly, each of the groups (both control and experiment) was subdivided into five different subsets. These subsets of students were classified by the marks that they achieved in their diagnostic test which by their title were quite self-explanatory. The categories were "<50%" for the students who failed in their diagnostic tests, "50%-60%" for students who achieved equal to or more than 50% but less than 60%, "60%-70%" for students who achieved equal to or more than 60% but less than 70%, "70%-80%" for students who achieved equal to or more than 70% but less than 80% and "80%-90%" for students who achieved equal to or more than 80% but less than 90%. None of the students achieved more than 90% in their diagnostic test which was quite reasonable as these students were assigned to this course due to their poor performance in English Language in their previous tests respectively.

After this subdivision and assignment of students to different subsets, a comparison was drawn on how much each subset of students has improved and the respective subsets were compared within their own large group, i.e., the Control group and the Experiment group.

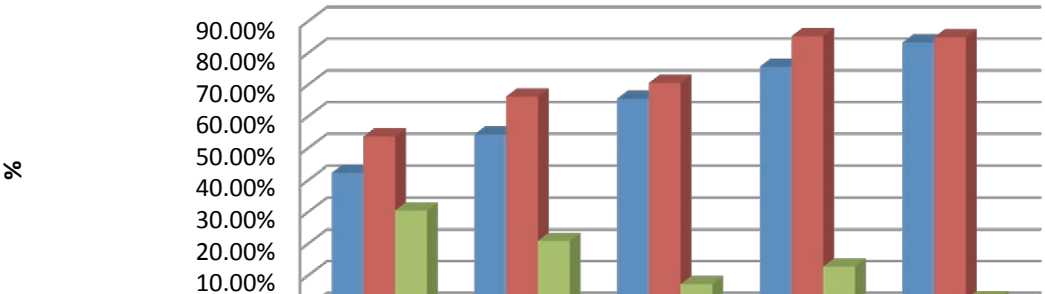
Figure 8 - Control Group subset classification



	<50%	50-60%	60-70%	70-80%	80-90%
Start	41.72%	55.42%	66.52%	74.44%	82.95%
End	53.04%	59.76%	71.53%	74.44%	87.96%
Avg. % Improvement	28.65%	7.88%	7.81%	0.02%	6.29%

When looking at the Control group % improvements in results, the increase of the students' aptitude (attributed by the marks they achieved in their respective tests) was seen to be quite spread out, with the highest increase in the failing group (28.65%) and lower but similar increases being noticed in the "50-60%", "60-70%" and "80-90%" groups with increase of 7.88%, 7.81% and 6.29% respectively. This is quite acceptable as students with lower abilities tend to catch more in these specific courses than students with higher levels. This is because these courses are designed such that students with a background in learning English language but with poor skills in the Language are the priority target of the teaching. However it is quite interesting to note that, the students in the "70-80%" subset had almost no development in their test scores (0.02%).

Figure 9 - Experiment Group subset classification

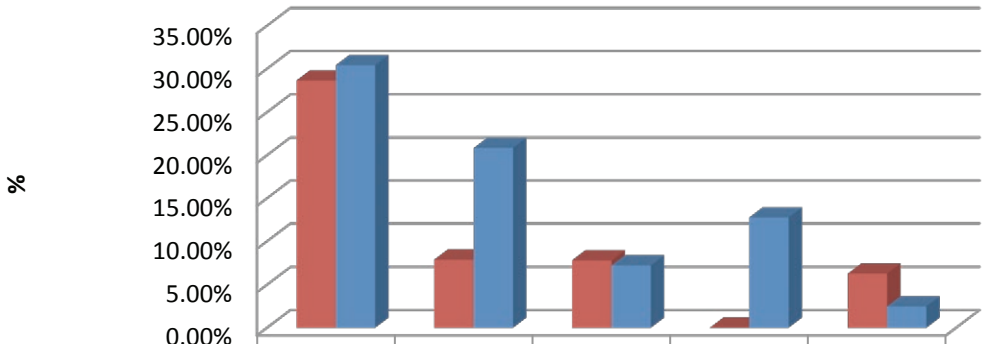


	<50%	50-60%	60-70%	70-80%	80-90%
Start	42.34%	54.38%	65.63%	75.69%	83.33%
End	53.75%	66.29%	70.60%	85.32%	85.00%
Avg. % Improvement	30.43%	20.85%	7.22%	12.78%	2.48%

A look at the Experiment group however showed a slightly different trend, with almost a linear decrease in the improvement of students as their initial aptitude (attributed by the marks achieved in the diagnostic "Start" test) increased. The lowest increase in this group

was noticed in the "80-90%" region. There was however a sudden spike in improvement in this trend for the "70-80%" subset with almost double the improvement from the immediately lower subset (12.78%)

Figure 10 - % improvement Control vs Experiment group

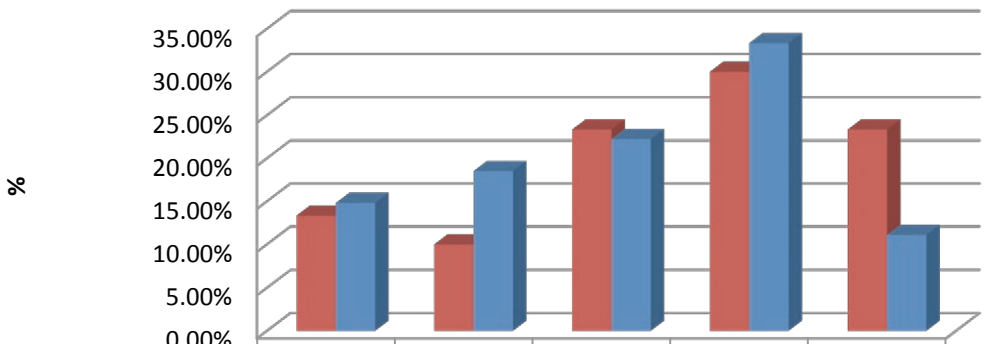


	<50%	50-60%	60-70%	70-80%	80-90%
Control Group	28.65%	7.88%	7.81%	0.02%	6.29%
Experiment Group	30.43%	20.85%	7.22%	12.78%	2.48%

As can be seen above, a second comparison was drawn between the subset of students across the two groups. This helps to clearly understand how the improvement has varied over the two groups. The Experiment group (in blue) can be easily seen to be following a trend in its ability to improve as it moves along the subsets, while the ability improvement of the Control group seems to have drastically dropped when rising from the failing (<50%) students to the higher subset students. What is also interesting to notice is that, where one group failed in improvement, the other group seemed to almost always persevere with a common meeting place in the "60-70%" subset.

As seen in both groups, the only subset of students that gave results out of trend was the ones in the "70-80%" set. When revisited with the query of how they felt about the course, in the Experiment group, 100% of the students in this subset (70-80%) replied with a positive answer explaining that the course was very engaging.

Figure 11 - % of class population in subset as per Start Test



	<50%	50-60%	60-70%	70-80%	80-90%
Control Group	13.33%	10.00%	23.33%	30.00%	23.33%
Experiment Group	14.81%	18.52%	22.22%	33.33%	11.11%

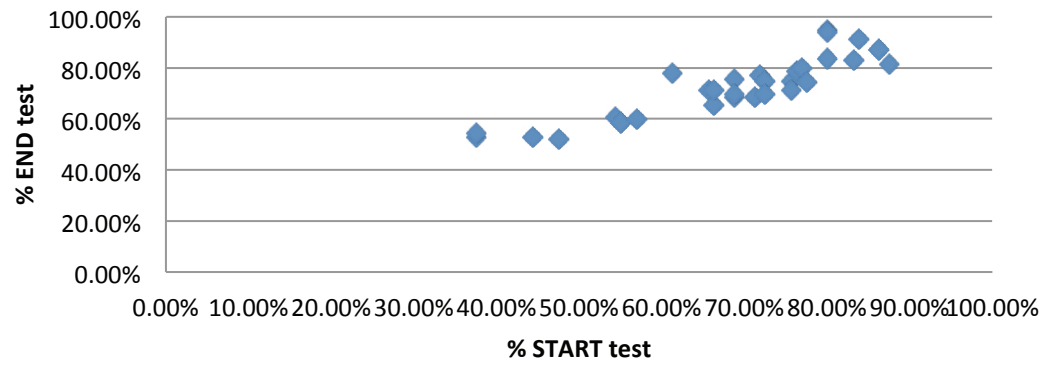
Finally, a comparative study showed that the maximum number of students resided in the 60-80% margin of marks (obtained in the "start" diagnostic test).

Correlativity & reliability of Data

A scatter plot of the two groups' result was drawn up with the x-axis or the independent axis as the % of marks obtained by each student in the diagnostic Start test. The y-axis or the dependent axis was then populated with the respective students' % marks obtained in the final End test. The results were then also calculated through the Pearson product-moment correlation coefficient using the following equation to ascertain the correlativity and reliability of the data:

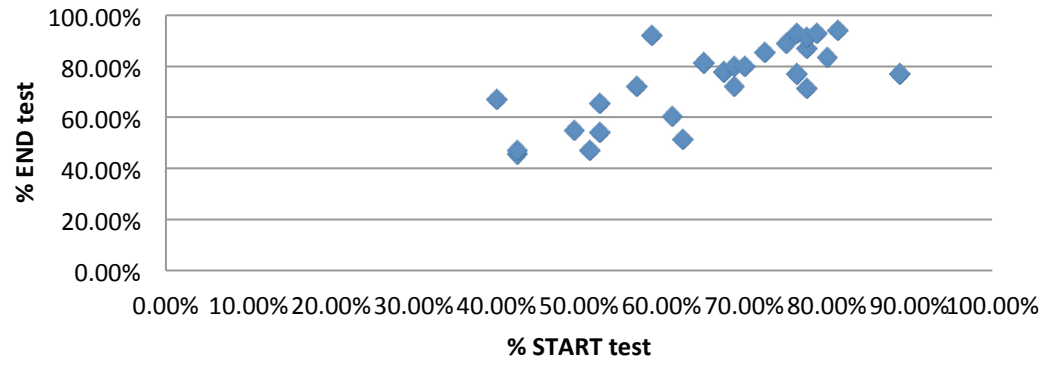
$$r = \frac{\sum_{i=1}^{n}\left(\left(x_i - \bar{x}\right)\left(y_i - \bar{y}\right)\right)}{\sqrt{\sum_{i=1}^{n}\left(x_i - \bar{x}\right)^2 \sum_{i=1}^{n}\left(y_i - \bar{y}\right)^2}}$$

Figure 12 - Control Group scatter plot of data



The Control group data when plotted in the scatter diagram showed a very good trend of uniformity with a strong to very strong correlation coefficient of 0.88868

Figure 13 - Experiment Group scatter plot of data



The Experiment group data when plotted in the scatter diagram also showed a fairly uniform trend in data with a strong to medium correlation coefficient of 0.74317. This weaker result could be attributed to the abnormally higher improvement of this group's "70-80%" subset students.

Conclusion

In conclusion, after analysing all the data from the study, it can be said that a social networking website does not work as a technical platform for students to learn new theories or hone their skills in English as a second language, rather, it works as a motivational platform (Greenhow, Robelia, & Hughes, 2009)which encourages, liberates (from fear and introversion) and engages students into the practice of collaborative learning (Liaw, Chen & Huang, 2008) and therefore increase of skill in the language. This finding is also reflected in the survey by Kabilan, Ahmad and Abidin (2010) where it has been stated by the students that Facebook – the online social network could facilitate second language learning.

This means that, when teaching students with already advanced skills in the language, this method will not help the students to increase their skills much further. This can be clearly seen when comparing the results of the students in the Experiment group "80-90%" subset. On the other hand students with very poor skills are also seen to have gained little more from the method, as seen in the "<50%" subset as in their case they are also learning new theories in English Language. This phenomenon can be clearly appreciated when comparing the said subset students' 28.65% improvement of the Control group compared to the 30.43% improvement of the Experiment group. It is the "medium-skilled" students of Bangladesh, who are capable of understanding (and have somewhat learnt the theories) but have been suppressed by the one-sided communicative and "punishing" system of the prevailing schooling system in the country, who can benefit the most from this type of method (Chowdhury,2003) as online social networks provide equal participation opportunities to students (Warschauer 1995). By "punishing" it is meant that the flawed communicative language teaching practice prevailing in Bangladesh, actually "injects" the student with theories of English language (in the forms of verbs, nouns, sentence making etc.) but never allows them to practice or even use the Language in an un-inhibited environment. The general English language student on the other hand is in an even unfavourable situation outside the classroom where the nation speaks only one common language "Bangla" and little use is needed for a second language other than when attempting an aristocratic upper hand.

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Appendix

Figures

Figure 1- User Age Distribution
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Figure 3- Experiment Group Population %
Figure 4- Average marks of the diagnostic "Start" tests of the students
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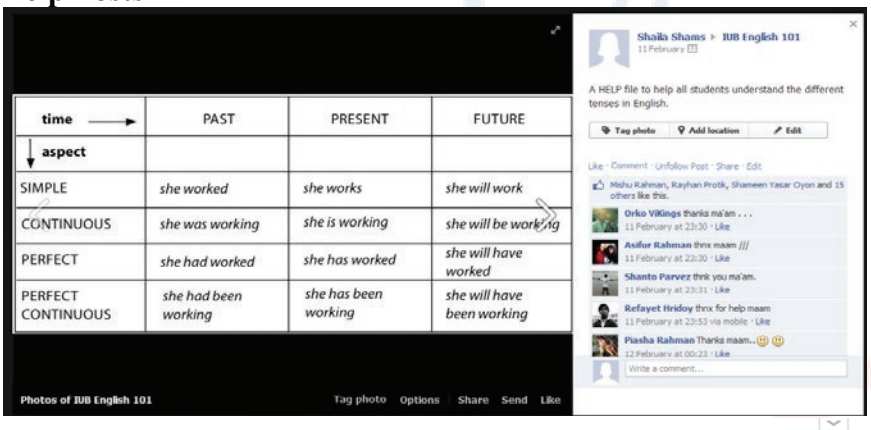
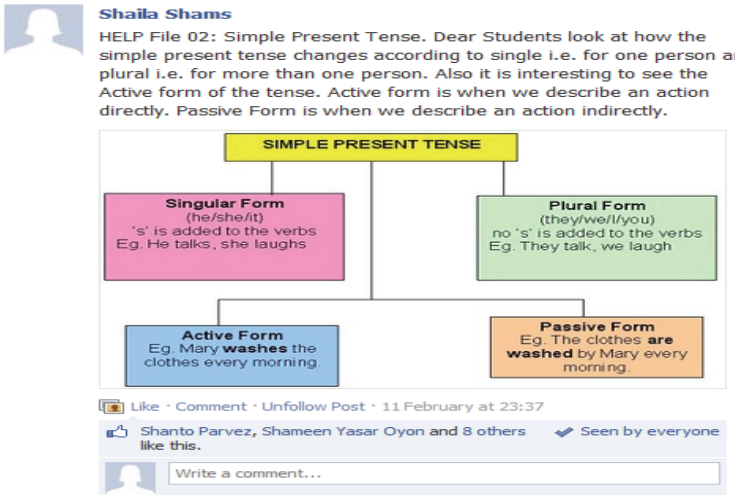
Table

Table 1- Lecture Time Calculation

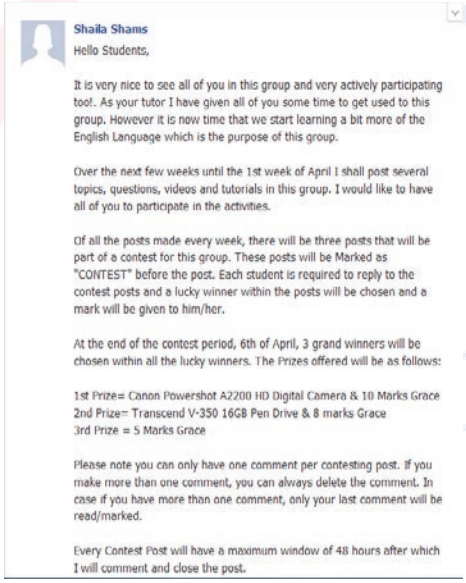
Samples of Screen Shots of Help Posts, Contest Posts, Result Posts and Students' Posts

Help Posts



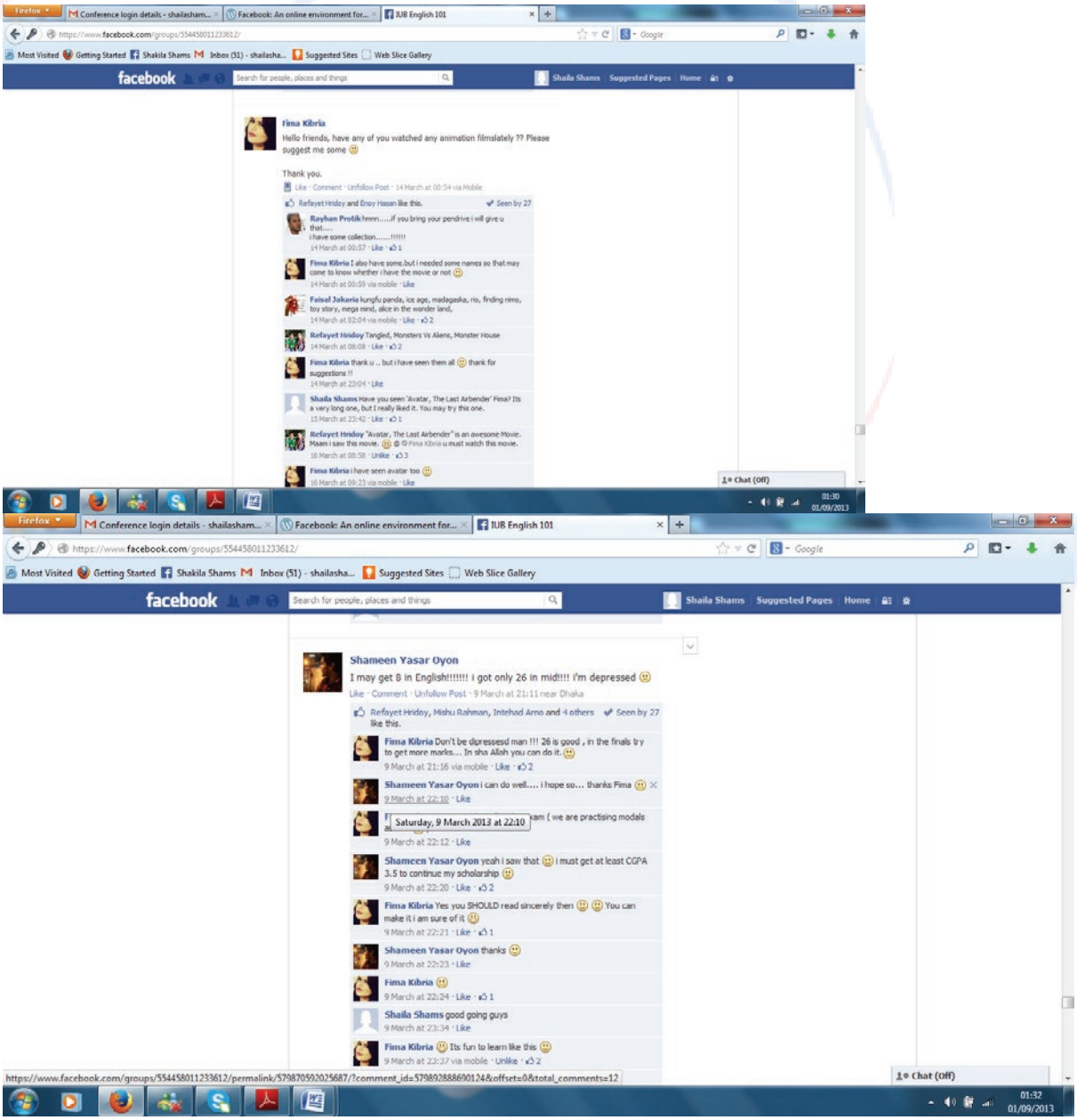


Contest Posts



Result Posts

Students' Posts



A Model for Instructional Design in Virtual Nordic Classrooms

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Abstract

In this paper we will report from an on-going EU-financed project aiming at developing innovative cross-border, virtual classroom instructional designs; that is designs where classes from three Nordic countries collaborate by means of technology to enhance teaching and learning. School management, teachers, students, and educational researchers from Denmark, Norway and Sweden collaborate since 2011 in three-country teams on all levels to explore and evaluate novel cross-border instructional designs in four subjects. The research approach is user-driven innovation by means of Action Research and Design-based research. The cross-border instructional designs exhibit several challenges: designs need to be aligned with all national curriculums with respect to 1) subject content and 2) learning goals, and in order to advance learning, we need to address 3) learning benefits due to the collaboration. In Mathematics, such cross-border learning benefits were particular elusive to identify, so some kind of guidance were needed. The model, first proposed for Mathematics but generalizable to other subjects, is a three-dimensional cube that categorizes an instructional design with respect to 1) subject-content, 2) aimed-for competence, and 3) learning-benefit. The subject contents and required competencies were derived and synthesized from the national curricula, whereas the learning benefits were inspired from previous cross-border designs. The model has successfully been used as a classification system for virtual classroom tasks, and also as an innovation tool to generate novel instructional designs where the expected learning benefits became explicit from start, which facilitates design evaluation.

Key words: Instructional design, Cross-nation collaboration, Nordic school, Virtual classroom

Introduction

Schools as well as the society in general, is becoming more and more digitalized. The increased awareness of the need for digital competence among students as well as teachers has resulted in reformulations of many national curricula along with numerous initiatives and investments concerning use of Information and Communication Technology (ICT) to meet these new requirements in education. For instance, the European Union currently supports a giant investigation of ICT usage in European schools, the ”Innovative Technology for an Engaging Classroom” (iTec, 2011), the Swedish National School Board performs a corresponding study (ESSIE, Skolverket 2011), and in 2012 the Danish government invested 50 millions DKK for ICT use in Danish schools. In today’s society, ICT is considered both necessary and a means to improve learning. Access to technology is a prerequisite, but does not necessarily imply productive usage; the individual teacher’s attitude, digital competence and preferences highly determine the frequency of technology-aided teaching (Cuban, 2001; Sundberg et al 2011). Neither do ICT equipment in the classrooms per se create new teaching practices.

The project we report on here, is aligned with these initiatives. The GNU-project, an abbreviation for Cross Border Nordic Education [Gränsöverskridande Nordisk Undervisning/Utdanelse] is an EU-funded project enrolling Danish, Norwegian and Swedish schools and educational researchers which began in 2011 and extends to 2014. The aim of the project is to develop innovative instructional designs for virtual Nordic classrooms in the four school-subjects native language, mathematics, natural and social science. By virtual Nordic classrooms we mean teams consisting of students and teachers from preferably one class in each country, who together plan and conduct collaborative tasks and common lessons mediated by technology in various ways. Here, ICT become a necessary mean to facilitate distant collaboration and communication rather than a goal per se.

In general many teachers, as well as many pedagogical ICT-applications, use new technology in a substitutive manner by “reinforcing old ways of teaching and learning” (Resnik, 2007; Cartwright & Hammond, 2007). According to Puentedura’s (2009) four-stage progression SAMR-model (Substitution, Augmentation, Modification and Redefinition), the benefits of ICT-based teaching lies in transforming learning to new forms and redefining the nature of teaching. The SAMR-model aims to inspire teachers to modify and preferably redefine the teaching task to something new (and implicitly better) with the use of ICT. A main idea in our project is that the novelty of the virtual Nordic classroom situation as well as the collaboration and negotiation with colleagues from neighbouring countries will inspire as well as require new models of teaching by the challenges imposed by the setting. It is known that teachers’ views, attitudes and values concerning teaching must be challenged in order to develop new ideas and ideals (Timperley et al, 2007; Harland & Kinder, 2006), and transformative learning will not occur unless such critical questions are posed (Taylor, 2008).

Research Approach

The project is grounded in a philosophy of user-driven research-based innovation. The development of new teaching models takes place in a co-design process where participating students, teachers and researchers collaborate to plan, implement and evaluate various collaborative, instructional designs in an iterative manner. The project enrols about 100 educational researchers and school personnel and more than 600 students in 5th to 9th grade from 18 classes in 13 schools from 7 different municipalities in 3 Nordic countries. Cross-national and inter-disciplinary teams are organized on many levels engaging different constellations of students, teachers, researchers, school managers and IT-staff.

The overall approach combines established methods such as Design-Based Research (see, e.g., Design-Based Research Collective, 2003; Kali, 2008) and Action Research (see for example Adelman (1993) about the method's origin). Design-Based Research is a systematic but flexible methodology aimed at improving teaching practices through iterative analysis, design, development and implementation based on collaboration between researchers and practitioners in a real situation (Wang & Hannifin, 2005). It results in theoretically based, context-sensitive small theories of teaching practices.

Action research values the power of reflection, discussion, decisions and actions of practitioners' who participate in collaborative research on their own everyday problems (Adelman, 1993). Action research and reflective practice (Schön, 1983) are considered to be critical dimensions for professional development of teachers (Leitch & Day, 2000). Holly and Whitehead (1986) points out action research as a powerful method when teachers work alongside a researcher over time. After 15 years of experience of action research in schools, López-Pastor et al (2011) claim that the method with its collaborative and empathic focus rooted in everyday practice, promotes a sustainable, effective development of quality teaching. The two methods have previously been successfully combined (Majgaard et al., 2011).

In our project we adhere to the advocated method to develop ICT competence among teachers, which require ICT-usage to be integrated as a natural ingredient in the didactic process (Hanafin, 2008; Harland & Kinder, 2006; Skolverket, 2011b). It is emphasized that collegial collaboration, continuity, classroom observations, involvement of outside expertise as well as reflection and experimentation are success factors in competence development (Hattie, 2008; Gustavsson, 2008; Mollberg Hedqvist, 2006; Wilson and Stacey, 2004).

In alignment with our research approach and in order to capture the variation of different virtual classroom activities, we have used a wide range of methods to collect empirical data. These include documentations such as national curricula, focus group or individual interviews with teachers, students, principals and IT support staff, recorded online meetings, workshops, classroom observation and video recordings during project activities, online discussions, blog comments shared online and online questionnaires.

Instructional Design Challenges

Experiences from the first year of the project as reported in (Lundh-Snis et. al., 2012) revealed that the online-based collaboration were more challenging than anticipated, and that organizational and technical issues have superseded and squeezed out subject-oriented discussions due to surprisingly many practical issues that needed to be handled first. There were three major barriers: 1) synchronization of diverse IT systems in the collaborating schools; 2) scheduling coordination to allow synchronous collaboration; and 3) linguistic and communication difficulties rooted in participants communicating in their respective Nordic language. Being able to communicate within Nordic languages are explicit learning goals in all three schools systems, and therefore part of the project aim.

However, during the first year we also experienced cross-nation collaborative tasks that were successfully completed and that were appropriate and meaningful from a subject learning perspective. For example in mathematics, one instructional design was that all students constructed a mathematical problem (a brainteaser) and sent it as a Christmas card to someone in the collaborating class, which was then solved and reported in a videoconference meeting between classroom and classroom. Such collaborative task to construct a tricky problem (that you need to be able to solve yourself), and to see how a Nordic classmate from a

neighbouring country solve your problem, is well-designed from several learning perspectives: Learning situations where students pose the questions has long been advocated by for instance Papert, (1980) and Piaget (1952). It creates a learning situation which is motivational, and is aligned with well-known learning theories such as learning-by-doing doing (Dewey, 1933), reflection-in-action (Schön, 1983) and Experiential learning (Kolb and Fry, 1975 m.fl.). To construct a good problem, constitutes the highest knowledge level according to Bloom's knowledge hierarchy (Bloom et al, 1956). To be responsible for providing the problem puts the student in the role as a teacher or expert, which is not often used in education but is advocated by learning theorists (Hamlen (2010), Gutstein & Mack, 1999, Vygotsky, 1978). In the process of constructing a tricky problem to someone else, the students ought to reflect on their own knowledge in the domain and are most likely triggered to self-explain in order to think about what trickiness they want to pursue. Self-explanation is used by successful students (Roscoe & Chi, 2007) and is a powerful activity for mathematical understanding (Mitrovic, 2005; Wong, Lawson & Keeves, 2002). The design also gave plenty of opportunity to discuss which problems that are considered difficult and why that is which are challenging questions to discuss (Jonassen and Hung, 2008), as well as if there were any cultural differences in either problem construction or problem solutions between the involved nations.

Yet, it was considered difficult to actually pinpoint whether the tasks they designed actually gave a *subject related added value due to the cross-nations collaboration* or not, and if it did what the added value actually constituted of. Particular for the subject mathematics it was challenging to identify subject-related added value related to the instructional designs. And since the cross-nations collaborations took additional time and effort for the teachers and students compared to traditional education – partly because of the technical and organizational hurdles but mainly because collaboration normally means additional communication including negotiating ideas and needs which may be quite cumbersome before the collaborators become accustom to each other. Thus, for motivational purposes it was important that the collaborating teams became convinced that their tasks actually could yield subject-related added value (i.e., a learning benefit) to retain a balance between cost/effort and benefit.

Hence, there was a growing demand for some kind of help or tool for the collaborative teams that would support the instructional design process in a novel situation in such a way that potential learning benefits are in focus (to as far as possible guarantee an added value of the Nordic collaboration).

The proposed Model – the GNUbic cube

To meet these demands, the Nordic researchers in mathematic didactics organized a workshop to discuss these issues. The agenda of the workshop was to 1) identify types of added value due to cross-nation collaboration, 2) compare and try to unify required mathematical competencies from the three national curricula, and 3) compare and try to unify central content for mathematics in the appropriate age levels within the three curricula.

A previous analysis comparing the Danish, Swedish and Norwegian curricula in mathematic showed that the curricula are quiet similar with respect to subject content to be covered and learning goals with respect to competencies that should be reached. All three curricula advocate practical application of the subject, interpretation, problem solving, and mathematical connection to the society. The curricula are similar enough to allow for a meaningful collaboration.

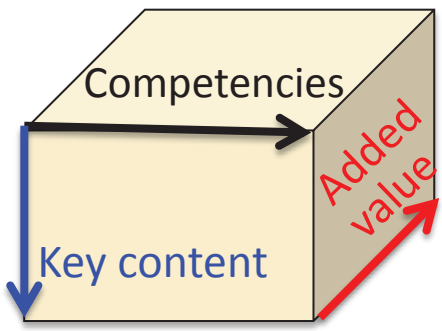
The idea of the model arise when the Danish researchers presented a report from the Danish Ministry of Education (Niss & Hojgaard, 2002), where the mathematical curricula was presented as a matrix (see

Figure 1) of the key learning content (subject areas) and the learning goals to be met (competencies to acquire). The matrix structure indicate a relation between subject areas and various competencies, where the mathematical subject areas comprise, for example, the rows, and the eight competencies the columns. The matrix could then be regarded as a statement of how the individual competencies are practised in relation to the individual subject areas. Each cell denotes the interplay between a particular subject area and a particular competency, where some relations may be of great relevance while some competency may be less relevance for a particular subject area. We appreciated the model as a useful mental tool for designing instructional tasks, since the designer has to consider not only which subject area a task belongs to, but also reflect over which competencies (normally there are more than one) that are actually practiced in the task.

Competency/ Subject area	Math. thinking comp.	Problem tackling comp.	Model-ling comp.	...	Aids and tools comp.
subject area 1					
subject area 2					
...					
subject area n					

Figure 1. *The subject - competency matrix. From "Competencies and mathematical Learning", (Niss & Hojgaard, 2002).*

Since the matrix is a condensed description of the Danish curricula content and the presentation was considered both adequate and useful for our purposes, we adopted and extended that model. All cross-nation instructional designs - just as all traditional instruction - need of course to adhere to the national curricula. However, for our cross-nation collaborative instructional designs, we also wanted to assure an added learning value. Hence, we extended the matrix with a dimension of added value, which resulted in the following cube (Figure 2):



The components of the two original dimensions was then discussed and negotiated so that the result would reflect and unify all three national curricula. Finally, the new dimension particular to our project to generate learning benefits due to cross-nation collaboration was created and discussed.

Figure 2. *The general dimensions of the Instructional Design Model – the GNUbic cube*

The Model components

The process of unifying the key content subject area was fairly straight forward since the three curricula had the mathematics subject divided in similar categories. The content was listed and connected to formulation in each of the national the curriculum, respectively. In the unification activity, it was not always easy to find the perfect match how content and competences were presented in the three different national curricula. For example problem solving was treated differently: it was described as a subject area (key content) in one curriculum but as a competency in another. We adopted the Danish model and integrated problem solving as a competence in the GNUbic cube, since the other curricula repeatedly points at that problem solving ought to be applied in all subject areas.

The competency dimension of the Danish matrix was less straightforward to map directly into the national curricula, since the respective curricula used different ways of describing what learning outcome that was expected. However, the variation was rather one the level of formulations than actual variation in content, which meant that we could identify mappings as pointers from the model category into the respective national curricula text to make the connection apparent and to better support the teachers in their work. There are eight competencies that should be acquired in mathematics: 1) Mathematical thinking competency: to be able to think mathematically (including the understanding of concepts, the ability to estimate and to assess), 2) Problem tackling competency: to be able to formulate and solve mathematical problems, 3) Modelling competency: to be able to analyse and build mathematical models, 4) Reasoning competency: to be able to reason mathematically, 5) Representing competency: to be able to handle various representations of mathematical facts, 6) Symbol and formalism competency: to be able to deal with mathematical symbols and formalism, 7) Communicating competency: to be able to communicate in, with and about mathematics, and finally 8) Aids and tools competency: to be able to use and assess tools for mathematical activity, including IT.

Components in the new dimension, the added value dimension, was inspired from already conducted instructional designs from the project, and from the researchers' own vision of potential learning value due to the type of intended collaboration. The researchers identified and generalized these learning benefits and identified two types of value creating reasons: one that takes advantage of a that different countries are involved with possibly national differences, the other that tries to turn the linguistic difference between the Nordic languages into something advantageous and not only an obstacle. The possible added value that we came up with were the following:

1. *Create curiosity and motivation* (national difference). Here we have seen that students in general are curious to work with students from neighbouring countries since the difference in nationality results in more variation in the collaboration, and this natural curiosity can be utilized as motivational power if the tasks are designed accordingly.
2. *The need to explain to each other* (linguistic difference). To articulate and explain (to oneself or to others) are activities that can foster a better conceptual understanding and a reflective approach to mathematics, and the need become much more apparent when the student communicate in similar yet different languages. We have seen that even the most basic concepts may need to be explained (because the concept names in two languages were so different). This is a very good exercise, which is hard to motivate students to do in a single-language setting.
3. *Use mathematical language for clarification and specification* (linguistic difference). By this we mean that even younger students could easier understand the advantage of using formal mathematical language instead of natural languages when

communicating with other Nordic classmates, since it is common for all and has an exact meaning. That would be an enormous gain for the subject.

4. *Discuss differences, more variation* (national difference). Collaboration with others per se could introduce more variation and opportunities to discuss differences, but we expect and have seen greater variations and more differences due to the cross-nation collaboration since there are cultural differences between the countries.
5. *Collect and compare national data* (national difference). There are many tasks that become more motivational and more reality-adopted (and inter-disciplinary) when students collect and compare data from their respective countries.
6. *Encourage subject related reflection* (national difference). By this we mean that by the setup when the same exercise is planned, implemented and compared in different contexts most likely differences in attitudes, practice, methods, principles and underlying ideas ought to come to the surface. Perhaps this added value is primarily for the teachers, but the students may start reflecting over "how they do things" as well, especially if the teachers encourage such reflections and discussions.

Hence, we end up with the following model with three dimensions corresponding to key content, competencies, and added value (Figure 3):

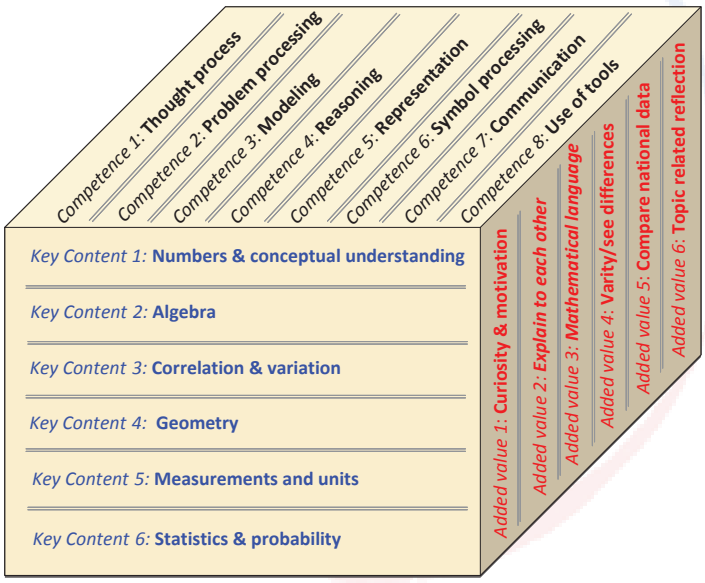


Figure 3: The proposed model: The GNUbic cube

The model has two distinct purposes:

1) as an analytical tool for classifying the cross-nation instructional designs, i.e., a classification system which are rooted in all three nations curricula, and
2) as an innovation tool for idea generation during planning phase of new instructional designs by for example randomly choosing a combination of the three dimensions and try to imagine what kind of tasks that would fit into that classification. This is in accordance with established idea generating methods.

Evaluation of the Model

The model was evaluated as an analytical tool by classifying 5 previously instructional designs conducted by the cross-nation teams in the project. Design 1, Christmas brainteaser, was described above. Design 2: Problem-solving with fractions was similar to design 1, but the topic was fractions instead of arithmetic. Design 3: choosing and solving fractions, was organized so that each student had to select 3 exercises from their respective math book, one simple, one medium and one difficult. Solutions including explanations of the exercises were video recorded. Exercises including solution video clips were exchanged between the students. Identified learning value of the design included that the video recording required explanation, the exchange allowed for everybody to see someone else's solution in action, and the process of selecting exercises in three levels encourage reflection of task difficulty. Design 4: glossaries, were performed in smaller groups where each group had to select 10 mathematical words (i.e. concepts), explain what they meant and then ask matching groups from the other two countries to fill in the corresponding word in their language. The added value of the task included having to explain often rather basic concepts (such as addition) that the students found rather challenging. Many groups used mathematical examples to illustrate the concept. Design 5: price comparison task consisted of finding out and comparing prices of different common products in their own country with the prices of the same product in the other countries. Since there are three different currencies, Euro was used as a unifying currency. Below the GNUbic cube with classification items highlighted are shown from three of the designs ().

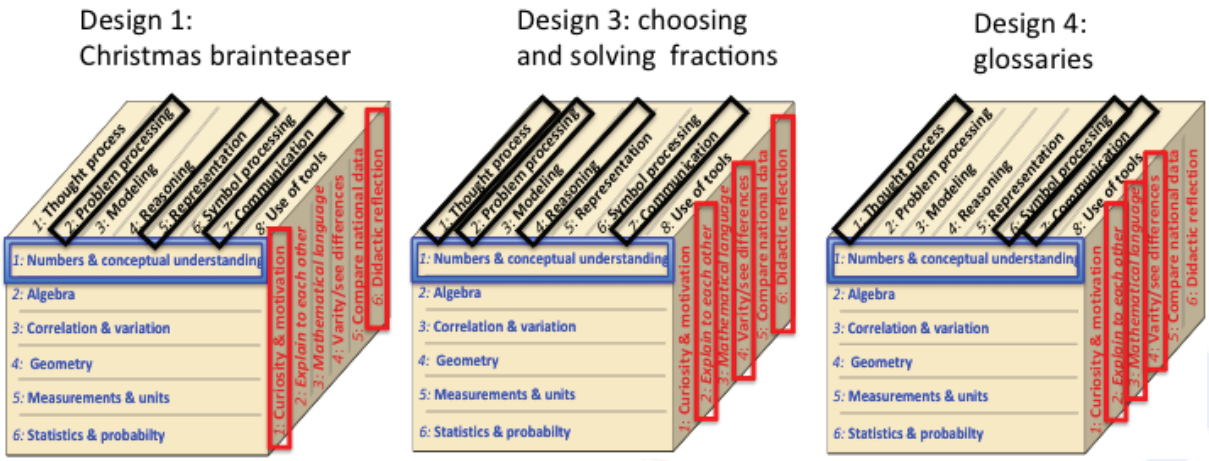


Figure 4. Classification in the GNUbic cube of three different cross-nation instructional designs

The model was also evaluated as an innovation tool, since it was used in the planning process of three new instructional designs. These were all a bit more elaborated and ambitious, partly because it was the next iteration of constructing new designs, but we believe that the awareness of the variation and possibilities that the GNUbic cube pursues also influenced the designs. Design 6, packaging factory consisted of an more open-ended construction problem where the students in groups were to model, draw and construct packages according to a specification given from their partner group in the other country. The effectiveness with respect to for example material cost and material loss were also calculated. The added value came from comparing different solutions and having to explain and motivate their choices to the specifying group. Design 7, school investigation was about making an inquiry on their own school, make diagrams and compare the results to their neighbour countries results. The last evaluated design 8, diary packaging, compared physical dairy containers online (half of

the containers from each group) and ordered them according to different aspects such as size, % fat, and so on. The task required plenty of communication and formulation of the problems.

Table 1. Summery of the classification in GNUbic cube of all evaluated instructional designs.

Designs	Key content						Competencies								Added value					
Previous	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	2	3	4	5	6
1	●							●			●		●		●					●
2	●							●			●		●		●			●		●
3	●						●	●		●			●			●		●		●
4	●						●					●	●	●		●	●	●		
5					●	●		●		●		●		●	●				●	
New																				
6				●	●			●	●	●		●		●		●		●		
7						●	●		●	●			●	●	●			●	●	
8	●		●		●	□	●	●	□	●	●		●	□	●	●			●	

The classification summary in the table above show that all categories except one, the subject are algebra, were used in the evaluated designs, indicating that the classification system mirror actual activities quite well. Also, the classification process was considered straightforward by the researchers (who perhaps are more accustomed to such activity than the teachers), so the usability of the model need to be further evaluated by the primary users, the teachers, alone. However, many of the teachers have so far appreciated the model.

Finally, even though the model was first developed for the subject mathematics, the same idea is being transferred to the other subjects in the project.

Conclusions and Future Work

In general the model has shown to be appropriate for classification purposes, even though specific categorization in the three dimensions may need to be modified to assure natural, non-overlapping categories that are covering the desired content. The model also seems to be useful as an innovation tool, but this needs further exploration and evaluation to establish.

Future work include continue to explore and evaluate the usefulness of the model in the other subjects, and to transfer the model to some other change initiatives aiming at learning improvements in schools such as for example various ICT initiatives. Any proposed change initiative ought to come with the idea that the change should generate something better, i.e., an added value compare to prior the change.

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Incorporating the use of Facebook into the EFL Classroom

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Abstract

Facebook has been widely used as one of viable tools for communication among peers. Facebook has been increasingly used among friends with whom the students had a pre-established relationship offline. Facebook allows users to become the producers as they can share and give comments on posts, photos, or video as well as they can observe those of others'. Due to its popularity, ease of use, and versatile capabilities, at an applied level, I proposed that Facebook could be used as a tool for language learning.

This study reports the processes of incorporating Facebook into the EFL classroom. It also reports a study of the roles of peer comments in remaking a second presentation video. The participants were 20 fourth-year undergraduate students who undertook English for Employment course. In this course, a Facebook group was created and all the participants were asked to join this group. Students were asked to take part in giving individual presentation. At a different point of time, the participants were asked to produce two of the same video presentations and upload them on their Facebook group. The second video was uploaded after the participants had uploaded the first video and had received comments from their peers. The findings show that the students incorporated high percentage of peer comments, and that peer comments helped the students to raise awareness of their strengths and weaknesses in giving presentation, and encourage collaborative learning. On the basis of this study, the implication and suggestion for the language teachers are discussed.

Introduction

Technology has been used as a tool in education for decades around the world. The most widely-used technological tools which can be seen in modern-day classrooms are computers. With the advancement of today's technology along with the availability of Internet access, computers have become more than instruments used to run, for example, PowerPoint slides which only allows for the teacher' inputs of the lesson. By moving away from the old-fashioned styles of learning where students are predominantly 'receivers' of inputs and instead welcoming other approaches, the learning processes and the outcomes of the implementation of the new approaches may reveal some clues to the success of language learning.

Literature Review

Facebook

Facebook is a social networking site which is mostly used by users around the world because of its unique and attractive features. Users can enjoy using it on the website or the smartphone application. In addition to chatting, users can use Facebook to share things, such as, messages, links, and videos easily via the share menu. After posting things on a homepage, their friends can see and give responses immediately. This makes them convenient and fun to communicate and share things with each other, and therefore serving lifestyles of users especially the young generation.

A Facebook Group: An Online Discussion Group

A group, one of many popular features in Facebook, provides a specific group of people to communicate with each other. A Facebook group has a special function which is not available for a homepage. Users can share video presentation with friends on a group and then friends are allowed to comment on their posts. In a traditional classroom, it might be difficult for students to produce immediate spoken feedback to the presenter due to the following factors: "time constraints, the large number of students in a classroom, and students' lack of motivation" (Maarof et al., 2011: 29). In order to sort out these problems, the teacher can employ a Facebook group as an online discussion group to help students improve their written feedback skill.

Instead of a physical classroom, a Facebook group, an online discussion group, can be used as a virtual classroom in improving speaking. Posting vidoes on a Facebook group provides students with opportunities to learn from each other through feedback. After receiving comments and advice from other people on a Facebook group, students are able to apply knowledge to improve their language skills (Suthiwartnarueput & Wasanasomsithi, 2012) as well as their presentation skills. Besides, being noticed by other people can raise students' awareness of improving their writing. White (2009) indicates that comments from other people receiving on a Facebook group can reduce the amount of mistakes on students' writing so those comments can be used as guides for improving learning.

In addition to gaining knowledge in writing skills, students are willing to interact and share their own ideas in writing with others when performing writing assignments on a Facebook group (Shih, 2011). A Facebook group provides a high level of motivation for students to perform writing tasks. The characteristic of Facebook facilitates students' communication.

Users can post and receive messages "not only in one-to-one but also one-to-many mode of communication" (Rusli, Ahmad & Daud, 2011). Students' writing tasks are read by other people including the teacher and peers. They are encouraged to perform essays on a Facebook group after noticing that other people read their writing tasks (Yunus & Salehi, 2012).

Role of Peer Feedback

Giving feedback is the method for readers to present good and weak points of the texts they read or video they watch. Thus, feedback plays an important role in presenting process. The performance of the presenter can be improved after gaining responses from commenters. In a traditional classroom, teacher feedback is set as the main element to raise students' confidence. Srichanyachon (2012) points out that students prefer teacher feedback since they can ensure that the teacher corrects their mistakes absolutely. However, not only the teacher, but also peers can help students improve their performance.

Peers and the teacher are responsible for being as the audience to students who are writers. According to two kinds of readers, feedback can be categorized into two types including 'peer feedback' and 'teacher feedback.' Comments from both of peers and the teacher can help students improve their learning but in different points. After students receive comments from whomever, they have to think critically which comments can help them perform better writing or speaking tasks.

As a Facebook user, the researcher perceives peer feedback through Facebook to be necessary in performing speaking tasks. Thus, the researcher would like to study how peer feedback through Facebook affects students' video presentation. The finding can be used as a guideline for teachers who are interested in using Facebook as an electronic medium in teaching speaking by making use of peer feedback.

Methodology

Participants

The participants of this study were 20 fourth-year undergraduate students who enrolled in an academic English course (LNG411 English for Employment) in the second semester of the 2012 academic year (January to March 2013) at King Mongkut's University of Technology Thonburi. They were from Computer Engineering department. These participants were chosen because they enrolled in the English course which was taught by the researcher. The LNG 411 course aims to train students in the skills necessary for gaining employment and in basic communication skills required in the workplace. It also includes speaking skills necessary for effective performance in an occupational environment i.e. expressing opinions. The course lasts 45 hours. The students meet once a week for 15 weeks. Computers with Internet access are available 24 hours at the university and most of the students possess smart phones which they could easily access to Facebook.

Instrument

The instruments were two video presentations of the same topic and the students' feedback entries on Facebook. The researcher compared the first video presentation and the second video presentation based on the information given in the feedback entries.

Procedures

Each student was asked to make a 1-2 minute video presentation about their hobbies and to discuss what skills they could learn from doing such hobbies as well as how those skills could be beneficial to their future career. After the first video was posted on Facebook group, each student was asked to watch at least three video presentations of their peers and write written comments immediately in the Facebook comment boxes. The commenting period lasted for one week. Then, each student was asked to produce another video presentation and upload it on Facebook group. In short, this second video was uploaded after the students had uploaded the first video and had received comments from their peers.

Data Analysis

The students' video presentations that they uploaded on Facebook group before and after receiving peer feedback were compared progressively in order to see the improvement of their speaking skill and presentation skill. Feedback that all students received from peers was gathered and categorized. It was then divided into different kinds of aspects. The researcher analyzed the data of each student by checking the kinds of aspects of peer feedback that he received. After that, the researcher compared two video presentations in order to see the kinds of aspects of peer feedback that he followed. The researcher calculated the percentages of peer feedback that was followed by the students.

Data Presentation and Interpretation

Comments from peers were grouped into five main aspects of peer feedback as shown in Table 1.

Table 1 Aspects of peer feedback on peer video presentation

Aspects	Details	Peers' comments	Did student follow?
Content	should highlight skills gained from the hobbies	11	11 (100%)
	should discuss how the skills are related to future career	17	15 (88%)
Language	should speak slower	8	8 (100%)
	should use sign posting e.g. first, second, however	5	4 (80%)
	should pronounce some words clearly	6	5 (83%)
	should speak louder	7	5 (71%)
Body Language	Should have eye contacts	3	3(100%)
	Should use facial expression	4	3 (75%)
	Should smile	9	9 (100%)
Appropriateness	Should wear formal clothes	8	8 (100%)
	Should find another place to make a video presentation	2	2 (100%)
Noise	Should find a better/ scene to make a video presentation	5	4 (80%)
TOTAL		85	77 (87.5%)

Table 1 shows that there are 85 comments given by peers in the first video presentation and of these the students followed 77 comments (87.5%). The highest number of comments was found to be in the first aspect i.e. content. There were 28 comments found in the first aspect of the peer feedback "*should highlight skills gained from the hobbies (11 comments)*", and "*should discuss how the skills are related to future career (18 comments)*" and almost every comment from this aspect were followed. Figure 1 shows some example comments from the student in the first aspect.

> Ekgapark Wonghirunsombat The comments: You highlight many skills that you get from your hobbies. It is a good example for other friends. You can add a few sentences which explain how to apply these skills to your job position. ^^
>
> Aboong Chatchavanvanich Hello Kanokwan, Your face in your video is so cute ^^. I would like to comment your video. At the beginning of this video, you introduce yourself very clearly. You say in this video that you have three hobbies which all have a lot of knowledge. I think it is gonna be better if you make it related to your skills which can help you to apply the job. Moreover, you should give some example of your hobbies like the example of books that you are interested in? What kind of movies that you gain the good reason? And also give an example what is the reason

Figure 1.

The second highest number of comments was found in the language aspect. At this point, most of the peers commented on the language use in the video presentation. The peers might think that the language use was too difficult to understand, the pace of speaking was too fast, and some
words were mispronounced. In the second video presentation, it was found that out of 19, 14 comments (74%) were followed. The students tried to speak slower, and use simpler words in the presentation. Some comments from the second aspect are shown in Figure 2.

> □□□□ □□□ Congratulations on the awards. Of course, you are better than me, but I think this video, you talk too fast (or that I'm not good at English ^^"), perhaps because of the limited time of this video.Next time you will not forget to speak slower na.
>
> Chartphat Klaymanee Although. Your sound is cute but, your pronunciation is hard to understand in some word. You should practice to use your tongue to talk clearly in English.
> And. When you say "Thank you for your attention ", you use higher sound, which sound like the question. I think you may stress your voice more than use higher sound. So I think you should do better than this one in the next video. Especially in pronunciation issue. ^__^

Figure 2.

The third aspect was on body language. After watching the first video presentation, peers commented on the use of body language. All suggestions are having eye contacts, using facial expression, and smiling.

> Pornpon Phanpobe to □□□□□□□□ . In my opinion, I think this clip you speak naturally and clearly but you may smile you must tell about benefit or skills from your hobby to apply for job and You should smile and a gestures. In order to look more attractive.
> Sarm Asawaniwed Comment na. I think your eye contacts are better than your last video but only for the first part of video. You can make it better by try to look at the camera as more as you can.
> Namhom Nz For your comment naja.
> Your intro look interest. You keep smile and eyes contacts that make you look good when you speak. In my opinion, I think that your detail of hobby too short. If you try to describe more it will be better. ^^

Figure 3.

The fourth aspect was on appropriateness of the presentation. It was found that some students wore casual clothes in the presentation e.g. wearing T-shirts, jeans, or even pajamas. Some students chose the location in a bathroom or in a living room where there were bottles of alcohol on the table. Therefore, peers comments were made on these issues. It can be seen that all 10 comments were followed (100%).

> Sarm Asawaniwed I love your voice and your eye contects ka. I think this video is quite excellent. But you should change your cloth. I prefer the cloth in first first video a.
>
> Chartphat Klaymanee I agree with two previous comments.
> The first thing when I see your clip is your T shirt. So, I suggest you to use the uniform, that easy to choose. And, your example is good and that related to skill that you want to tell.
> Your clip has a little noise. May be from air conditioner. If you can, you should select the location without the noise.

Figure 4.

Discussion and Recommendations

The findings of this investigation show that peer feedback helped them improve their work. Peer feedback had a positive effect on the students' making the video presentation. Also, it can be seen that the students incorporated high percentage of peer comments, and that peer comments helped the students to raise awareness of their strengths and weaknesses in giving presentation, and encourage collaborative learning.

The finding also shows that peer feedback through Facebook was beneficial to the students' speaking. When the students uploaded the first video presentation, peers, who were the audience, were allowed to give feedback on their individual work. Peers could identify strengths and weaknesses of their work so this led to increasing the level of their awareness in performing speaking tasks. To support this finding, Yang et al. (2006: 193) pointed out that although peer feedback had a lesser effect on students' writing than teacher feedback, it could reveal the usefulness of – "learning from others' strong points to offset their own weaknesses".

Differently, content was the focus of peer feedback. It was found that comments from peers enhanced the generation of ideas for the students' work. Peers preferred to share ideas and opinions with each other. This view was supported by Srichanyachon (2012) who noted that students' language skills were improved due to the exchange of ideas and inspiration.

To summarize, using Facebook as an electronic medium to receive peer feedback can effectively help students improve their learning. As presented in numerous studies, Facebook can promote motivation in performing tasks because students can interact with other people immediately without meeting in person. Additionally, most students have their own Facebook account and they use it almost every day. As a result, the teacher should consider using this tool in language learning but he or she should be aware that face-to-face communication still plays a significant role in the teaching and learning process. Students need face-to-face discussions to receive some ideas or thoughts which cannot be adequately explained through messages.

The findings from this study have revealed that the use of Facebook has contributed to the success of language learning, promoted motivation to learn English, encouraged conversation, created a sense of community, provided a platform for publishing work, represented real authentic language, and allowed a greater audience. Therefore, it is evident that Facebook could be an effective tool to motivate students to learn English. Since the result of this study shows a very positive and promising outcome, it is suggested the teachers should take a first step by considering using Facebook to meet the expectations of the learners.

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The Impact of Learning Management Systems on the Development of a New Academic Model in A Canadian Polytechnic Environment

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Abstract

The Northern Alberta Institute of Technology (NAIT) is the largest polytechnic in Western Canada and has been at the forefront in the use and deployment of Learning Management Systems (LMS) for many years. For more than a decade, NAIT has developed and deployed LMS. In early years, systems were developed in house. As sophisticated commercial systems became available, these were incorporated into an LMS strategy.

Over the last three years, NAIT has embarked on major changes to the academic philosophy and operations, fully integrating LMS. This project has been known as the design and implementation of a "New Academic Model". As part of the process, NAIT has moved towards Open Source Systems.

This paper describes the philosophy and rationale behind the change to the New Academic and how the curriculum has been transformed from competency basis to outcomes based curriculum and assessment. More courses have been developed and delivered through blended and fully on-line delivery. To achieve this, NAIT has adopted Moodle as the curriculum repository and system for both all types of course delivery. Issues in moving from commercial software to an open source system are described. Methods to ensure a high quality of curriculum are identified such that content is current and relevant. Approaches are discussed that provide engaging, enriched and useful interactions with students.

Although some of the early adopter programs are well underway, the project is not complete. Observations of the process and outcomes are described and future expectations, challenges and aspirations are highlighted.

Key words: Learning Management Systems, Moodle, Polytechnic, Curriculum database, Blended delivery

Introduction

The evolution of LMS (leaning Management Systems) has tracked the development of IT in education closely. Early systems tended to be in-house developments with modest capabilities. However, as the technology developed, LMS capabilities expanded to meet student and faculty expectations (Watson and Watson 2007). This classical growth in LMS development has been seen at NAIT (The Northern Alberta Institute of Technology). NAIT is the largest polytechnic in Alberta and Western Canada and has developed and deployed a number of systems in the past two decades. Some of these have been in-house developments and were state-of-the-art for their time (Holloway 2001). Over the last ten years, the philosophy at the Institute has been to coordinate the repository for curriculum in a central database (known as Merlin) (Holloway 2001). Ancillary software was also developed to support the needs of faculty such as "Logs on Line" allowing faculty easy access to the curriculum data. As commercial software options became available, NAIT adopted a number of these to supplement the in-house database and support software. Examples are TLM (The Learning Manager®) (What is The Learning Manager?® 2013) and WebCT™ (WebCT Vista transition to Blackboard (in Connect) 2013, Blackboard Connect 2013). This type of system provided flexibility to faculty in their delivery approach. Issues with this policy have been found as licensing costs escalate and support for older versions becomes unavailable. However, TLM is still in use for apprenticeship programming at this time, see Figure 1, but there are concerns regarding compatibility as new operating systems are adopted.

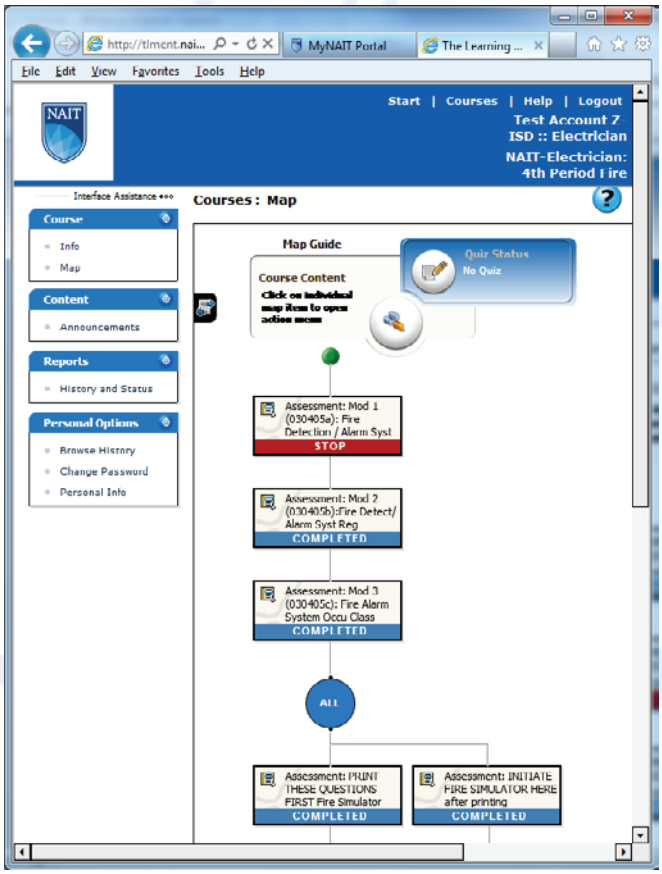

Figure 1: Part of a TLM Course Map for Electrician Apprenticeship Program

As a result of the issues around licensing and compatibility, NAIT has been transitioning away from the commercial market leading LMS and has been investing significantly in Moodle (Welcome to the Moodle Community 2013). The advantages and disadvantages of

Moodle are well known and have been reported widely. An example reference is given here (Martinez and Jaqannathan 2008). The adoption of Moodle coincided with the development of a "New Academic Model" at NAIT. This development has impacted every aspect of academic operations at the Institute and has influenced the whole organization. This development is described below and illustrates how the Moodle LMS is an integral part of the project's success.

The New Academic Model at NAIT

More than three years ago, a strategic academic plan for a significant change was developed based on change leadership following the 4C's of leaderful practice (Raelin J 2010). Using leaderful practice, more than 200 academic leaders, together with representatives from administration and support services came together to launch a project that involved every aspect of operations at NAIT and became known as the New Academic Model. This model is built around a number of core components that were identified by the group at the start of the engagement. The components can be seen in Figure 2 and are identified as:

SEM (Strategic Enrolment Management)

A key core component of the model was the development of an operational framework for SEM. Until this strategy was established, there had not been a coordinated approach to SEM with activities in selected areas only. The expansion and broadening of this activity is crucial for planning new growth and refining the program profile for the institute.

Maintaining a sustainable program mix

This is the ongoing operation of selecting which programs need to be expanded and which need to be trimmed to maintain a sustainable program mix. This underpins SEM and provides an operational arm to the strategy.

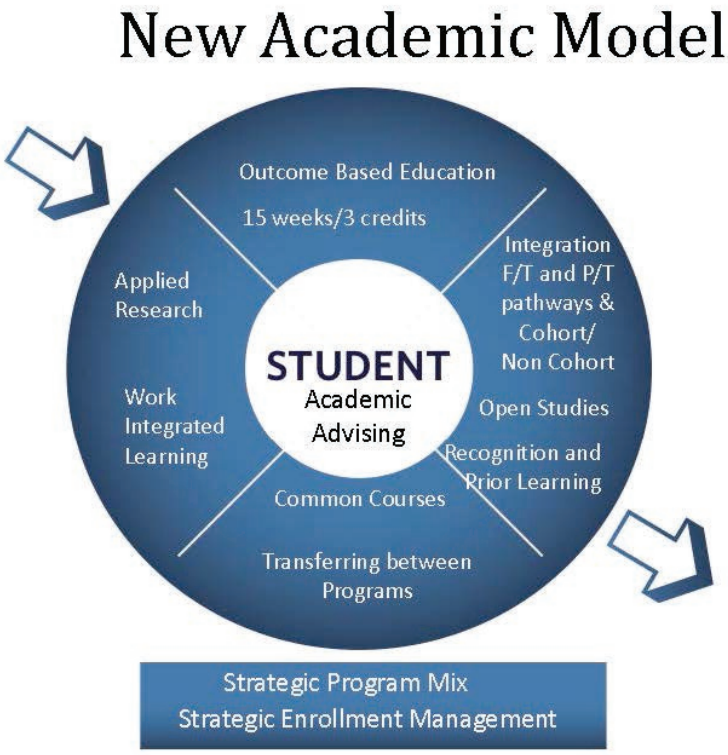

Figure 2: A Representation of the New Academic Model at NAIT

A move to outcomes based education and assessment

This is the transition to outcomes based education and assessment from a competency based system. It has been the most challenging area for faculty. As a predominantly technology based institute, the belief in a competency framework has been long established. To move from this to adopt the principles of outcomes based education and assessment has been a long and demanding process. At the same time, faculty has adopted the Moodle LMS as the standard for all delivery methods (face-to-face, on-line and blended). The move from other types of LMS to Moodle increased the challenge for instructors but it is interesting to note that the adoption of Moodle has not been as challenging as in earlier similar changes. It is thought that this is as a result of four factors. The increase in computer literacy among faculty due to focused training and demographic change, the demand from and expectation of students for this type of capability and the development of an IT infrastructure to support the LMS. In addition NAIT has ensured all instructional staff who engage in on-line or blended delivery of curriculum are fully trained in the appropriate techniques and methods of e-facilitation.

A move to a 3 credit, 15 week semester framework

Although only a structural change to operational behavior for programs and faculty, this move to a 3 credit program framework based on 15 week semesters from a very wide ranging credit system with programs on 15, 16 and 17 week semesters has also been demanding for instructional staff. The reduction in classroom time was a challenge for many staff and it required some significant change leadership techniques to accomplish this transformation. Again this revision to program structure coincided with the transition to Moodle. This impacted faculty as they investigated approaches that would allow them to deliver the necessary outcomes of the courses and programs in less contact time. Moodle provided a

suitable platform to achieve this transition as it was possible to provide students with materials in a multi and trans-media environment.

Combining full-time, part-time and open studies learning opportunities

Traditionally NAIT used different administrative approaches for students who attended day-time compared to those studying evenings, weekends and on-line. The philosophy underpinning the New Academic Model is that all students should be treated equally. Further they should have the same student holistic high quality experience. This will provide a much more compatible environment for blended delivery (face-to-face, on-line/distance and combinations of these) of curriculum. Again Moodle is provided as a standard LMS as a curriculum repository that allowed all instructional staff access to common materials for common or similar courses, as shown in Figure 3.

Work Integrated Learning

Work Integrated Learning covers all experiential learning opportunities including Co-Op, Internships, Practicums and similar experiences. The approach to inclusion in programs has been standardized.

A Streamlining of RPL (Recognition of Prior Learning) system

Although the Institute used RPL in the form of PLAR (Prior Learning Assessment Recognition), CT (Credit Transfer) and QR (Qualifications Recognition) (Reiss D 2013), this was a somewhat ad-hoc approach. The New Academic Model allows a set of standard practices across NAIT that will ensure a uniform and equitable approach the process. Part of the process will include the use of in-house assessment techniques such as challenge examines, laboratory tests and similar outcomes based assessment tools. With Moodle as the repository for these assessment methods, as they are used in normal programming, PRL assessments will be readily available. This will greatly streamline the process and ensure fairness within the process.

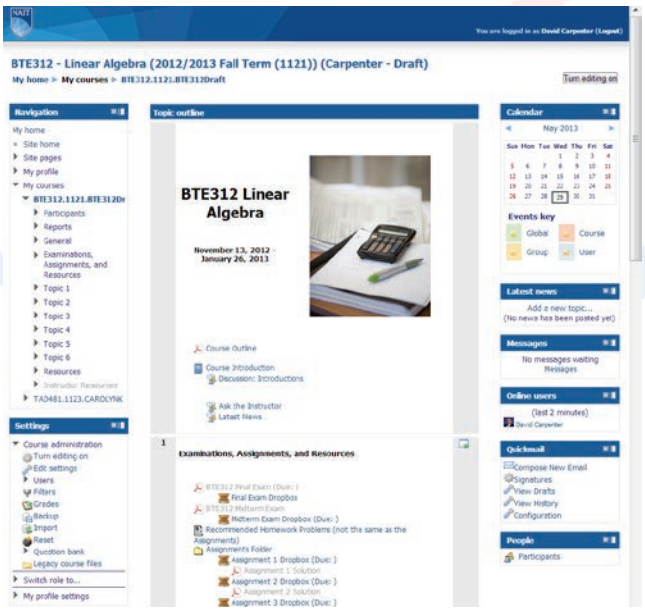

Figure 3: Typical Moodle Shell within the NAIT System

An overhaul of student advising system to provide a superior student experience

A key feature of the New Academic Model will be the student focused centralized academic advising. Although program specific advising will still reside in the program areas, an initial centralized process has been put in place.

Applied research opportunities for all students

One of the underlying principles of polytechnic education is the engagement in applied research activities. NAIT has been developing applied research activities with industrial collaborators for many years. The aim of the New Academic Model is to provide all students with the opportunity to engage in applied research projects.

The development of common course structure (and equivalent courses)

The option for students to have a flexible approach to course selection and scheduling has never been significant at the Institute. Traditionally most programs have been cohort based providing little flexibility for student schedules. The New Academic Model has allowed programs the option to offer common and equivalent courses such that students are able to have a more flexible schedule. This has been possible through the use of Moodle as a common LMS. Courses can now be developed maintained by groups of faculty and delivered in different modalities and at different times since multiple selective access to Moodle course sites is possible. This is sure to be appreciated by students as they seek more flexible pathways through their post-secondary education.

Infrastructure for support of a polytechnic wide LMS

Although the Moodle system has been used widely, it has rarely been adopted on an institute wide basis. The experiences of NAIT, and the University of Alberta, are somewhat unique due to the scale of implementation. As the use of Moodle expanded at NAIT, the infrastructure requirements became clearer and also became a challenge. The first phase had been to handle the server, network requirements and all technical support in-house. Although successful, the resources required were significant.

A group within the post-secondary community formed a collaborative approach. The AAHEIT (Alberta Association for Higher Education Information Technology) collaborated with a commercial company, Cybera (Cybera, Strategic Plan 2013-16) to provide a cloud solution. All hardware and software resources are now off-site at Cybera locations and access to the Moodle system is by cloud connection i.e. internet access. During the initial period, some technical issues were encountered. Once through the start-up stage, the system has operated extremely well meeting and exceeding expectations and metrics.

Curriculum review committee

Perhaps one of the most significant concerns with a curriculum database is the quality of the curriculum being stored. This has been addressed at NAIT by the establishment of curriculum review committees within each Program area and a second tier curriculum committee at the School level. For degree programming, a third level of review has been implemented.

Program Curriculum Review Committees

The instructors within the Program Areas are the subject matter experts and are responsible for curriculum development. On occasion, when specific technical expertise is required, or the volume of curriculum to be developed is too great, external subject matter experts are engaged to develop new curriculum. In all cases, the Institute retains the IP for this curriculum. As curriculum is developed, the Program area forms a committee to review the technical content of the material. This is a relatively informal process and takes the form of a peer review.

School Curriculum Review Committees

Once the peer review is complete, the course outline and Moodle shell are available for the School Curriculum Review Committee. This second level review is to ensure general quality standards of the material residing in the Moodle shells and to ensure conformation with the New Academic Model guidelines for outcomes based education. For certificate and diploma Programs, this review is the final stage before the curriculum may be used.

Undergraduate Faculty Council Curriculum review

In the case of degree programs, a third level of review is also undertaken by a subcommittee of the Undergraduate Faculty Council of the Institute. In this case, the review ensures that the curriculum aligns with the guidelines for degree programs also.

Conclusions and Further Work

Implementation of an Institute wide outcomes based education system in Moodle has been described. A good deal of planning was required and implementation achieved through excellent change leadership. Significant resources are required to develop the curriculum and to provide a platform to run the Institute wide LMS. Curriculum for many programs is now available in moodle and the remainder will be completed within 12 months.

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An Investigation of Young EFL Learners' Use of Online Reading Strategies

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Abstract

Tablet PCs have become a powerful instructional device for students to read and write stories (Robin, 2008). To assist young learners to cultivate efficient learning strategies in the early ages, students in the current study were guided to read three authentic online storybooks and then write their own digital stories with the Android applications. The study aims to investigate Taiwanese elementary school students' use of online reading strategies, and their relationship with students' performance on reading proficiency tests. The target population consisted of upper-grade learners (n = 83) at an elementary school in Taipei City. The instruments were a modified Survey of Reading Strategy (M-SORS) questionnaire with 30 items (Mokhtari & Sheorey, 2002), and a reading proficiency test in the General English Proficiency Test developed by The Language Training & Testing Center (LTTC). Major findings were as follows: Taiwanese elementary school students used online reading strategies at medium level; among the three types of online reading strategies, young learners tended to rely on problem solving strategies the most, followed by support strategies, and global reading strategies; (3) problem solving strategies were proven to significantly correlate with students' performance on vocabulary and sentence structure, cloze, and reading comprehension test, and (4) there was a significant difference between higher and lower reading proficiency learners' use of online reading strategies, particularly in the use of problem solving strategies. Pedagogical implications of the findings and suggestion for future research are discussed.

Key words: online reading strategies, reading proficiency, young EFL learners

INTRODUCTION

Currently, the emergence of mobile technologies such as tablet PCs in language classrooms, particularly in EFL elementary schools, is bringing new possibilities to language learning and literacy development. Elementary school teachers have also started to contemplate the potential of using these emergent technologies to provide authentic language experiences and facilitate literacy development. Today, school teachers are encouraged to incorporate technology in their classrooms.

Digital story reading can enhance subject content learning, critical thinking skills, and literacy development. Given that completing a successful story in digital form requires instructors to pose questions relevant to the reading content, students are challenged to think critically about effective integration of text and multimedia elements (Sadik, 2008). Digital story reading and writing also provides opportunities for students to monitor their learning process, thus fostering confidence and the sense of task accomplishment (Banaszewski, 2002). Each digital reading and writing challenges students to meticulously choose and compose their own storylines with the support of multimedia resources and thereby develop technical skills as well.

Regarding the importance of the technology and its impact on language learning, the current study presents an empirical study conducted in an elementary school in Taiwan. Particularly, the study aims to investigate young EFL learners' and their English teachers' perceptions towards the use of tablet PCs in a reading course.

LITERATURE REVIEW

In this section, two major parts are presented. The first section elucidates the theoretical background of second language reading strategies. The second section discusses research on digital story reading in L2 contexts.

Second language reading strategies

In the previous studies on second language reading, it has been suggested that readers use a variety of strategies to help themselves with language learning, including storage and retrieval of linguistic input. The employment of reading strategies in the L2 contexts has played an important role to promote reading comprehension (Anderson, 2003; Cohen, 1998). There are two dimensions of the studies on L2 reading in a second language.

First, the interactive model for teaching and reading refers to the dynamic relationship between bottom-up and top-down processes in reading, between decoding and interpretation, and between text and reader (Goodman, 1986; Rumelhart, 2004). Top-down processing, the strategy that is directed by reader's goals and expectations about text information, is also called global strategy.

The second dimension of L2 reading revealed by previous studies is that readers' language proficiency levels correlate to their determination in strategy use (Hong-Nam & Leavell, 2006; Huang, 1999; Green & Oxford, 1995; Shen, 2003; Wharton, 2000; Yang, 2002). These studies found that high proficiency readers have a tendency to use global strategies. In other words, higher achievers utilize more strategies that

aid textual comprehension and apply more self-monitoring strategies when reading different difficulty levels (Chang, 1998; Kletzien, 1991; Zhang & Wu, 2009; Hunag, 1999). However, low proficiency readers frequently use the so-called local strategies that are not specifically useful for understanding the text as a whole (Gan, Humphreys, & Hamp-Lyons, 2004; Huang, 1999; Zhang & Wu, 2009).

Online second language reading

Among previous research on L2 paper-based reading strategies, few studies have been investigated online reading strategies. Online second language reading relies on multimedia features, such as oral reading, digital highlighting, animations, sound and music effects, all of which are impossible with printed books (Adam & Wild, 1997; Matthew, 1996). Research has shown that presenting students with visual representations of animated words and illustrations can help them overcome comprehension-processing difficulties (Liu, 2004). Tablet PCs can be used to do e-books reading, with the potential for multimodal texts and multidimensional representations of background information. The literature on online reading strategies investigates three dimensions: comparing paper and online reading strategies, labeling EFL/ESL (English as a second language) learners' online reading strategies, and examining the effectiveness of strategy use in an online reading program.

First, paper-based storybooks have already been used in class to help students understand complex concepts, while digital story reading is an innovative idea to motivate students to read independently (Sadik, 2008). Readers use different strategies when reading in the two types of texts, i.e., paper and online reading materials (Foltz, 1996). Foltz stated that readers relied heavily on the map online for orientation and they had a strong need for coherence when studying complex materials.

In addition to comparing paper and online reading strategies (Foltz, 1993), recent studies have focused on labeling EFL/ESL (English as a second language) learners' online reading strategies (Anderson, 2003; Elshair, 2002). Results indicated that reading strategies used by learners in print are transferable to online reading whether in ESL (e. g., Akyel & Ercetin, 2009; Altun, 2000; Konishi, 2003; Elshair, 2002) or in L1 (e. g., Bland, 1995; Elshair, 2002; Foltz, 1993). For example, in Altun's (2000) study, the result indicated that expert readers tend to skillfully transfer their print text reading strategies to the computer reading environments. The pedagogical implications are that it is suggested to integrate both text-related and web-related reading strategies in reading online texts. Moreover, the effective use of reading strategies has been recognized as an important way to increase reading comprehension.

Third, studies have demonstrated that there is a positive effect of computer-assisted strategy training on reading. For example, Coiro and Dobler (2007) explored online reading comprehension strategies among elementary school sixth-grade skilled readers in a web-based reading program. The study found that students' reading comprehension is enhanced and the frequency of their strategy use, including prior knowledge sources, inferential reasoning strategies, and self-regulated reading processes also increased. From the previous studies, we have witnessed a growing body of studies devoted to investigating readers' online reading behaviors and exploring the possible contributions that technology can make to L2 reading.

The Present Study

The study described here was conducted in spring 2012 on a course required for an elementary school. The digital story project was one of the major assignments in the English reading course for fifth graders. Before the two English teachers explained the project in class, the students were asked about their prior experience with reading digital stories. None of the forty-eight students knew about digital story reading and none have had experience in creating their own digital stories.

This investigation aims to understand students' and English teachers' perception of story reading and writing via tablet PCs. The following two research questions were addressed.

1. What are the online reading strategies used by the young EFL learners in Taiwan?
2. What is the relationship between young EFL learners' online reading strategy use and their reading proficiency?
3. Is there any difference between online reading strategies used by high and low proficiency learners?

METHOD

Participants

Five classes of upper-grade Chinese-speaking children (n = 83) at an elementary school in Taipei City were recruited to participate in the study. Students in this study were used to reading paper-based storybooks. Each student was equipped with individual tablet PC, which was used as a media for digital story reading and writing. To compare different proficiency Ss' online reading strategy use, students who scored at H (top 33%) and L (bottom 33%) in the reading proficiency test were selected.

Design and Materials

The online storybooks are from Reading A-Z. It is a PreK-6 educational resource company specializing in online delivery of leveled readers and supplementary curriculum. There are three main criteria for selecting three appropriate storybooks for the participants in this study. First, the storybook should be a fiction with sufficient story elements, including plots, characters, setting, problems and solutions; therefore, students can easily collaborate, discuss, and share their comprehension skills and reading strategies within groups or with the whole class. Second, each animated storybook will have three levels, with each sharing similar content and vocabulary. Third, the book whether it is at the beginning, intermediate, or advanced level is about 120 to 530 words in length, which make it possible not only for the students in different levels to complete their own digital story reading and writing, but also for the teacher to conduct the post-reading discussion within the 40 minutes time frame of a class period. The word range for each level is 100-200 for the beginning level; 200-350 for the intermediate level, and 300-550 for the advanced level. Based on the selection criteria, three storybooks are selected: I'd Like to Be, The Three Little Pigs, and Friends around the World. The children are exposed to a total of three books across six weeks.

Treatment Procedure
Students needed to read three online storybooks across 12 weeks. After that, they filled in online reading strategy use M-SORS questionnaire in L1, and a reading proficiency test was administered. Higher and lower achievers' responses toward the questionnaire and performances in reading proficiency test were singled out for further analysis.

Data Analysis
Descriptive statistics was adopted to identify students' online reading strategies. The relationship between these students' use of online reading strategy and their reading proficiency tests were analyzed via Pearson product-moment correlations. Independent-sample t-tests were applied to examine whether there was any significant difference between higher and lower reading proficiency learners in their use of online reading strategies.

RESULTS

Major findings are as follows:
1. Generally speaking, Taiwanese elementary school students used metacognitive reading strategies at medium level (see Table 1).

Table 1

The Frequency of Use of Three Categories of Metacognitive Reading Strategies

	N	*Mean*	*SD*	Frequency level
Overall strategies	85	3.43	.45	Medium use (Range = 2.5-3.4; Oxford, 1990)

2. Among the three groups of metacognitive reading strategies, elementary school students tended to rely on problem solving strategies the most, followed by support strategies, and global reading strategies.
3. Problem solving strategies were proven to significantly correlate with students' performance on reading comprehension test.
4. Reading aloud was the least used metacognitive reading strategy by all participants. However, it was found to correlate significantly with learners' overall reading proficiency. In addition, it was a crucial strategy that distinguished high proficiency learners from low ones.
5. There was a significant difference between high and low reading proficiency learners' use of metacognitive reading strategies, especially in the use of problem solving strategies. Low achievers' frequent use of translation method was found to negatively correlate to their reading performance.

DISCUSSION AND CONCLUSION

The present study set out to investigate Taiwanese elementary school students' use of metacognitive reading strategies. General pattern and specific use of strategies were studied. In addition, the relationship between students' metacognitive reading strategy use and their performance on reading proficiency test were also examined. Lastly, high and low reading proficiency learners' differences in their use of metacognitive

reading strategies have also been pinpointed. Instruments adopted in the present study included the Modified Survey of Reading Strategy (M-SORS) based on Mokhtari and Sheorey's (2002) Survey of Reading Strategy (SORS), and a reading proficiency test adopted from the intermediate level of General English Proficiency Test (GEPT).

Among the three types of online reading strategies, young EFL learners tended to rely on PROB strategies the most, followed by SUP strategies, and GLOB reading strategies (e.g., Anderson, 2003; Hung, 2005; Ilustre, 2011; Lee & Liao, 2007; Zhang & Wu, 2009). PROB strategies were proven to significantly correlate with students' performance on reading proficiency test. Moreover, there was a significant difference between higher and lower reading proficiency learners' use of online reading strategies, particularly in the use of PROB strategies (e.g., Zhang & Wu, 2009).

Pedagogical Implications

The present study has been demonstrated that the use of metacognitive reading strategies did play a critical role in learners' reading proficiencies. Within the thirty individual metacognitive reading strategies, reading aloud was the least used one, but it significantly separated high from low reading proficiency learners. Over dependence on translation resulted in lower reading proficiency levels. Followings are pedagogical implications that echo the above mentioned issues.

The Use of Reading Aloud

As discussed earlier, reading aloud was crucial in differentiating high achievers from low ones. Moreover, when readers encountered comprehension breakdown, or met challenging articles, reading aloud offered an alternative to facilitate understanding of a written text. The double enhancement of learning has also been proven to significantly correlate with learners' overall reading proficiency. Moreover, reading aloud allows readers to understand the phrasing of a language while developing reading fluency, as well as the structure of the articles (Fountas & Pinnell, 1996).

Direct Teaching of Metacognitive Reading Strategies

In the present study, the importance of metacognitive reading strategies has been reaffirmed. In addition, problem solving strategy group has also been found to be not only the most favored type of metacognitive reading strategies by elementary school students, they also play a crucial role in influencing learners' overall reading proficiency levels and performance on reading comprehension tests. To help learners improve their reading abilities, language teachers are recommended to give direct instruction of metacognitive reading strategies. The "combined-strategy instruction" has been proven to be beneficial (Baker, 2002; Mokhtari & Sheorey, 2002; Pearson & Duke, 2002; Pressley, 2000).

Limitations of the Present Study

This study had several limitations. The first limitation concerns the number of participants. The study was conducted during the intensive regular class period. Thus, the participants were required to do their teaching under pressure. Future research could recruit more teachers who might be more available during summer or winter vacations, so that the qualitative and quantitative results might lead to greater insights into teachers' and predictors of cultural intelligence.

First, One cannot tell with absolute certainty from the instrument alone whether students actually engage in the strategies they report using. Therefore, qualitative data from observations toward students' actual use of strategies and interviews of learners' decisions are needed.

Second, there were only eighty-four students participated in the study. Though significant results have been obtained through the responses of these EFL learners, it would definitely be more convincing if more elementary school students from different schools, or even various parts of Taiwan were to participate in the study.

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Technology Guided Teaching Modules with Hands-on Activity

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Abstract

Hands-on activity for students is invaluable to understand mathematical concepts, especially when a new concept is introduced. Web resources from internet usually have different teaching levels and/or pedagogical approaches, and they are almost impossible to modify according to instructor's teaching plan. MS Excel spreadsheet is not only a good calculation tool, but can be a very powerful teaching/learning tool especially for step-by-step explanation and students' hands-on activity in many mathematics courses. We introduce the construction of several teaching modules using MS Excel spreadsheet, and how they have been used for an introductory number theory course. We will show how Visual Basic program can produce step-by-step teaching modules for in-class teaching and students' hands-on activity. We also present how easily such modules can be produced by one who is novice to Visual Basic by using macro features in MS Excel spreadsheet. The Excel spreadsheet files with Visual Basic that we will share are the followings but not limited to: Finding prime numbers (Sieve of Eratosthenes), Euclidean Algorithm for Greatest Common Divisor, Pythagorean Triples, Prime factorization, Transferring number bases, Goldbach's conjecture, etc.

Keywords: spreadsheet, Visual Basic, visualization, interactive teaching module

1. Introduction

Visualized representation is one of most important methods for enhancing the mathematical concepts. For a long time sketches drawn on a paper or a blackboard are our best visualization method and we have to rely on student's imagination to illustrate a dynamic procedure between sketches. Through modern technologies such as GeoGebra (a dynamical geometry program) or Microsoft Excel (a spreadsheet) more dynamic and interactive teaching modules are developed and presented in most of the mathematics fields, mainly geometry, algebra, pre-calculus, linear algebra, statistics and calculus.

According to Sugden, S. & Miller, D. [14] Microsoft Excel (or spreadsheet) has the following benefits over more powerful, professional tools such as Mathematica:

1. Utility - almost all upper secondary (or more) students are nowadays at least somewhat familiar.
2. Ubiquity - Excel, or perhaps its open source or other equivalent, may be expected to be found on essentially every desktop, laptop, netbook and teaching laboratory machine.
3. User friendliness - Spreadsheets are quite forgiving when an error is made.
4. Instant feedback - Updated values are (usually) instantly displayed when a quantity in a model is changed.
5. Useful, transferable skills are acquired by modelers – Excel's application nowadays to assist in the teaching of algebra is beyond any reasonable doubt.

Some experts have developed dynamically visualized interactive teaching modules using Microsoft Excel, such as 'excelets – Dynamic and interactive visualization with Java-less applets' designed by Scott A. Sinex (See http:// academic.pgcc.edu/~ssinex/excelets/). We find that Visual Basic with Microsoft Excel will be very useful for such jobs even it is much slower than other program languages. The following is some advantages[1] of Visual Basic (with Excel):

1. The structure of Visual Basic is very simple. Things that may be difficult to program with other program languages can be done with Visual Basic very easily.
2. The graphical user interface of Visual Basic provides intuitively appealing views of the program structure such as classes, modules, procedures, forms, etc.
3. When editing program codes the 'intellisense' technology informs you in a little popup window about the types of constructs that may be entered at the current cursor location.
4. Because Visual Basic is so popular, there are many good resources (Books, Web sites, News groups and more) that can help the user learn the language.
5. The built-in 'Record Macro' feature in Excel helps to program in Visual Basic.
6. Any range in Excel provides a natural array for Visual Basic without declaring them inside the program.

We have designed this paper to provide more effective way of creating teaching modules using Microsoft Excel and Visual Basic which may be the best programing language for beginners mainly because of Excel's 'Record Macro' and Visual Basic's easy error-correcting features. Excel's built in functions and natural 'array' feature also helps instructors to make dynamic teaching modules. We will illustrate how powerful Visual Basic can be

[1] You may find some other benefits of Visual Basic in http://lavape.sourceforge.net/doc/html/A…, http://www.geekinterview.com/question_de…, and http://www.ctp.bilkent.edu.tr/~ctp108/ct….

when it comes with Excel for designing visualized teaching modules in Number Theory, a non-popular subject for visualization. These visualized modules are not only good for student's hands-on activity, but good also for step-by-step exploring the mathematical concepts and procedures. We provide some of these teaching modules so that anyone can develop similar modules for their teaching.

2. Record Macro

Microsoft Excel has a build-in macro recorder that translates your actions into VBA macro commands. After you recorded the macro, you will be able to see the layout and syntax. Before you record or write a macro, plan the steps and commands you want the macro to perform. Every action that you take during the recording of the macro will be recorded - including the correction that you made.

- Select **Developer** > **Code** > **Record Macro**.
- Select a cell (say **A1**).
- In the **Macro Name** box enter the macro name (say ***testfont1*).**
- Type '**f**' in the box at **Shortcut key**.
- Under **Store macro in,** select **This Workbook**.
- Edit **Description** as required and click on **OK**.
- Type '***UTB'***, and then hit **Enter key** in cell **A1**.
- Select **A1** again and format it as Bold and Italic in **Home** > **Font**.
- Select **Home** > **Font** > **Background Color Panel** > **Yellow** color box (or any color you want).
- Select **Developer** > **Code** > **Stop Recording**.
- Select **Developer** > **Visual Basic** to find the code as the following:

```
Sub testfont1()
   Range("A1").Select
   ActiveCell.FormulaR1C1 = "UTB"
   Range("A1").Select
   Selection.Font.Bold = True
   Selection.Font.Italic = True
   With Selection.Interior
      .Pattern = xlSolid
      .PatternColorIndex = xlAutomatic
      .color = 65535
      .TintAndShade = 0
      .PatternTintAndShade = 0
   End With
End Sub
```

By modifying the content inside the double quotation marks in line 2 and 3, "A1" and "UTB", we could select any cell and type in any content in other Visual Basic coding. We could also change the text in 'A1' (or any other cell by changing it in line 4) to boldface and/or italic by using line 5 and 6. The code between line 7 and 13 can be used for changing background color to yellow for any selected cell(s). We now want to link this macro to a button. To create the button, select another worksheet, and then select **Developer** > **Controls** > **Insert**. On the resulting **Form Controls** we click on the **Button** icon, click at the position at which we want to place the button, and in the resulting dialog box we assign the macro

testfont1. Clicking on this button activates the macro, and we see the same result on the same cell in the selected worksheet.

It is also very important to incorporate a button to return to the initial condition. For instance, we start recording another macro, titled ***myreset***, in which we select the cell, say **A1**, and remove all the content in it, and turn off the macro recorder. We then link this to another button, marked **Reset**.

- Select the worksheet we used to make the macro named ***testfont1***.
- Select **Developer** > **Code** > **Record Macro**.
- Select a cell (say **A1**).
- In the **Macro Name** box enter the macro name (say ***myreset*).**
- Type '**r**' in the box at **Shortcut key**.
- Delete the content, and then hit **Enter key** in cell **A1**.
- Select **A1** again and format it as non-Bold and non-Italic in **Home** > **Font**.
- Select **Home** > **Font** > **Background Color Panel** > **White, Background 1** color box.
- Select **Developer** > **Code** > **Stop Recording**.
- Make a button and link to the macro ***myreset***.

```
Sub myreset()
   Range("A1").Select
   Selection.ClearContents
   Selection.Font.Bold = False
   Selection.Font.Italic = False
   With Selection.Interior
      .Pattern = xlSolid
      .PatternColorIndex = xlAutomatic
      .ThemeColor = xlThemeColorDark1
      .TintAndShade = 0
      .PatternTintAndShade = 0
   End With
End Sub
```

3. Using Excel Features

An array is a set of sequentially indexed elements having the same intrinsic data type. Every program language comes with a way of defining array. Visual Basic also has a way to declare an array (up to 60 dimensions). For example, to declare a one-dimensional array, named **myArr**, with **5** elements, we use **Dim myArr(4)**. It then produces 5 virtual storage rooms, that is, **myArr(0)**, **myArr(1)**, **myArr(2)**, **myArr(3)** and **myArr(4)**. The element's index of the array starts from 0 unless **Option Base 1** is specified in the public area (area outside of the sub procedure).

If **Option Base 1** is specified, the index will start from 1. So we have to declare **Dim myArr(5)** for 5 elements in this case. A typical way to assign and use of an array is the following:

```
Option Base 1
Sub Array1( )
    Dim myArr(5)
```

```
  For i=1 to 5
     myArr(i) = Int((10-0+1)*Rnd+0)
Next i
  Msgbox myArr(1) & "-" & myArr(2) & "-" & myArr(3) & "-" & _
myArr(4) & "-" & myArr(5)
 End Sub
```

Note that the **RND** function in Visual Basic allows you to generate a random number (integer value) between two numbers (upperbound and lowerbound). The code above will assign a random integer between 0 (the lowerbound) and 10 (the upperbound) into 5 elements in the array, and produce a message box showing the content of them.

In Excel we have tons of 'empty rooms' for storage! So, without declaring an array, we can use a range in Excel as an array. Excel also has many built-in functions which are available through the WorksheetFunction object in Visual Basic. The **INT** and **RAND** functions in Excel are called within Visual Basic code and produce the similar result as the above.

```
Sub myRand1()
   Worksheets("temp").Range("A1:A5").Formula = "=INT(RAND()*10)"
MsgBox Cells(1, 1) & "-" & Cells(2, 1) & "-" & Cells(3, 1) & "-" & _
      Cells(4, 1) & "-" & Cells(5, 1)
End Sub
```

Note that we can hide the 'temp' worksheet so it can be treated as a virtual storage for many arrays if necessary.

4. Error correction

Some mistakes in coding a program will cause Visual Basic to give an error message. Clicking on **Debug** will enter the Visual Basic Editor, highlighting the error. When placing the curser on a variable in the code a little popup window shows the types of constructs that may be entered at the current cursor location, which gives us a clear view of when the error occurs.

When editing a macro we can position the cursor on a macro statement and set breakpoints (select **Debug** > **Toggle Breakpoint**). When the macro is next run, execution will stop before the statement and enter into the debug mode. You can then inspect variables and see what is going on. To restart the macro, from the **Run** menu, select **Continue**.

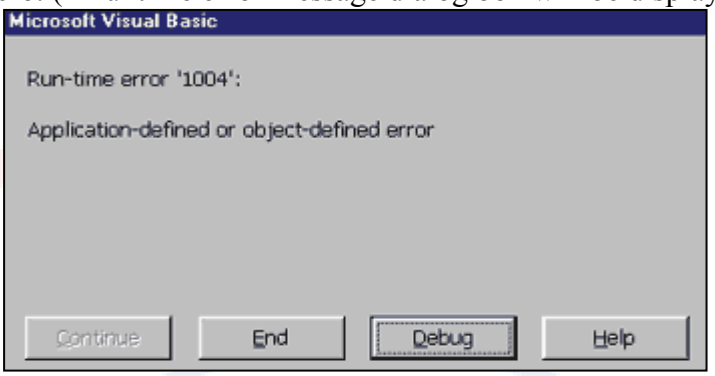
Example:

- Select **Developer** > **Code** > **Visual Basic**.
- Select **Insert** > **Module**.
- Type in the following code into the module:

```
Public Sub ErrCorrecting()
  mynumber = 1
  For i = 1 To 7
    Cells(mynumber, 1) = i
    If i = 4 Then Cells(mynnumber, 2) = i
    mynumber = mynumber + 1
```

```
    Next i
End Sub
```

- Run the macro. (A runtime error message dialog box will be displayed.)



- Click on Debug.
  You should now be in the Visual Basic run-time debug mode with the line causing the problem highlighted (with an arrow pointing it out).
- Position the mouse cursor over a variable, for example **mynumber** or **i**. Note that the current value for the variable is displayed.
- Position the cursor over the misspelt variable, **mynnumber**. The text **mynnumber = Empty** is displayed, which indicates there is a problem (miss-spelled in this case) with that variable.

5. Last cell

When we become a frequent user of Excel and do a lot of programming with Visual Basic we understand how important finding the 'last cell' is. This information is very useful especially for initializing a worksheet. We can get the last row and column by the following code (made by Bob Umlas):

```
Function LastCell(ws As Worksheet) As Range
Dim LastRow, LastCol
On Error Resume Next
  With ws
    LastRow = .Cells.Find(What:="*", SearchDirection:=xlPrevious, _
                                                    SearchOrder:=xlByRows).Row
 LastCol = .Cells.Find(What:="*", SearchDirection:=xlPrevious, _

                SearchOrder:=xlByColumns).Column
  End With
  Set LastCell = ws.Cells(LastRow, LastCol)
End Function
```

This **LastCell** function will be called in a 'reset' sub module to clean the contents in the worksheet from the previous action. The following is an actual example in one of teaching modules for number theory:

```
For i = IniRow + 1 To LastCell(Worksheets("Main")).Row
  For j = IniCol To LastCell(Worksheets("Main")).Column
    Worksheets("Main").Cells(i, j).ClearContents
```

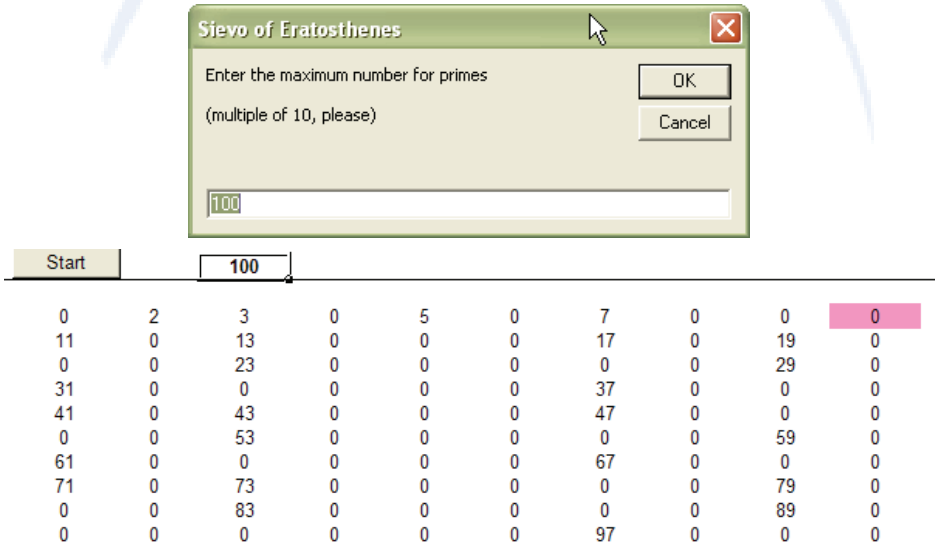
```
    Worksheets("Main").Cells(i, j).Interior.ColorIndex = xlNone
  Next j
Next i
```

6. Examples of teaching modules in Number Theory

6.1 Finding prime numbers (Sieve of Eratosthenes)

The most important topic in the study of number theory is prime numbers. In this section we present an interactive teaching module of finding prime numbers according to 'Sieve of Eratosthenes', which can be good for step-by-step explanation. We create two worksheets: Main and Steps. In Main worksheet we will get the entire prime numbers up to the chosen numbers by the user. In Steps worksheet students will observe how multiples of a prime are eliminated from the list. Since this elimination depends on students' input number at each step they will not get the correct result with wrong choice of numbers. Through this activity students will understand the main concept behind the Sieve of Eratosthenes idea.

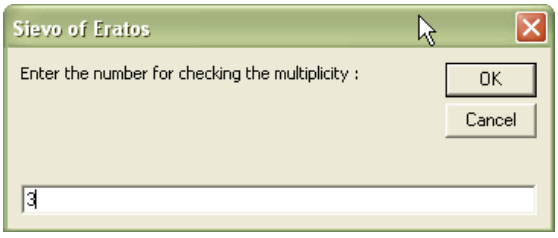
Figure 1 shows the Excel display of the input box and the result in Main worksheet – the collection of prime numbers up to 100 which was chosen by students.



0	2	3	0	5	0	7	0	0	0
11	0	13	0	0	0	17	0	19	0
0	0	23	0	0	0	0	0	29	0
31	0	0	0	0	0	37	0	0	0
41	0	43	0	0	0	47	0	0	0
0	0	53	0	0	0	0	0	59	0
61	0	0	0	0	0	67	0	0	0
71	0	73	0	0	0	0	0	79	0
0	0	83	0	0	0	0	0	89	0
0	0	0	0	0	0	97	0	0	0

Figure 1: Sieve of Eratosthenes – full result

Figure 2 shows the second step (multiple of 3) of finding prime numbers up to 100. Yellow colored cells indicate that the deleted numbers in them are multiple of 3 which can't be prime numbers. The green colored cell indicates the prime number at that step. The pink colored cell indicates the possible maximum prime number (the square root of n) to check the multiples of it up to the given number n (100 in this case). That is, students are guided by these colored cells which number should be given when the input box is open. (See Appendix-1 for the VB code.)



Steps		100		(10)				3	
0	2	3	0	5	0	7	0	0	0
11	0	13	0	0	0	17	0	19	0
0	0	23	0	25	0	0	0	29	0
31	0	0	0	35	0	37	0	0	0
41	0	43	0	0	0	47	0	49	0
0	0	53	0	55	0	0	0	59	0
61	0	0	0	65	0	67	0	0	0
71	0	73	0	0	0	77	0	79	0
0	0	83	0	85	0	0	0	89	0
91	0	0	0	95	0	97	0	0	0

Figure 2: Sieve of Eratosthenes – Step-by-step view

6.2 Conjectures

Conjectures are fascinating topics to motivate students into number theory. There are many conjectures in number theory and most of them are simple enough understanding without much knowledge in the subject. We show three of them below.

Goldbach's Conjecture

Every even number greater than 2 is a sum of two primes. (See Figure 3.)

Collatz's Conjecture

The Collatz's conjecture (also known as the 3n+1 conjecture) was proposed by Lothar Collatz in 1937, which says that, for any positive integer n, divide it by 2 if it is even, and multiply it by 3 and add 1 if it is odd. Repeat this process, then you will always eventually reach 1, no matter what number n you start with. (See Figure 4.)

Single Full

2		
4	=	<2,2> :
6	=	<3,3> :
8	=	<3,5> :
10	=	<3,7> : <5,5> :
12	=	<5,7> :
14	=	<3,11> : <7,7> :
16	=	<3,13> : <5,11> :
18	=	<5,13> : <7,11> :
20	=	<3,17> : <7,13> :
22	=	<3,19> : <5,17> : <11,11> :
24	=	<5,19> : <7,17> : <11,13> :
26	=	<3,23> : <7,19> : <13,13> :
28	=	<5,23> : <11,17> :
30	=	<7,23> : <11,19> : <13,17> :
32	=	<3,29> : <13,19> :
34	=	<3,31> : <5,29> : <11,23> : <17,17> :

Figure 3: Goldbach's Conjecture – Full view

Start Steps

n	n	Check	n/2	(3n+1)/2
123	123	odd		185
185	185	odd		278
278	278	even	139	
139	139	odd		209
209	209	odd		314
314	314	even	157	
157	157	odd		236
236	236	even	118	
118	118	even	59	
59	59	odd		89
89	89	odd		134
134	134	even	67	
67	67	odd		101
101	101	odd		152
152	152			
76				
38				
19				
29				
44				

Figure 4: Collatz's Conjecture

Polignac's Conjecture
Every odd number greater than 1 is a sum of a power of 2 and a prime.

Single Full

3	=	1	+	2							
5	=	2	+	3							
7	=	2	+	5	=	4	+	3			
9	=	2	+	7	=	4	+	5			
11	=	4	+	7	=	8	+	3			
13	=	2	+	11	=	8	+	5			
15	=	2	+	13	=	4	+	11	=	8	+ 7
17	=	4	+	13							
19	=	2	+	17	=	8	+	11	=	16	+ 3

Figure 5: Polignac's Conjecture – Full view

6.3 Fundamental Theorem of Arithmetic

Every positive integer greater than 1 can be written uniquely as a product of primes. Figure 6 shows the step-by-step view of the teaching module.

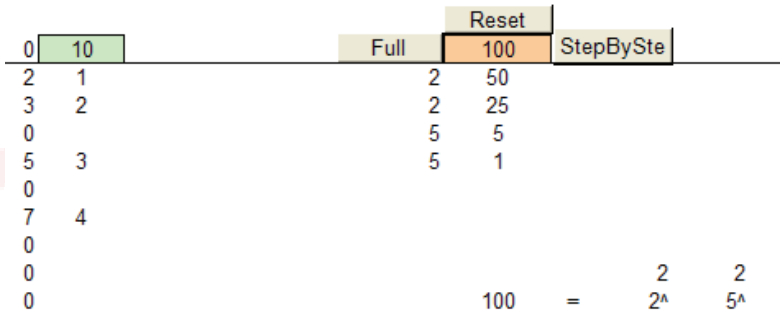
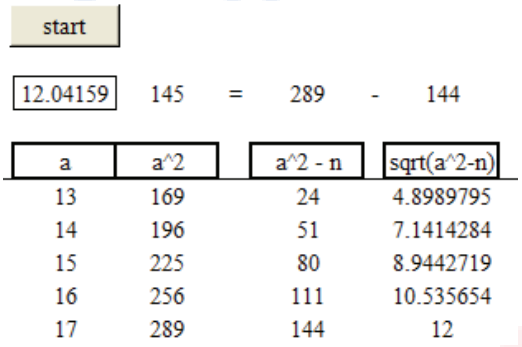


Figure 6: Fundamental Theorem of Arithmetic

6.4 Fermat's Factorization

Fermat discovered the following factorization technique for some integers, and we made a module for 'trial-and-error' method of it (See Figure 7):

If n is an odd positive integer greater than 1, then there is a one-to-one correspondence between factorizations of n into two positive integers and differences of two squares that equal n. That is, n = ab = s^2 –t^2 = (s−t)(s+t) where s = (a + b)/2 and t = (a − b)/2 with a and b are odd.



a	a^2	a^2 - n	sqrt(a^2-n)
13	169	24	4.8989795
14	196	51	7.1414284
15	225	80	8.9442719
16	256	111	10.535654
17	289	144	12

Figure 7: Fermat's factorication

6.5 Factorization of a factorial with the number of zeros at the end of the factorial.

In this module students can choose any factor (e.g. 2 in Figure 8) and the module shows how many such factors are in the factorial. (See Figure 8.) (VB-09)

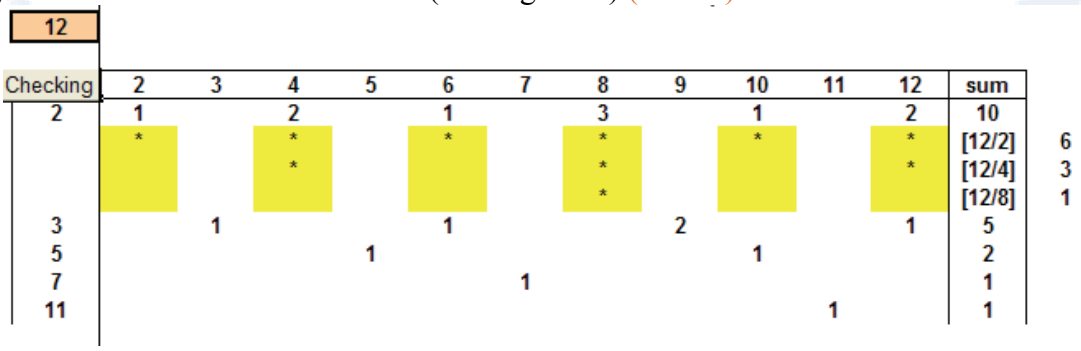


Figure 8: Number of zeros at the end of a factorial (say 12!)

6.6 Pythagorean Triples

A Pythagorean triple is a solution {x, y, z} in the integers to the equation $x^2 + y^2 = z^2$. It is called primitive if (x, y, z) = 1. If d = (x, y, z), and {x, y, z} is a Pythagorean triple, then

{x/d, y/d, z/d} is also a Pythagorean triple. Thus it is enough to determine the primitive triples.

If {x, y, z} is a primitive triple, then x, y, z are pairwise relatively prime. That is, x and y cannot both be even. If both x and y are odd, then z^2 is even, that is, z is even. Hence $4|z^2$. Since x and y are odd, the remainder when x^2 and y^2 is divided by 4 each is 1. Thus the remainder when $x^2 + y^2$ is divided by 4 is 2. That is, x and y cannot both be odd, either. Therefore, without loss of generality, suppose x is even, y and z are odd, and {x, y, z} is a primitive Pythagorean triple. Then $x^2 = z^2 - y^2 = (z - y)(z + y)$ where z − y and z + y are even; hence we can write $(x/2)^2 = ((z-y)/2)((z+y)/2)$. Since (y, z) = 1, we have (r, s) = 1 where r = (z − y)/2 and s = (z +y)/2. Since $(x/2)^2 = rs$ with (r, s) = 1, r and s must be perfect squares, that is, $r = m^2$ and $s = n^2$ for integers m and n. Then $z = m^2+n^2$, $y = n^2-m^2$, x = 2mn. If m and n are relatively prime of different parity (because (r,s) = 1), then the corresponding triple by the above formula forms a primitive Pythagorean triple.

Pythagorean Triples : x^2 + y^2 = z^2 Start

with the hypotenuse (z) less than equal to : 100

x	y	z
3	4	5
5	12	13
8	15	17
7	24	25
20	21	29
9	40	41
12	35	37
11	60	61
28	45	53
33	56	65
13	84	85
16	63	65
48	55	73
39	80	89
36	77	85
65	72	97

Figure 9: List of Pythagorean Triples

Pythagorean Triples : x^2 + y^2 = z^2 100

10

				x	y	z
m	n	m^2	n^2	m^2 - n^2	2mn	m^2 + n^2
2	1	4	1	3	4	5
3	2	9	4	5	12	13
4	1	16	1	15	8	17
4	3	16	9	7	24	25
5	2	25	4	21	20	29
5	4	25	16	9	40	41
6	1	36	1	35	12	37
6	5	36	25	11	60	61
7	2	49	4	45	28	53
7	4	49	16	33	56	65
7	6	49	36	13	84	85
8	1	64	1	63	16	65
8	3	64	9	55	48	73
8	5	64	25	39	80	89
8	7	64	49	15	112	113
9	2	81	4	77	36	85
9	4	81	16	65	72	97
9	8	81	64	17	144	145
10	1	100	1	99	20	101
10	3	100	9	91	60	109
10	7	100	49	51	140	149
10	9	100	81	19	180	181

Figure 10: How to find triples with m and n

m \ n	1	2	3	4	5	6	7	8	9
2	3;4;5								
3		5;12;13							
4	8;15;17		7;24;25						
5		20;21;29		9;40;41					
6	12;35;37				11;60;61				
7		28;45;53		33;56;65		13;84;85			
8	16;63;65		48;55;73		39;80;89		15;112;113		
9		36;77;85		65;72;97				17;144;145	
10	20;99;101		60;91;109				51;140;149		19;180;181

Figure 11: Relation between Pythagorean Triples and m & n

7. Conclusion

Producing technology oriented teaching modules for step-by-step explanation and hands-on activity requires experience and time. Excel and Visual Basic can help instructors who want producing teaching and learning modules without previous experience or deep knowledge in programing. We show several teaching modules developed with Excel and Visual Basic for step-by-step explanation and/or hands-no activity in number theory course. We believe that Excel spreadsheets (with Visual Basic) can give a very important impact on producing teaching module. The teaching modules discussed in this article can be obtained from the author by requesting.

8. Appendix – Visual Basic Codes for 'Sieve of Eratosthenes'

```
Dim mynumber As Variant
Dim mysqrt, mm, IniRow, IniCol, myi, myj As Integer

Sub FullMultiple()
   Dim prime, tt As Integer
   IniRow = 5
   IniCol = 1
   Worksheets("Main").Cells(IniRow + 1, IniCol + 1) = 0
   Worksheets("steps").Cells(IniRow + 1, IniCol + 1) = 0
   """""""""" For clean the cells if there are some input from previous one
   For i = IniRow + 1 To LastCell(Worksheets("Main")).Row
      For j = IniCol To LastCell(Worksheets("Main")).Column
         Worksheets("Main").Cells(i, j).ClearContents
         Worksheets("Main").Cells(i, j).Interior.ColorIndex = xlNone
       Next j
   Next i
   For i = IniRow + 3 To LastCell(Worksheets("steps")).Row
      For j = IniCol + 1 To LastCell(Worksheets("steps")).Column
         Worksheets("steps").Cells(i, j).ClearContents
         Worksheets("steps").Cells(i, j).Interior.ColorIndex = xlNone
         Worksheets("steps").Cells(i, j).Borders(xlEdgeLeft).LineStyle = xlNone
         Worksheets("steps").Cells(i, j).Borders(xlEdgeTop).LineStyle = xlNone
         Worksheets("steps").Cells(i, j).Borders(xlEdgeRight).LineStyle = xlNone
      Next j
   Next i
   Worksheets("steps").Cells(IniRow + 1, IniCol + 3).ClearContents
   Worksheets("steps").Cells(IniRow + 1, IniCol + 5).ClearContents
```

```
    Worksheets("steps").Cells(IniRow + 1, IniCol + 8).ClearContents
    ''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
    mynumber = InputBox("Enter the maximum number for primes" & vbCr & vbCr &
_
       "(multiple of 10, please)", "Sievo of Eratosthenes", 100)
    If mynumber < 2 Or mynumber = "" Then GoTo 10
    If mynumber Mod 10 > 0 Then
      mynumber = (Int(mynumber / 10) + 1) * 10
    Else
      mynumber = mynumber * 1
    End If
    mysqrt = Int(Sqr(mynumber))
    Worksheets("Main").Cells(IniRow + 1, IniCol + 3) = mynumber
    Worksheets("Steps").Cells(IniRow + 1, IniCol + 3) = mynumber
    Worksheets("Steps").Cells(IniRow + 1, IniCol + 5) = mysqrt
    myi = Int((mysqrt - 1) / 10) + IniRow + 3
    myj = (mysqrt / 10 - Int((mysqrt - 1) / 10)) * 10 + 1
    Worksheets("Main").Cells(myi, myj).Interior.ColorIndex = 38
    Worksheets("steps").Cells(myi, myj).Interior.ColorIndex = 38
    tt = (mynumber / 10) + IniRow + 2
    For i = IniRow + 3 To tt
        For j = IniCol + 1 To 11
            Worksheets("Main").Cells(i, j) = (i - (IniRow + 3)) * 10 + (j - 1)
            Worksheets("steps").Cells(i, j) = (i - (IniRow + 3)) * 10 + (j - 1)
        Next j
    Next i
    mm = (mynumber / 10) + IniRow + 2
    prime = 0
    Cells(IniRow + 3, IniCol + 1) = 0
    Worksheets("steps").Cells(IniRow + 3, IniCol + 1) = 0

    For Row = IniRow + 3 To mm
        For Column = IniCol + 1 To 11
            If Cells(Row, Column) > 0 Then
                prime = Cells(Row, Column)
                For crow = IniRow + 3 To mm
                    For ccolumn = IniCol + 1 To 11
                        If Cells(crow, ccolumn) > prime And _
                            Cells(crow, ccolumn) Mod prime = 0 Then
                                Cells(crow, ccolumn) = 0
                        End If
                    Next ccolumn
                Next crow
            End If
        Next Column
    Next Row
   GoTo 20
10  MsgBox ("You know why this is not working, huh? Please enter another number.")
20
End Sub
```

```
Sub steps()
  Dim nn As Variant
  Dim prime, kk, tt As Integer
  nn = InputBox("Enter the number for checking the multiplicity :",  "Sievo of
Eratos", 2)
   If nn < 2 Or nn = "" Then GoTo 10
   kk = nn * 1
  Cells(IniRow + 1, IniCol + 8) = kk
  For i = IniRow + 3 To mm
      For j = IniCol + 1 To 11
         If Cells(i, j) > kk And _
            Cells(i, j) Mod kk = 0 Then
               Cells(i, j) = 0
               If Cells(i, j) = mysqrt Then
                  Cells(i, j).Interior.ColorIndex = 38
               Else
                  Cells(i, j).Interior.ColorIndex = 6
               End If
               Worksheets("steps").Cells(i, j).Borders(xlEdgeLeft).LineStyle = xlNone
               Worksheets("steps").Cells(i, j).Borders(xlEdgeTop).LineStyle = xlNone
               Worksheets("steps").Cells(i, j).Borders(xlEdgeRight).LineStyle = xlNone
         ElseIf Cells(i, j) = kk Then
            Cells(i, j).Interior.ColorIndex = 35
            Cells(i, j).Borders(xlEdgeLeft).Weight = xlMedium
            Cells(i, j).Borders(xlEdgeTop).Weight = xlMedium
            Cells(i, j).Borders(xlEdgeRight).Weight = xlMedium
         Else
            Worksheets("steps").Cells(i, j).Interior.ColorIndex = xlNone
         End If
      Next j
   Next i
   'myi = Int((mysqrt - 1) / 10) + IniRow + 3
   'myj = (mysqrt / 10 - Int((mysqrt - 1) / 10)) * 10 + 1
   'Worksheets("Main").Cells(myi, myj).Interior.ColorIndex = 38
   Worksheets("steps").Cells(myi, myj).Interior.ColorIndex = 38
   GoTo 20
10  MsgBox ("You know why this is not working, huh? Please enter another number.")
20
End Sub
```

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A VLE to Support the Training of Royal Engineers Geographic Technicians

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A VLE to Support the Training of Royal Engineers Geographic Technicians

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INTRODUCTION

A growing number of educational institutions are introducing open source Virtual Learning Environments (VLE) to improve the quality of teaching. The Royal School of Military Survey (RSMS), a federated school of the Defence Intelligence and Security Centre (DISC), is an organization that trains Royal Engineer soldiers in Geospatial Intelligence. RSMS provides to residential students a variety of courses such as the Master Degree in Geospatial Intelligence, the Science Foundation Degree in Applied Computing and short courses such as the Hydrography Meteorology Advanced Survey Course.

As a strategy to offer an environment and tools to support the face to face activities, extending them onto the web, in 2009 the School started to implement a Virtual Learning Environment for their students and staff.

In 2010 a MOODLE VLE was adopted to support the academic delivery of 85 modules' pages.

In this paper an analytical review has been conducted of the experience in managing the introduction of the VLE. Guidelines are provided to illustrate four different phases: the requirements analysis, the design, the implementation and the adoption of the VLE.

1. REQUIREMENTS ANALYSIS

A scoping of the didactical and technical needs together with a conceptual understanding of the main sections of a VLE emerged from a series of preliminary brainstorming sessions with teaching teams and course managers.

From these meetings arose the need to have a virtual space that would allow teachers to store information, retrieve all the documentation needed to teach and assess students and to have communication options. In this first phase the VLE was perceived more as a content management system than a learning environment.

The main key points of the VLE, emerged from these sessions, were to improve the student's learning experience by providing the following functionalities:

1. Participation with to an online community and to communicate easily with their fellow students and teachers.
2. Provide online assessment to help students track their progress.
3. Offer a learning area for each module where teachers are able to organise and share learning material.
4. Adapt teaching methods to different learning styles.
5. Offer the opportunity for the alumni, the Royal Engineer soldiers deployed outside of the country, to access the updated and referenced course material in support of their lifelong learning and to create a professional network.

To satisfy these requests an investigation of a variety of Virtual Learning Environments was undertaken. Due to budget constraint, a key driver was to seek advantage through open source opportunities. The specific pedagogical and technical criteria were considered to help select the open source VLE as follow [Koper & Tattersall, 2005] [Britain, 2004] [Harris, 2009] [Sannia, 2009][Cole 2011]:

1. Support different learning models: it was considered important to use a system designed for educational purposes that facilitated a variety of learning approaches and to offer the possibility to add plugins (for example quizzes, books, forums) designed and created specifically for teacher and learners needs. This design of VLE would than imply the presence of tools that would allow the teacher to set learning activities, create learning material and grade students. For these reasons, for example the use of SharePoint was excluded as it was perceived to be more of a content management system.

2. Communication: the requirement to use forums with the addition of an e-mail system embedded into the VLE was considered essential to promote an easy interaction and collaboration between students – instructors and staff members.
3. User-friendliness interface and usability: a VLE that is intuitive and user-friendly from a wider user perspective and with the opportunity to customise the appearance.
4. Content personalisation: the opportunity to organize content in a personalised manner.
5. Reliability: a VLE with evidence of wider experimentation.
6. Costs: we were oriented to use open source software to contain the costs and because the quality of the results are not far from the proprietary software. Open source software also has the benefit that allows customization.
7. Support SCORM for content standards.
8. Active Community: the existence of an active development community to deliver support and dynamic development of new tools.

MOODLE was the preferred choice. MOODLE is the acronym of Module Object Oriented Dynamic Learning Environment: this means that it is composed by a series of applications.

2. DESIGN OF THE VLE

Structure of the VLE. To overcome potential issues related to the currency of information one instance for every taught module is accessible rather than multiple copies of the same course. For that reason students were organised in groups instead of duplicating a course for each cohort of students. This option has provided two advantages: the overhead for teachers was restricted to maintain the currency of only one module and the disk space required for the VLE was bounded.

A research of common design features was conducted for external MOODLE websites and produced a short list of available options for the interface. After selection of the look and feel of the VLE a draft of content design was agreed.

3. IMPLEMENTATION

Installation and maintenance. MOODLE was installed on two existing servers in a Debian Linux environment. The time of implementation was a crucial matter intrinsic with the adoption of open source: the autarky used on solving problems (as RSMS didn't have the support from contractors, but found help inside the Moodle community) extended the period of implementation. Moodle is developed in Linux using Apache, MySQL and PHP (LAMP) and because all versions of Moodle are created to Linux, Linux is considered the preferred choice for running Moodle [MOODLE 2012].

The first challenge encountered was that MOODLE requires extensive technical expertise in relation to Linux Server. The Royal School of Military Survey system managers were experienced with Windows Server but not with Server and databases based on Linux. The decision was taken to install MOODLE on a Linux virtual machine. The virtual machine has the benefit of low power consumption and space requirements, easy backup and maintenance if you are a neophyte using a Linux server. In there is a problem a previous backup of the VLE is available for restoring [Pocatilu 2009]. As a part of personal development, staff were engaged in self learning. This process has generated the development of internal competencies and professionalism inside the IT staff in our school.

User administration. Staff and students were given access to all RSMS courses material independently from the fact if they were enrolled on the course. The intent was to create a single environment where RSMS users can retrieve current information.

Interface Development. The personalization of two themes, one for the courses pages and one for other areas, has been achieved in different stages and modalities based on

continuous feedback from the teaching staff. During the development the reliance on the MOODLE community has been essential in finding solutions to technical problems. The interface was developed considering usability and accessibility issues.

The interface was one of the most important parts for the acceptance of the Virtual Learning Environment by the teaching staff. MOODLE allows the personalisation using themes to change the aspect. A theme was downloaded from the theme pages and personalised with colours, fonts and space organisation that considered more appropriated for our training. Two different themes were developed: one for the general pages and one for the course pages. For the general pages (Student support, Teaching support and Library) was used an interface with the menu bar on the top.

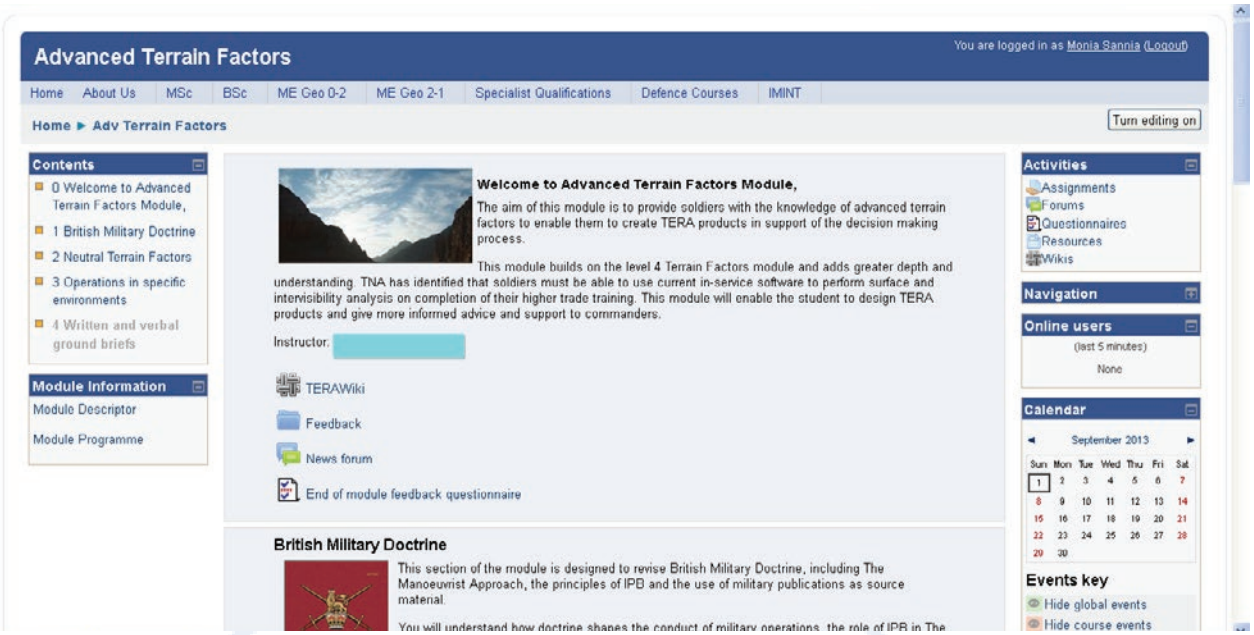
Pilot courses. The course prototype was tested on a sample of real users for two pilot courses from which all feedback from teachers and students was analysed. A number of discussions were held with the teaching teams to determine the optimum design and structure of the online courses. This activity was particularly challenging as the major of instructional staff were unfamiliar with the approach and therefore needed some coaching. Through attendance of these pilot courses students had the opportunity to benefit from the structured organisation of the learning material in topics and to submit formative assignments via VLE.

4. ADOPTION OF THE VLE

Roll out programme.

To facilitate the adoption of the VLE, all teaching staff were tutored on the design, utility and application of MOODLE. Three separated classroom workshops, an online course and one to one tutorial sessions were used in this process. The workshops were oriented to provide an understanding on the technical aspects of MOODLE (for example how to upload a file, create an assignment, folders organisation). The online tutorial course on the practical use of MOODLE was developed utilising online resources, such as explanatory videos and tutorials, freely available on the web. As part of the induction process to the school, all students received one hour training on how to use MOODLE.

Module development. The fundamental challenge of adopting the VLE as a fundamental element of the Learning, Teaching and Assessment strategy was to provide education and training to the teaching teams. This was tackled initially with a series of one to one tutorials with each of the module managers. This was partly successful but reliant on the enthusiasm and willingness of the individual instructors. The tutorials themselves were very much focussed on the functionality of the resource and its organisation of content, specific instruction was also provided on the process of uploading material.



The one to one sessions for each tutor were programmed at a rate of twice each month over a period of approximately two years, a significant undertaking. The uptake on attendance at these tutorials was slow to start with but gradually the teaching staff became confident of the benefits within the classroom environment and the level of engagement improved. A secondary issue became apparent during the development stages for those staff that were slower to develop their pages, early access and complaints by students on the inadequacy of information did little to promote confidence.

Of further concern during the implementation stages had to overcome the perception shared by some that teachers were becoming less important. Early access by students of learning material before lectures was perceived that it could in some way undermine the quality of the lesson and interest of learners. The use of additional media such as podcasts, video and screencasts was well supported and acknowledged as provided an added dimension to the teaching and learning experience. The downside to this was, and still is, in the significant amount of time required to produce the content. A small percentage of instructors have made good progress in developing this style of content but there is still much work to be done.

RESULTS

The participation and input of the teaching team during these development phases of the VLE was critical to ensure relevance and familiarity of layout for RE (Geo) students. Typically the success of implementing new didactical technologies is linked with the direct participation of the stakeholders starting from the early design stages.

The strategy described above has achieved encouraging results with student feedback being largely positive and supportive of the initiative. Some 85 module pages have been developed over the past two years and the VLE has now become an essential component of learning, teaching and assessment, as a focal point for students, teachers and other users within the Geo Community. Teachers have had to develop competencies on how to use a piece of software but, above all, gain knowledge on how to use Virtual Learning Environment tools to facilitate the learning process [Cole 2011].

Overall the impact of the VLE has begun to influence the organisation's culture. Teaching teams have been inspired to reconsider their individual teaching strategies to take full advantage of the online activities, to relook at the roles of the student and teacher in the classroom and to exploit the use of additional learning techniques on offer through the utility of the resource.

After two years since the adoption of the VLE, the teaching teams now regularly update online learning material and consider it as part of the teaching role and responsibility. They are more informed than before on the use of quizzes and online assignments as and have now experienced through their own practical useful and how responsive and enthusiastic students are on using these resources. Future work on the VLE will focus on the production of refined learning material and the promotion of students' interaction using participative tools as WIKI, peer review assignments and forums.

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Transmedia Pedagogy in Action: How to Create a Collaborative Learning Environment

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Abstract

This paper will describe the use of technologies and the products created by students at Javeriana University in Bogota, Colombia and Akita International University in Japan. In Colombia, the students employed Transmedia Storytelling techniques to collaborate in the creation of a new fiction based on an existing short story. In Japan, students used these same techniques to create products that helped them learn the Academic Word List. Training techniques have been designed to develop collaboration between students and teachers in creating Transmedia Narratives. By doing so, teachers are able to build a student-centered environment and transform the classroom from passive to active, while students improve their collaborative intelligence skills by sharing knowledge and ideas, mentoring, and working productively with others. This paper will describe how to build collaborative learning environments using Transmedia Storytelling techniques and give examples of the type of products students are able to create using different technologies.

Introduction

Since September 2010 we have conducted five Transmedia teaching and learning projects - in China, Colombia, Japan and the UK - to help university lecturers and secondary school teachers co-create blended learning environments with their students. Students benefit in two main ways: from creative and collaborative work using the technological skills they may have developed in their online social activities; and from the opportunity to create products that align with their Multiple Intelligences or learning preferences. Teachers benefit from the increased motivation and interest evinced by students who are actively engaged in creating meaningful learning projects. The projects conducted at The University of Nottingham Ningbo China are described in Gilardi & Reid, 2011 and Reid, Hirata & Gilardi, 2011. The project involving high school teachers and students in Bogota, Colombia, is described in Gilardi & Reid, 2013. The projects conducted at Akita International University in Japan and at Javeriana University in Colombia will be described in this paper.

The Akita International University projects help students acquire the Academic Word List, improve their critical reading skills, and develop their creative and autonomous learning. The Javeriana University project showed lecturers and students how to apply the Transmedia approach to literary criticism and creative writing. They created and brainstormed Transmedia universes based on two short stories: *El Dinosaurio* (2001) by the Guatemalan writer Augusto Monterroso and *El libro de arena* (1999) by the Argentinian writer Jorge Luis Borges.

In both cases Transmedia storytelling is suggested as a possible approach to the creation of democratic blended learning environments whereby student-created online learning products form part of the fabric of the educational experience. Both projects demonstrate how activities such as reading, writing and memorization that have been traditionally considered as individual pursuits can be realized in terms of collaboration and co-creation. Such activities become collaborative as students share their interpretation of texts as a foundation for the creation of products that form Transmedia universes.

The initiation of such projects requires teachers to conceive of a learning area on which to hang the creation of Transmedia universes. The learning area could be the exploration of a grammatical feature of a language (Gilardi & Reid 2011), it could be the knowledge of genre and lexis involved in creating documentaries in a second language (Reid, Hirata & Gilardi 2011), it could be the creation of new narratives that flesh out universes inspired by published short stories (Gilardi & Reid 2013), or it could be the mastery of the Academic Word List in English. It could, it seems, apply to any discipline.

In short, the process involves introducing students to the concept of Transmedia narratives as used by the entertainment industry. Then, a learning area is identified and students are encouraged to create products that explore themes within this area. A number of products are created, each one revealing a new aspect of the learning area. In this way, it is only by engaging with each product that a full understanding of the universe can be achieved. Generally, these universes are moderated by the teacher on a Virtual Learning Environment (VLE) such as Moodle or a blog. Students are then encouraged to discuss or vote on each product on the VLE, and the creators have the facility to refine their products based on this editorial feedback.

Transmedia Narratives

At the beginning of these projects participants were introduced to the concept of Transmedia Narrative. Henry Jenkins has defined this as:

> a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience. Ideally, each medium makes its own contribution to the unfolding of the story. So, for example, in the Matrix franchise, key bits of information are conveyed through three live action films, a series of animated shorts, two collections of comic book stories, and several video games. There is no one source or Ur-text where one can turn to gain all of the information needed to comprehend the Matrix universe (2007).

It is pointed out to the participants that for the purposes of the project, the term "fiction" can also be applied to a coherent teaching point, such as a grammatical feature of a language, or a sub-set of the academic word list. We also stress that although The Matrix franchise is a clear example of a Transmedia universe with each story having been intentionally designed to contain lacunae that would be explored in other stories, Tom Dowd *et al*. rightly point out that: "there are few great examples of this process…yet. Many of the properties we might call transmedia include interactions of story that were not conceived simultaneously, but rather were created sequentially" (2013, p. 6). We, therefore, show the participants some of the cross-referencing involved in re-booted superhero franchises, such as Marvel Avengers, as examples of the sometimes simultaneous and sometimes sequential nature of universe creation.

The Marvel – Synergetic – Universe

The Marvel Avenger's franchise is composed, so far, of 6 movies: *Iron Man* (2008), *Iron Man 2* (2010), *The Incredible Hulk* (2008), *Thor* (2011), *Captain America: The first Avengers* (2011) and *The Avengers* (2012). Marvel has packaged these movies in a special edition called *Marvel Cinematic Universe: Phase One – Avengers Assembled* (2012). Phases two and three of this universe are already in the pre or post-production stage. At present, there are six movies set to comprise these phases: *Iron Man Three* (2013) *Thor: The Dark World* (2013), *Captain America: The Winter Soldier* (2014), *Guardians of the Galaxy* (2014), *Marvel`s The Avengers: Age of Ultron* (2015), and *Ant-Man* (2015). In addition to the movies, other Transmedia products include a prelude narrative in the form of an eight-issue comic book; a prequel comic book titled *Black Widow Strikes* (Van Lente 2012); an animated TV series called *The Avengers: Earth's Mightiest Heroes* (2012); and a four chapter mobile game called *Avengers Initiative.*

The Avengers Universe has been built around the character of Tony Stark, a billionaire weapons developer who created the Iron Man suit. The first link with Avengers is the appearance at the end of *Iron Man* (2008) of Nick Fury, the director of S.H.I.E.L.D. (Strategic Homeland Intervention, Enforcement and Logistics Division), who meets Tony Stark after a press conference in which he announces he is Iron Man. The following exchange between the two explicitly refers to the Avengers Universe that Marvel is building:

NF: 'I am Iron Man.' You think you're the only superhero in the world? Mr. Stark, you've become part of a bigger universe. You just don't know it yet…
TS: Who the hell are you?
NF: Nick Fury, Director of S.H.I.E.L.D.
TS: Ah!

NF: I'm here to talk to you about the Avengers Initiative.
The second movie of this franchise is *The Incredible Hulk* (2008) where Tony Stark makes a brief appearance at the end of the film to tell General Thaddeus "Thunderbolt" Ross about the idea of putting a team together. *Iron Man* 2 (2010) contains at least three references to the other character of the Avengers Universe. The first one is the introduction of Agent Romanoff (Black Widow) who has been charged by Nick Fury to conduct an assessment of Tony Stark/Iron Man to ensure he has the right characteristics to be part of the Avengers. Another reference to a related Transmedia product, in this case *Thor* (2011), occurs during the discussion at Randy's Donuts when Nick Fury tells Tony Stark: "Contrary to your belief, you are not the centre of my universe. I have bigger problems than you in the southwest region to deal with". This is explained more fully when S.H.I.E.L.D.'s Agent Coulson explains to Tony Stark that he has been reassigned to New Mexico. It is here that at the end of the movie we see Agent Coulson discovering Thor's hammer.

Captain America (2011), the fifth movie of the Universe, is linked with the others through Tony Stark's father and Nick Fury. It is in fact Tony Stark's father that invented the machine that transformed Steve Rogers into Captain America, while it is Nick Fury that informs him of the fact that he has been in a coma for 70 years and that his mission is to save the world.

Finally, *The Avengers* (2012) is the common space where previous stories culminate and from where others will be expanded. This is a clear example of successful synergy since most of the main characters presented have their own movies and/or Transmedia Universes that have been used to excite interest in this one.

Fan Participation
A further Transmedia technique is the facility for fans to participate in expanding the original Universe. Digital sampling, Fan video making and fan fiction writing are examples of participatory cultures that fall under the heading of *Expressions*. The three other types of participatory culture are *Affiliations* such as Facebook, message boards and metagaming; *Collaborative Problem-solving* such as Wikipedia and alternative reality gaming; and *Circulations* such as podcasting and blogging. (Jenkins et al. 2009). Participatory cultures have arisen since the arrival of Web 2.0 which made participation and co-creation possible by allowing users to publish content and comment on the content of others. These participatory cultures represent a sea-change from passive to active consumption…[they] allow potentially anonymous users to socially connect, create, mentor and provide editorial feedback without having to formally prove their credentials" (Gilardi & Reid 2013).

In the case of Avengers this is evident in the amount of Fan Fiction available online (http://www.fanfiction.net), where new stories, meaning and identities are designed and revealed. A quick look at this site reveals a plethora of narratives, some consistent with Marvel's conception of the universe, others spawning new universes that may or may not feed back into Marvel's future projects. Examples range from a story imagining Tony Stark and Hawkeye's gay relationship, to a poem extolling the sensuality of Iron Man, to a narrative on a group of teens training to become the next Avengers.

This ability of active consumers to publish their additions to Transmedia universes online is a key to empowering creativity in blended learning environments. Transmedia projects allow students and teachers to create collaborative environments where narratives are synergetic, reading becomes a sharing of ideas, and writing becomes a collaborative endeavor that co-

creates fictional universes. (Gilardi & Reid 2011; Reid, Hirata & Gilardi 2011; Gilardi & Reid 2013)

Blended Learning and Students as Co-Creator

The Transmedia projects we describe fall under the category of blended learning but differ from the majority of examples reviewed by The Higher Education Academy in the UK. The HEA study observed that "the most common type of blended learning is the provision of supplementary resources for courses that are conducted along predominantly traditional lines through an institutionally supported virtual learning environment" (Sharpe et al. 2006, p. 2). Our Transmedia projects may use the VLEs or tutor blogs of the university in which they are set, but cannot be defined as supplementary resources provided to the students. On the contrary, the products are created by the students themselves for the benefit of the learning community. Therefore, we believe that these projects fall into the rarer category of approaches studied by the HEA: those that "…make use of technology to facilitate interaction and communication and replace other modes of teaching and learning…[and allow students to take] a holistic view of the interaction of technology and their learning, including the use of their own technologies" (*Ibid*).

As we can see from the HEA review, most examples of blended learning environments involve the top-down provision of supplementary online resources. Quite apart from the fact that we question the efficacy of such a unidirectional approach, it also necessitates either payment to an outside contractor or technological competency within the faculty – often a rare commodity. Transmedia projects help to mitigate this problem by using the students' inherent creativity in combination with their technological skills to create the online learning products. Gardener's Theory of Multiple Intelligences (1983) provides a useful description of aptitudes or learning preferences that people possess to varying degrees. Making students aware of the fact that they can utilize a variety of abilities – from linguistic to rhythmic and musical - in the creation of Transmedia products incentivizes creativity (Reid, Hirata & Gilardi 2011). Thus the teacher's role is to be non-discriminatory with regard to the Intelligences being employed. For instance, if students wish to create a Hip Hop video using the target academic words, only the accuracy of the lexis used should be questioned, not the medium itself. In sum, the teacher should introduce the concept of Transmedia narrative, articulate a teaching objective that a Transmedia project can address, and then facilitate and monitor the students' interaction and creation of products. In this way, students become active co-creators of learning products rather than just consumers

Projects

The blended learning project being conducted at Akita International University has as its main goal the mastery of the Academic Word List. These are the 570 word families that comprise approximately 10% of the lexis in academic texts (Coxhead 2000). There are three classes with between 17 and 19 students each, and the projects last for ten weeks within the 15 week semester. Each project consists of the 24 academic word families presented in each text unit from the book *Focus on Vocabulary 2 Mastering the Academic Word List* by Diane and Norbert Schmitt (2011). The students read the texts from this book and complete the exercises in study groups for homework. Then for each set of 24 academic word families, a group of three or four students is tasked to present a ten-minute summary of the text using Keynote, PPT or Prezi, and produce two exercises and a review activity for the rest of the class. These products are filmed and/or digitized and uploaded to the project page on Moodle

so that students can access them and post comments about their effectiveness and accuracy. Students are asked to use the target academic words when giving their summaries of the texts but, apart from this, the main objectives are for the presentations to be engaging and accurate. There are also guidelines given for the creation of the two exercises. For the first exercise, students are obliged to create critical reading and comprehension questions on the target text. The second exercise has to employ recall, recognition and production tasks to review the target academic words presented in the text. To help students create these exercises, templates are available for download from Moodle. Similarly, a number of templates and links can also be downloaded for help in the creation of the review activity. These templates include a board game, a card game, crossword creator links, blockbusters, and running dictation; though students are free to create their own review activities that might range from a cartoon to a song or a story. In accordance with the rules of creating a Transmedia universe, each product created reveals new information about the learning area. The other students are encouraged to question the summary, exercises and review activities in class and/or post comments on the Moodle site after class.

The other aspect of this Transmedia project is the use of *Memrise* - an online learning tool that allows users to create their own flashcards. When creating their summaries, exercises and reviews, students are encouraged to access both Memrise and the textbook for example sentences, mnemonics and definitions they can use. The Memrise course (http://www.memrise.com/course/87977/jamies-academic-word-course/) has been created by the teacher. Courses are remarkably easy to make. The creator merely types in the target words and their definitions and gets the students to register. The students (and other users on the web) then create their own flashcards simply by typing in a key word, choosing an image from the Internet that this brings up and then typing in an example sentence or mnemonic. Students are able to use their own flashcards or those of others to help them learn words and then review them. Memrise moves users from the learning stage to the review stage through a sequential series of recognition, recall and production quizzes. It employs the spacing effect to increase the effectiveness of learning through the use of an algorithm that tracks the rate of learning, allowing it to email users with timely reminders to 'water their plants' in their learning gardens. Since it is browser-based and available as an app on Google Play and the Apple App Store, students can easily review key vocabulary outside of class, and the teacher can use Memrise in class to conduct group quizzes.

Figure 1 shows how one of these projects can be visually represented. The outer circle represents the limit of the universe – the 24 academic word families that must be learned. The blue inner circle is the Moodle site where the online learning products are hosted, and the surrounding circles represent the types of products created.

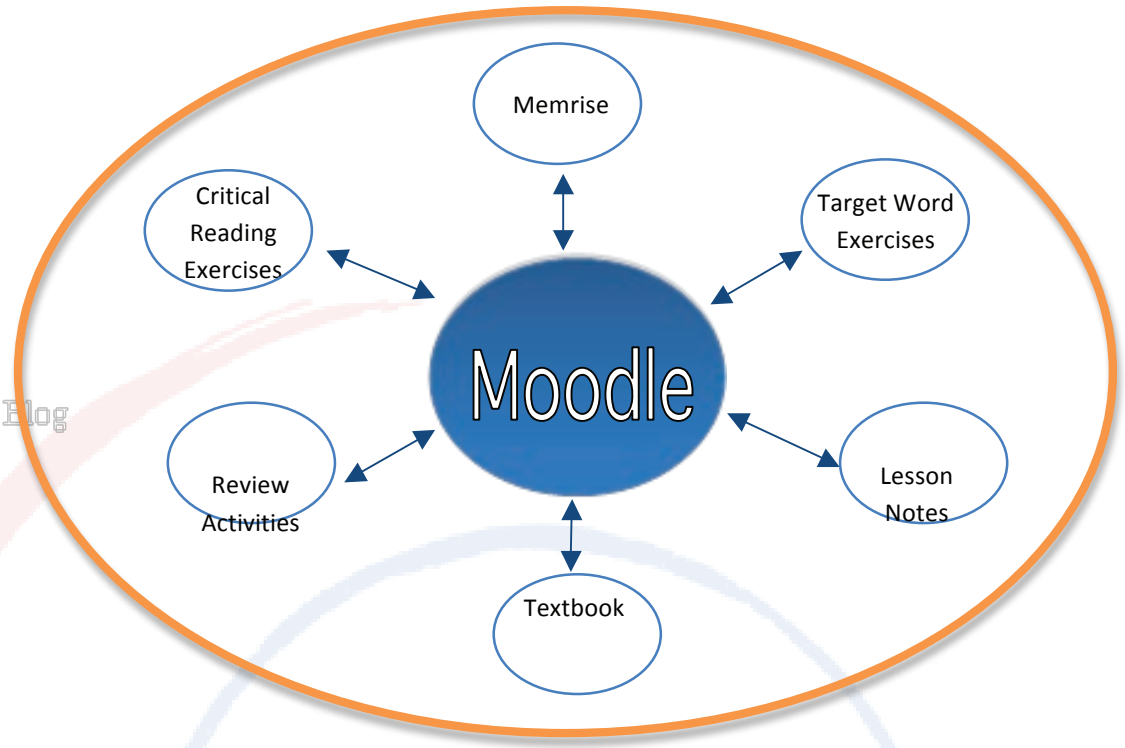

Figure 1. An Academic Word List Universe

The Transmedia projects conducted at Javeriana University focused on creative writing rather than the memorization and creative use of lexis. The projects involved 13 participants divided into two groups who took part in a three hour workshop based on two stories, *El Dinosaurio* (2001) by Augusto Monterroso and *El libro de arena* (1999) by Jorge Luis Borges. Both texts were chosen because they allow several different interpretations. *The Dinosaur* is a one-sentence short story: "When [s]he/it awoke, the dinosaur was still there". Since Spanish is a null-subject language, the story is left wide open to reader interpretation. The second short story was *El libro de arena* (1999), by Borges. As with many of his stories it focuses on an object that inspires obsessive fascination. In this case, the object is a cloth-bound tome called *The Book of Sand* which is written in an unknown language and contains an infinite number of pages. Realizing that the book will consume him, the main character – a fictionalized Borges – hides it in the national library, concluding that "the best place to hide a leaf is in a forest" (Borges 1999)

The first group chose the story *El Dinosaurio* by Augusto Monterroso (2001). One of the group members was the Colombian author Fabian Mauricio Martinez who quickly designed the base of the story and wrote the newspaper article around which the other members of the group developed the other products http://gus.nottingham.edu.cn/blogs/filippo-gilardi/2013/05/23/workshop-at-the-javeriana-university/.

The newspaper article dated May 22nd relates the events of the day before. It describes a man entering a bar, ordering something to drink, and then sitting down to watch a striptease. The man knows that the stripper is the girlfriend of the criminal "El Dinosaurio" who killed the man's brother the night before. After the show the man goes backstage and forces the girl to follow him. At this stage "El Dinosaurio" arrives and punches the man unconscious.

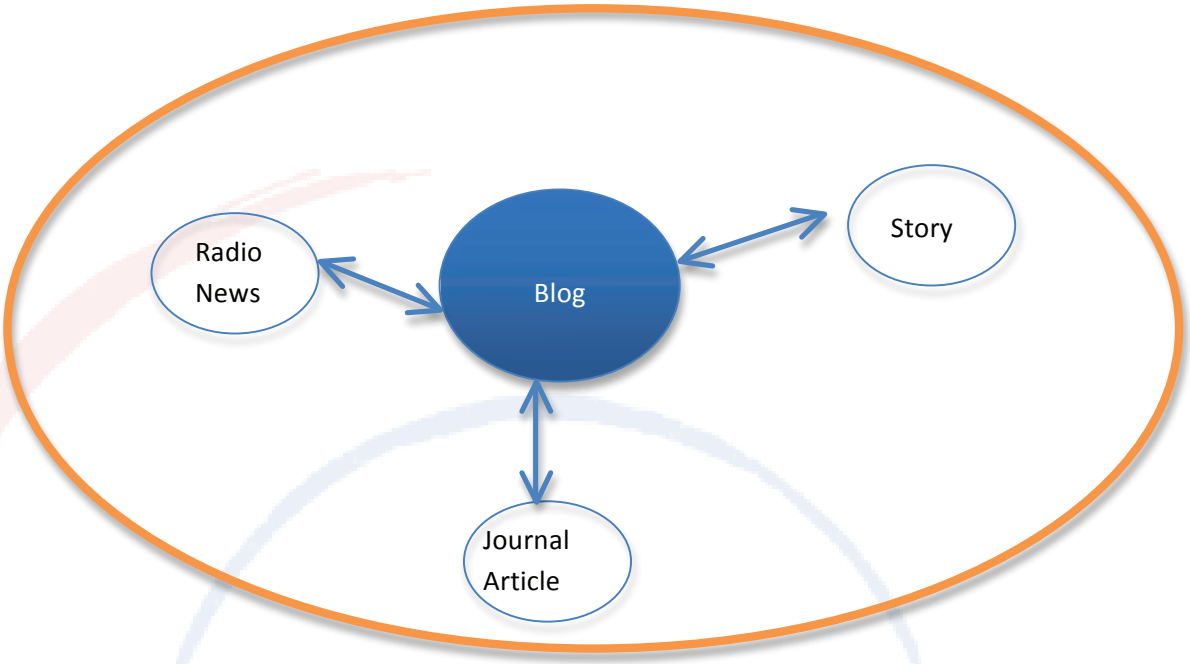

Figure 2: The Javeriana University Universe

The second creation is one page in the girl's personal diary dated the 20th of May in which she expresses her desire to return to her hometown. She is tired of dancing – the only thing she has ever loved – for the sexual gratification of strange men. She says that when she dances she focuses on a fixed point in front of her because she hates the men who stare at her with desire. She wants "El Dinosaurio" to take her away from this place and stop asking her to strip. She realizes, however, that the angrier she gets, the more sensual her dance becomes, and so she is sure that tomorrow her dance will be spectacular due to the rage she feels.

Finally, the participants created a radio interview (recorded after the 22nd of May) of the girl that explains her side of the story. She says that everything happened so fast that it was difficult for her to remember clearly. She recalls, however, that "El Dinosaurio" was there watching her strip. She then remembers that after she had gone backstage, a man entered the room, beat her and dragged her out on the street. In the street "El Dinoasaurio" arrived and she fainted. When she got up she was alone and has not seen either "El Dinosaurio" or the man that had beaten her since.
The group members have left space for more stories to be added to the fictional universe by leaving undecided, once more, the subject of the story. Is it the kidnapper who will find "El Dinosaurio" there when he recovers consciousness? Or, is the girl lying, and was "El Dinosaurio" actually there when she awoke from her faint?

The second group focused on the story *El libro de arena* (1999) by Borges. Due to the length of the text they spent more time discussing the story and as a result only had time to brainstorm potential Transmedia products rather than create them in full. The discussion revolved around the concept of Zahir – objects that cause people to obsess over to the exclusion of reality. As well as *El libro de arena* (Borges 1999), participants referenced the ring in J.R.R. Tolkein's *The Lord of the Rings* and the coin in Borges' classic short story *El Zahir*. After analyzing the text, the participants broke off into small groups of two or three

and created ideas for a Transmedia narrative. The first was a short story where linguists discover the Book of Sand hidden in the National Library and start trying to decode it. The narrative is delivered through an academic paper that progressively loses its coherence and sanity. The second concept was an infinite board game which begins when someone finds the Book of Sand and is asked questions that have no answer. The third idea was a Mobius strip cartoon application for a smartphone. On one side of the Mobius strip is the main narrative, while on the other side each tap of the touch screen produces a different poem in a randomized sequence. This idea replicates the nature of The Book of Sand which presents a different script every time each page is looked at. The fourth concept was a never ending story hosted on a university website which would allow participants to add sentences and paragraphs as they saw fit. The final idea was a short movie about the Scottish bookseller purchasing the Book of Sand in India. This movie would flesh out Borges' short story in which we only encounter the bookseller as he visits Borges in his apartment in Buenos Aires.

Finding

The Transmedia projects we describe require only the identification of a learning area by the teacher and minimal digital competence in administering a VLE. The products created reveal the enormous untapped repository of creativity and technological ability that can be accessed when students are empowered to take control of their own learning. With regard to the Theory of Multiple Intelligences (Gardener, 1983) we can see the activation of several within both projects: *Linguistic* in terms of the use of text with images in the creation of flashcards on Memrise; *Logical-Mathematical* with regards to the creation of logically consistent universes and the logical linking of images and text with the culture where the project is developed; visual-spatial in the use of images to remember and think about lexis; *Intrapersonal* in terms of individual work on the creation of flashcards and certain other products; *Interpersonal* in the sharing of flashcards, giving a 'thumbs up' to flashcards made by other students and working collaboratively to produce other products; and *Musical* and *Bodily-Kinaesthetic* with regard to products involving music and movement. A clear example being the choice of a strip-tease dancer as one of the main protagonists in the Javeriana University project; a choice made because one of the participants in the group thinks more clearly when she dances. In addition to the activation of learning preferences and aptitudes that may not be traditionally valued in higher education, we also see students bringing to the learning environment the enthusiasm, skills and experience many have acquired through their social engagements in Internet-based participatory cultures. Those students who have less experience with digital technology learn from their peers many of the important technological and collaborative competences increasingly being seen as essential in both the academy and the globalised work-place. As the HEA report observes: "There is an increasing recognition that students are making use of their own technology as well as those provided for them and that they are doing this in ways that are not planned for, difficult to predict and may not be immediately visible to their teachers and researchers (Sharpe et al. 2006, p. 4). This being the case, it seems inevitable that just as Hollywood has recognised the value of the millennial generation as active consumers of entertainment, education will increasingly come to see students as active collaborators in the creation of blended learning pathways.

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E-studium: practical use of Moodle

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0395

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Abstract

The introduction of educational innovations is guaranteed by profitable and recent technological developments in new media technologies, originating several e-learning projects. The use and integration of the Internet to the traditional learning environment has enriched the learning and teaching experience.

Through this article I would like to present the practical use of Moodle, one of the main e-learning platforms, for the development of the E-studium project at the Faculty of Humanities, University of Perugia. I present its implementation at the chair of Spanish Language and Literature, in particular on the 'Phonetics and Phonology of the Spanish language' course, with focus on: creation and presentation of exercises, contents, lessons, communication; educational proposals achieved, future plans and projects.

The experimental stage of the Moodle platform at the University of Perugia began during the A.Y. 2008/2009 with the intention to consider and resolve issues related to: information technology, pedagogic communication and changing roles of the university 'actors'.

E-studium has created different answers depending on the interest and needs of the teachers, on the subject taught, on the previous teaching habits, on the receptiveness to learn and apply this methodology, on the attention to educational problems and sensitivity to the students' needs.

The use of e-learning platforms represent a valid support and an effective integrative element to the traditional presence-based course. The use of the new technology resources offered by the web and, in particular, by Moodle, ensures an extraordinary effectiveness in the field of teaching and learning and a changing of the academic communication.

Keywords: Platform, e-learning, Moodle, E-studium, Phonetics and Phonology, Spanish.

1 Moodle for *E-studium*

Over the years we have witnessed a rapid development and improvement of teaching and learning methods for foreign languages with a corresponding evolution of teaching and educational support/tools. The history of educational technology has shown a clear dynamism that is not readily found in the 'institutions'. In recent years, there have been many studies, research and projects on the use of the Internet in the education.

A new area of research and application in the context of on-line training is taking shape through the use of e-learning or 'networked learning'. E-learning refers to the methodology of distance teaching and learning using the Internet for the provision of specific training services ranging from traditional to support teaching on-line courses. It is mainly based on on-line communication between teachers and learners and offers distinctive educational activities for both the type of content - in digital format - and the kind of training process - characteristic in the management and implementation of the academic program such as the supply and use training content, interaction between teacher and student, and among students, accessibility of content, evaluation, contemporary analysis and future prospects.

An e-learning platform is designed to support traditional teaching by developing specific on-line services that significantly improve the quality of education. This consists of class schedules, course syllabi, registration for examinations, information on events, services and equipment of the department, bulletin board, etc. On-line classes and multimedia aids enhance the collaborative environment.

A major issue is the choice of a comprehensive and well-structured platform incorporating features that support multiple types of interaction, various methods of modal transmission, with the ability to manipulate different media. It is important to know and be familiar with the structure and the possibilities offered by the platform, thereby discouraging improper use. Any resistance and suspicion in the use of the platform will only weaken the methodological process of teaching-learning.

Moodle (<http://moodle.org>) is an example of an e-learning platform for the delivery of learning content and management of on-line courses and it is the most widespread international e-learning platform used in thousands of websites throughout schools, universities, and training centres, both public and private. Once downloaded and installed, it facilitates: the creation and management of teaching content and collaborative communities of learning; the construction of learning paths through e-learning platforms; course materials distribution; monitoring the students learning process; the management of the users.

Moodle has two types of plug-in modules in a course: resources (text, PDF, Web pages, multimedia content, etc.) and activities (chat, forums, databases, tasks, glossary, lesson, quiz, etc.).

The website interface uses the same conventions across the whole system. The most important information is usually presented in the centre of the page, in the content area and the blocks about the available courses and news are shown on the left. The blocks on the left are also used for the management and administration of the course.

Moodle has been translated into about 70 languages and the appropriate language can be selected at the top right of the page. The centre is subdivided into rectangular areas and can

be used for the inclusion of activities and resources. These areas can also be arranged according to different formats (by topic, for weeks, personal). By default, Moodle offers a large number of blocks but, the system administrator, can install others for different functions.

Moodle is intuitive to use thanks to the graphics and the schematic functions. Each course has its own workspace structured differently in accordance with the decisions of the teacher of the course and access is provided for student, teacher and administrator.

It is important to use the platform correctly and to customize and make the best use of the various services and social media offered.

Moodle creates an educational environment based on social constructivism and I would emphasise its aim to contribute to the educational experience in many ways.

The development of the e-learning platform *E-studium* began in the A.Y. 2008-2009 at the Faculty of Humanities of the University of Perugia. It is the result of the use of Moodle in university courses - project collaboration between teachers, experts, undergraduates and researchers of many university Faculties, advanced by the Department of Mathematics and Informatics of the Faculty of Sciences MM.FF.NN. and co-financed by the Foundation 'Cassa di Risparmio di Perugia'.

The main purpose of the project is to create a University system, already present in many other universities in Italy and abroad.

The *E-studium* project, <estudium.unipg.it/newlettere>, strove to strengthen a communicative collaboration among the developers of the project, the teachers and students involved in the design of courses and in the analysis of different communication styles, and to develop the use of the platform for scientific purposes. It was initially introduced to many teachers of different disciplines giving them the opportunity for reflection, integration, testing and changing their teaching as a starting step to the feasibility of uploading the teaching program and the exams registration (until now, the student had to go physically to the Faculty to register for the exams in a paper list).

Our primary interest was to see how the teacher decided to organize the course, analyzing the different communication styles. The starting point for the inclusion of on-line material lies in what each teacher has always done: we started from previous experience. Not all responses to the project were the same, varying depending on the subjects taught, the teaching used up to that time, the available time and interest to learn and apply this methodology, the attention on the teaching problems and the sensitivity to the needs of students.

The innovation is not only in the use of the e-learning platform and the use of resources and on-line activities but, above all, in the change of communication at the academic level. The professor, creating his or her own course in the platform, reflects on its teaching practice experimenting with new techniques and must take into account the point of view of the student, or the academic on-line communication will fail. It is necessary to have an appropriate design that provides project planning, content development, implementation, delivery and review.

The layout of the page reflects the characteristics of the Moodle platform and the main difference between the platform created in the A.Y. 2008-2009 and today's platform is the organization and division of courses (figures 1 and 2).

Figure 1 - E-learning platform of the Faculty of Humanities of the University of Perugia A.Y. 2008-2009

At the top of the page, on the left, in blue, there is the name of the faculty (*Faculty of Humanities*) which does not appear to be an active link to the website of the Faculty (<http://www.unipg.it/preslet>); on the right, there is the possibility of login and select the language from the drop-down list. The languages available, up to this moment, are: Italian, English and French. By changing the language only the general settings of the platform will change and not the contents. This setting is still one of the main points of analysis in the testing of the platform.

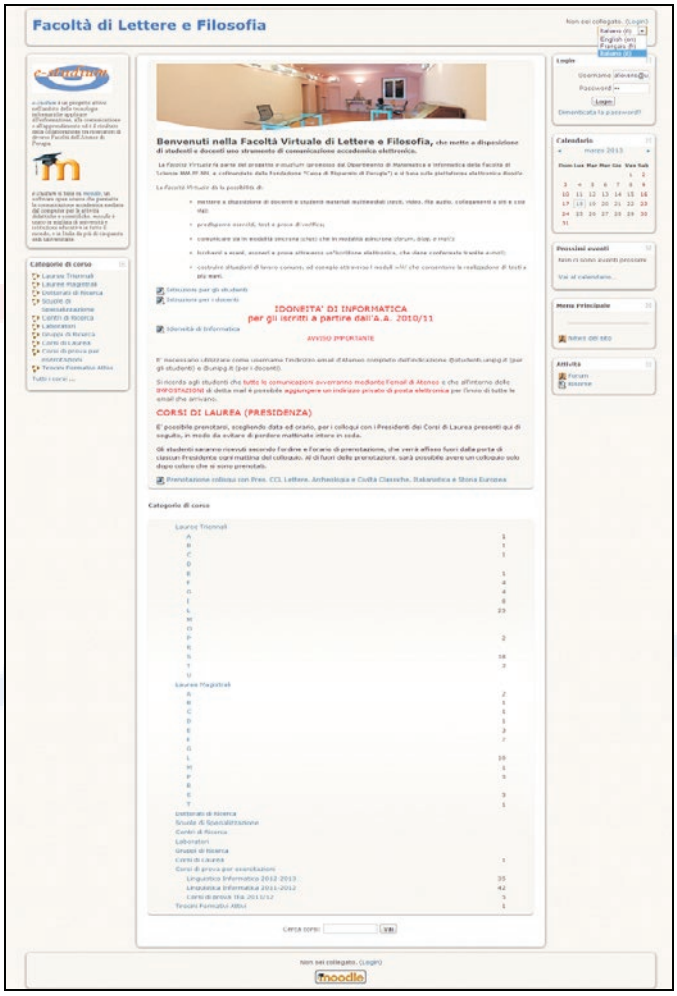

Figure 2 - E-learning platform of the Faculty of Humanities of the University of Perugia A.Y. 2012-2013

Moving in the platform, the path that we are following is always visible, at the top. The colours of the platform do not reflect those found in the website of the Faculty. The background is clear and active links are represented by the blue writing (which become underlined by hovering the cursor over it) and black for all other written. The font used is Verdana, adopting the bold for titles.

The page is divided into three columns. On the left column, after a brief explanation on the *E-studium* and the Moodle platform, there is the *Course categories* block, the various courses are listed providing the scope, to choose between: *Lauree Triennali*, *Lauree Magistrali*, *Dottorati di ricerca*, *Scuole di Specializzazione*, *Centri di Ricerca*, *Laboratori*, *Gruppi di ricerca*, *Corsi di Laurea*, *Corsi di prova per esercitazioni* e *Tutti i corsi*. On the right column there are: the block for the *login*, *Calendar*, *Upcoming Events*, *Latest News* and *Activities*. In the middle, at the top, there is a slideshow of the Faculty of Humanities and a message of welcome and explanation. Login instructions are found by clicking on *Instructions for students* and *Instructions for teachers*. There is a link to the *Idoneità di informatica* and to schedule an appointment for talks with the Deans of the graduate courses. *Course categories* are listed in the work area divided by levels. By clicking on the first letter of a given course - for example *Lauree Triennali*, *L*, all courses present and active in the platform that begin with the letter L will be opened: *Letteratura italiana*, *Laboratorio di informatica per lingue fino a 2009/2010*, *Laboratorio di Produzione Multimediale*, etc.. On the right of each letter, it is

indicated the number of courses in each group. At the bottom of the page there is a search box, login and link to Moodle.

Students can access the platform with their e-mail address and password assigned by the University. Students who are matriculated since the A.Y. 2009-10 have already activated this e-mail; students who matriculated previously, must access the SOL (information service of *Segreteria On Line - SOL*) and activate their e-mail address (which will take the form firstname.lastname@students.unipg.it), always keeping the password of the SOL. Once connected, the students have to fill in the required fields proposed by the system and save their own 'personal profile' which identifies each user of the platform. Students can enrol in the course and receive a confirmation e-mail. In some cases it may be necessary an additional password given by the teacher. With the access to the course, students can take advantage of the information and material provided by the teacher, and make contact with the teacher and other students enrolled in the course, enrol in exams.

Teachers can access the platform using as username the e-mail address and password assigned to them by the University, without *@unipg.it*. After the first authentication, the system requires information related to their personal contact. In order to activate for the first time their course and for completing the profile, teachers need to contact the system administrator.

Once the student or the teacher have logged in to the platform and in the course of interest, they can take advantage of all the possibilities offered by the e-learning platform: the 'virtual Faculty'. Each teacher can use the platform as desired within the parameters set by the computer system. In fact, the starting point for the inclusion of materials and on-line resources reflects what the teacher has always done.

The use of *E-studium* took place in a gradual and natural way: first there was the awareness and the presentation of the project, followed by a comparison of the needs, problems, interests of the teacher, and the cooperation and confrontation among teacher and developers of the platform.

To ensure that the 'virtual University' grows, takes shape and improves it is also important to consider the relationship of dialogue and trust between computer experts, committed to solving technical problems with this system, and the humanists, committed to resolve issues related to the communication aspect of the platform and the analysis of different communication styles of teachers, always taking into consideration the agent communicative 'student'. It should be recognized that it is the teacher who makes the first 'effort' in presenting to students this opportunity.

Students have accepted this platform with great enthusiasm especially since it provided a solution to a very real problem: the on-line enrolment on exams. In addition, most students are constantly asking teachers to use the most advanced teaching methods closer to their 'world'.

It should be recognized that as there are teachers who know and use the new technologies for teaching in their courses, and others that are unaware of its existence; so there are students who apply for the use of new methods and others that have not the slightest idea about new technologies. To overcome this obstacle, we need a 'literacy' in this field, for both teachers and students. If they become friendly with the potential offered by new technologies in the

academic world, the process of teaching-learning will have a great success and a great importance both as a supplement to traditional course and as a solution to problems.

The last important relationship is among students and teachers in that they feel closer, have the opportunity to interact with each other and share teaching materials, etc. The communicative aspect is really important and is characteristic of a good or a bad teaching methodology.

2 'Phonetics and Phonology of the Spanish language' through *E-studium*

The testing of the *E-studium* platform for courses of 'Spanish Language and Literature' at the Faculty of Humanities in our university started in A.Y. 2008-2009. The first meetings with the professor were about Moodle and its use on our University platform. Once we created the course and set the technical parameters of the platform, we began our active and practical experimentation. To familiarize with the platform we have only worked on a degree course by creating a forum and a list of registration for exams and entering the teaching programs.

The *E-studium* project has seen a great evolution regarding the courses offered by the teacher. From the first experiment, during the A.Y. 2008-2009, we develop and organize the platform, building and managing the following courses: *Letteratura Spagnola I, II, III*; *Lingua Spagnola I, II, III (LT) 2012-2013*; *Lingua Spagnola II 2009-2010* (figure 3).

We will focus on the section of *Lingua Spagnola I, II, III (LT) 2012-2013* (figure 4). In this section we tried to create and organize support material and integration in the course of 'Phonetics and Phonology of the Spanish language'.

Figure 3 - Access to courses

Once logged in and entered in the course of *Lingua Spagnola I, II, III (LT) 2012-2013*, at the top there is the name of the course, the login/logout, the path we follow. Entering as a 'teacher' in the upper right there is the button to *Turn Editing on*/ *Turn Editing off*.

On the left there are the following blocks: *People* (*Participants*); *Activities* (*Forums*, *Mailing Lists*, *Records*, *Quizzes*, *Resources*), the search box to *Search in the forums*; *Administration* (*Enable Editing*, *Settings*, *Roles*, *Ratings*, *Groups*, *Backup*, *Restore*, *Import*, *Reset*, *Reports*, *Questions*, *File*, *Unsubscribe me from LINSPA102 [L0316]*, *Profile*, *Research*); *My courses* (*Letteratura Spagnola I, II, III*; *Lingua Spagnola I, II, III (LT) 2012-2013*; *Lingua Spagnola II 2009-2010*; *All courses*). On the right there are the following blocks: *Latest News*, *Upcoming Events*, *Recent Activities*, *Calendar*, *Links section*. Below there is a link to the *Main page* and the *login*/*logout*.

The central part is certainly the most important, being the work area. Starting at the top, it has the following organization and sequencing: course name, academic year, teacher's name, teacher's e-mail and the active links to the *Forum News* where the teacher informs students with announcements and general news and the *Forum Tutor* - as a tutor reference for the course of *Lengua Española I*, I am responsible to provide students with technical support related to the use and usability of the platform, the creation and insertion of exercises useful for the preparation of exams, giving students the opportunity of consulting, to dissolve any doubts or questions and inquiries about; the *Students reception*, in which the teacher informs students about the day and time of receipt.

The *Forum Tutor* born as a technical assistance and an educational organization. As a tutor, I used the forum to introduce myself to the students, to inform them of the possibility of reception in the Faculty and to ask for explanations (both technical and related to the topic of the course) in the platform, to inform them about exercises in the platform. The participation and interaction of the students in activities was monitored and we noticed that the students who were more interested during the 'traditional' lessons, were also actively interested on the platform and have achieved better results in the exams.

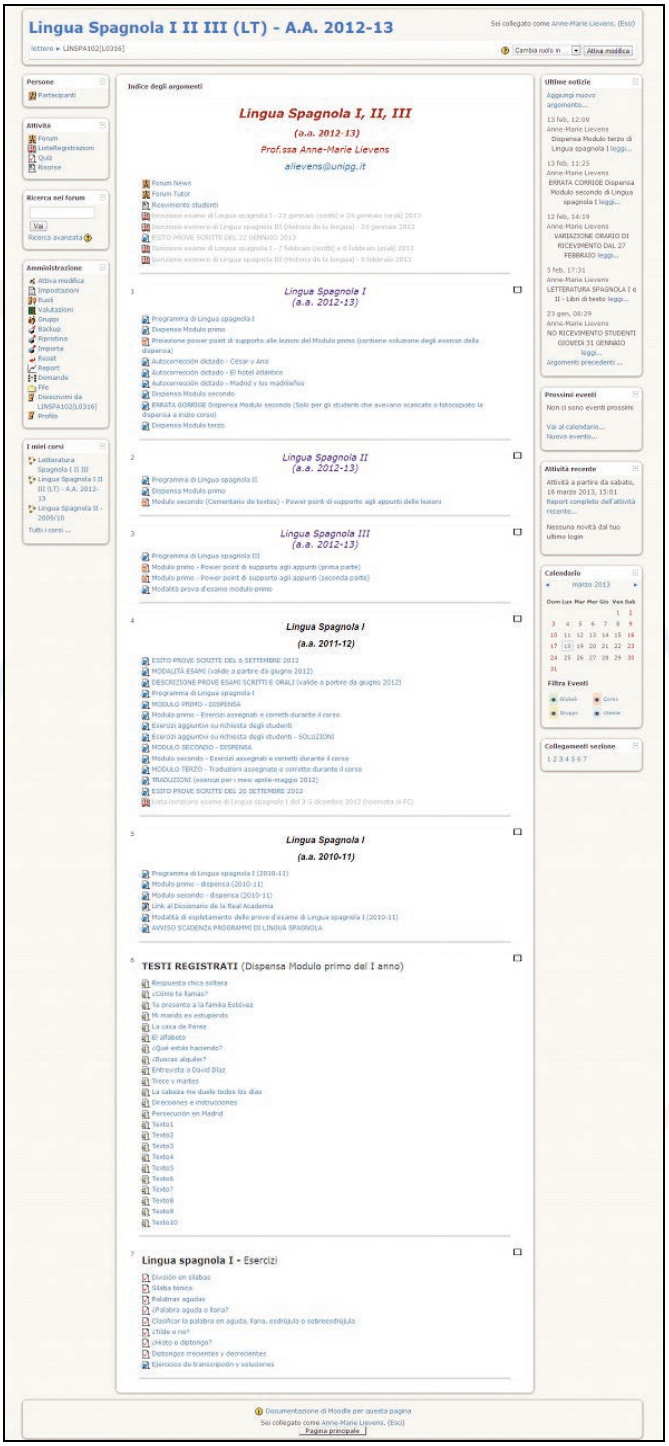

Figure 4 - *Lingua Spagnola I, II, III (LT) 2012-2013*

In the first, in the second and third blocks are inserted - respectively to the year of Spanish Language I, II, III - the educational programs and handouts in Word format that students need to print and use in lectures and as support and integration to their notes. In the fourth block - *Lingua Spagnola I (A.A. 2011-12)*, the title is written in black instead of blue to show, graphically, a difference from this point onwards compared to the previous blocks - a collection of all the materials, program, procedures of the exams, exercises, etc., related to the course of the last A.Y. In the fifth block - *Lingua Spagnola I (A.A. 2010-11)* – there are communications, materials, programs, etc., useful for the exam test for those who are enrolled in A.Y. 2010-11. In the sixth block, there are grouped all the audio files of the texts

in the lecture notes of the first module of the first year (A.Y. 2011-12). The student can listen to these texts reading by a native speaker. This exercise is very useful to familiarize and focus on the sounds of the language and to prepare for the first part of the oral exam, which includes reading one of these texts. In the seventh block, there are additional exercises of the first module of the first year (A.Y. 2011-12). The additional exercises in the fourth block are in Word format: the student is asked to print the document, do the exercise and correct themselves as the teacher provides solutions. In this last block we have tried to make interactive exercises with a rapid and individual feedback.

We found it really difficult to realize interactive phonological and phonetic transcription exercises. For this reason, it was decided to include transcription exercises in Word format, complete of solutions. Students clicked on *Ejercicios de transcripción y soluciones* (figure 5) and opens the Word document loaded on the platform. The words of the exercises were chosen and divided between those texts that students have in audio format. In this way, students have the opportunity to listen to the pronunciation and sound to transcribe and memorize it better. We realize that it isn't a perfect solution in terms of technology, but students are not penalized, and have the opportunity to practice while we are looking for a solution. The type of exercise about phonetic and phonological transcription we had in mind may be ambitious, but if feasible, extremely useful: the word to be transcribed should be listened to and the student has the space where they can enter its transcription, using a keyboard of phonetic symbols and be provided with an interactive and immediate feedback. The obstacles to the realization of this are both technical and economic. We are working on the organization of this type of exercises. It would also be interesting to include a software for recording and voice verification: give the student the opportunity to hear sounds, words or phrases spoken by a native speaker, and through a system of voice recording, the learner records his/her pronunciation and compares it with that of native speakers.

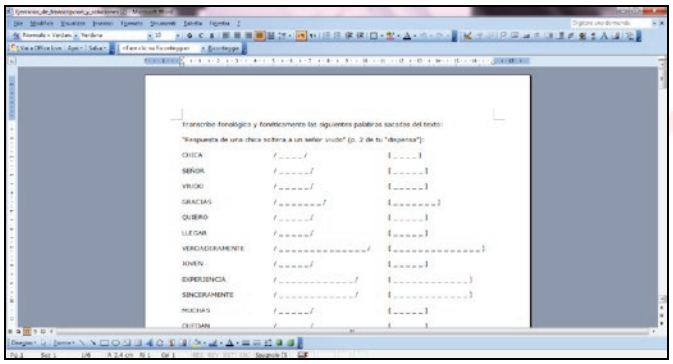

Figure 5 - *Ejercicios de transcripción y soluciones*

The exercises created in the platform followed the system of multiple choice and short answer. During the planning of the various exercises no limits have been given on time and number of attempts that a student could do. We created exercises that accurately reflect all the aspects of the course, that the students can find on the exam day: *División en sílabas*, *Sílaba tónica*, *Palabras agudas*, *¿Palabra aguda o llana?*, *Clasificar la palabra en aguda, llana, esdrújula o sobre esdrújula*, *¿Tilde o no?*, *¿Hiato o diptongo?*, *Diptongos crecientes y decrecientes*.

This is a process of self-evaluation is very important because the student can check the learning without pressure taking time and responsibility (there isn't the factor of obligation), and may consult with peers and ask for support from a tutor that, a month before the exam, is

also available for consulting in the Faculty. The realization and the instructions of the materials, the exercise and the information must be clear, unambiguous and appropriate: we should always remember that the student is interacting with the 'machine' and that the kinesics, which is critical in a presence course, does not exist.

In *División en sílabas* (figure 6) the student must choose the correct division into syllables of certain words. The student may choose to submit, for the automatic feedback, every single reply or at the end of the exercise. For every correct answer is given a value of 1 point and 0 points for the wrong answers. If the student gives a wrong answer, receives the explanation of the error. It is possible to change the words, monitor the access, verify attempts and results that students have achieved. Feedback from the students note that this exercise has worked pretty well.

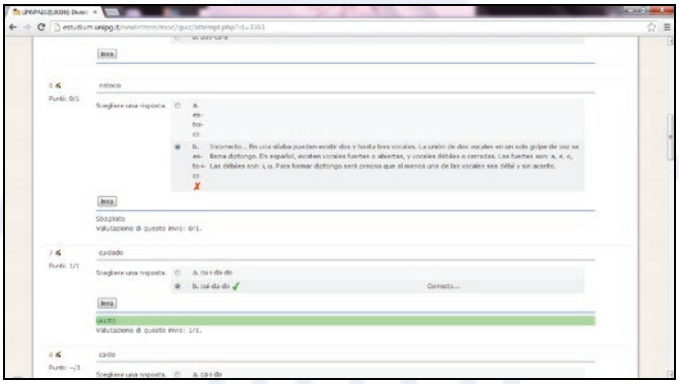

Figure 6 - *División en sílabas*: *feedback*

In *Sílaba tónica* (figure 7) the student has to identify the accented syllable of the various words already divided into syllables. The correct answer is worth 1 point and 0 points for a wrong answer. There is no explanation in the case of error. Also for this exercise, you can update the words, monitor access, verify attempts and the results that students have achieved. Analysing the feedback from the students we realize that this exercise did not work.

Palabras agudas (figure 8) exercise is designed to give an inductive rule to classify the acute words. It lists a series of words to think about. Students must complete and rewrite the rule. You can change the words, monitor access, verify attempts and the results that students have achieved. From the students' feedback we note that this type of exercise did not work well, perhaps due to a complexity of form.

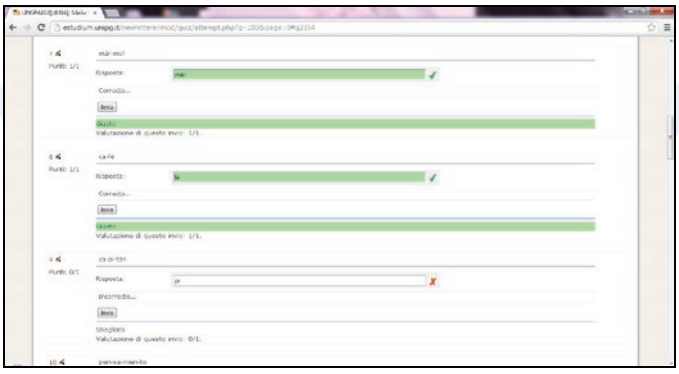

Figure 7 - *Sílaba tónica*: *feedback*

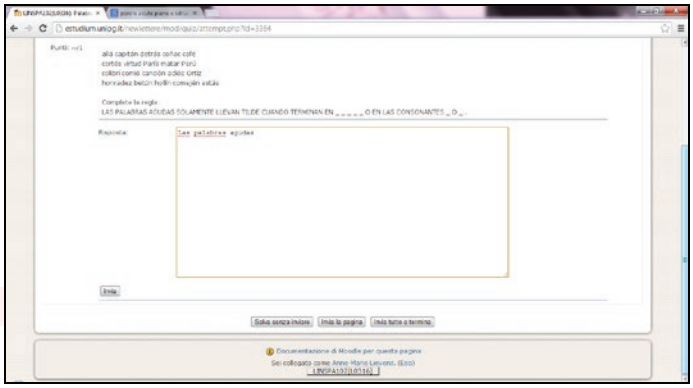

Figure 8 - *Palabras agudas*

In *¿Palabra aguda or llana?* (figure 9) the student must choose whether the word presented is acute or not. The correct answer is worth 1 point and 0 points for a wrong answer. If the student answers incorrectly, the explanation is provided. Also for this exercise, the student may have the feedback after each response or at the end of the exercise. You can change the words, monitor access, verify attempts and the results that students have achieved. The feedback from the students underline that this type of exercise had good results.

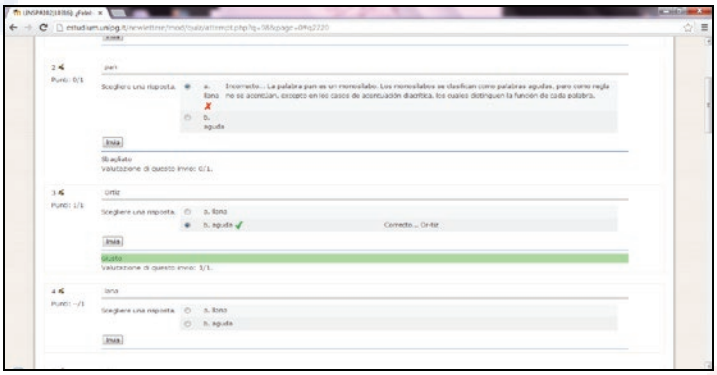

Figure 9 - *¿Palabras agudas o llana?*: *feedback*

The exercise *Clasificar la palabra en aguda, llana, esdrújula o sobre esdrújula* (figure 10), is a multiple choice with the 4 options. The student must indicate whether the word presented is: aguda, llana, esdrújula or sobre esdrújula. The correct answer is worth 1 point and 0 points for wrong answer. If the student answers incorrectly, he was offered the explanation and the correct answer. Also for this exercise the student may have the feedback after each response or at the end of the test. You can change the words, monitor access, verify attempts and the results that students have achieved. Looking at the students' feedback we notice that this type of exercise has had good results.

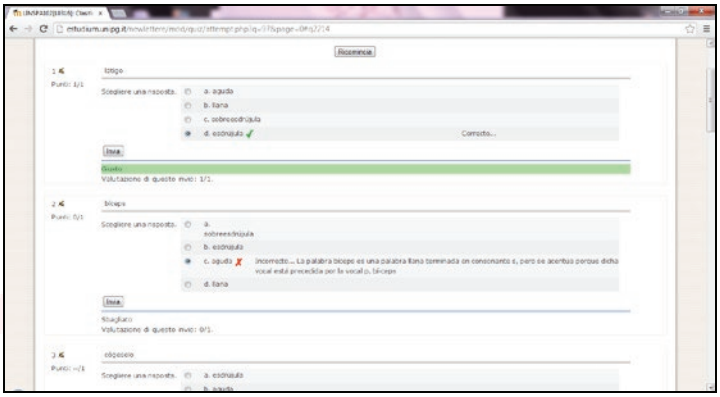

Figure 10 - *Clasificar la palabra en aguda, llana, esdrújula o sobre esdrújula*: *feedback*

In the multiple choice exercise *¿Tilde o no?* (figure 11), students are asked to determine whether the words have the accent and in which position. The correct answer is worth 1 point and 0 points for a wrong answer. If the student answers incorrectly, he was offered the explanation and the correct answer. Also for this exercise the student may have the feedback after each response or at the end of the work. You can change the words, monitor access, verify attempts and the results that students have achieved. In the students' feedback we note that this type of exercise has had several attempts and mixed results.

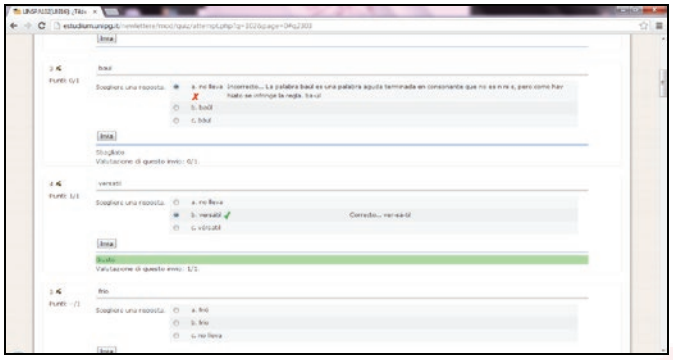

Figure 11 - *¿Tilde o no?*: *feedback*

In the exercise *¿Hiato diptongo?* (figure 12) the student must indicate whether the word is a hiatus or a diphthong. The correct answer is worth 1 point and 0 points for a wrong answer. If the student answers incorrectly, he was offered the explanation and the correct answer. The student may have the feedback after each response or at the end. You can change the words, monitor access, verify attempts and the results that students have achieved. In the students' feedback we note that this type of exercise has had several attempts and mixed results.

In the exercise *Diptongos crecientes y decrecientes* (figure 13) the student must indicate whether there is a word in the ascending or descending diphthong. The correct answer is worth 1 point and 0 points for a wrong answer. If the student answers incorrectly there isn't an explanation, but the word is divided into syllables to develop a student's self-reflection. The student may have the feedback after each response or at the end. You can change the words, monitor access, verify attempts and the results that students have achieved. In the students' feedback we notice that this type of exercise has had excellent results.

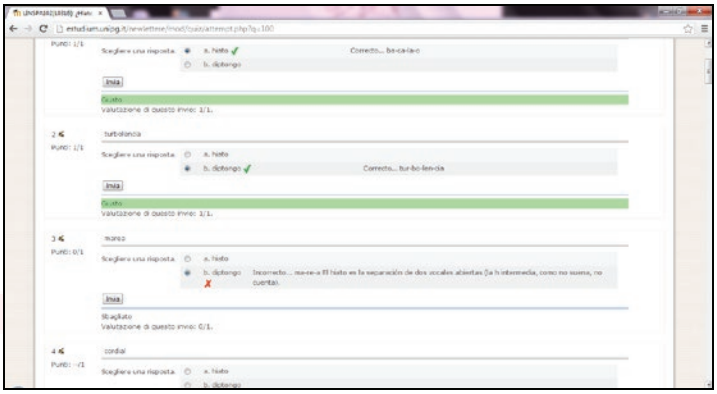

Figure 12 - *¿Hiato o diptongo?*: *feedback*

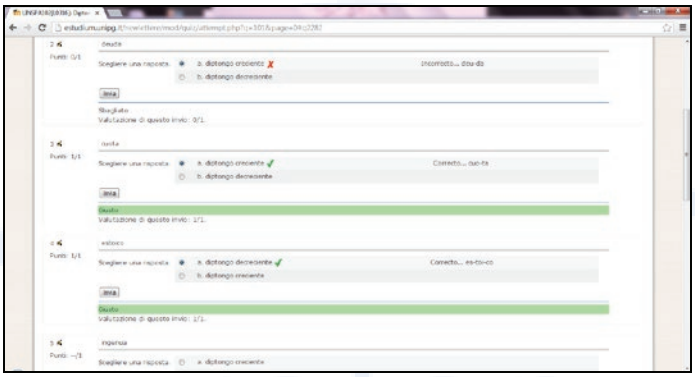

Figure 13 - *Diptongos crecientes y decrecientes: feedback*

3 Conclusions and future projects

The rapid developments in these teaching-learning methods changes the roles of 'actors' of this process, transform and integrate materials and tools both used and usable and changes the method of communication between the participants.

Such changes have led to improvements and practical achievements and whilst some institutions have not always been positive they certainly guided them thoughtful consideration.

Good teaching-learning on the web requires a little time to get its characteristics ‘user friendly’. The active contribution of each participant, communication among students and teachers, clarity, respect and seriousness in the use of the instrument all take time. On-line learning plays a key role in the determination, interest and motivation of the learner. On-line learning also necessitates a new type of teacher who is able to take and summarize the new roles and responsibilities. The teacher must also: study the educational project to be followed, analyze the learning needs and methods to be used, verify paths, plan and organize, manage the course time, set goals and guide the learners, correct, intervene, test and evaluate. The teacher also acts as a reference point to facilitate better student learning by monitoring the learning path, providing educational and technical support, thus maintaining high motivation levels. Traditional and new technology must go hand in hand to develop a more modern learning process.

The development of the *E-studium* for the course 'Phonetics and Phonology of the Spanish language' has shown a strong interest and a great sensitivity for an active, real and practical use of the platform by the teacher and students are developing their confidence in its use. We

asked the students, during the oral examination, if they have used the platform, if they have find problems or difficulties, if they have seen the benefits and if they have any advice and different needs.

All the students have used the platform for enrolment to the exams and check if they have passed the written test - required to access to the oral test. Most of the students have used the platform for the listening exercises. They appreciated the phonological and phonetics transcription exercises and those prepared by the professor in Word format. The other exercises in the platform - built in multiple choice mode - were carried out not only to test their level of study and understanding, but also as a simple test without worrying about 'losing face' or judgments. The students found the short answer exercises more difficult and there was a negligible response. There was no participation in the *Tutor Forum*. As for the teachers, the students should be made aware and 'educated' to use the platform. In general, they are all satisfied with the use of the platform as a complement to the ‘presential’ course, such as study support and as a means of communication and contact with the teacher. They are aware that the teacher tries in every way to help them, interest, motivate and encourage them to study more careful and in a critical way.

The work on the platform is constantly evolving in terms of the possibilities proposed and technologies available, both for the continuous updating of materials and their digitization and archiving, for reports and established communications and for the integration of further materials.

The project within the courses of the Chair of Spanish continues. We will try to start again from the work done to find new suitable and adaptable solutions to the environment and users with regard to exercises, collaborative activities and communication on-line. We intend to experiment with this setting also for literature courses.

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Animating Shakespeare: Engaging Students through Embodied and Virtual Learning

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Abstract

This paper investigates the potential of combining animation and ensemble approaches to learning to encourage students to personally engage with and critically analyse Shakespeare's *Macbeth*.

Ensemble is an approach to drama that encourages cast members to co-rehearse a script and this paper examines its potential to encourage students to explore and connect with a text. Shakespearean drama is used as a medium for this investigation because as a ubiquitous script it allows students to analyse timeless and universal stories in an emotional and physical manner. The paper addresses current concerns regarding disengagement and underdevelopment of critical literacy skills of second level students. It considers the myth of the digital native, focusing on the issue of young people as passive consumers of technology rather than innovative creators of content who learn from its use. Consequently, it evaluates the effectiveness of a coordinated use of new media and ensemble to deepen student engagement in education.

Participants comprised male and female transition year students from two second level schools in the West of Ireland. An ensemble workshop exploring the text preceded an animation workshop where student undertook collaborative animation projects using I Can Animate and iMovie software. Both the process itself and the product were used as assessments. Participant feedback was obtained via focus groups.

This study is the first and second iteration of a Design-Based Research (DBR) project exploring the impact of a technology-enhanced ensemble model (TEEM) of English education on student engagement. The paper will discuss implications for future iterations of the intervention.

TOPIC

This study is part of a doctoral project to investigate the potential of combining narrative technology and ensemble approaches to English education to help students engage with texts on a deeper level. The study explored the extent to which technology-enhanced ensemble approaches to English education at post-primary, senior level maximise student engagement with texts and encourage the development of students' critical literacy skills. To this end, it also considered what intervention design is most successful for the combined use of ensemble approaches and narrative technology. The preliminary conceptual design of the intervention was informed by the literature and initial interviews with students and teachers of English. Once tested, the intervention was evaluated in accordance with participant feedback and redesigned. Thus, the specific objective of this study is to develop a framework that documents how narrative technology can be used to enhance the teaching and learning of English literature. The study will have implications for all curricular learning since the product, the technology-enhance ensemble model (TEEM) approach, has wider implications for engaging students in a range of curricular lessons and is by no means limited to English education.

The Hyland Report deduced that there is "an increasing number of students entering third level education [who] exhibit serious deficiencies in basic literacy and analytical skills [and there is] a growing concern about the Leaving Certificate across the third-level sector – particularly its failure to foster problem-solving and independent learning"(Hyland, 2011, p.8). Therefore, this study used Shakespearean drama as a base for exploring the potential of ensemble approaches to learning because it is a script that calls for student engagement, independent learning and analytical skills in order to explore timeless and universal problems in both an emotional and a physical manner. A script allows for active, abstract and imaginative exploration of a text since it enables meaning to be "brought to life by acting out. A text makes no such demand" (Gibson, 1998, pp 7-8). The ensemble acting approach involves cast members collaboratively exploring the script, rather than emphasising individual performances (Royal Shapespeare Company, 2013). For that reason, this practice is valuable in English education to support student engagement with text. Using various acting techniques such as the whoosh storytelling or Grandma's footsteps[1], an ensemble approach allows students to concentrate on the task collectively without feeling self-conscious. Geoff Petty asserts that "[d]rama raises self-esteem and self-confidence, often allowing hitherto unremarkable members of your class to shine. For all students it encourages empathetic understanding and identification with the characters portrayed. It is a very powerful method for affective education"(Petty, 2009, p. 206). Therefore, by using ensemble students can engage socially with each other and with the text while channelling their creativity into their group performance and diversifying the opportunity for achievement.

Once students have explored the text through ensemble, they imparted the story of their learning using their choice of narrative technologies. Narrative technology refers to digital media that caters for storytelling in a range of formats. Examples include Windows Movie

[1] *Whoosh storytelling*: Students make a circle. They are invited to participate in narrating a story by becoming its various characters or objects as they are called upon (or volunteer) to do so. They begin by embodying a still image and then they act out the story as the narrative progresses. If the word "whoosh" is uttered, they return to their original positions in the circle and the narrative can proceed or a new one can commence.
Grandma's footsteps: One student faces the wall. The rest of the cohort begin at the back of the room and try to sneak up on "Grandma" without being heard. If Grandma is reached, that student takes over the role. If a student is caught sneaking up on Grandma then Grandma asks him/her a question in relation to the text (for example, describe a hope or fear that *Macbeth* has in Act1 sc(i). That student must then recommence at the other end of the room.

Maker, iMovie, I Can Animate, Comic Life and Audacity. This "synergy of storytelling and computing" combines the ubiquitous nature of narrative and timeless need for autobiography with new developments in educational technology to "enhance learners' achievement and confidence, their intra- and inter-personal learning (Hall, 2012, pp 96-97). The study combined narrative technology and ensemble with a view to encourage students to integrate their knowledge and learning in a meaningful context. This blended approach to English education is innovative and allows for productive, aesthetic use of technology to bring learning to life. The EU Kids Online: Final Report dispelled many important myths about our young people's use of technology. The chiefs misnomers were that the "[d]igital natives know it all" and "[e]veryone is creating their own content now"(Livingstone and Haddon, 2009, p.42). It seems that most teenagers require more support now in developing their digital skills because they tend to use technology in a passive manner. Consequently, this study will encourage creativity on the educational side of the digital humanities in order to explore new "[t]eaching and learning approaches directed towards building students' capacity to respond personally to texts [and this] would benefit examination performance"(Chief Examiner's Report, 2008, p. 42). This model of English education provides students with a portal to channel their learning and experiences into an assessable output. Ensemble activities allow students to be engaged and fully realised in the moment. This echoes the teachings of Heinrich Pestalozzi who, over a century ago, argued that young people ought to be engaged in education and should arrive at the answers themselves by having their heads, hearts and hands all occupied by the learning (Pestalozzi, 1894). Therefore, supporting the ensemble exercise with a technology-enhanced activity ensures that the senses are still engaged in this aesthetic process. Storytelling can be used to explore Lev Vygotsky's notion of the zone of proximal development (ZPD), which is more concerned with the buds of learning rather than the fruits of development (Vygotsky, 1978, p. 86). This concept concerns itself with the zone that spans a child's actual and potential development level. Its understanding within education is vital for matching teaching strategies to student capabilities. Since the higher mental functions of the potential development level of a child have their origins in social relations, it would stand to reason that storytelling can therefore play a mediating role in the ZDP of a child and unlock their potential for engagement and critical thinking.

This research will be the first of its kind to develop a user-friendly framework for combining ensemble approaches and narrative technology in English education to enhance student engagement with texts and develop their critical literacy skills. With regards to ensemble approaches to English education, Professor Jonathan Neelands has researched the area of drama as creative learning and its potential for English education (Neelands, 2009). Prof. Neelands suggests that drama education should concern the process of experiencing the social and artistic engagement with the drama rather than the outcomes of studying it and this is something I will build upon in my research. Rex Gibson suggests that the scholastic model of teaching Shakespeare has perhaps caused our young people to disengage with text and is sustaining a de-motivating effect on students (Gibson, 1998). This makes sense, as Shakespeare ought to be an aesthetic experience and as such using ensemble to engage students with the text can awaken their senses and inspire their learning. There has been a significant improvement in the performative strategies used to teach Shakespeare in the United Kingdom. A study to this effect concluded that a more dynamic approach to teaching Shakespeare is crucial as "Shakespeare's texts were written to be performed on stage; even though they have to prepare for the examination, students should learn the plays as his stage craft intended them to be experienced. We surmised that desk-bound and active methods of teaching are effective in combination when applied in the secondary English class" (Aoki, 2012, p. 91).The outlook is concrete: students must be more active in order to be more

engaged in learning. There have been studies undertaken in drama and technology in terms of teacher attitudes towards its use and the uses of technology in English education (Flintoff, 2005, Young and (Eds.), 2013). However, research in combining ensemble and narrative technology to encourage student engagement with text is novel. In the Irish post-primary context, the LCVP Electronic Portfolio simply serves its purposes. In the UK, the eVIVA for KS3, by the QCA and Ultralab, concluded that students' motivation and confidence improved while teachers marvelled at its ease of access (Ultralab, 2005). These examples of ICT in education are not making effective use of technology to develop student engagement or critical literacy skills, which is something this study attempts to address. The area of engagement and achievement seems to be more of an issue in recent times because there are additional interruptions to learning. Cultural diversity, along with a host of distractions, makes it more difficult for teachers to engage students in learning and for students to avoid the monotony of school tasks and to set about to achieve all that is asked of them while maintaining self respect and succeeding in school (Newmann, 1989). Studies have focused on how technology can enhance student engagement in virtual learning environments (VLEs) or with primary sources online (Lindquist and Long, 2011). However, as evident, the area of technology-enhanced ensemble education to encourage engagement with texts within post primary senior cycle English is an entirely new field of exploration. I will learn from the successes and failures of past and current ICT initiatives in post-primary curriculum and assessment in order to develop this technology-enhanced ensemble model (TEEM) of English education.

This study used a Design-Based Research (DBR) approach. This is an iterative process whereby interventions are conceptually designed, tested and then redesigned and retested. It is naturalistic in its setting, which means it is practical and adaptable and is responsive to the emergent, experimental nature of things. Since DBR entails designing exemplar processes (the interventions) and products (models for best practice), its transitive nature is why it is so suited to educational research. It amounts to intelligent experimentation (Dewey, 1938). "Prototypically, design experiments entail both "engineering" particular forms of learning and systematically studying those forms of learning within the context defined by the means of supporting them. This designed context is subject to test and revision, and the successive iterations that result play a role similar to that of systematic variation in experiment" (Cobb et al., 2003, p. 9). DBR's adaptable and adaptive nature provides validity to the findings, which means that they have the potential to inform practice and therefore policy in this area. A successful intervention "should be able to migrate from our experimental classroom to average classrooms operated by and for average students and teachers, supported by realistic technological and personal support"(Brown, 1992, p.143). The iterative nature of a DBR study can be taxing on resources and this is something I had to consider and clarify with all participants (Anderson and Shattuck, 2012 , p.21).

Participants were comprised of 42 post-primary, senior level English students, both male and female; teachers of English and principals, selected on a voluntary basis. Participating schools were two schools in the West of Ireland selected on a random basis by reply to invitation. Research methods included focus groups and workshops. Ensemble workshops were facilitated in the school research site where ensemble-based activities were used to explore Shakespeare's *Macbeth*. Participating teachers of English collaborated on these workshops to breed familiarity with the students and to support curricular needs. The narrative technology workshop took place in NUIG[2] School of Education Apple iPedagogy

[2] National University of Ireland, Galway

suite and focused on the use of technology to enhance the ensemble approach. Focus groups were held with the participants during the pre-visit stage. Semi-structured individual interviews were conducted with participating teachers of English as well as with the each Principal (2) before and after the entire process to gain their viewpoint of teaching opportunities and logistical pitfalls. Interviews were transcribed verbatim.

During the first iteration student participants animated Shakespeare's *Macbeth*. The iteration emphasised digital humanities education and endeavoured to encourage student participants to use technology productively rather than in a passive manner. The students were unfamiliar with the text and the technology used. The process centred on student engagement with text and involved a pre-visit to the school, a workshop facilitated in the NUIG School of Education Apple iPedagogy suite and a post-visit to the school. Students were introduced to Shakespearean language during the pre-visit. The workshops comprised an ensemble section and a narrative technology section. During the ensemble segment of the workshop students engaged in ensemble acting techniques as warm up and ice breaker activities. Then, they were introduced to the story of *Macbeth* using the BBC animation, which is 30 minutes duration (BBC, 1992). Upon viewing this students responded to the plot and characters using the 32-second *Macbeth* ensemble process (Folger, 2007)[3]. Other ensemble methods used included tableau, cross cutting, hot seating and marking the moment[4]. The purpose of the ensemble segment of the workshop was to provide students with opportunities, through embodied learning, to explore, personally engage with and respond to the text and to each other's interpretations of it. The second part of the workshop using narrative technology ensued. First, students were introduced to two pieces of technology: I Can Animate, to facilitate stop frame animation, and iMovie, which allows postproduction of the animation. Students were asked to animate Act1 sc(i) of the play from any one particular character's perspective. Play dough was provided for them to fashion their own characters and props from and they were given a free scope in terms of the direction of the animation. That completed the workshop part of the first iteration. The post-visit entailed a focus group feedback sessions involving both student and teacher participants. The researcher facilitated this.

Student participant feedback suggested that they enjoyed the ensemble activities, once the warm up activities were completed and students reported enjoying using technology in a productive way. However, they did suggest that the content was too vast and deep to cope with in such a short space of time. While some students believed that the play dough was a very creative way to embody the characters and the plot others suggested that having to fashion your own scene prior to animating it was too time consuming for them and nearly overshadowed the purpose. While several students described frustrations with using iMacs, suggesting it hindered their productivity, others detailed improvements in ICT skills and their use of iMacs following the workshops. Students reported that a basic knowledge of the texts was enhanced by the ensemble activities and then built upon by using narrative technology to tell their story. Teacher participant feedback was generally positive with teachers requesting resources and guidelines from the workshops to use in their own classroom. They reported feeling excited about the next workshop series and expressed a desire to be involved again. They found that ensemble was a very useful way to encourage students to broaden their learning and understanding of a text and to engage on a deeper, more personal level. They

[3] An abridged version of *Macbeth* in 21 quotes summarising the play's action and involving nine actors.
[4] *Tableau*: students themselves make still images to represent a scene; *cross cutting*: interweaving two or more scenes to establish continuity; *hot seating*: a character is questioned by the cohort to establish their feelings, thoughts or motives; *marking the moment*: highlighting key moments using freeze frame, slow motion etc.

also thought that the combined use of embodied learning and virtual learning was innovative and exciting.

The workshops were an extremely active and engaging environment and the ensemble did work well to explore character, plot and imagery within a text. Students were unfamiliar with how to use the technology productively. Workshops such as these necessitate well-timed breaks for two reasons: first, students are accustomed to working in 30-40 minute intervals in schools and their attention does wane; second, when students are given a task, be it the ensemble or narrative technology task, well timed breaks are needed because such assignments can take up to 90 minutes to complete. It is important therefore, to help students maintain their concentration on the task to facilitate deeper engagement where possible. Once the sense of workflow was interrupted by a break, students did find it difficult to build up the momentum again. Students were provided with structured designed briefs for animating Act1 sc(i). Students benefited from this and they appreciated its sense of organisation. Therefore, this is certainly something that will be incorporated into the next iteration.

In accordance with the feedback, the first iteration was redesigned to form the second iteration. This assumed a more structured focus towards the animations with a (i) performative, (ii) comparative and (iii) reflective level being implemented. First, the student participants were given a choice of extract, from either Shakespearean drama or poem, in order to encourage students to connect personally with the text and to make an informed decision about which text they would like to work with. This was employed with a view to enhancing engagement in the academic work. Then there followed the pre-visit, the workshop and the post-visit as with the first iteration. In the pre-visit, the student participants explored their various texts using ensemble; this was their performative level. The workshop took place again in the NUIG School of Education iPedagogy suite where ensemble acting methods encouraged students to review the previous visit and to explore comparative elements either within their chosen text or between two or three texts; this was their comparative level. In addition, students were tasked with choosing how to animate their piece. Students were furnished with storyboards for all assignments as well as a design brief, which clearly outlined completion requirements. Students were given ample scope for animation. Once the story of their text was animated, using the same technologies as before, students then progressed to a more analytical level of the workshops. They used Comic Life to reflect both on the process itself and on their learning; this was the reflective level. The post-visit again involved focus groups to obtain general feedback and a confidential online survey for individual feedback.

Student participant feedback for the second iteration was much more positive. Students said that they felt that they had a deeper knowledge of the text following the intervention. They reported an understanding of how to analyse imagery in particular within texts. They also welcomed the socialising opportunities as well as the occasion to work with peers they ordinarily would not have since each aspect of the tasks were designed to encourage collaborative work. Participating teachers reported that the students' overall responses to subsequent assessments on the texts were on a much deeper level than it had been previously. Teachers felt that their students were better equipped to engage with and analyse text following the intervention than they had previously demonstrated. Students offered more personal responses to questions following the second iteration of the intervention. It did take longer to complete tasks but on average students connected more with the various elements of texts on a deeper level than they had before the first iteration of the intervention. Their answers to particular questions on the text were less generic and more specific. Students also

tended to use quotes in their answers and oral personal responses to texts despite not being prompted for them.

Since these iterations are part of a doctoral study on student engagement with text, subsequent iterations focus on the issues surrounding measurement of engagement. To this end, it is important to maintain comparisons with control groups and national averages. Providing students with choice concerning the texts and technology they use seems to be of paramount importance in this study in terms of pre and post intervention analysis. Future iterations will draw on wider concepts of animating literacies with a broader, more robust framework in terms of embodying narratives to investigate the full potential of a technology-enhanced ensemble model (TEEM) of English education for student engagement.

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M-Learning: A Proposed Pedagogical Model for Institutions of Higher Learning in Africa

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Abstract

Kenya was propelled onto the world stage with mobile phone technology after the successful implementation of mobile money transfer in 2007. Since then, researchers in Kenya and Africa at large started looking into the possibilities of a similar revolution in education. Kenya has a population estimated at 40 million people and there are 30 million active mobile phone numbers. On the contrary, Kenya has about 9 computers per 1000 people. Therefore, e-learning via computers has limited prospects. Furthermore, Internet access in Kenya is primarily via mobile devices. Internet-enabled phones as well as cheaper lower-end smart phones have become increasingly available in Kenya.

Strathmore University in Nairobi conducted an investigation into the applicability of mobile learning (m-learning) for the current institution pedagogy. First, an analysis of existing m-learning platforms was done, with a bias for Free and Open Source platforms that would be accessible in Africa. The project team then carried out a study among 531 students in order to establish their perceptions towards m-learning. A customized m-learning Moodle application was subsequently designed and 118 students used it for a weeklong pilot study. From the research findings, it was evident that exploiting m-learning in higher education institutions, in Kenya and the rest of Africa could result in a paradigm shift in the instructional practices used in developing countries. This paper discusses the future of m-learning in Africa and provides empirical evidence supporting its implementation at Strathmore University.

1. Background

1.1 Introduction

The adoption of mobile technologies in Africa has been on the rise since 2007. Mobile penetration was recorded as 71.3 percent by December 2011 up from 67.2 percent recorded during the 2010/2011 period (Communications Commission of Kenya, 2011-2012). This reflects a 4.1 percent growth in three months. Mobile technologies have continued to facilitate solutions that transform the industries and society in sub-Saharan Africa. Now, more than ever before, there is a high affinity for mobile technologies for accomplishing communication, business, banking and educational related tasks (Paul B.M, 2010). The introduction of mobile technology throughout Africa has helped countries to skip several steps in the development process, which could have been much more prolonged (Davis, 2013).

Today mobile devices in the market are offered at increasingly affordable prices. The cheapest internet-enabled feature phone on the market now costs KES 2,500 (The Nokia 2730c). The cheapest smartphone retails at KES 7,000 (The Huawei IDEOS). Purchase of these devices has also grown, contributing to the rise in mobile internet access in Kenya. A research published by Research ICT Africa indicated that "in South Africa, Kenya, Nigeria, Tanzania and Rwanda, internet is accessed through the mobile phone by 70% of the internet users (Enrico Calandro, 2012). The availability and affordability of Internet access options in Kenya has increased. Smartphones, smart hand-held devices and feature phones have broadband capabilities. The cost of broadband access has become affordable owing to factors such as competition and government controls on network tariffs. The Communication commission of Kenya (CCK), through Determination No.2 of 2010 issued on 16th August 2010 announced a 50% reduction in the interconnection rates (Communications Commission of Kenya, 2010-2011). All these factors contribute to an opportunity that higher learning institutions could benefit from. Most students are already equipped with Internet-capable mobile devices and affordable internet access options on broadband, due to reduced internet and mobile device costs. The challenge is left to the education institutions to create programs that leverage mobile platforms to enhance students' learning experiences.

Mobile learning is defined differently depending on the implementation strategy used. MoLeNET defines it as the exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning (Mobile Learning Network (MoLeNET), 2010a). EDUCAUSE relates it to any educational interaction delivered through mobile technology and accessed at a student's convenience from any location (EDUCAUSE, 2010). Keegan D. defines it as the provision of education and training on PDAs (including palmtops and handhelds), smartphones and mobile phones (Keegan, 2005).

1.2 Objectives

1. To establish whether mobile devices offer a viable solution in supporting and enhancing the delivery of education in institutions of higher learning in Africa.
2. To establish the readiness of students to undertake mobile learning
3. To test a practical implementation of mobile learning in an institution of higher learning

1.3 Research questions

1. Do mobile devices offer a solution to enhance the delivery of education in institutions of higher learning in Africa?
2. Do students have the right kind of phones to enable them undertake mobile learning?
3. What do students in Strathmore University think about mobile learning? Would availability of learning material in mobile accessible format impact student performance?
4. How can a mobile learning system be implemented in institutions of higher learning in Africa?

Scope of study

The research was conducted at Strathmore University in Nairobi, Kenya. The institution has a population of about 4600 students taking full-time, part-time or distance learning programs. The following faculties participated in this research:

- Faculty of Information Technology (FIT)
- School of Management Commerce (SMC)
- School of Accountancy (SOA)
- School of Law (SOL)
- School of Humanities & Social Studies (SHSS)
- School of Finance and Applied Economics (SFAE)

Relevance of study

Students in developing countries in Africa are more likely to have access to mobile phones than computer access (Merryl F., 2009). In Strathmore University, about 95% of the students own at least one mobile device (a phone, laptop, tablet etc.). This presents a great opportunity to improve the learning experience of students by using mobile devices.

2. Literature Review

2.1 Growth of Mobile Internet – World

In 2010, the ITU predicted that within the next five years mobile web access via laptops and smart mobile devices would overtake access via desktops. Earlier in 2009, the International Data Corporation (IDC), with reference to findings that indicated there were more than 450 million mobile Internet users worldwide, predicted that the number of mobile Internet users would pass the 1 billion mark by 2013 (UNESCO, 2011). The infographic below from Microsoft Tag provides a representation of a prediction that by 2014 mobile Internet will have taken over desktop Internet usage (Holly R., 2011).

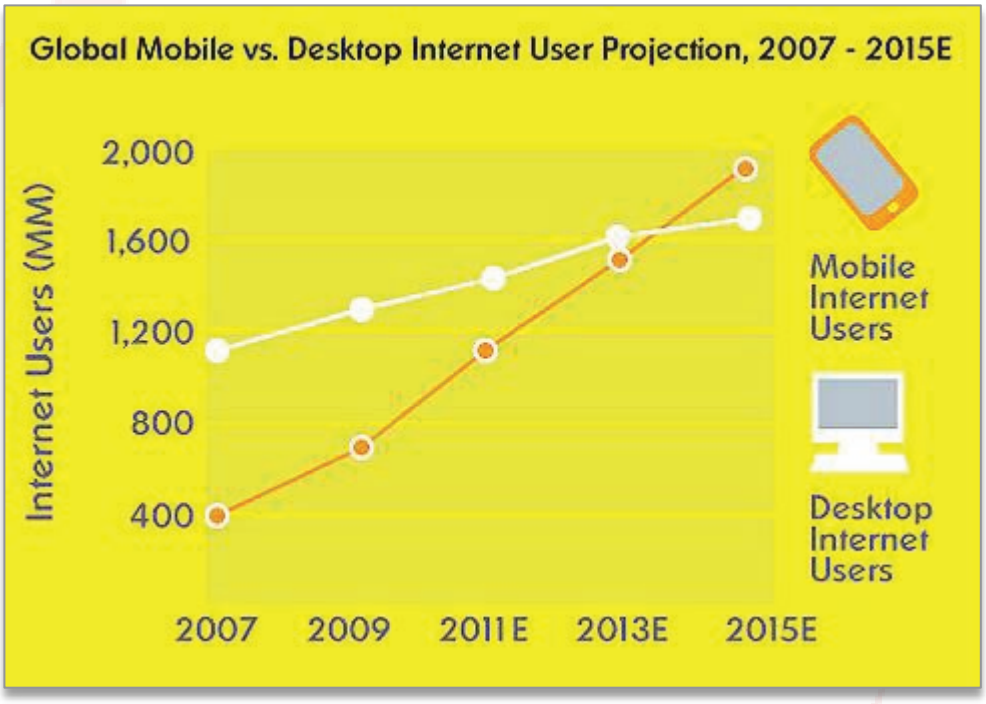

Figure 1: Global Mobile vs. Desktop Internet use Projection

Source:

http://tag.microsoft.com/community/blog/t/the_growth_of_mobile_marketing_and_tagging.aspx

2.2 Growth of Mobile Internet in Africa

Africa is projected to report an additional 224 million mobile users over the next five years, bringing mobile phones to 68 % of the continent's population. Mobile phones in Africa are increasingly being used as a media to get information and to use value added services. Whether; checking market prices, transferring money or simply checking the latest news, Facebook or Wikipedia, mobile phones are transforming life in Africa. Their increased use has led to an increase in the demand of convenient mobile service provisions. These services include mobile money transfer, mobile banking and mobile ticketing. Inevitably, the African mobile Internet market is due for a major transformation. The number of mobile Internet subscribers in Africa has increased dramatically in the last 18 months, particularly in East Africa. In Kenya alone, mobile Internet subscribers grew from 1.5 Million in Q3 to 3.1 in Q4, 2009/2010 (Communications Commission of Kenya (CCK), 2009-2010). Smart phone and feature rich phones make up as much as 30% or more of the market in countries with higher numbers of mobile Internet subscribers (Rao, 2011).

2.3 Growth of Mobile Internet in Kenya

Mobile penetration reached 78% per 100 inhabitants by the end of the quarter under review up from 77.2% per 100 inhabitants recorded during the previous period (Sept 2012). This

represented an increase of 0.8 percentage points, compared to the same period the previous year, an increase of 6.7 percentage points was recorded (Communications Commission of Kenya (CCK), 2012/ 2014).

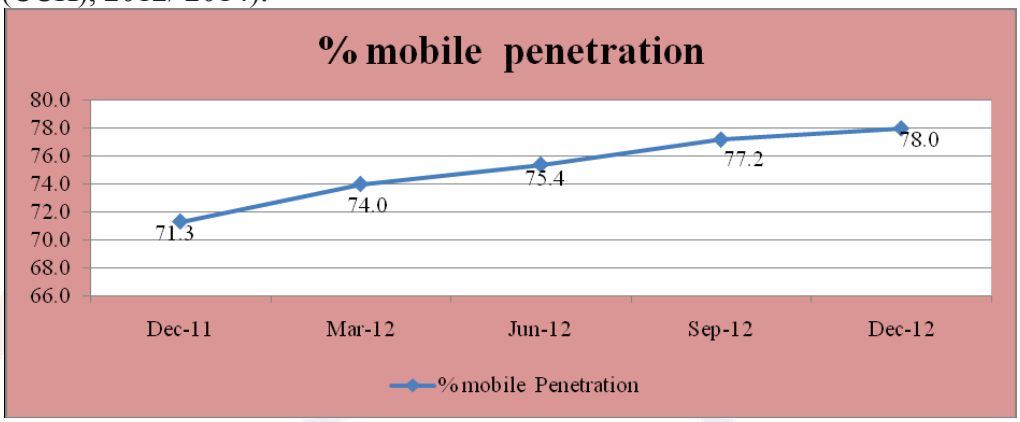

Figure 2: Mobile Penetration – Kenya
Source: CCK Operators' Returns

As seen on the table below, Mobile Internet subscribers grew from 8.4 Million in Q3 to 9.4 Million in Q4 (Communications Commission of Kenya (CCK), 2012/ 2014).

Internet/Data Subscriptions	Dec-12	Sep-12	Quarterly Variation (%)	Dec-11	Annual Variation (%)
Total Internet Subscriptions	**9,496,573**	**8,519,148***	**11.5**	**5,423,428**	**75.1**
Mobile Data/Internet Subscriptions	9,406,843	8,436,578	11.5	5,376,050	75.0
Terrestrial Wireless Data/Internet Subscriptions	23,814	23,780	0.1	13,059	82.4
Satellite Data/Internet Subscriptions	684	531	28.8	811	-15.7
Fixed DSL Data/Internet Subscriptions	10,807	10,842	-0.3	11,016	-1.9
Fixed Fibre Optic Data/Internet Subscriptions	54,400	47,392	14.8	22,467	142.1
Fixed Cable Modem Subscriptions	25	25	0.0	25	0.0
Total Internet Users[8]	16,236,583	14,553,378	11.6	8,936,165	81.7

Table 1: Internet subscriptions and internet users
Source: CCK Operators' Returns

Further breakdown break down of Mobile Data/ Internet Subscription per operator is as show on the table below

Name of Operator	Dec-12	Market Share (%)	Sep-12	Market Share (%)
Safaricom Limited	6,830,796	72.6	5,586,050	66.2
Airtel Networks Kenya Limited	1,095,945	11.7	1,278,013	15.1
Telkom Kenya Limited (Orange)	853,962	9.1	948,847	11.2
Essar Telecom Kenya Limited	626,140	6.7	623,668	7.4

Table 2: Mobile Data/Internet Subscriptions by Operator
Source: CCK, Operators' Returns

3. Mobile Learning

The approach to mobile learning is gradually shifting from merely putting e-learning course materials into a smaller package so that they can be played on a mobile device. Rather, it is thinking differently about learners and the new possibilities that being both mobile and connected can offer to employees who want to learn something "on the fly" (Woodill, 2010). This can very well be applied to all people in organisations and institutions of learning.

3.1 Mobile Learning Trends

Mobile learning these days is about more than just remote access; it is also a matter of flexibility (Cournoyer, 2013). Learning should be flexible and mobile**.** So much of what Millennials do now is "off the clock" (Cournoyer, 2013). Social learning should be

encouraged especially now with the increase in the use of social media platforms like Facebook, twitter etc., which can easily be accesses on mobile devices

Mobile applications are also growing in their flexibility of access and presentation of content, both online as well as offline. (Davis, 2012), talks highly about a mobile application named *Pocket* (Formerly *Read It Later*). This application allows users to store web content that they would like to access later. Users only need to 'pocket' the webpages and this application automatically synchronizes to their phones, tablets or computers so they can view it any time, even without internet connectivity.

3.2 Mobile Learning Myths

These are a few concerns that have been raised about mobile learning. At times, mobile phones are perceived as being disruptive, addictive, increasing anti-social behaviour, harmful to health, or a means of accessing undesirable content. Below are a few other myths about m-learning, as identified during other mobile learning surveys elsewhere.

1. Screen size is too small

While mobile phones do not have screens as large as desktop computers, 'mobile devices' also include tablets and devices such as e-book readers. These screens are certainly large enough. Mobile devices with smaller screens are often used in different ways from more fixed technologies and are heavily context-aware (Belshaw, 2012).

2. Consistency of mobile learning standards (or lack thereof)

Initially, SCORM was seen as the de facto standard for e-learning products. With the development of HTML5, CSS3 and other frameworks, along with the various app stores (iOS, Android, BlackBerry), however, existing content is becoming a lot more mobile-friendly (Belshaw, 2012).

3. Mobile devices distract students while learning

Whilst it is true that mobile devices with notification features turned on can be detrimental to sustained concentration, the fault lies not in the mobile device but in its use. The appropriate use of technology in a given context is a socially-negotiated process (Belshaw, 2012).

4. Mobile learning is all about learning on the move

Mobile learning may be about the mobility of the learner, but this is to do with moving across contexts rather than accessing content while being on the move. This could be in a context that suits the individual learner, for example on public transport, waiting in a queue, or sitting in a favourite chair at home. Alternatively, it could be in a context more suitable and appropriate for teaching (Belshaw, 2012).

5. Young people already know how to use mobile devices for learning

The use of mobile devices by young people for social activities does not mean they know how to use them for learning. Educators should be aware of, and continue to experiment with, new ways of using mobile (and other) technologies for learning within their discipline (Belshaw, 2012).

6. Mobile learning is only possible with 'costly' smartphones

In contrast to other information and communication technologies (ICTs), mobile phones are already in the hands of students and teachers. This can represent less cost than equipping schools with computers. Mobile phones need to be seen as an opportunity to leverage existing technological uptake (UNESCO, 2011).

7. Mobile devices are unreliable for learning as they are likely to be lost, broken or stolen.

Mobile devices tend to be both expensive for their size (and therefore desirable to thieves) as well as being easy to lose or damage. The MoLeNET programmer, however, found that of 10,000 handheld devices purchased across various projects, less than 2% were damaged, lost or stolen. Just as it can be a good idea to have spare versions of older technologies such as

pens and books, so it is sensible to have spare mobile devices in the case of various eventualities (Belshaw, 2012).

8. Nomophobia

Nomophobia is considered a ‘new-age’ myth. Students respond to requests to shut off their phones with a sense of panic, a feeling that they will be cut off from their world of personal relationships. This feeling, taken to its extreme, has been dubbed "nomophobia," the fear of being forced to shut off a phone, or the obsessive worry of losing a phone. There is even a support web site for nomophobics (Belshaw, 2012).

4. METHODOLOGY

This research study employed both primary and secondary research methods to explore the possibility of implementing a mobile learning platform on campus. Methods such as questionnaires, desktop research and focus group discussions aided the research process in gathering information.

Beginning in 2012, Strathmore University enrolled approximately 4600 students. A standard sample size formula was used to calculate the sample size.

$$SS = \frac{X^2 NP(1-P)}{d^2(N-1)+X^2P(1-P)}$$

$\mathbf{X^2}$ = The value of Chi-Square @ *d.f.* = 1 for desired confidence level .10 = 2.71 .05 = 3.84 0.1 = 6.64 0.001 = 10.83

N = Population Size

P =Population proportion (assumed to be .05)

d = Degree of accuracy (expressed as a proportion)

Parameters Used:

- Total Population: 4600
- Sample Size: 531
- Confidence Level: 95%

4.1 Questionnaires

Most of the information to be collected was statistical. Questionnaires were used mainly because the data collected was statistical in nature. The sample size of 531 students spread across different faculties was considerably large. Considering the short research period available, questionnaires were the most suitable tools to use and quite cost effective (Rao, 2008) . A good number of questionnaires were completed online. Some were printed to facilitate the process of distributing them to students.

Moodle Questionnaire, an open source plug-in available for Moodle 1.x, 2.x platforms, was used to analyse the data collected from the questionnaires.

Questionnaire 1

As mentioned earlier, the target sample for the first questionnaire was 531 students. This figure was chosen as it would give the research a low margin of error since the chosen confidence level was 95%. The questionnaire was available both online (Strathmore e-learning website) and in hard copies.

Apart from demographics, Questionnaire 1 particularly investigated the aspects outlined below, which are born from our variables of interest in this research:

- The kind of mobile devices owned by students: Students were required to state the make and model of their phones, as well as the operating system it ran on (Android, Symbian, BlackBerry, etc.)
- The students' perception towards mobile learning and if they think it would boost their performance or change their study habits in anyway. We were also keen to know if they would prefer reading on mobile devices as opposed to reading on computers.
- Their expectations in regards to the kind of learning materials and formats (video, audio, formatted documents, flash animations, etc.).

- Of interest to us also was, the alternative methods they used to connect to the Internet on other devices they had (e.g. laptops, tablets, PCs, etc.) either while on campus or away from campus.

Questionnaire 2

This questionnaire was in many ways similar to the first questionnaire. The only difference was that it focused on those students who were going to physically experience mobile learning. The lecturers who were willing to engage their class in this survey submitted their class notes for conversion, so that their students would be able to access the class material on their mobile phones. This questionnaire collected information about the kind of devices owned by students in these classes. This was a one-page questionnaire. Analysis of the data collected from the respondents was done on Moodle. Data collected from each class was analysed separately. This analysis informed the research about the specific number of students able to undertake mobile learning in each class by identifying those who had mobile devices with the capability to access the learning material created.

Questionnaire 3

A third questionnaire aided the collection of feedback on the user experience, connectivity and students' perceptions after having a practical mobile learning experience. This questionnaire emphasised on the qualitative aspects of the research. Respondents were required to briefly explain their experiences so as to capture their perceptions. This questionnaire, however, had some quantitative areas which were analysed on the Moodle questionnaire platform.

4.2 Desktop Research and Application Testing

Research on mobile learning implementations around the world, and especially within Africa, was conducted. The purpose of this was to gain knowledge on the different m-learning implementation practices elsewhere, the challenges faced, tools used and the outcome of each successful implementation.

Various tools and document formats were tested before selecting the most suitable ones for mobile learning. The tools included mobile reader applications and document conversion software.

Up to 15 mobile reader applications were tested using different types of phones running on different platforms: namely Android, BlackBerry, Symbian and Java (feature phones).

A total of five document authoring tools were sampled for testing. They were tested on compatibility with operating systems (Windows and Unix-based systems), supported file formats as well as the output quality of eBooks.

Six document formats were tested for their ability to display content on mobile devices while retaining the quality of the original document. The extent to which these document formats were tested was limited to the mobile reader applications that supported them and the type of mobile phone used.

4.3 Focus Group Discussions

After students had experienced learning on mobile for a one-week period, they were engaged in a focus group discussion. The purpose of this was to get general qualitative feedback on the entire mobile learning experience.

Areas of interest:

- Students' experience while using the eBook readers; the whole process of installing the applications, downloading eBooks and reading.
- Concerns about formatting of the notes and how that affected navigation through documents, positioning of internal links and table of contents, and accessibility of the navigation links and the table of contents.

In a typical focus group discussion there were 5-10 students who were open enough to express their perceptions about mobile learning and, in some cases, suggested improvements. The discussions were recorded for more analysis that would be done later.

5. FINDINGS AND DISCUSSIONS

5.1 Questionnaire 1

The total population of students in Strathmore University was 4627 (January 2012). Of these, 531 (8.148%) completed Questionnaire 1. This questionnaire helped to ascertain the readiness of the students for mobile learning. This was achieved by analyzing aspects such as method of mobile Internet access while in the university, their perception towards mobile learning and the type of devices that students have.

Mobile Internet access was a key variable of concern. Statistics showed that 94 per cent of the students can access mobile Internet. This includes both broadband and Wi-Fi users.
Going by the recent statics and predictions, this figure is expected to grow as Internet-enabled mobile phones become more affordable. Figure 4.1.1 (below) illustrates the findings.

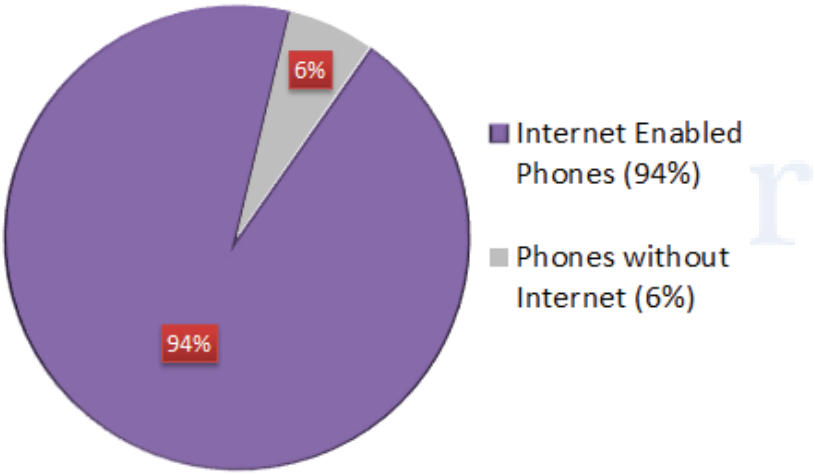

Figure 3: Mobile Internet Access

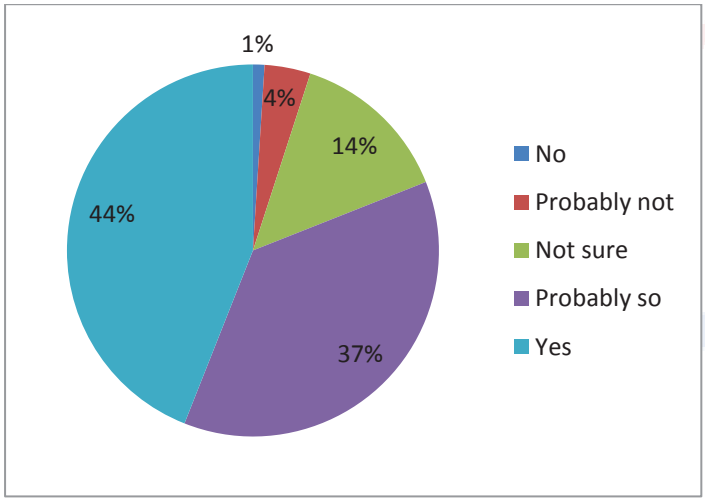

Figure 4: Student's perception of m-Learning

To capture the **students' perceptions** of mobile learning, we asked them whether they think mobile learning will improve their performance in class. 81% of the students gave a positive

response; 44% said yes they were sure, 37 per cent said probably so. Figure 4.1.2 (above) represents their responses.

This research also explored the different **mobile phone platforms** represented among the student population at Strathmore University. Students were asked to name their phone's operating system (if present), the make and model. The figure below illustrates these findings.

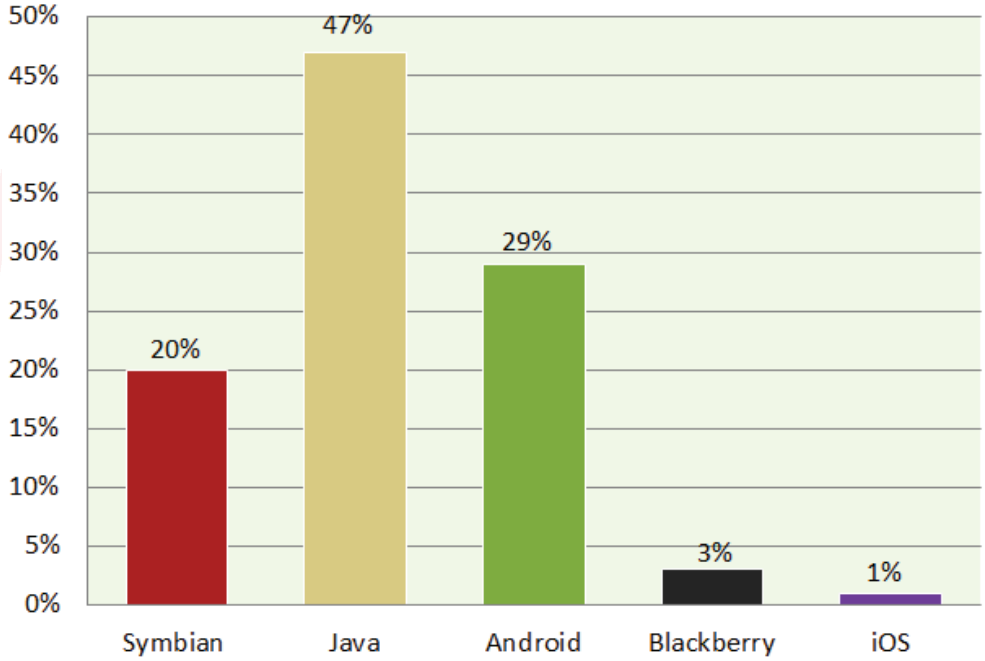

Figure 5: Mobile Phone Platform

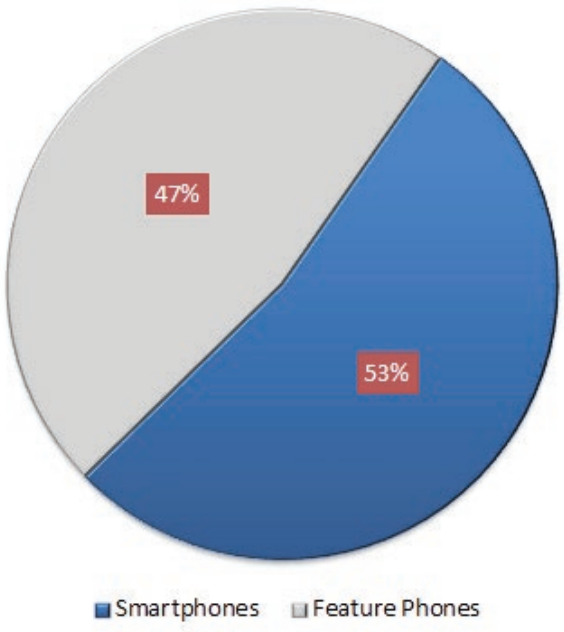

Figure 6: Smartphones vs. Feature Phones

Those in possession of smartphones and feature phones could be identified as the questionnaire required the students to state the makes and models of their mobile devices.

A combination of all Symbian, Android and BlackBerry smartphones totals up to be more than the number of feature phones in Strathmore University.

This indicated a high level of readiness for mobile learning within the institution.

Figure 4.1.4 (left) illustrates these findings.

5.2 Mobile Reader Applications

Mobile reader applications were gathered for testing. The platforms targeted were Java, Symbian, Android and BlackBerry since most students owned phones that used these platforms. The findings are shown in the below.

Readers	Document Formats	Supported Platforms	Editing (Phone/PC)	Pros/Cons	Cost
iSilo Reader	iSilo, .pdb	Android, BlackBerry (also touch), Windows Mobile, Symbian (UIQ,UIQ3,60 3rd, 80), WebOS, IOS	Phone: No PC: Yes (iSiloX)	**Pros**: wide variety of platforms, supports links, images, tables **Cons**: Symbian version issues - takes too long loading documents	Android $15.99, Symbian $19.99, BlackBerry $15.99, IOS 3.x $9.99
eReader	.pdb	Android, Symbian, BlackBerry, Windows Mobile, PalmOS, IOS	Phone: No PC: Dropbook (free Windows/ MacOS), eBook Studio (not free)	**Pros**: supports hyperlinks, images, bookmarks, footnotes, online libraries/bookstores **Cons**: only loads eBooks from online stores	Free
MobiPocket	.mobi, .doc	Symbian, BlackBerry , Windows Mobile, Palm OS, webOS, Psion, Kindle, iOS, Java(beta)	Phone: No PC: Yes	**Pros**: multiple doc formats support. **Cons**: Some Symbian versions not supported (5800, N97, most low-end Nokia devices)	Free
Albite Reader	.epub	Java, Symbian	Phone: No PC: No	**Pros**: covers most Symbian platforms, easy to use, dictionary support, bookmarking, **Cons**: tables & hyperlinks not supported	Free
WordPlayer	.epub	Android	Phone: No PC: No	**Pros**: free, easy to use, connects to online eBook stores, it's free **Cons**: only supports ePub, poor support for internal links, incredibly slow in loading pages	Free
FBReaderJ	epub, fb2, mobipocket (partially), pdb	Android, Symbian (beta), Meego (beta)	Phone: Yes (limited) PC: Yes	**Pros**: supports hyperlinks, bookmarks **Cons**: Symbian and Meego Versions installation difficulties.	Free
Adobe	.pdf	Symbian S60.x,	Phone: No	**Pros**: Rendering of text,	$9.99

Reader LE 2.5		Android, iOS	PC: Yes	tables and images is good, ease of navigation, bookmarks **Cons**: not free	
iReader	.pdb, .mobi	Android	Phone: NO PC: No	**Pros**: Easy to use, **Cons**: not free, no table/hyperlink support	$1.99
Aldiko	.epub	Android	Phone: No PC: No	**Pros**: Supports Images, internal and external links, **Cons**: problem displaying large images.	Free (some versions are not free)
Foliant (v0.7.3 beta)	.epub, .fb2 and .txt	Symbian, Android	Phone: No PC: No	**Pros**: Supports internal links and images **Cons**: heavy on low-end devices, slow on Symbian smartphones	Free
Tequila Cat	.txt, .rtf, .pdf, .pdb/.prc and .html	Symbian	Phone: No PC: Yes (Converter)	**Pros**: light application **Cons**: eBook formats created don't support links	Free
AnyView Reader	.txt, .html, .pdb and .udm	Java Phones	Phone: NO PC: NO	**Pros**: free, **Cons**: no links, no images, no tables	Free
EPUB Reader	.epub	BlackBerry	Phone: No PC: No	**Pros:** (not tested) **Cons:** not free	$1.99
Book Reader	.epub, .txt, .mobi, fb	BlackBerry	Phone: No PC: No	**Pros:** Supports images and non-DRM books (not tested) **Cons:** not free	$0.99
Buku Reader	.epub, .txt	BlackBerry	Phone: No PC: No	**Pros:** Opens Non-DRM books. **Cons:** no mention of support for links, not free	$2.99

2.1.1 Discussion

There are some important features that guided the selection of suitable mobile reader applications. They include;

- Ease of installation.
- Loading speed for eBooks
- Variety of document formats supported.
- General user experience:
  - Positioning of menus
  - The ability to customize to user preferences (fonts, color, text alignment, screen orientation etc.)
- Efficiency in battery consumption.
- Support for images (zooming in/out).

To ease our understanding of how the mobile reader applications were used to deliver mobile learning, the study focused on the four most common mobile platforms: Symbian, Java, Android and BlackBerry.

5.2.1.1 Android

In Strathmore University approximately 1,334 students (29%) have Android smartphones. There is a wide variety of open source mobile reader applications that can be downloaded directly from the app stores. A number of tests were done to determine the most suitable one. Tests focused on attributes such as:

- User interface and ease of navigation.
- Additional features such as a document library
- Ability of the application to incorporate external libraries

Of all the readers evaluated, *FBReaderJ* offered the best performance and user experience, hence it was selected for Android users.

5.2.1.2 Symbian & Java

A large number of mobile document readers were tested under this category. Some of which were very specific to the device platforms, other specific to versions of phones produced. For instance, a reader meant for Nokia N93 smartphones may not work on a Nokia N97 smartphone. A number of readers that offer alternatives were identified.

5.2.1.3 MobiPocket

MobiPocket (http://www.mobipocket.com/) has many variations. Table 5.1 below shows mobile phone versions which *MobiPocket v6.2* can be installed and used. Table 4.2.2 below shows a summary of supported mobile phone makes and models.

Reader	Supported Makes & Models
MobiPocket v6.2	**Nokia** 3600/3620/3230/3250/3650/3660/5500/6260/6620/6630/6670/6680/6681/6682/ 6600/7650/7610/7710/E50/E60/E61/E62/E70/N71/N73/N75/N80/N91/N92/N93 /N93i/N95/N70/N72/N90/N-Gage/N-Gage/9210/9290/9300/9500 QD - **Siemens** SX **Sony Ericsson** P800/P900/P910 - Motorola A920/A925/A1000/M1000 - BenQ P30 **Sony Ericsson** M600/P990/W950 (Mobipocket reader doesn't support the Symbian S60 5th Edition (that means the touch enabled versions e.g. Nokia 5800, N97)

Table 3: Supported Makes and Models

5.2.1.4. Albite Reader

Another good example is *Albite Reader* – by Svetlin Ankov (http://albite.org/reader).

The reader works on most Symbian and Java-based phones. It is available for both low-end and high-end phones in this category. Development of the *Albite Reader 3* is currently underway. New features of this reader are mostly user-driven. Internal navigation links (anchors), other book formats supported, more languages supported, indexing of chapters, embedded dictionaries – these are just but a few of the 43 ideas yet to be implemented. Figure 8 and 9 below show the interface of the reader.

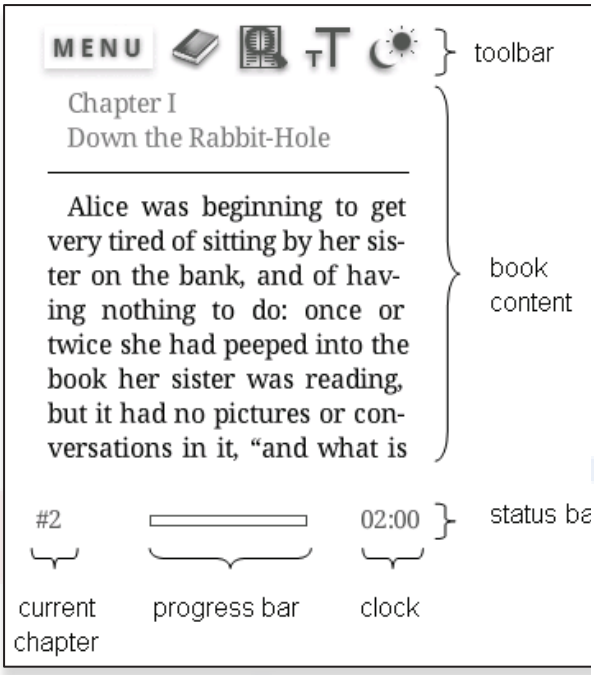

Figure 7: Albite Reader Layout
Source: http://albite.org/reader

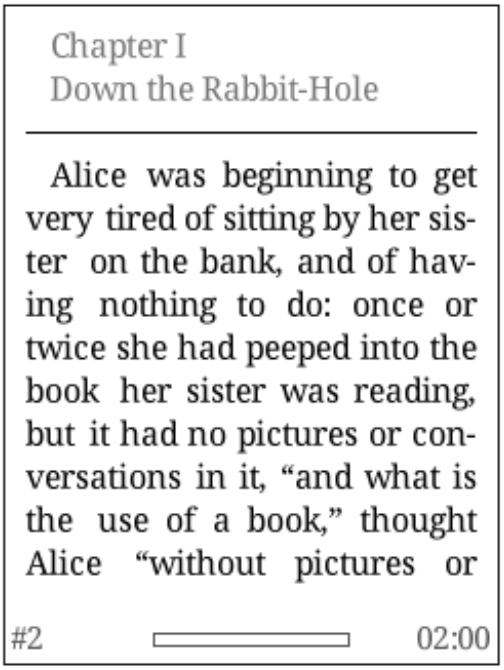

Figure 8: Albite Reader Full Screen Movie
Source: http://albite.org/reader

Symbian and Java devices supported by *Albite Reader* are in the table below.

Albite Reader Version	Supported Devices	Memory Requirements
Albite READER HD 2.2	Nokia N8-00, Nokia E7-00, Nokia X6-00, Nokia C7-00, Nokia C6-00, Nokia C5-03, Nokia 5800 XpressMusic, Nokia 5531 XpressMusic, Nokia 5250, Nokia 5230 Nuron, Nokia N97	3000 – 10000KB
Albite READER 2.2	Samsung GT-S5230 (Star), Samsung Impression	1500 – 6000KB
Albite READER NoTouch 2.2	Nokia X5-01, Nokia E5-00, Nokia C5-00, Nokia N96, Nokia N95, Nokia N91, Nokia N85, Nokia N80, Nokia E72, Nokia E61, Nokia E50, Nokia 6760 slide, Nokia 6720 Classic, Nokia 6710 Navigator, Nokia 6220 Classic, Nokia 6124 Classic, Nokia 6120, Nokia 5730 XpressMusic, Nokia 5700 XpressMusic, Nokia 5630 XpressMusic, Nokia 5500 Sport ,Nokia 5320 XpressMusic, Nokia 3250, Sony Ericsson J105i	1500 – 6000KB
Albite READER Light 2.2	Nokia 3720 Classic, Nokia 5130 XpressMusic	500 – 1500KB
Albite READER Tiny 2.2	(Basic java phones with 500KB or less memory)	500KB

Table 4: Supported Java and Symbian Devices

5.2.1.5 BlackBerry

Most BlackBerry phones come with reader applications for PDF and, in some rare cases, DOC or PPT. Mobipocket eBook Reader runs on all BlackBerry devices with a firmware 3.7 or higher. The table below summarizes the supported versions.

Device Model	Version
BlackBerry Curve	BlackBerry 8300, BlackBerry 8310, BlackBerry 8320
BlackBerry 8800 series	BlackBerry 8800, BlackBerry 8820, BlackBerry 8830
BlackBerry Pearl	BlackBerry 8100, BlackBerry 8110, BlackBerry 8120, BlackBerry 8130
BlackBerry 8700 series	BlackBerry 8700c, BlackBerry 8700f, BlackBerry 8700g, BlackBerry 8700r, BlackBerry 8700v, BlackBerry 8703e, BlackBerry 8705g, BlackBerry 8707g, BlackBerry 8707h, BlackBerry 8707v...
BlackBerry 7100 series	BlackBerry 7100g, BlackBerry 7100i, BlackBerry 7100r, BlackBerry 7100t, BlackBerry 7100v, BlackBerry 7100x, BlackBerry 7105t
BlackBerry 7130 series	BlackBerry 7130c, BlackBerry 7130e, BlackBerry 7130g, BlackBerry 7130v…
BlackBerry 7200 series	BlackBerry 7230, BlackBerry 7250, BlackBerry 7280, BlackBerry 7290…
BlackBerry 7500 series	BlackBerry 7520
BlackBerry 7700 series	BlackBerry 7780

Table 5: MobiPocket Reader - Supported by BlackBerry Devices

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APPENDIX
APPENDIX 1: MOBILE LEARNING QUESTIONNAIRE 1

MOBILE LEARNING QUESTIONNAIRE

This survey aims to identify the possibility and suitability of implementing a Mobile Learning System in Strathmore University. The system will enable students to have access to class contents anytime anywhere using their mobile phones.
Thank you for taking time to fill in this form. Be assured that the information collected will be considered private and confidential, and used only for purposes of this research.

SECTION 1.

Name (Optional): _____
Age: ☐ 18-23 ☐ 24 and above
Gender: ☐ Male ☐Female
Faculty/School:

☐ FIT (Faculty of Information Technology)

☐ SMC (School of Management Commerce)

☐ SOA (School of Accountancy)

☐ SOL (School of Law)

☐ SHSS (School of Humanities & Social Studies)

☐ SFAE (School of Finance & Applied Economics)

Course: _____ (e.g. BBIT, BCOM, MSc IT)
Program: ☐Full-Time ☐Part-Time
Year: ☐1st Year ☐2nd Year ☐3rd Year ☐4th Year

SECTION 2.

Q1. What is the make and model of your mobile phone?

MAKE	SPECIFY MODEL (e.g. 5330, U8800, SGH480C)
Nokia	
Samsung	
Motorola	
Sony Ericsson	
LG	
IDEOS	
Blackberry	
iPhone	
HTC	
Other:_____	

Q2. Is your phone internet enabled?
☐ Yes ☐ No
Q3. Which mobile phone browser do you prefer to use?

☐ Opera Mini

☐ Firefox

☐ Default phone browser

☐ Other _____

Q4. Which operating system does your phone run on?

☐ Symbian

☐ Java

☐ Android

☐ iOS

☐ Blackberry

☐ I don't know

☐ Other _____

Q5. Which of the following mobile computing/communication activities do you regularly engage in? (Tick all that apply)

☐ Listen to pod casts/audio books

☐ Read e-books/print-based content

☐ View streaming movies/video clips

☐ Send and Receive e-mail

☐ Send and Receive SMS

☐ Transfer files via portable storage devices (USB drive)

☐ Play interactive games on the Internet

☐ Post status updates to social media sites (Facebook, Twitter, and LinkedIn)

☐ Mobile video conferencing (Skype)

☐ Browse the web

☐ Work collaboratively on shared documents (Google docs, Wiki, Drop box)

☐ Other_____

Q6. Where do you MOST often use your mobile phone?

☐ At home

☐ In school

☐ On transit/on the road

☐ Other (Please specify) _____

Q7. Given an option would you prefer accessing e-learning resources on your phone (mobile learning) or on your computer?

☐ Phone ☐ Computer

If your choice is "Phone", tick the possible reasons that guided your choice

☐ Anytime, anywhere access to content

☐ More fun because of social network focus

☐ Enhance interaction between and among students and instructors

☐ Great for just-in-time training or review of content

☐ More personalized learning

Q8. What type (format) of learning content would you prefer to view on your mobile phone?

☐ Slides

☐ Formatted text

☐ PDF

☐ Animations

☐ Videos Audio

Q9. What features would you like to see in a mobile learning system? (Please tick appropriately)

☐ Document reader

☐ Document editor

☐ Download/View slides (PDF & PowerPoint)

☐ Submit assignments & CATs

☐ Discussion room/forum

☐ Other? (Please specify) _____

Q10. Are you comfortable installing software on your mobile phone?

☐ Completely uncomfortable

☐ Somewhat uncomfortable

☐ Not sure

☐ Somewhat comfortable

☐ Completely comfortable

Q11. Do you think accessing course material such as slides & quizzes through your mobile phone would be beneficial to your study process?

☐ Don't think so

☐ Somewhat don't think so

☐ Not sure

☐ Somewhat think so

☐ Think so

Briefly explain your choice: _____

_____

Q12. Do you think using a mobile learning application would improve your overall performance in class?

☐ No

☐ Probably not

☐ Not sure

☐ Probably

☐ Yes

Briefly explain your choice: _____

_____

Q13. Would you purchase a better mobile device if you thought it would improve your performance in class?

☐ No

☐ Probably not

☐ Not sure

☐ Probably

☐ Yes

Q14. Which other device (s) do you own? (Tick all that apply)

☐ Laptop/ Notebook PC

☐ Desktop PC

☐ Tablet

☐ Other (Please specify)_____

Q15. How do you access internet on the device(s) in Q14 outside the University ? (Tick all that apply)

☐ Safaricom Modem

☐ Orange Modem

☐ Yu modem

- ☐ Airtel modem
- ☐ LAN
- ☐ Friends/Parents/Relatives work place
- ☐ Cybercafé
- ☐ Other (please specify) _____

APPENDIX 2: MOBILE LEARNING BRIEF QEISTIONNAIRE

MOBILE LEARNING QUESTIONNAIRE

Q1. What is the make and model of your mobile phone?

MAKE	SPECIFY MODEL (e.g. 5330, U8800, SGH480C)
Nokia	
Samsung	
Motorola	
Sony Ericsson	
LG	
IDEOS	
Blackberry	
IPhone	
HTC	
Other:_____	

Q2. Is your phone internet enabled?

☐ Yes ☐ No

Q3. Which mobile phone browser do you prefer to use?

☐ Opera Mini

☐ Firefox

☐ Default phone browser

☐ Other _____

Q4. Which operating system does your phone run on?

☐ Symbian

☐ Java

☐ Android

☐ iOS

☐ Blackberry

☐ I don't know

☐ Other _____

APPENDIX 3: FEEDBACK FORM

Strathmore UNIVERSITY

MOBILE LEARNING FEEDBACK FORM

This survey aims to identify the possibility and suitability of implementing a Mobile Learning System in Strathmore University .
This feedback form is for those who have used materials provided by @iLabAfrica for the mobile learning survey.
Thank you for taking time to fill in this form. Be assured that the information collected will be considered private and confidential, and used only for purposes of this research.

SECTION 1 LEARNERS' PERCEPTION

1. Given mobile learning materials/notes for a full semester, would you learn continuously using your mobile device?

☐ Yes

☐ No

2. What reason(s) guided your choice above?

_____

_____

3. With the limitations of your mobile phone (such as screen-size, memory, storage space, internet speeds), would you purchase a better device if m-learning improved your performance?

☐ Yes

☐ No

4. Briefly explain why…

_____

_____

5. What other types/formats of learning content would you like to use on your mobile phone? (select all that apply)

☐ Video tutorials

☐ Audio tutorials

☐ Quizzes for self-practice

☐ Short-hand notes for revision

SECTION 2 USER EXPERIENCE.

6. How was your experience while installing the mobile reader application on your phone?

☐ Very easy

☐ Easy

☐ Not complicated

☐ Complicated

☐ Very complicated

7. On average, how much time did you take to understand how the eReader application works?

☐ Less than 5min

☐ Between 5 - 10min

☐ Less than 15min

☐ More than 15min (Very Complicated)

SECTION 3 INTERNET CONNECTIVITY.

8. How did you connect to the Internet when downloading notes?

☐ Wireless network in Strathmore

☐ Safaricom Internet

☐ Airtel internet

☐ Yu Internet

☐ Orange Internet

☐ Cyber Café

☐ Other_____
___

9. If you tried several options trying to download the notes, which one was **FASTER**?

_____

10. How did you get the notes to your mobile phone?

☐ Downloaded the notes on a computer first, then copied them to my phone

☐ Downloaded directly from e-learning website to my phone

☐ From a classmate's phone using Bluetooth

☐ Other (briefly explain)

_____

_____

11. Briefly explain why:

_____

12. Where did you find it **MOST** appropriate to read notes on your phone?

☐ At home

☐ In School/University

☐ In transit / on the road

☐ Other_____
___

13. Briefly explain why:

_____

Thank you for taking time to fill this feedback form ☺

A Case Study on the Impact of Student's Characteristics on Essay Test Assessments in a Blended Learning Course

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Abstract

Essay tests are a popular form of assessment; even e-learning courses can employ this method of evaluation. The authors have already reported the role of essay test assessments in e-learning courses, and that student's characteristics affect their performance. To promote personalised learning support, a more quantitative form of analysis is required in order to illustrate the relationship between student's characteristics and assessments of essay tests. Therefore, the inter-dependencies of these metrics regarding essay tests were determined during the analysis. All data were from surveys of two Bachelor's and Master's level blended learning courses at a Japanese university. Essay-type tests were conducted during the courses, and two types of assessments were conducted. One was an automated evaluation using a natural language processing system, and the other was a conventional content evaluation in five categories conducted by two experts. Students' characteristics were measured using five constructs: motivation, personality, thinking style, information literacy and self-assessment of online learning experience. The contribution of student's characteristics to the two types of essay assessments was measured using a t-test and multiple regression analysis. First, scores of essay tests were compared between groups of student's characteristics with high and low scores, and significant factors of those metrics were extracted. Second, the relationships of scores between essay tests and student's characteristics were examined in a stepwise method using regression analysis. This permitted significant factors and contributions to be identified. The results provide evidence that student's characteristics affect their assessments of essay tests, and that appropriate support for students is required.

Keywords: Online learning, essay-testing, learner characteristics, learning performance

1. Introduction

Information Communication technology is spreading throughout educational activities. In particular, the e-learning environment provides various functions and possibilities regarding teaching and learning activities. Also, conventional teaching and evaluation techniques also contribute effectively to contemporary learning. Since note-taking can be a tool which tracks student's learning process even in the online learning environment (Nakayama et al. 2011), some behavioural activities have been extracted

from those participants (Nakayama et al., 2006, 2007a, 2007b, 2008, 2010a).

Similarly, the combination of e-learning and conventional essay tests is a useful tool in the diagnostic evaluation of student's learning progress. Recently, some automated essay tests have been developed and applied as online tests, and flexible assessments using essay type tests are possible even in the online learning environment. These two types of essay tests, conventional and automated, are not identical (Nakayama et al. 2010a, 2010b), and the benefits of each type of essay test are different. This means that the major contributions of an essay assessment should be considered for the evaluation and promotion of a specific area of knowledge. The conventional learning evaluation theory suggests that student's attributes affect their learning performance, such as the aptitude treatment interaction (ATI) (Cronbach & Snow, 1977).

Student's characteristics contribute to note-taking skills, learning performance and the relationships between these three. Therefore, student's characteristics may affect the performance of both types of essay tests.

This paper will address the following topics:
- To promote personalised learning support for a formal blended learning course at a university, essay tests were introduced.
- Two types of evaluation methods were applied to student's essays, expert evaluation and automated assessment, and the assessment results were then compared statistically.

To illustrate the relationship between student's characteristics and assessments of essay tests, some quantitative forms of analysis were conducted.

In particular, the inter-dependencies of these metrics regarding essay tests were determined during the analysis.

2. Method

2.1 Experimental procedure

Two credit courses (Nakayama et al., 2010a, 2010b), which were offered in the Spring and Autumn terms of 2006-2007, were selected for this survey project. The course title was "Information Society and Careers", a 2-unit bachelor-level class for

university freshmen, offered as a blended course.

The second course was "Advanced Information Industries", a 2-unit master's class for students in their first year of graduate work. Most master's students have had some experience with blended courses during their bachelor years. Most of the students who took this course were majoring in Engineering.

The content and level of the two courses were not identical, but they were taught by the same professor, at the same Japanese national university. The blended course consisted of 15-weeks of face-to-face sessions and online modules. Students were also able to access the online content outside of class, as face-to-face sessions.

The e-learning components were originally designed for a fully online course. The modules include video clips of the instructor and the lecture for that session, plus the presentation slides which were used in the face-to-face lecture. Most tests were conducted using a multiple-choice format. Students can assess their responses themselves and view their individual scores after completing the tests. They are given as many opportunities as needed answer questions and to retry tests until they are satisfied with their scores. This in turn motivated them to learn the course content throughly, using the accompanying video clips and presentation slides. To encourage maximum participation in e-learning, students in the blended courses were given the opportunity to earn extra points.
The number of participants was 36 Bachelor students and 48 Master students.

Student's characteristics were measured using five constructs: motivation, personality, thinking styles, information literacy and self-assessment of online learning experience.

2.2 Survey instruments

To extract student's characteristics, five constructs were surveyed (Nakayama et al., 2006, 2007a, 2007b, 2008, 2010a). These constructs were: motivation (Kaufman and Agars, 2005), personality (Goldberg, 1999; IPIP, 2004), thinking styles (Sternberg, 1997), information literacy (Fujii, 2007) and learning experience (Nakayama et al. 2006, 2007a, 2007b). The relationship between item scores of essay tests and the above constructs were investigated. Further descriptions of these two metrics are

given in the following sections.

Motivations:

The motivation inventory used in this study was developed by Kaufman and Agars (2005), and provided scores for "Intrinsic Motivation" and "Extrinsic Motivation". This construct consists of 60 items which are responded to using a 10-point Likert scale. The intrinsic factor represents individual preferences for activities. The extrinsic factor represents individual preferences for tasks involving achievement, rewards and recognition (Kaufman et al., 2008).

Personality:

To measure the personalities of students, a public domain item pool, the International Personality Item Pool (IPIP) inventory (IPIP 2004) was used. This five factor personality model was proposed by Goldberg (Goldberg 1999), and provides five component scores: ``Extroversion" (IPIP-1), ``Agreeableness" (IPIP-2), ``Conscientiousness" (IPIP-3), ``Neuroticism" (IPIP-4) and ``Openness to Experience" (IPIP-5).

Thinking styles:

Sternberg's Thinking Styles consist of three components : "Legislative Style", "Executive Style" and "Judicial Style" (Sternberg, 1997; Matsumura & Hiruma, 2000). The scores of these three components were also measured. In total, 24 question items (8 items x 3 factors) were given to students using a 7 point-Likert scale.

Information literacy:

Fujii (2007) has defined and developed inventories for measuring information literacy. For this construct, the survey consisted of 32 question items, and 8 factors were extracted: interest and motivation, fundamental operation ability, information collecting ability, mathematical thinking ability, information control ability, applied operational ability, attitude, and knowledge and understanding.

Secondary factor analysis was conducted on the above ten-factor scores for information literacy, and as a result, two secondary factors were extracted (Nakayama et al. 2008). The first secondary factor (IL-SF1) consists of "operational confidence and knowledge understanding"; the second one (IL-SF2) consists of "attitude issues".

Learning experience:

Students' online learning experiences were assessed using a 10-item Likert-type questionnaire. This questionnaire was given out twice: during the second week of the term and at the end of the course. As in previous studies, three factors were extracted: Factor 1 (F1): overall evaluation of e-learning experience, Factor 2 (F2): learning habits, and, Factor 3 (F3): learning strategies (Nakayama et al, 2006, 2007a, 2007b).

Learning performance:

The students' final grades for the course was based on various learning activities. Here, three indices were identified and used as indicators of learning performance: the number of days attended (NDA), the number of completed modules (NCM), and the online test scores (OTS) (Nakayama et al, 2006, 2007a, 2007b). Thse were analysed for their relationship with essay-test scores.

2.3 Essay-test assessment

Expert assessment:

The essay tests were reviewed by two outside experts and were found to be sufficient for course completion. Before the assessment, the two experts independently evaluated the essays using a 3-points scale (0-2) which was applied to each of the five aspects of the essay test: certainty, fitness for learning content, argument, various aspects and figuring. In this study, all usable data was analyzed. The experts evaluated all essays written by Bachelors and Masters students using the same standards.

Two experts evaluated the essay questions, and the ratings for these essay tasks were very close, and almost similar at times. Overall, assessment scores from each of the two essay groups strongly correlated with each other (r=0.67). They could therefore be merged to form a single score (Nakayama et al., 2010a, 2010b).

Automated Japanese essay assessment:

An automated scoring system (Ishioka and Kameda, 2003) was used for this assessment. It is possible to use this system on a web site. As a result, another set of scores was generated using the assessment software and these scores measured three factors: "rhetoric", "logical structure" and "content fitness".

The relationship between expert assessment scores and the automated assessment scores were examined. As a result, expert assessments correlate significantly with the "logical structure" factor in the essay, for all courses (r=0.30). There are no significant relationships between expert assessment and "rhetoric" or "content fitness" of the automated essay-scores.
Therefore, expert evaluation of the essay is focused mainly on "logical structure" rather than on other factors (Nakayama et al., 2010a, 2010b).

3. Results

3.1 Student's characteristics

The characteristics of Bachelors and Masters level participants in blended learning courses are compared. The factor scores of metrics are tested between the two groups. The results are summarised in Table 1.

In the results, there are significant differences in the following factors. For personality, the scores of IPIP1 (Extroversion) and IPIP2 (Agreeableness) for Bachelors are significantly higher than the ones for Masters. For motivation, both factor scores of motivation are comparable. For thinking styles, the scores of TS2 (Executive Style) for Masters are significantly advanced compared with the Bachelor level. For information literacy, scores of IL-F (Information literacy: operational skills) advance significantly through Bachelors to Masters. For learning experience, there is a significant difference in scores for LE3 (learning strategy).

Table 1. Comparison of mean scores of student's characteristics between Bachelors and Masters levels.

Factors	Bachelors	Masters	t	sig.
IP1: Extroversion	3.3	2.8	4.0	p<0.01
IP2: Agreeableness	3.7	3.4	3.1	p<0.01
IP3: Conscientiousness	3.3	3.2	0.7	n.s.
IP4: Neuroticism	2.6	2.7	0.5	n.s.
IP5: Openness to experience	3.2	3.1	1.3	n.s.
MI: Intrinsic Motivation	3.7	3.6	1.5	n.s.
ME: Extrinsic Motivation	2.8	2.7	0.4	n.s.
TS1: Legislative	3.1	3.0	0.6	n.s.
TS2: Executive	3.1	3.3	1.8	p<0.10
TS3: Judicial	2.8	2.8	0.3	n.s.
IL-F: Operational skills	2.9	3.7	7.3	p<0.01
IL-S: attitude	3.2	3.1	0.9	n.s.
LE-1: Overall evaluation	3.3	3.5	0.1	n.s.
LE-2: Learning habits	2.8	2.7	0.5	n.s.
LE-3: Learning strategy	2.5	3.5	5.7	p<0.01

In addition, NCM and OTS as measures of learning performance are significantly higher for Masters than for Bachelors. Master's students are more mature students, so these indices are high.

3.2 Differences in item scores of essay tests

Though the essay tests for participants were not fundamentally identical, both evaluation processes were consistent across expert assessment and automated assessment. Therefore, the scores between Bachelors and Masters can be compared. Of course, the learning content may affect the differences in scores.

Differences in expert assessment:

Mean scores of 5 aspects of the essay assessments by two experts are summarised in Figure 1. Most tendencies are comparable between the two courses. The scores for certainty and fitness of learning content for Masters are significantly higher than the scores for Bachelors. The scores for figuring show a different order, as the scores for Bachelors are significantly higher than the scores for Masters. It may be that the learning content and materials affect the figuring in essays.

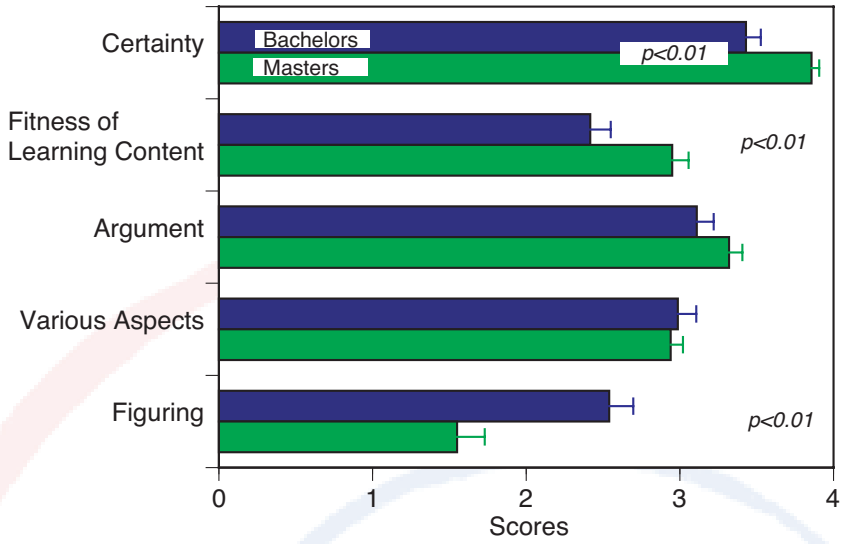

Figure 1: Mean scores of essay assessments by two experts

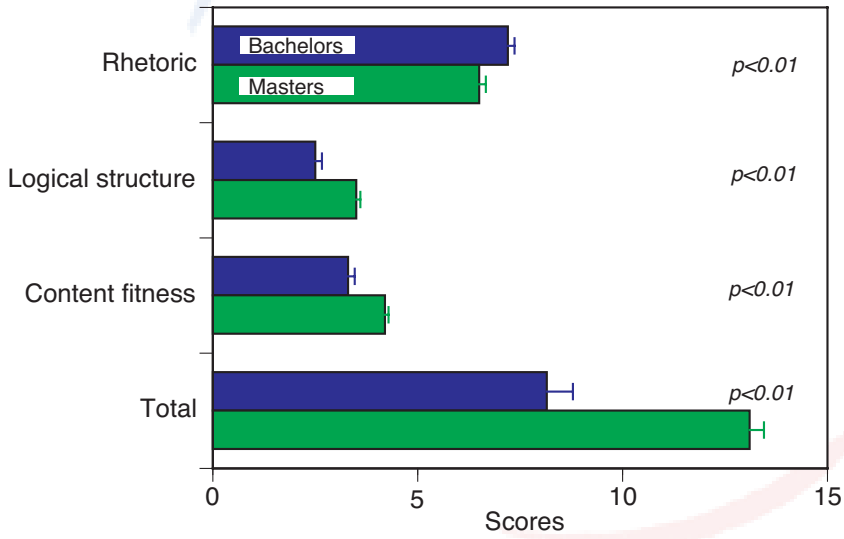

Figure 2: Assessment scores of the automated assessment system for the essay test

Differences in automated assessments:

Assessment scores using the automated assessment system for the essay test are illustrated in Figure 2. Scores for Masters students are higher than scores for Bachelors students for all factors: "rhetoric", "logical structure" and "content fitness". This system automatically adjusts some scores in relation to other factors in a given situation, using a point-subtracting system (Ishioka and Kameda, 2003).

As a result, the scores for Masters are also higher than the scores for Bachelors. This suggests that the points deducted for Masters are smaller than the points deducted for

Bachelors.

3.3 Multiple regression analysis

There are some differences in student's characteristics and learning achievement, such as learning performance and the scores of essay assessments. Since there are some differences in student characteristics between Bachelors and Masters students, the process affecting their characteristics for learning achievement may be also different.

The relationships between these metrics were measured using multiple regression analysis. The relationship between achievement and selected variables from 15 metrics of characteristics was hypothesized, and was mathematically analysed using linear regression. This analysis was conducted in a stepwise fashion to select the significant variables, introducing or eliminating variables to maximise the R-square as an index of fitness.

Table 2: The partial correlatinal coefficients between the characteristics and learning performance

	LE1	LE2	LE3	MI	ME	IP1	IP2	IP3	IP4	IP5	TS1	TS2	TS3	IL−f	IL−s	R^2
NDA	0.27									−.41						0.21
(B)	0.27									−.41						0.21
(M)	0.24		0.40	0.26		−.24			−.23	−.29		0.23		0.29	−.39	0.65
NCM				0.24	0.50							−.44				0.40
(B)				0.24	0.50							−.44				0.40
(M)																n.s
OTS					0.36											0.13
(B)					0.36											0.13
(M)							0.23					0.36	−.21	0.46	−.49	0.42

Learning performance:

To determine whether the characteristics affected aspects of learning performance, a linear regression analysis of NDA (number of day attended), NCM (number of complete modules) and OTS (online test scores) was conducted. The final results are summarised in Table 2. The significant partial correlational coefficients and model R-squares for Bachelors, Masters and overall are presented in Table 2. Here, the coefficient indicates the contribution of the factor.

For NDA and OTS, the R-squares of the model for Masters are higher than the R-squares for Bachelors, as various factors contributed significantly. For NDA for

Masters students, LE1 (learning experience: evaluation of e-learning) and IP1 (personality: Extroversion) were the main contributors. For OTS for Masters students, ME (extrinsic motivation) and ILS (information literacy: attitude) were the main contributors. For NCM, the model for Bachelors is significant, and ME and TS2 (thinking style: executive) were the main contributors.

Table 3: The partial correlatinal coefficients between the characteristics and expert assessments of essay tests

	LE1	LE2	LE3	MI	ME	IP1	IP2	IP3	IP4	IP5	TS1	TS2	TS3	IL-f	IL-s	R^2
Certainty		0.23	−.27							−.36		−.29		−.50		0.51
(B)		0.23	−.27							−.36		−.29		−.50		0.51
(M)	0.24								−.30							0.12
Fitness				0.32				−.32		0.44		−.27		−.22		0.49
(B)				0.32				−.32		0.44		−.27		−.22		0.49
(M)	0.30										−.30					0.14
Argument		0.30		−.36					−.37					−.44		0.47
(B)		0.30		−.36					−.37					−.44		0.47
(M)			0.32						−.34							0.14
Various aspects			−.23											−.51	0.29	0.30
(B)			−.23											−.51	0.29	0.30
(M)	0.21											0.31				0.15
Figuring	−.38															0.15
(B)	−.38															0.15
(M)										−.24						0.06
Expert total			−.21									0.25		−.57		0.42
(B)			−.21									0.25		−.57		0.42
(M)	0.29								−.34	−.32	−.20			0.29		0.28

Table 4: The partial correlatinal coefficients between the characteristics and the automated assessments of essay tests

	LE1	LE2	LE3	MI	ME	IP1	IP2	IP3	IP4	IP5	TS1	TS2	TS3	IL-f	IL-s	R^2
Rhetoric															0.40	0.16
(B)															0.40	0.16
(M)								−.37	0.26			−.22			0.62	0.32
Logical Structure	0.39		−.51									−.27	0.26	−.46		0.52
(B)	0.39		−.51									−.27	0.26	−.46		0.52
(M)							−.32			0.47			−.35			0.19
Content fitness										0.26				−.54	0.28	0.36
(B)										0.26				−.54	0.28	0.36
(M)										0.24			−.30			0.09
Auto total												−.26		−.57	0.26	0.42
(B)												−.26		−.57	0.26	0.42
(M)																n.s.

Expert assessments for essay tests:

The contributions of characteristics for expert assessments of essay tests were

analysed using the same procedure. The results are summarised in Table 3. For most aspects, the R-squares of the models for Bachelors are higher than the ones for Masters. Of the models for Bachelors, ILF (information literacy: operational skills) almost made a contribution. Additionally, LE1, IP3 (personality: conscientiousness) and IP5 (personality: Openness) also contributed to the model in some aspects, in regards to the partial correltional coefficients in Table 3.

Automated assessments for essay tests:
The results for automated assessments are summarised using the same format as in Table 4. A few factors contributed to the assessments at the Bachelor level as well as contributing to the results when expert assessment of essay tests was used. They are LE3 (learning experience: learning strategy), IP5, and information literacy. However, the contributions of these factors are different from the ones in the expert assessments.

According to the results of the contributions of characteristics to learning achievement, there are some interesting trends. Though the main analysis was focused on essay tests in a blended learning course, information literacy affects performance most, in addition to affecting some factors in several metrics.

This result suggests that student characteristics should be considered during instruction giving, even for essay writing performance in a blended learning environment.

4. Conclusions

This paper analyses the relationship between performance in essay tests and scores of student's characteristics in a blended learning course, in order to determine the effectiveness of the learning environment. Differences in the relationship between performance and characteristics exist for Bachelors and Masters students. Also, the differences in essay assessments and the contributions of student's characteristics to those evaluations are discussed.

According to a comparison of student's characteristics between Bachelors and Masters, there are some significant differences due to students' level of development. Essay

tests were introduced into the blended learning environment to promote learning activity and to vary the method of assessment. The assessment of these was conducted by expert evaluation and automated evaluation, using Japanese language processing techniques. In comparing the two types of assessments used for participants' essays, most aspects are comparable, but some aspects are different.

In order to develop an instructional approach to learning performance, including essay writing, the relationships between the scores for achievement and student's characteristics were measured using multiple regression analysis.

In the results, some indices contribute to achievement, though there are significant differences between Bachelors and Masters level students. The development of an actual method of instruction will be the subject of our further study.

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Raising Environmental Action through e-Twinning

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Abstract

This paper presents an environmental project realized in 2012 as a part of an e-Twinning project. E-Twinning is a European initiative, which promotes collaborative action and networking through ICT and encourages sharing of knowledge among European schools.

For the accomplishment of the project, the English Class of the Secondary School of Agioi Theodoroi joined a rather big group of other European schools, made up by schools in Spain, Romania, Bulgaria, Turkey, U.K and Hungary.

The project was based on team work and intra-school collaboration and consisted of the following thematic units: Presentations of the groups, Presentations of our cities, Beauties around us, Dirty places around us, Good and Bad Environmental habits and Do something good for the environment starting from our school garden. The tools used were the Internet, Word, and Power point as well as e-twinning tools the twinspace, the blog and the mail box.

The language used was English and the project was integrated in the English curriculum. So, English was used in an authentic communicative environment as a means of communication and bonding, as well as a means of sharing thoughts and expressing sensitivity over such a serious issue as the environment. Finally, this knowledge was materialised into taking action and making the difference, since the students decided to act and change their school yard and shared their experience with fellow students abroad. Our project was awarded with the National and European Quality label.

Key words: environmentally alert, Office, Internet, twinspace, collaborative learning, e-learning.

Summary:

The above concerns a project which was materialized by the students of the fist class of Agioi Theodoroi junior high school. It was about environmental destruction and protection. Its main purpose was to environmentally alert students, motivate them to think about environmental issues and urge them to act. The project was part of the English lesson and was inspired by relevant units of the English class book Hence, the language used was English. All the activities took place on the e-twinning portal which gave the students the opportunity for direct face to face interaction, or indirect through blogs. They used Office tools and the eTwinning twinspace to upload their work. The eTwinning environment enables collaborative learning, collaborative speech production and feedback and enhances e-learning. The students are required to complete a project in collaboration with other students from a variety of European schools ; they are urged to self act and become familiar with the use of the English language through the comprehension and the processing of different genres of texts they come across during their research for information on the Internet, having a different communicative purpose each time.

Introduction

The eTwinning action is an initiative of the European Commission , launched in 2005, which aims at the electronic twinning of European schools with the purpose of carrying out shared projects using information and communication technologies (ICT), providing the necessary infrastructure (online tools, services, support) E-twinning falls within the context of collaborative learning (learners who learn through face to face or electronic interaction) and e-learning (education by means of Information and Communication Technologies). eTwinning is considerably advantageous in a high school class as

- It's simple to operate and it's also easy to find partners and projects. You don't have to make up your own project; you can join other people's.
- It's suitable for all ages and all levels of knowledge of the foreign language.
- It is motivating for all students since it involves computers, which all students are interested in.
- Even shy and less competent students can take part, so everybody can have a share of success and a boost of self-esteem.
- It's cost effective so it's approved by headmasters and administration.
- It doesn't involve long-term commitment like Comenius projects, so tasks can last for as long as the partners designate them to.
- Not only the students but also their parents can be involved and given personal passwords to access their children's work and keep updated of the progress of the project. If students and their parents are happy, this contributes to the creation of a positive climate within the school and between the school and the community.
- E-twinning portal is a safe environment for teachers and students to upload their work and photos of themselves and their school.
- The National Support Service (NSS) and the Central Support Service (CSS), provide ready internet tools to use.
- On the completion of the project a Quality Label on a national basis or a European Quality Label on a European basis can be awarded depending on the project's quality standards, which is an advantage for the school and the teacher

eTwinning is the answer to the question of how ICT can be integrated in everyday teaching. What is important is that ICT is used in a coherent pedagogical project addressing clear needs.

An eTwinning project addresses students at all levels, regardless their foreign language and ICT competence. It puts students in direct contact with other students in Europe, enables them to exchange information and opinions, so it enhances collaboration among European schools; as a result, it contributes to the shaping of a common European identity. Students understand what it is like to be European. Furthermore, it gives the knowledge of foreign languages as well as computer skills a central role as they serve as tools of communication in a real life situation. What is more, it unites not only students across Europe but also teachers in the same school, since a project may require the collaboration of teachers of different subjects. Thus, apart from e-learning and collaborative learning eTwinning embodies an interdisciplinary approach to teaching.

Regarding our school's project, English was the common language of communication, as our work team was multicultural and multilingual. From our school twelve students took part, aged 12-13 years old, a whole English class of the first grade of junior high school. No student selection was involved as the size of the group was not prohibitive and everybody was willing to participate. Their English level was intermediate and they exhibited fluency in both writing and speaking. The National Curriculum allocates 3 hours a week for the teaching of English in the first grade of high school, so we decided to spend 1 hour a week on working on the project.

The project was interdisciplinary as more than one subject was involved. Apart from English, the students lay in their knowledge of computers, geography, history of culture and environmental studies. The project lasted from October to June, a whole school year.

Lastly, the ICT tools used were Word, Power point, Internet, eTwinning tools (mail box, blogs, twinspace)

The development of the project was connected with the effort to introduce ICT in the classroom. It was also part of the general questioning regarding the effectiveness of the creative use of ICT in pedagogy and its use in the teaching of all subjects, hence the training of the teachers so as they are able to use it.

The use of new technologies enhances the teaching of the foreign language, creating more authentic situations, thus giving the language its real purpose, the communication outside the classroom. It transcends the conventional teaching and increases the motives of the students to participate in the lesson. Surfing the net for information practices the students searching skills as well as their critical thinking and judgment as they have to critically filter all the accumulated information, process it and select what is relevant to be included in their presentation of topic. In addition, the students get in touch with many genres of texts, which fulfill different purposes, from newspaper articles to literature, scan and skim through them, pick the necessary information, connect the selected pieces of information and construct another text morphologically and stylistically appropriate. In other words the students take turns in becoming readers and writers, which enhances both their reading and writing skills. Their aesthetic skills are also developed as they come across literature texts, pictures and even paintings which they use to embellish their presentations. They also use their artistic skills to interfere and process the images, adding elements to them; some of them take their own photos to illustrate their texts. Additionally, not only do the students collect and organize their material through ICT but they are also able to evaluate their work before uploading it to the e-twinning platform. A socio-cultural dimension can also be highlighted due to the ability ICT gives the students to learn about the culture and economy of their own or other countries.

Theoretically, the project illustrates a number of theories: 1. Piaget's constructivism (' the learners have the central role in the learning process and they are better able to understand the information they have constructed by themselves. Learning is a social advancement which involves language, real world situations, interaction and collaborations among learners. When motivated, the learner exercises his will, determination and action to gather selective information, convert it, formulate hypotheses, test these suppositions via applications, interactions or experiences and draw verifiable conclusions (magazine the fountain issue 48, October-December 2004 Ozgur Ozer ' Constructivism in Piaget and Vygotsky),
2. Bruner's discovery learning (inquiry based learning; it is best for learners to discover facts and relationships by themselves),
3. Vygotsky's social constructivism (groups collaborate and construct knowledge for one another) and
4. Papert's constructionism (learning can happen most effectively when people are also active , learning by making)

Objectives of the project:

- Practice English in a real life situation, with a real purpose
- Use English as a common communication language and a language of socialising.
- Integrate ICT in every day classroom.
- Students learn about other European countries, environmental differences and how people live in different regions
- Become familiar with texts from different sources, practise reading comprehension , summarize or expand texts from the Internet.
- Develop interest in environmental destruction

and climatic change.

- Identification of some harmful to the environment habits we have.
- Become alert, take action and responsibility.
- Become familiar with local cultural and environmental heritage.
- Enhancement of critical judgment and creative thought and comparative analysis through the search on the Internet and the checking of the sources.
- Familiarity with the creation of multi-texts, combine speech, pictures and sound.

The students were involved in communicative situations inside the classroom analogous to those encountered in life, and they used their knowledge of English and ICT to communicate and express themselves. In their attempt to use the foreign language all language teaching and learning dimensions were taken into account. 1. The morphological -grammatical-syntactic dimension according to which the student is constructing correct language in terms of vocabulary, grammar and syntax. 2.. the text dimension according to which the students are connecting phrases, paragraphs with the aim of constructing coherent texts, 3. The strategic dimension in case of face to face interaction, in which students communicate through non verbal patterns e.g. gestures and facial expressions. 4. The sociocultural dimension through which students communicate taking into account the social rules of communications according to the sociocultural framework and lastly the intercultural dimension , that is the creation of mutual interaction with foreign cultures with the aim of mutual understanding and acceptance. Especially as far as the intercultural dimension is concerned the students come to an understanding of similarities and differences among the foreign linguistic communities, coming to the creation of intercultural conscience, which leads to tolerance and the fighting of stereotypes.

The students achieved learning in a team and according to experimental research of Kurt Lewin who claimed that it is easier to change somebody's behavior when the latter is a team member

rather than an isolated unit, learning in a team is more effective and lasts longer. In addition, learning is more effective in cooperation rather than in rivalry to others.

Projects in the teaching of the foreign language are highly beneficial as they bridge the gap between the language taught in the classroom and its use. The students develop all four linguistic skills : listening, reading, speaking and writing. The centre of the teaching shifts from the teacher to the student and teaching becomes students oriented rather than teacher oriented. Learning is no longer individual but collaborative. The teacher is not authoritative but he takes over the role of coordinator and advisor who does not eliminate the students will for research but interferes only on students' request , motivates and supports the students.

Execution of the project:

Based on a unit on the environment and ecology of the schoolbook I noticed a great interest in environmental issues on the part of the students. Through e-twinning portal we found partners equally interested in ecological issues and we invited them to partnership. Apart from our school (Junior High school in Agioi Theodoroi, Greece), several other schools took part in the project.


PARTICIPANTS

eTwinning Label

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LIZA KOULOURIOTI, ΓΥΜΝΑΣΙΟ ΑΓΙΩΝ ΘΕΟΔΩΡΩΝ, Ελλάδα

τους απονεμήθηκε η Ετικέτα για το έργο τους:

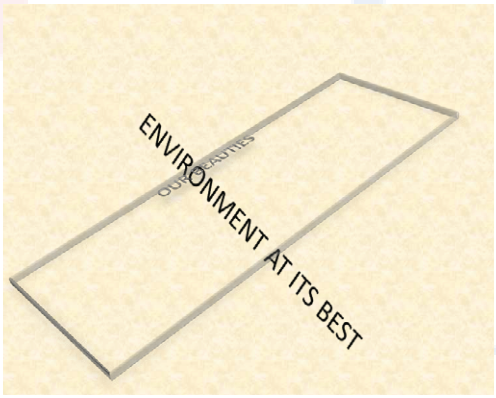
Environmental project.

13.09.2011

- FEDAC Mare de Deu de la Merce, Spain
- Ilkogretim Okulu, Turkey
- CEIP Mata Linares, Spain
- Colegio La Inmaculada, Spain
- Colegio Padre Enrique de Osso, Spain
- Harthill primary school, U.K
- Westpark school, U.k
- Kindergarden zdravec, Bulgaria
- Scoala cu Clasele I-VIII Ion Creanga Bacau, Romania
- Szkoala Podstawowa nr 37im. Poland
- Zakladna skola Levice, Slovakia

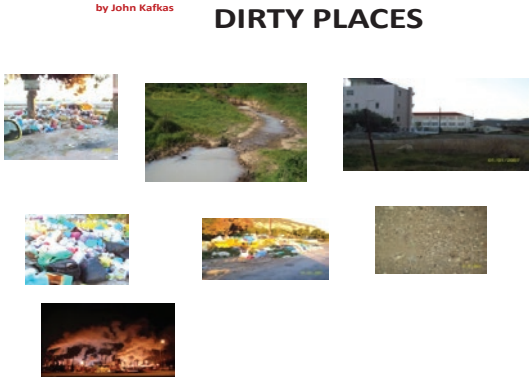
At the beginning of the project all students from all partner schools were asked to come up with the possible modules of the project. At this stage the teacher does not decide for the students but gives the incentives, briefs them about the goals and inspires enthusiasm, through discussions on related issues, or the reading of a text considering the environment or even audiovisual material such as the listening of a song or the viewing of a film or documentary. Brainstorming was also used. Several titles were suggested but the teachers decided on the most frequently mentioned. Consequently, the project is composed of the following modules.

- Presentation of the groups
- Presentation of our cities
- Beauties around us
- Dirty places around us
- Good and bad environmental habits
- Do something good for the environment starting from the school yard.



The opening page of the presentation of 'Beauties around us'

After the module selection the students had to plan their activities. Apart from the first module where students had to introduce themselves and share personal information with their partners, the students were divided in groups for the remaining activities. Each group had to prepare the presentation of two modules. The role of the teacher was to guide them so as to save time and lead them to the necessary resources. The students searched for information at the school library, on the internet, and they also used their community. They downloaded pictures to illustrate their presentations and also took their own cameras and came with some very good shots from their school environment, their town beauties and the environmental problems they face.



Photos taken by students ' camera on 'Dirty places around us'

Apart from the information they downloaded from the net the students also expressed their own opinion on the environmental problems their town is facing, identified those in charge and they made posters which urged fellow students to keep the school clean and economise on water and energy supplies. The posters apart from being uploaded on the eTwinning twinspace were also hung round school to persuade fellow students to become environmentally conscious.

The poster the students hung around their school to urge their school mates to take care of the school

Their presentations were made mostly in Power Point, but some of them were simply Word documents. At the end of each task , before the uploading of each presentation, evaluation was conducted by the students and the teacher always through discussion aiming at self-evaluation

and correction rather than teacher's intervention. There was also evaluation by the partners and praising for the students work. Students work was not always corrected as long as it fulfilled its communicative purpose and meaning was clearly conveyed.

Observations

In general the project's outcome was positive. Apart from the linguistic benefits mentioned above, the resourcefulness of the children was enhanced as they had to figure out ways of making their presentations more impressive and realistic. Apart from the Internet they referred to their community, their immediate environment, their school, neighborhood, parents and teachers , who acted as sources ; hence, for the completion of the project they relied on their experience, which made the project more enjoyable as the students had the impression they were doing something that concerned themselves, and they were not studying for the lesson. The students loved seeing their pictures and those of their partners on the twinspace along with their texts. They also enjoyed working in English and practicing their skills. They relished team work, they felt real reporters and took pride in seeing or having others see their work on the twinspace. Some modules required that the students describe their town and the surrounding area. As a result, students discovered their own area and felt proud of its beauties, which they may have previously underestimated. In addition, the project gave them food for thought, regarding ecological problems of their area, which is especially ecologically burdened. The realized how important environmental conservation is to other communities abroad, how ecologically active the people and especially schools are there, and took up action to clean their own school in the first place and ask permission from the local authorities to clean the beach in their town for the summer. The fact that they were not marked at least directly for their work gave them the freedom to use the language as well as they could, without feeling embarrassed or restrained by possible low grades. Another observation worth noticing on the linguistic level is that when they read their partners work they spotted mistakes. This had a double result: firstly, they discarded the fear of grammatical correctness, and secondly their partners' mistakes served as feedback for grammar discussion in the class.

I would also like to point out the voluntary response and participation of students from other classes, whose interest was sparked by the project and who expressed the desire to accomplish a similar one the next year. Other teacher colleagues were also intrigued by the project and offered voluntarily their help, giving permission to the students to use the school lab on their periods or providing valuable help with technical issues. The project was awarded with the European Quality Label for high standards of work of all partners, which motivated colleagues to undertake similar projects the next year.

The success of the project can be attributed to the use of ICT, which gave the dynamics to the class to open up to the native and foreign communities. Children with weak language knowledge as well as immigrants with weak school performance were integrated in the team and felt accepted. Since our school has a number of students from Poland and Romania, those students also had the opportunity to use their own language with partners from their countries and this on the one hand made them feel proud of their origins and on the other they were higher thought of by classmates.

As far as the difficulties and obstacles are concerned, the number of partners was definitely a challenge; as a consequence, the project required good planning, which made communication with partners vital. The fact that time difference and the strict school curriculum prevented direct communication was a downside. In addition, the shortage of computers to cater for all students in the school lab, any time we needed them was a serious impediment which was solved with students bringing their own laptops to the class. Luckily, there was Wi-Fi connection in the school, so we could go on line. Lastly, the limited time we had to devote to the project meant that most work had to be done by the students at home, which was strenuous considering their already burdened schedule. Still, ICT served as the extension of the class outside the school and gave the students the potential to work from home.

On the completion of the project, the students presented it to the school community in the school amphitheatre. They also invited the neighboring schools and the authorities of the area.
In conclusion, the main outcome of the project was what satisfied us and filled us with pride:

- Learning through acting
- Learning while having fun.
- Learning from one another

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Improving Student Understanding, Application and Synthesis of Computer Programming Concepts with Minecraft

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Abstract

Ensuring student acquisition, comprehension and synthesis of complex yet abstract concepts within computer programming teaching is a difficult process, especially with younger students. The syntax and semantic fundamentals within programming languages for many students emulate the complexities of learning a foreign written or spoken language. An additional difficulty with learning a programming language is the development environment; learning to use an integrated development environment (IDE) can sometimes be as complicated as grasping the basics of a language.

This paper discusses a learning structure where the students are introduced to programming fundamentals within a familiar and enjoyable development environment – the commercial Minecraft game. Students typically have an awareness of gameplay, controls or at least the goals of the game, thereby removing some of the additional learning requirements of the development environment. The use of the game provides motivation for the student to not only learn but also apply and synthesise their knowledge, thereby achieving the higher orders of Bloom's Taxonomy. Providing a correlation between learning environment and personal game experience, students developed skills that they identified as enhancing their own game experience and showed some desire to replicate and expand on the content delivered.

Foundational skills are developed focussing on variables, assignment, selection and looping within a widely used scripting language. This program has been used to promote programming and computer science to students across a range of ages (8 – 16 year olds), skill levels (typically developing and gifted) and from various educational sectors (state, religious, and Montessori).

Keywords: Computer programming education, development environments, Blooms taxonomy, eLearning, games, emerging technologies.

Introduction

Teaching students the fundamentals of programming can be a difficult task. Compounding this can be a number of factors ranging from age, culture, socio-economic background, capacity, development environment, and motivation. The ability to keep a student interested in what can sometimes be described as stale syntax and semantics can be challenging. By presenting the fundamentals of programming in an accessible, entertaining forum that students have a vested interest in, can potentially aid in not just the understanding of the language but also in its application and evolution into creative expression and individual investigation.

This paper presents a summary of one of a range of workshops that are conducted as outreach activities promoting computing and programming. The tasks that the students are guided through are identified and the results of the process, in the form of participant feedback, are presented. By identifying the creativity and application of ideas presented, the paper will demonstrate the benefit of an easy to use development environment as well as a motivation for using the application.

The paper will survey relevant literature that has guided the development and philosophy behind the workshop. Discussion will continue by identifying the features of the world and the workshop tasks. The presentation of participant feedback and student progression follows and provides justification for the types of cognitive development, retention and adaptation as identified in traditional pedagogical systems.

Background

Computer games have grown to become a fundamental part of many people's social environment. Educators already make use of "world to the desktop" environments that include web browsers, document editors, information and collaboration. However there exists another interaction model within video games (Oblinger, 2006). Rather than static views, games provide users with a different experience, one that is immersive for the user and where the user interacts with abstracted agents and artifacts.

Work has also shown that when offered the choice between a useful but staid technology students will gravitate towards more hedonistic "enjoyable" experiences over of the more "useful" alternative (Van der Heijden, 2004). A key factor is the perception of ease of use for the student, a task that is perceived as enjoyable benefits from an increase in willingness of the student to use the system. This suggests that immersing students in a "fun" activity, in this case playing Minecraft, can lead to a quicker and more organic acceptance of the learning environment. Additionally the increase in time spent playing video games directly affects the time students dedicate to other tasks, especially in relation to a student's willingness to attend classes / perform homework. Video games not only displace older activities like watching television but also show the impact playing can have in relation to time spent on education tasks (Ward, 2012). A way of using this "game time" without sacrificing "education time" presents an opportunity to explore.

One video game possibility, Minecraft, has already seen investigation as a tool to aid education. Work has been done to explore the use of Minecraft as a catalyst for generating interest in STEM topics (Van der Heijden, 2004), as a way of introducing young children to programming using a block based visual mod for the game (Zorn et al.), and a school in Sweden has made use of the game compulsory as a tool to aid thinking and collaborative skills of young high school students (Gee, 2012).

However the increase in modifications that expand the Minecraft game world ("mods") have increased the depth of possibilities for the game and one that stands out as a possible tool for engaging and teaching detailed programming is ComputerCraft (dan200, 2013). ComputerCraft uses the LUA scripting language, a dynamic language designed to be small, portable and fast to control "turtle" objects that can be instructed to move, build and interact deeply with the world (Ierusalimschy et al., 2007). Code can be written externally and imported in or internally using the games own simple editor allowing the use of IDE's or editors. The ComputerCraft community has already used the mod to not only perform standard game play tasks but also to develop custom libraries, create ComputerCraft operating systems with functional GUI elements and complex GPS structures using turtles.
However one of the issues with independently developed software is an adherence to educational pedagogy. To frame Minecraft and ComputerCraft as an educational tool we looked to apply the revision of Blooms Taxonomy (Bloom et al., 1956) to the game workshops in an attempt to show its potential as educational software and how the workshop uses the game to achieve educational goals.

Published in 1956 Bloom's original taxonomy looks to classify thinking behavior with regard to the act of learning. The original taxonomy consisted of three domains:

- Cognitive Domain: knowledge based domain with six sub levels
- Affective domain: attitudinal based with five sub levels
- Psychomotor – physically based, Bloom provided no sub classes however later work looked to classify education objectives within the psychomotor domain to bring it in to line with the other two areas (Simpson, 1966).

As we seek to validate learning outcomes of an educational process the cognitive domain is the most relevant and Blooms original taxonomy sought to define the educational categories of the Cognitive domain as:

I. Knowledge
II. Comprehension
III. Application
IV. Analysis
V. Synthesis
VI. Evaluation

For educators often the most important fields in learning outcomes concern an overlap of the fields from Application to Synthesis, and the taxonomy views the progression through the domain as hierarchal, the student reaches Evaluation only by progressing through the previous five categories. As curriculum advances have focused more on the later portions and the sub categories of the knowledge field it has been necessary to revise Blooms taxonomy to more closely align with advances in developmental psychology. To this end a revised edition of Blooms taxonomy has developed to allow the application of the taxonomy in a two dimensional way (Anderson et al., 2005).

In this revision, language and concepts of the original taxonomy are updated, but the dimension of the original is also expanded to provide a two dimensional framework. As educational outcomes are often associated with dual noun/verb objectives, by expanding the taxonomy to allow educators to separate the act and the process a more nuanced goal can be achieved (Krathwohl, 2002). This allows separation of the taxonomy into cognitive and knowledge domains.

This revised taxonomy now employs the Knowledge domain as one that is independent of subject matter, made up of three of Blooms original fields and one new:

- Factual knowledge: knowledge of terminology, specific details and elements of the task
- Conceptual knowledge: how elements of the task behave and function within larger structures
- Procedural knowledge: "how" to do something, the techniques and algorithms involved
- Metacognitive knowledge: the new addition focuses on the "knowledge of knowledge", awareness of one's own cognition. Specifically strategic knowledge, knowledge about cognitive tasks and self-knowledge (Pintrich, 2002).

The cognitive domain remains similar to Blooms original six fields, modified to more closely represent the "verb" nature of the domain:

I. Remember
II. Understand
III. Apply
IV. Analyze
V. Evaluate
VI. Create

The revision retains a loose hierarchal structure, latter does not require former but remember is viewed as less complex than understand, in turn less complex than apply etc. and some rankings are swapped; Create (Synthesis) and Evaluate.

One of the key benefits for this two dimensional approach is the way it lends itself neatly to a table format running the Knowledge dimension against the Cognitive. Table 1 provides an example of the type of use of the two dimensional representation for learning outcomes using the revised taxonomy. The educational developers would be able to identify the tasks at each intersection.

Table 1: Example of the table for the Revised Blooms Taxonomy (Krathwohl, 2002)

	The Cognitive Domain					
The Knowledge Dimension	1.Remember	2.Understand	3.Apply	4.Analyze	5.Evaluate	6.Create
A. Factual Knowledge						
B. Conceptual Knowledge						
C. Procedural Knowledge						
D. Metacognitive Knowledge						

Lastly when employing the revised taxonomy additional care must be made to ensure that the information provided to students aligns with the educational goals sought. The educator needs to validly and reliably assess the higher order cognitive processes. One of the keys to link assessment directions and the assessment itself is the proposal of using the cognitive verb itself within the task specification (Airasian and Miranda, 2002) and care should be taken to avoid ambiguous definition that may cover multiple cognitive domains; "State the…", "List the…", "Demonstrate that...", etc. By aligning the language of the task with the objectives of the taxonomy it becomes easier for the educator to create relevant assessment tasks and also to evaluate the work the student has done with a clear view of the educational goals sought.

Workshop Background

The actual workshop that is employed has been provided to a large array of students (500+) from a range of backgrounds and interests. The workshop (or variations of it) has been delivered to children from the age of 8 through to 16 years of age. It has been used it to teach children from low socio-economic and disadvantaged backgrounds as well as the opposite end of the spectrum. The workshop has also been used to teach children who are part of a gifted and talented organization with both strong scientific and creative minds. The students who take part may be interested in engineering or computer science or they may be taking part as a wider outreach program and have little interest in programming or computers.

The initial intention of the workshop was to develop an outreach activity for the School of Computer Science, Engineering and Mathematics, at Flinders University that would motivate students to think differently about programming and computer science. This promotion of programming and the creativity and fun associated was used to demonstrate at a fundamental level the types of tasks a student programmer needs to consider as part of their studies.

As the activity was based in the Minecraft game there were a number of students who were interested in the game itself compared with the concepts we demonstrated. This interest in the game proved to be a significant motivator for the students to progress and complete the tasks.

Typically the workshop was run on a PC or laptop that may be used by an individual or a pair of students. A standard keyboard and mouse were used to provide the interaction, while low-end computing hardware was sufficient to effectively conduct the workshop. Depending on the computer networking resources available, all the students could play in the "one world" where they log into a hosted game, or they could use individual, isolated worlds deployed to each machine. The benefit of one shared world is the social and communication possibilities, while the isolated worlds remove competitive anxiety from the students.

Workshop Goals

The goal of the workshop was to provide students with an alternative introductory programming experience to standard practice. Many fundamental activities typically focus on text processing to explore language syntax and semantics concepts. By providing a graphical and entertaining medium it was hoped that the students would see this as an "easy" activity.

The tasks were designed to exercise the various levels of the cognitive domain of the revised Blooms Taxonomy. We sought to ensure the students could understand the material, this was achieved through demonstration, discussion and practical application. Once the students had been able to apply their knowledge we then had them analyse a complex, abstract problem

and evaluate potential solutions. Finally, the students were asked to take these developed skills and create their own implementations to prescribed problems.

This short process allowed the students to engage with all levels of the cognitive domain and thereby achieve better knowledge of the concepts. As discussed later in this paper, many of the students were able to continue this progression and apply and create additional programs for their own purposes.

The Minecraft World

The workshop was run in an already developed and populated Minecraft world. The world was not inhabited by any game enemies and there was no Minecraft game "goal" associated with the workshop. The world was relatively small with the player beginning in a light forest, with a multi-story school building to their right and a workspace to their left, see Figure 1 for a bird's eye perspective of the world. The red arrow head represents the players starting location. The brighter regions are areas lit by torches which are used (in combination with in-game signage) to guide the player to their appropriate destinations.

Figure 1. Bird's eye view of the world

To teach the programming concepts a freely available mod was used. The mod, called ComputerCraft, allows the player to place computing equipment within their Minecraft worlds. This computing equipment includes monitors, disk drives, floppy disks, modems, and "turtles"; robotic assets that can be programmed by the player, the name derived from constructs of programming language interfaces like Logo, (Solomon and Papert, 1976). The ComputerCraft mod allows the player to program some of these assets in a scripting language called Lua (Ierusalimschy et al., 1996). The LUA language can be somewhat forgiving with the syntax used and the structuring of the code. For novice programmers the roadblocks of syntax and structure tend to obscure the retention of the programming language concepts taught. When a syntax error occurs a novice programmer may not be able to identify the problem or the potential solution. By providing an instruction list and a well-paced development of skills the issue of syntax can be predominantly avoided while still allowing the student relative freedom to develop their own work.

The world was populated with the necessary components to complete the workshop tasks. In the work area there were a range of turtles that are preloaded with the necessary components to complete the tasks. Signs to instruct the student about the overall concept of the task, were

suitably placed within the world. The teacher then provided additional content to direct the creation.

In the school building there were a number of rooms to teach students about other aspects of programming as well as computer networks and gameplay. Behind the school building was a target range and castle defence area.

The world itself was set up for the specific task intended for the workshop but we encouraged the students to explore the potential uses of the techniques that were taught within their own personal games they played at home. The documentation and world itself was accessible to the students that attended the workshops so they were able to use this as a reference later if necessary.

Minecraft Workshop Activity

The players began their session in the light forest and followed the path indicated by the torches, Figure 2 shows the initial player view when first starting the workshop. This first task may seem redundant but it was found that some of the students had not played Minecraft before and so this presented the opportunity to describe the controls and functionality of the game itself.

Figure 2. Initial Player view of the world

Figure 3. Turtle operating system and place statement

Figure 4. Result of the place statement

Figure 5. Sequence of statements written to a file

Once at the work area the students were asked to represent a large number using a Montessori based tool: the golden beads. The students were told to start with the units. This introduced the students to the programming interface, the functionality of starting up the console in the turtle, creating the necessary program file and what a programming statement is, Figure 3 and 4 show screen shots of the command line interface and the result of placing a block. The students entered the command line environment, created a file and then programmed the necessary statements to instruct the turtle to move forward and place a block. They then

expanded on this by introducing 90^0 turns to place all the required units, Figure 5 demonstrates the list of statements for this functionality.

For the next task the students created the code to place sticks of ten blocks. This demonstrated the code required for repetition structures, Figure 6 and 7 show the code as well as the result of the execution. By extending the concepts covered in the previous step the students learning tasks were scaffolded to provide them with reference and structure. A discussion took place indicating how they could encapsulate the statements for placing blocks within a loop structure and repeat this process a number of predefined times. A breakout discussion occurred at this point identifying the usefulness of the loop and the potential resource and time savings afforded by such structures. The new program sequence was placed on a new turtle. The reasoning for this was to provide the student with the means to analyse the core functionality of their code without the distraction of other elements.

Figure 6. Example of the tens loop statement

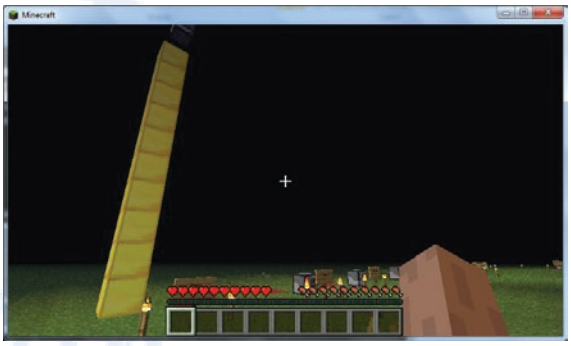

Figure 7. Result of the tens loop program

Once the student had practiced the creation of a tens stick, they were then asked to extend this functionality by creating hundreds squares. To complete this task the student was required to nest their loops. By nesting these structures they could essentially iterate through rows and columns and create a square rather than one column. Another pause was taken here to instruct the student, explaining the usefulness of this type of statement and the extensibility potential for these code structures.

The last task at this point was to have the students write the necessary code to define a cube of blocks that represented one thousand. By extending their understanding of statements, and loops the students were able to define complex nested structures.

The next guided task was to have the student program a turtle to create a castle. The castle was a simple construction of four walls with crenulations across the top. This task had the student write statements to prompt the player for input for the height and length of the castle walls. To achieve this the student developed an interaction script within their program that stored the user input in variables. The task introduced the use of selection to test whether an additional block was required to be added to the top of a wall section to provide the crenulation shape.

Dependent on the age of the students, the time required to complete the tasks and discuss aspects of the code typically took approximately one hour. Again depending on the requirement of the workshop the students were then provided with the opportunity to take the content they had worked with and apply it to a new scenario. The students were told to use the firing range behind the school and develop a bombing program that would allow their turtles to drop explosive TNT with the intention of destroying all the targets. It was typically

at this point where the students got to be creative and utilised the programming statements for destruction rather than creation. The students demonstrated an increased level of excitement and enthusiasm at this task, Figure 8 and 9 show the initial code developed by a student and the resultant destruction of the world.

The description of this workshop identified the core, fundamental requirements for developing code within the Minecraft game. Follow up workshops were conducted where additional features such as networking and exploration were described.

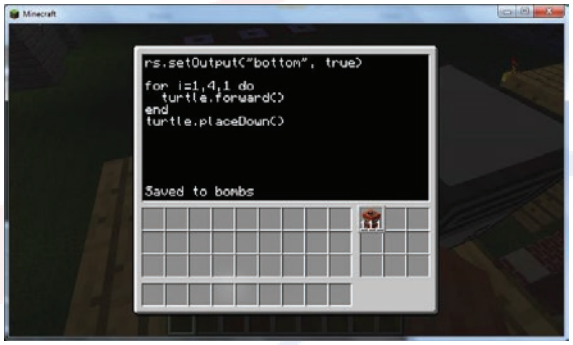

Figure 8. Initial code for the bombing task

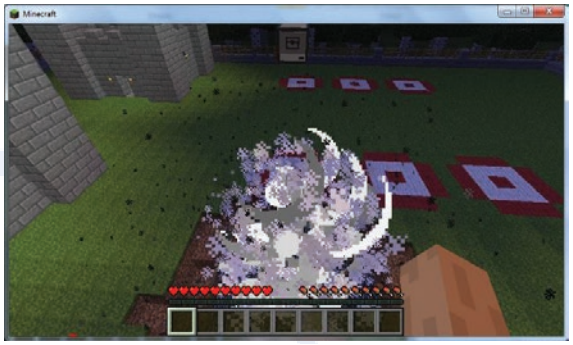

Figure 9. Result of the bombing code

Post workshop

Many of the students that took part in the initial workshop returned for subsequent workshops. These follow-up workshops usually took place at least one week after the first session. Students had developed their own solutions and many were so excited by their work that they brought their own laptops to demonstrate their achievements. The complexity of their developments demonstrated not just the acquisition of the language but the application and ability to create. As Bloom's revised taxonomy indicates this creative process demonstrates a higher level of cognitive knowledge.

The students' drive to adapt the knowledge and create their own usages for the concepts taught was driven primarily by their enjoyment of the Minecraft game. By blending this enjoyment with a technical process the students were able to enhance their skills. In follow-up workshops many students identified their own strategies for solving the presented problems. It was soon apparent that the students had engaged with the material and were providing unique solutions that had not been considered by the teaching team.

Given the extensions that students were delivering themselves, the follow-up workshops began to evolve into challenge-based tasks. An abstract problem was presented to teams of students and they were required to design and implement an appropriate solution based on their own knowledge of the language and their usage of the development environment.

Many students indicated their enjoyment of the tasks and were keen to detail their plans for their own implementations and code design.

Student feedback

Students were asked about their experience both during and after the workshop discussed in this paper. Of the feedback collected (14% of all attendees), the majority of the responses to the question asking about their satisfaction with the workshop was positive. Many students expanded on this with comments suggesting how they may use these skills in their own games.

The students were also asked about their previous experience with programming; approximately 30% of the students had programmed before but this was usually with visual programming languages like Scratch or Lego NXT. A follow up question asked them to describe their perception of the functionality of the development environment. All of the students who had programmed before conveyed a confusion in the development environment controls and indicated that they did not use all of the features.

Students were asked whether before attending the Minecraft workshop they were considering a career in computing. Approximately 50% of the students (primarily female) were not considering computer science as a career choice. Comments from students who were not interested in computer science suggested that they were not aware of the creative and "fun" side of computing. The students were asked whether they had changed their mind as a result of the workshop and of those not interested 69% changed their mind.

The students were specifically asked about the knowledge they felt they had gained from the workshop. Questions asked them to describe their understanding of variables, loops and selection. In their own words the majority of students were able to describe what these structures were, their functionality and examples of their implementation.

An abstract problem was also presented to the students and they were asked to describe their own solution using "pseudo code". 88% of the responses defined an appropriate solution. These suggested solutions demonstrated the students' understanding, application and synthesis of the materials taught.

Approximately 30% of the students who completed the workshop presented in this paper answered questions in follow up workshops. This number is not a true indication of returning students but represents those who wished to provide additional feedback. These students were asked whether their knowledge of programming languages had increased. All of the students responded with yes.

The returning students were asked about their use of the development environment within Minecraft and while some indicated a level of complexity with starting the environment, 71% said it was easy to use. 91% of returning students said that the experience was enjoyable. 57% of returning students indicated that they had been developing their own code at home and had sought to expand their knowledge and skills.

Finally the returning students were asked whether they had considered looking at other more complex and robust programming languages. The same number of students who had worked at home reported that they were interested in developing their understanding and knowledge of additional programming languages.

Results from the initial survey and the follow-up survey, suggest that the students enjoyed the experience and increased their knowledge. The results are based off of workshop feedback forms that are designed to enable descriptive, subjective feedback rather than quantitative results.

Conclusion

While the workshop continues to be used as an outreach activity it has identified strategies and environments that benefit the learning objectives for young programmers. Students were motivated to participate in the lessons as they saw a direct relationship to their own personal

interests. The use of the ComputerCraft mod allowed most students to experience an engaging and familiar environment. Most students enjoyed the experience and felt their knowledge had increased.

It is expected that future work would look to assess pre and post experiment knowledge. This information would be used to indicate the level cognitive knowledge gained across a number of sessions. The workshop is also being developed into a series for use within school computing lessons.

Finally, the success of using such an approach to improve the retention and application of programming knowledge has been acknowledge by the comments from the students who participated as well as anecdotal and observational evidence.

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Using Mobile Applications in Formal Learning Spaces: A Higher Education Case Study

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Abstract

Technology is now unavoidable in teaching and learning; the internet is ubiquitously used in the dissemination of knowledge, and associated communication. This has transformed the resources available to learners, and teachers alike. The incorporation of technologies that are already natural to students, such as mobile devices, into higher education has been the subject of much discussion in the last few years. However, given the changing pace of these developments, there is much yet to be realised in terms of their use within formal learning spaces. This paper presents a study conducted at the University of Greenwich, wherein iPad® applications were utilised in a third year mathematics course for both lecture time, and in marking part of a formative assessment. This represents the first phase of trialling existing mobile tools in order to establish whether they have appropriate use in this context. This paper also presents the results of an anonymous survey regarding the use of these applications, conducted as part of the course evaluation. Finally, we discuss the potential for further use of such technology in mathematics lectures and in teaching in general.

Introduction

Among higher education institutions, there is a growing interest in the incorporation of technology into learning spaces, either by developing traditional models or in the conception of new designs (Savin-Baden, 2008) (Radcliffe et al, 2008). Technology is now unavoidable in teaching and learning; the internet is ubiquitously used in the dissemination of knowledge, and associated communication. Now that students widely have access to computers and mobile devices, they participate in learning creatively, i.e. they do not exclusively receive knowledge as coordinated by teachers, but design content themselves, and research and store information in a personalised manner.

This has transformed the resources available to learners, and teachers alike. Moreover, the growth of technology is not a linear process - it progresses in response to the very current needs of users, in alignment with the current capabilities of systems and is then further adaptable by the users themselves. In the past, new teaching technologies (from white boards and PowerPoint slides to computer labs and library systems) were developed for the staff initially, to then be translated to students. However, the current age of affordable personal technology means that students get there first; they are already comfortable and adept with technology. For them it is 'natural' (Milne, 2006).

Yet while there is great emphasis on the use of technology in the current strategies of many universities, it is important to consider the specific advantages to its use. Technology should not be used simply because it is available – it should only be used to *improve* teaching and learning (Simon, 2002).

In order to design learning spaces that incorporate technology, these existing habits and practices of students should be considered (Lomas and Oblinger, 2006). But, while much has changed for today's students, we must also look at what is the same. Despite the prevalence of technology and the normalised concept of the "Virtual University" (Limón, 2002) , campus life still looks the same: some students still work independently, some still prefer working in groups, and most still value the time being taught face-to-face (BBC, 2013) . A key change is that these activities are now virtually linked as information is carried and transferred easily. Therefore, one of the most important developments, at the heart of both formal and informal learning spaces (and in blending physical and virtual learning spaces towards natural computing habits) is the mobile device.

There is enormous potential for mobile devices in teaching and learning: for documenting and researching, for general interactive capability (such as live annotation, feedback, quizzes and in-class-communication) (Scheele et al, 2004) and for delivering content in specific subjects. However, the latter use of mobile technology has tended to vary across subject disciplines. Mathematics in particular has often been regarded as a very traditionally taught subject and there is often resistance to change established, and what are considered successful, practices. In addition, much of mathematics teaching often takes place in a large group environment at universities, where the use of technology is potentially more difficult to implement than in a smaller group, or the more individual setting found in other disciplines. Nevertheless, there have been many recent discussions, such as within the HE Academy (Rowlett, 2011), regarding innovative and alternative methods for teaching mathematics at the higher education level.

In terms of mobile technology for learning much has already been realised in mathematical subjects. Software corporations (e.g. Apple) and independent developers already deliver applications that support K-12 teaching (Shirley, 2011). These applications can lend a gaming format to the practise of mathematical skills such as arithmetic and problem solving, therefore supporting primary and secondary learning at a very low cost (e.g. "Go Figure!" for iPad® and iPhone®, $0.99) (Huby, 2012) . However, in higher education, as mathematical concepts become increasingly complex, they cannot necessarily be practised in the immediate and repetitive way as basic skills such as arithmetic. Therefore, applications that support mathematics in higher education tend to show videos of teaching or perform as complex calculators and graph generators, for example (Yerushalmy et al, 2013), (Pomegranate Apps, 2013), Wolfram Alpha (2013). Furthermore, for subjects in applied maths, relevant applications can be disparate.

In the formal lecture spaces at University of Greenwich, students already use their mobile devices for accessing teaching material and researching online, as well as using applications for recording speech and writing notes. Therefore, in order to explore the potential use of topic-specific applications within a lecture environment, a preliminary case study has been conducted. This paper presents this study, wherein iPad® applications were utilised in the third year mathematics course "Coding and Cryptography" (MATH1137). Some lecture time was devoted to demonstrating various coding methods and practical apps such as barcode scanners, encryption methods and hashing algorithms. An application was also used in marking part of a formative assessment.

This represents the first phase of trialling existing mobile tools in order to establish whether they have appropriate use in this context. Initially, course activities were planned with the use of an iPad®, and incorporated into a formative assessment. Then the activities were critically observed during the lectures. Finally, an anonymous survey was conducted, as part of the course evaluation, to seek the students' opinions of this technology both for contact time and for assessment, and of its impact and potential disruption in class time. While the survey method only provided limited scope for analysis, it provided a necessary initial basis (given the lack of precedence for this specific use of mobile technology). If the students felt that it disrupted their studies, then the planned developments and programme of use would be ceased, or altered accordingly.

This paper considers the evaluation of these results and discusses the use of the chosen applications during lecture and contact time, considering whether it is a helpful or distracting use of technology during lectures (students may engage with the concepts or may choose to use their devices for other means such as social networking). Here it is also considered what impact these methods may have on the formal learning space and the experiences of both the staff and the students. In the concluding remarks, we discuss the potential for further use of such technology both in mathematics lectures and other subjects across the academic spectrum.

Case Study

As part of the course design for the final year (optional, credited) mathematics course "Coding and Cryptography", various applications were chosen for demonstration during lecture time. All of these applications were free to purchase, however the students were not required to download them to participate in the exercises. The applications were selected for various lecture topics in order to support the visualisation of algorithms and codes that the

students were learning and creating. The following is a sample of the iPad® applications that were used:

- **Morse code! v.2.0** *©2013 John Wallace*

This application demonstrates the use of Morse code, where the students can create and communicate phrases using the actual sounds of Morse code. This is a valuable tool to illustrate the practicalities of communicating by sound alone.

- **Semaphore!** *©2011-2012 Next Year's News, Inc.*

It is helpful in this course to highlight the history of the subject: for example, the historical use of semaphore in naval communication. As this is a solely visual means of communicating it is beneficial for the students to use an application that exhibits this technique practically.

- **Enigma Machine** *©2012 Matthias Schorer*

The mathematics behind a coding machine (such as the Enigma machine from WW2) are complex, and while students are conveyed the theory in lectures, it is helpful for them to see it working in practice. The Enigma application meant that students could explore the user interaction with such a machine.

- **Concealment** *©2012 Lakeside Llama LLC*

This application enabled students to hide messages within pictures (by slightly changing the colours, and using these differences as a code). This provided a useful visual tool for the students to see the method applied.

- **Cryptomania** *©2012 Arcastudio Game Division*

This application facilitated a trial-and-error approach to decoding substitution ciphers. Presented in a gaming format, this tool was enjoyable and engaging for the students as well as lending an intuitive approach to methods of decoding. The importance of language in decoding, such as letter frequency and sentence structure, were immediately obvious in these games and therefore successfully contextualised the subsequent algorithms taught.

- **RedLaser** *©2012 eBay inc.*

The barcode application is useful for both teaching and assessment. The user takes a picture using a mobile device of a barcode to read it, and it then either links to a product or website if available, simply gives the number if it cannot link to a product, or fails to scan. The principles behind creating barcodes are relevant to modern error-correcting codes, and this app demonstrated to the students the difference between readable and unreadable barcodes. As well as this classroom activity, students were required to produce their own barcode as part of a coursework assessment. The students used their personal university enrolment number as well as their date of birth, and created their own barcode (by drawing it in on graph paper or Excel for example). The application then made marking much easier from the point of view of the assessor, and indeed very efficient, and also allowed the students to check their answers, so assisting with the formative process and providing some form of immediate feedback.

Students were seen to engage very effectively with these activities during lecture times. In this type of applied subject, where real-life relevance is paramount, the ability to demonstrate the concepts in a practical manner supported learning. Furthermore, the change from a

traditional lecture format appeared to engage the students effectively. When the two hour lecture was interrupted with an application, the learning space became more dynamic, informal and loud. In contrast, when the formal lecture resumed, students re-settled quickly and in-class conversations were notably few.

There is a growing body of evidence (Atsunori, 2011), to support the idea that brief diversions from an activity can help students focus on a task. The iPad® activities significantly diverted the formal lecture activity, and therefore may have helped students to stay on task.

In its first year of running, Coding and Cryptography was well subscribed and the course feedback was very positive. As part of the course evaluation, the students were invited to complete a short, anonymous survey about the use of mobile technology throughout the course. The following section presents the finding of this student survey.

Student Evaluation

46 out of 116 students enrolled on the course voluntarily accessed and completed a short, anonymous, online survey. Five multiple choice questions were answered, followed by an open field in which free-flow comments could be added.

As depicted in Figure 1 below, more than 80% of the students owned a mobile device that can support mobile apps. Significantly, as indicated in Figure 2, more than 70% of students said that they did use the applications that were demonstrated in the lectures which gives a strong indication that the majority of students that were able to access the suggested applications, did indeed choose to do so.

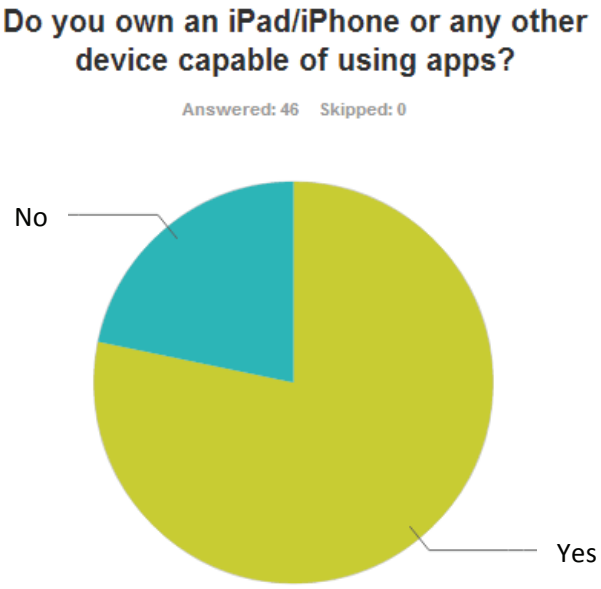

Figure 1: Student access to mobile applications.

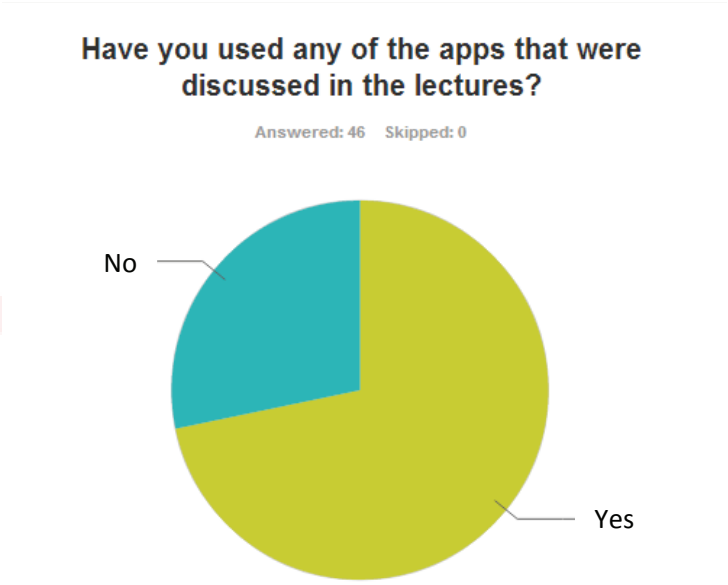

Figure 2: Use of applications demonstrated in lectures.

These results indicate that the students did involve themselves in at least some of the apps presented, increasing engagement in the course.

As Figure 3 indicates, 83% of the students surveyed described the use of iPads® in lectures as either "Useful" or "Very Useful", which is a very positive result.

Those who stated in the previous questions that they did not have a mobile device that could support applications comprise the negative (and "Non-Applicable") responses here. Again, this indicates that those who had used the applications did find them useful.

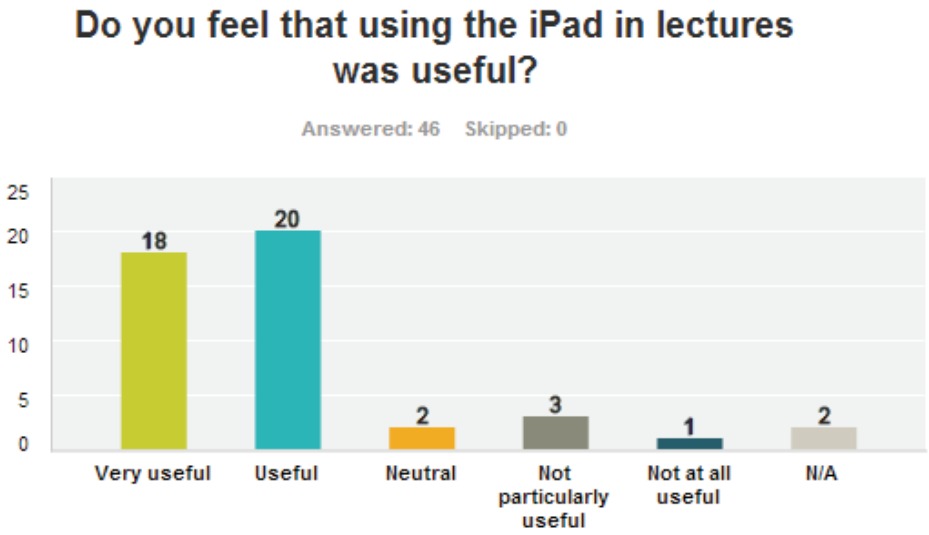

Figure 3: Student evaluation of iPad® usefulness.

When students were asked about the use of apps for other courses (as shown in Figure 4), the majority again responded positively. More than 80% of students would recommend that other

courses utilise mobile applications. This is an interesting result for mathematics students who are often regarded as preferring traditional teaching methods.

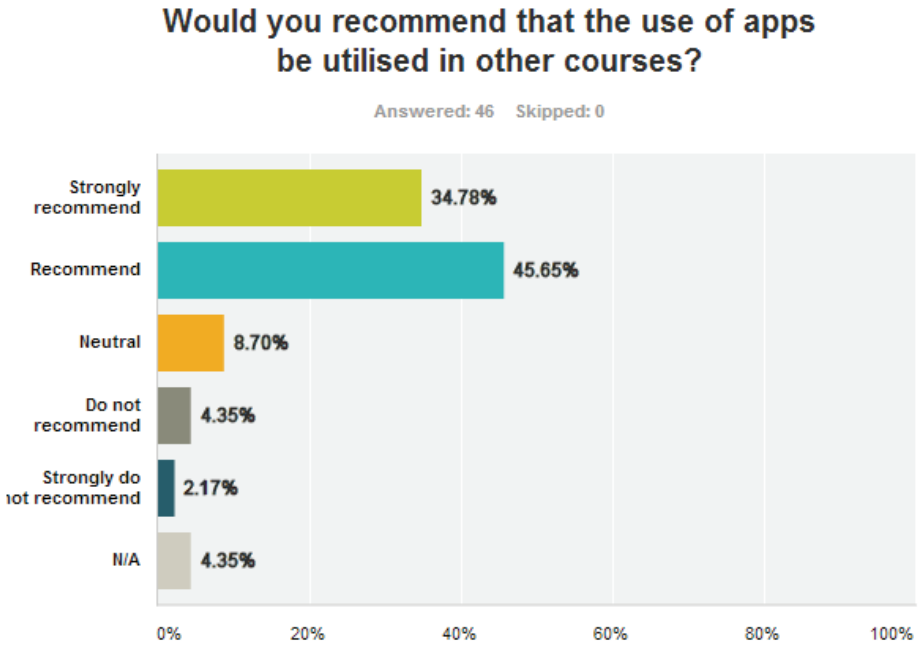

Figure 4: Student recommendation for the use of apps in other courses.

The result from the final question, as shown in Figure 5, is the least conclusive outcome of the survey. When asked whether the use of mobile devices was beneficial or disruptive within lectures, most students were neutral on this issue. Feedback seems to indicate that some students are concerned about what others were using their devices for (e.g. disruptive communication using the likes of Facebook and text messaging).

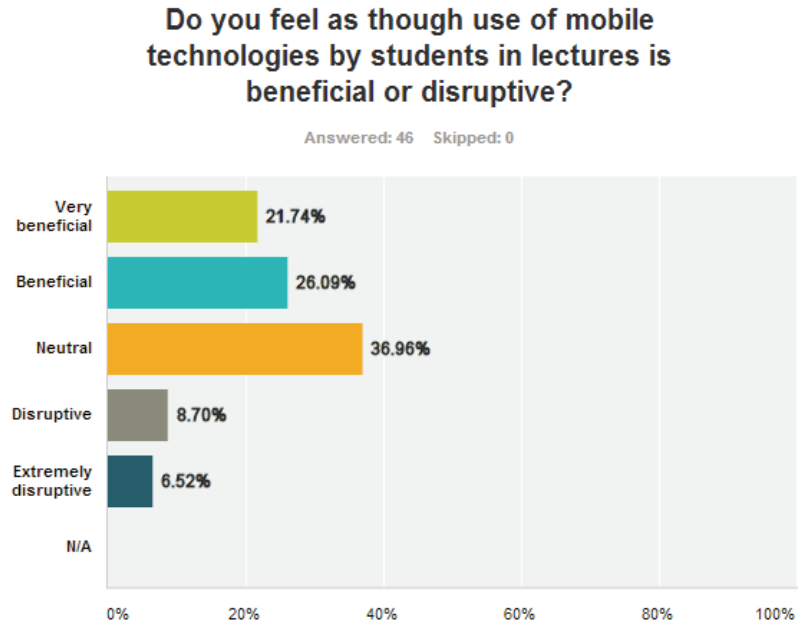

Figure 5: Student evaluation of iPad® usefulness.

Furthermore, the wording of this question may have been unhelpful in considering the meaning of the results. Students may have found the device to be both beneficial and disruptive, which may explain the neutral responses but does not indicate whether the disruptions were actually disruptive in a positive sense (for example, breaking up a long lecture), nor whether the benefits outweighed the disruption. The wording of this student survey will be under review for the next phase of this project, as outlined in the next section.

Concluding remarks and future work

This case study formed the first phase of a project to investigate the use of mobile device applications in lectures. The feedback from this initial phase indicates that students did generally find applications useful. Therefore, for the next phase (to be implemented in the 2013/2014 session), a more extensive program of device use is going to be trialled within the department.

The student comments in the feedback indicated that maths students found that interesting applications did help them to engage in the lecture material. Therefore, the authors intend to research (and perhaps develop) new applications that are relevant to the course material for the next phase.

However, given the nature of device applications, those that are featured in this study are likely to be outdated by the 2013/2014 session, so may or may not be repeated in the delivery of the course. Aligning these resources to current device functionality and available software is likely to be an ongoing process from year-to-year. Therefore, collaboration with students may be used in this task in order to keep the apps used up-to-date, and possibly have the added effect of engaging students in research.

Figure 6 below outlines the key areas in which this feedback has informed the next phase of project delivery.

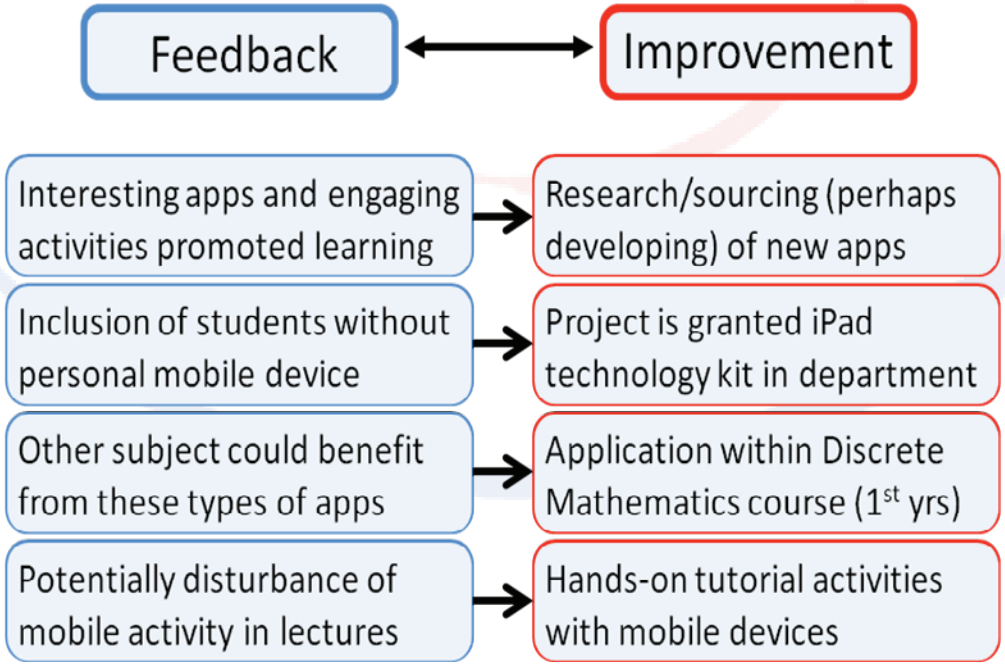

Figure 6: Next phase improvements

Although students were not required to download the applications themselves, the feedback found that the majority chose to. Therefore, some students without a mobile device that supported these applications did not feel included in the activities. To overcome this, the authors have been granted a technology kit from the Greenwich Connect initiative (http://blogs.gre.ac.uk/greenwichconnect/). This means that 10 iPad®s will be available for student use during lecture time and tutorial. Students will be placed in groups, with an iPad® per group, so that each can use the applications.

As supported by the student comments, this project is going to expand into other subjects for the 2013/2014 session. Relevant applications are available to support the current course material in discrete mathematics for first year students, and linear algebra for second year students. This means that further investigation can be conducted into the applicability within other mathematical subjects, as well as the ongoing use of mobile devices over different year groups.

In order to investigate the potentially disruptive use of mobile devices, the next phase of delivery will trial their use in tutorial time (less formal learning spaces) and in group work. Furthermore, the student survey will be developed to better explore the disruptive element. Students will be asked to comment on the type of disruption they experienced, as well as whether it was positive or negative.

In addition, the results of the project are intended to be wide-ranging enough so that at the conclusion of the project, the authors can present the findings to those working in other subjects at the end of the year for consideration in their own subject area.

This project has ethical approval from the University of Greenwich Research and Ethics Committee, with reference number 12.5.5.13.

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Preparing the Next Generation of Leaders Online

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The European Conference on Technology in the Classroom 2013

Official Conference Proceedings 2013

Introduction

Can leadership be taught effectively in an online environment? Is it possible to impact students from a distance, especially when instructor and student never meet? Two online undergraduate courses in leadership offered at Rutgers University demonstrate through student assessments and qualitative/quantitative feedback that it is entirely possible.

"Preparing the Next Generation of Leaders Online" is just one more channel for preparing undergraduates for their future role in society. Since 2005, the author has developed and taught four online undergraduate courses which allows students who are typically science-based majors at the School of Environmental and Biological Sciences to explore leadership and evaluate throughout the semester their role as a leader in their campus, home, and community life. These courses include: Communication for Today's Leader; The Ethical Leader; Stewardship and Leadership; and Leadership and Civic Engagement. Read on to see how posting to the Threaded Discussion (TD) on a regular basis, writing personal reflections in the Student Journal (SJ) or sharing relevant information through Documents Sharing (DS) opens up a whole new world for students.

Course Rationale

Communication for Today's Leader Rationale: Everyone has the capacity to lead. However, the ability to convey the leadership message takes skill and a clear understanding of how a multi-faceted communications approach can have a positive impact on others. More importantly, this skill is developed over time as a leader expands their realm of experience and influence. This course introduces students to communication and its importance to leadership. Communication has been hailed as the cornerstone for effective leadership. This course enables students to dissect leadership from a communication perspective. Communication has also been found to be one of the leading skills desired by employers, and will continue to be one of the most sought after in the future. The National Communication Association asserts that communication education supports: the development of the whole person; improvement of the educational enterprise; becoming a responsible citizen of the world, both socially and culturally; and succeeding in one's career and in the business enterprise. In addition, "communication education improves specific skills and abilities including critical thinking, media literacy and criticism, **leadership skills** and family relational development."

The Ethical Leader Rationale: Students should and will explore the inextricable need for ethics within the realm of leadership. Topics to be addressed in The Ethical Leader include power and self-interest; how values influence leadership; leaders and followers; and leadership for the greatest good. Students participate in dialogue relevant to current societal situations in business, politics and how individuals contribute to the moral fabric of our society.

Stewardship and Leadership

Stewardship and Leadership introduces students to the concept of servant leadership styles and reflects on other effective and ineffective leadership practices in organizational cultures. Topics include: recognizing and facing challenges within an organization, decision-making practices, effective methodology and applications, and working for the benefit of the community. The course will explain the roles of servant leaders and how the servant leadership approach can influence individuals, organizations, community and the world.

Students will gain a better understanding of Stewardship and Leadership by looking at how servant leadership is used to benefit community service projects. The course will show how servant leadership can be a more effective leadership approach, and also how the approach can influence outcomes.

Leadership and Civic Engagement

The Social Change Model of Leadership Development emphasizes a collaborative approach to leadership that allows for the talent and skills of all members to be utilized. This model is purposeful, collaborative, and a values-based process that results in positive social change. For students, the primary goal is for them to gain self-knowledge and leadership competence and to learn how to facilitate positive social change. "College students consistently affirm that they want their lives to matter and to make a difference (Komives, Lucas, & McMahon, 2007). College seniors seek jobs in which they can do well and do good (Levine & Cureton, 1998.)"

In addition to the social change model, students in this course will also explore the topic of service learning. The findings from "An Exploratory Study on the Value of Service Learning Projects and Their Impact on Community Service Involvement and Critical Thinking" (2007) show that students believe their college experience is preparing them for the job market, their critical thinking skills have been enhanced, and their college academic experience has emphasized community service upon graduation.

Service learning is a teaching and learning strategy used to meet existing academic goals using an experiential approach (National Youth Leadership Council). It involves a combination of curriculum and service and provides an opportunity for students to meet personal academic interests, help address community needs, and increase leadership skills and civic engagement.

Critical Thinking Skills Tested in This Online Environment

These leadership courses were designed around a model of critical thinking. As students think critically about leadership experiences, they are instructed to utilize David Kolb's *Experiential Learning Model* (1984), which is a model that has been found to be practical in nature. Described in Exploring Leadership by Komives, Lucas, and McMahon, this learning model follows a sequence of experience, reflection, generalization, and

application. According to the authors:

> Students experience an event or activity, and then share what they saw, heard, felt, smelled, and tasted. By doing this, the experience becomes more complete—some students will see things others missed. In the generalization stage, students are asked if they have ever experienced something like this before or if it relates to other experiences they have had. By doing this, the experience becomes broader and more applicable than it initially appeared. Finally, in the application stage, students are asked how they can apply what they have learned from this experience. This completes the learning cycle by getting students to think about using what they have learned.

This learning model has been intertwined and used effectively throughout all courses. For example, students are asked to write about their personal best leadership experience or evaluate their personal characteristics in relation to their leadership ability. Students share ethical dilemmas or their experience in group and team development. Each assignment calls for them to draw upon personal experiences and apply it to the question at hand.

Engaging Students in An Online Environment

Not every student will thrive in an online environment. If a hint of self motivation to physically log in and visit the course homepage is lacking in a student then an online course may not be the appropriate format to best meet their learning needs. Students are reminded in the course overview that the same dedication required for an on-campus course is required for a distance education course. Students must be self- motivated, manage time efficiently, and approach their studies seriously. There are no shortcuts by taking an online course, other than a shorter "commute" to class.

But what is interesting about leadership education is that we expect to engage in discussions and see action in a face to face setting. Therefore, attending to student engagement is key in an online learning environment so the assignments and online interactions must allow for the creation of a positive learning experience where students can discuss, ponder, and think critically about leadership.

During the 14-week semester, students explore leadership and communication and ethics and leadership from a theoretical, as well as a practical, hands-on perspective. Students apply leadership theories and principles to personal leadership experiences and are asked to think critically by:

- Completing reading assignments
- Writing online journaling and papers to share leadership triumphs and challenges
- Participating in weekly threaded discussions on topics related to course readings
- Serving as a threaded discussion leader where they kick off the discussion and lead fellow students throughout the week by responding to student posts, providing additional resources and modeling how to shape a useful exchange of ideas

Each course is designed so that students move through a series of assignments week by week as a group, logging on several times per week to participate in threaded discussions and to post assignments. A major goal of these courses is to allow students the opportunity to:

- Apply critical thinking skills to evaluate the subjects of leadership and communication or ethics and leadership
- Develop an understanding of his or her capacity for leadership
- Improve communication skills and apply to current leadership roles
- Create a personal agenda for leadership by setting personal and professional goals
- Evaluate traits and characteristics of effective leaders by focusing on communication skills including their own
- Exercise communication strategies useful in group dynamics
- Validate the importance of diversity in society
- Assess and modify organizational culture and conclude how strong communication can create a mutually beneficial environment
- Interpret and support the need for ethical leadership in this world

Reactions from Students to Online Leadership Education

One student, who had an active role in allocating more than $1.5 million in student fees as the chair of the University Allocations Board, described her online experience in Communication for Today's Leader like this:

My initial expectations for this course were to be opened up to a variety of opinions and hope that they challenged mine. This course has provided me with that tool and allowed me to critically look at my leadership beliefs. My views have not changed drastically, but I have been allowed to incorporate a broader range of thoughts into them. In a very positive way, this course has put more ambiguity into leadership communication. I think that this is a great strength in this course, and I am looking forward to gaining more insight into the topics surrounding leadership communication.

Another student from The Ethical Leader shared at the end of the semester: As I grow in my ethical behavior on the job, I realize that I am intolerant of immoral authority. It is not acceptable to me to engage in conduct that does not coincide with my beliefs. As I continue to grow in my faith, I realize that things that I used to be (uncertain) about now are incredibly clear to me. This references how I would like to be represented as a person. It is not difficult for me to come to a decision on how I feel about a certain topic, because I have many people in my life to steer me in the right direction when I find challenges in my path.

Challenges

For some students, the lack of face time in the classroom is a major issue, because they

need the human interaction as both a reminder of their student responsibilities as well as benefit from verbal/nonverbal communication with their instructor. Many students who take an online class do so primarily for its convenience, as many students hold fulltime or part-time jobs and have additional family responsibilities. However, more convenient access to a learning environment does not always spell success for a student. If that student does not carve out time to participate then their grade will suffer. If that student cannot adapt to the technology or does little to learn how to maneuver with the course then they will have great difficulty in adapting and accepting this new learning format for themselves and may have a more negative experience in the course than a positive one.

Issues of plagiarism and cheating still exist in an online environment and therefore an attention to assignment authenticity is necessary. Using an online assessment and originality program has added depth to the instructor's ability to prove that plagiarism occurred whether it was intended or not by the student. To deter students from using this shortcut, many assignments are highly personalized and call for the student to reflect on personal experiences and learning moments.

Conclusions

A majority of the students who have completed these courses have managed to find the right balance between attending to their studies regularly, contributing to this learning experience and completing carefully thought out written assignments which reflect a true evaluation of the topic at hand.

These courses also highlight some of the best practices utilized to engage student and enhance learning, as well as illuminate the continued need for leadership development in undergraduate students. There is a continued interest shown by students to engage in leadership and personal development through online education and such courses offer a unique platform for knowledge acquisition and transfer.

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Biographical Sketch

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Socially Adaptive Self-Organizing Virtual Academic Adviser

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Abstract

One of the major administrative processes at the university – the term enrolment, starts few weeks before the start of each following term and ends a week after the start of the courses. The students have to submit an enrolment application for the academic term with a selection of courses which then has to be approved by the academic adviser. The virtual academic adviser is introduced to give the student measures of his success in comparison to other students. Further, the future academic terms of the student are mapped according to his average speed and his graduation date is forecast. The component enables the student to perform what-if scenarios and change his load, change plan/program, rearrange courses in order to come up with the best plan until graduation. This paper presents an ongoing work in introduction concepts of social navigation in the administrative process and self-adaptive feedback control loop based mechanism to control the processes, in order to achieve better student satisfaction. The system enables monitoring of processes, changing of goals and restructuring based on student population behaviour.

Keywords: course management systems, curricula recommendations, social navigation

1. Introduction

This paper presents the ongoing work as part of the project ISISng at the Faculty, in extending the existing student information system to incorporate adaptivity, social navigation and guidance in the everyday processes that students experience.

The problem of better and more personalized choice of courses to study in each semester, is an ever-valid problem that is increasing year after year (Ajanovski, 2011). In the past, there was practically no choice once the student entered the study program – the studies were to be finished successfully within a certain deadline. Later, many renovations of the curricula and the study processes have occurred, the most important being towards the Bologna process and ECTS, introducing more and more course options within each study program.

Unfortunately, there is a significant complication that students experience, which is rooted in the way the Bologna process and ECTS (European Credit Transfer System) is implemented at the university and the multitude of misalignments created by the ever-changing legislation. Some of these problems can even lead the student to a situation in which he has to re-enrol again the same study year, because he has not passed a critical course or set of courses. There are also many other similar problems discussed in more details in the references.

The student has abundance of choice, but unfortunately not every choice is a good one. Part of the research conducted in the project ISISng, and especially in this paper, focuses on these and similar problems and investigates possible adaptive and social-based system solutions.

2. The virtual academic adviser

Many universities have virtual advising, meaning that there is a real person behind an email or chat system, so it is called virtual. Sometimes it is a knowledge-base related to the studies or a FAQ list. The virtual adviser that is the topic of discussion here is a truly automated software solution that uses historical data to perform analysis on the situation of each student, and help the student with personalized guidance related to the described typical problems with the enrolments. This would alleviate a significant part of the work that is done by the real advisers, leaving them more free time to discuss issues that are more complex and better focus on each student's needs.

The proposed virtual academic adviser is under continuous development, as part of the ISIS – integrated study information system (Ajanovski, 2010). The original idea, proposal and prototype were first presented at (Ajanovski, 2011). Later, the development was focused towards experiments with the introduction of personalized course recommendations (Ajanovski, 2013a) and integration within the administrative process for course-enrolment and class time-table creation (Ajanovski, 2013b).

The current implementation of the virtual academic adviser (see Figure 1) helps the student to:

- monitor own performance in the past
- sea a map of enrolled courses per term, with mapped failures, and high-risk courses

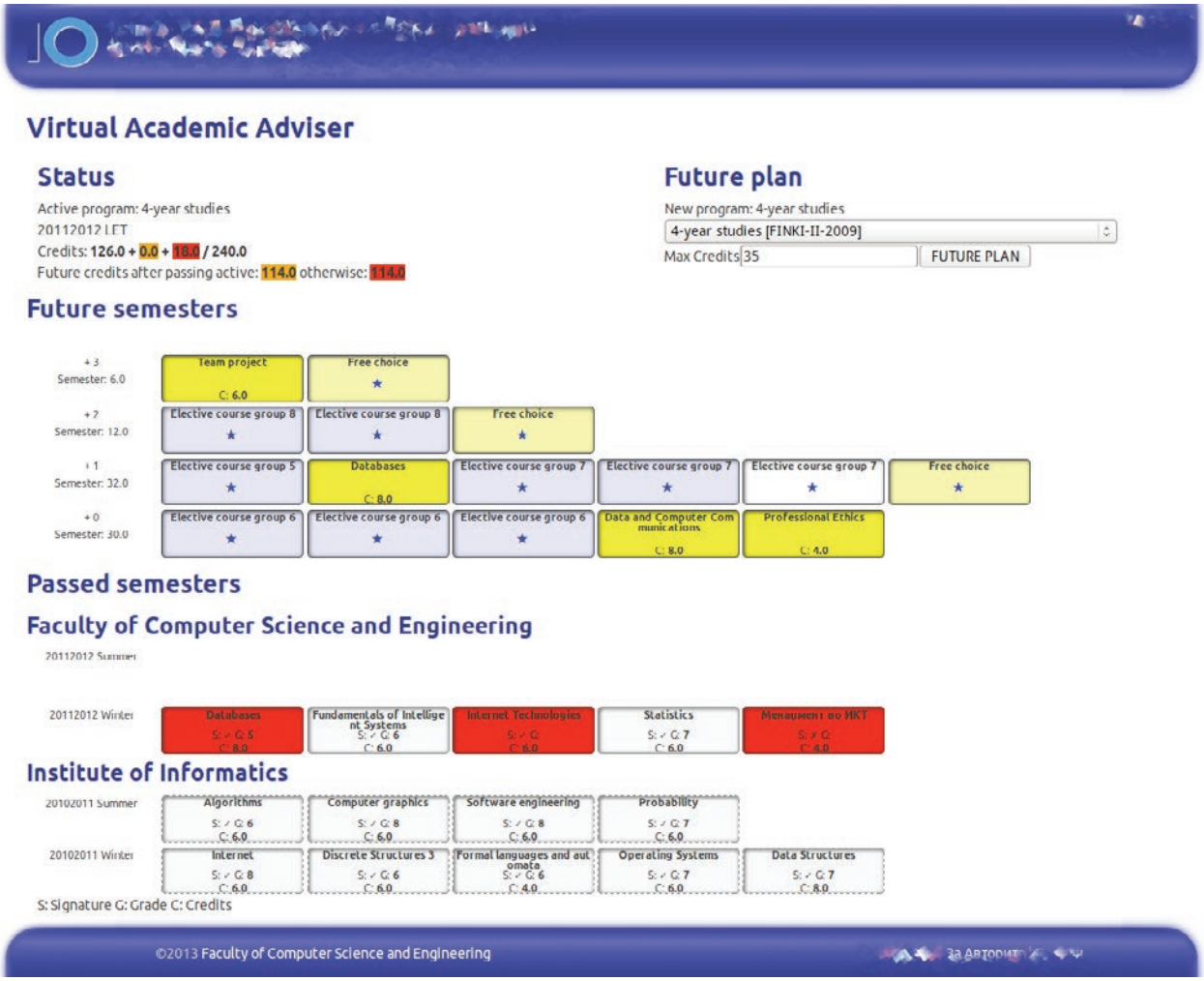

Figure 1: Current implementation of the virtual academic adviser.

The virtual academic adviser generates an estimated study plan per each term in the future. The future academic terms of the student are mapped according to his average speed and a forecast of his graduation is shown.

This enables each student to do some analysis, what will happen in the future if: he takes more credits per term, switches to another study program, rearranges courses per future terms or chooses one or another course from the list of free electives.

3. Socially Adaptive Virtual Adviser

In this section, focus is given on the social navigation capabilities, part of the latest developments in the ISISng project.

3.1. Course recommendations

In the early implementation of the virtual academic adviser, the course choices are made from fixed lists. Latest development allow the choice to be made in a dynamic environment enriched with social navigation elements. Instead of listing of bare categories and courses within the categories, the lists have icons on special positions indicating recommendations or relevance of certain choices.

The following indicators are used within the list of elective courses (Figure Error: Reference source not found):

- popularity – or the number of students that enrol the course on average, one stick figure for each group of 50 students;
- courses involving higher risk – shown with 3 lightning icons, that are lit based on the percentage of students that have enrolled the course, but have not finished it;
- relevant course for better success – if a course is among the 10 best recommended courses, based on grades that other students have achieved, it will be indicated with a star;
- relevant courses for better success towards specialization – if a course includes topics in a knowledge area that is among the 10 best recommended areas, based on success in these areas, the course will be indicated with a curved arrow.

It can certainly be argued if these indicators really show the most relevant courses, since it all depends on the chosen recommendations algorithms. This is left for the system to evaluate and decide by itself, according to usage and user experience, as part of the self-adaptive behaviour.

Figure 2: Choosing elective courses from a group, with recommendations.

3.2. Implementation of the recommendations

Several open-source recommendation frameworks were investigated for program and course recommendations in order to full-fill the discussed requirements, among which: Duine, Easyrec, Mahout. Easyrec was chosen because it is easiest to integrate, since it is operated as an external system, via REST API. Only the basic shopping cart analysis algorithm was tested with partial historical data from course enrolments. Neither investigation of other

algorithms, nor an evaluation on the built-in ones was performed, since only the level of proof of feasibility was aimed.

In later phases, custom algorithms will be built as plug-ins, and their usage will be automatically evaluated and controlled by the system. The system is modular and enables live switching of plug-ins, hence serving the purpose of the experiment.

4. Self-adaptive processes

The system enables monitoring of processes, changing of goals and restructuring based on student population behaviour. This part of the system is modelled according to the conceptual model shown in Figure 3, representing a feedback control loop in a self-adaptive software system (Dobson et al., 2006) and (Lemos et al., 2011).

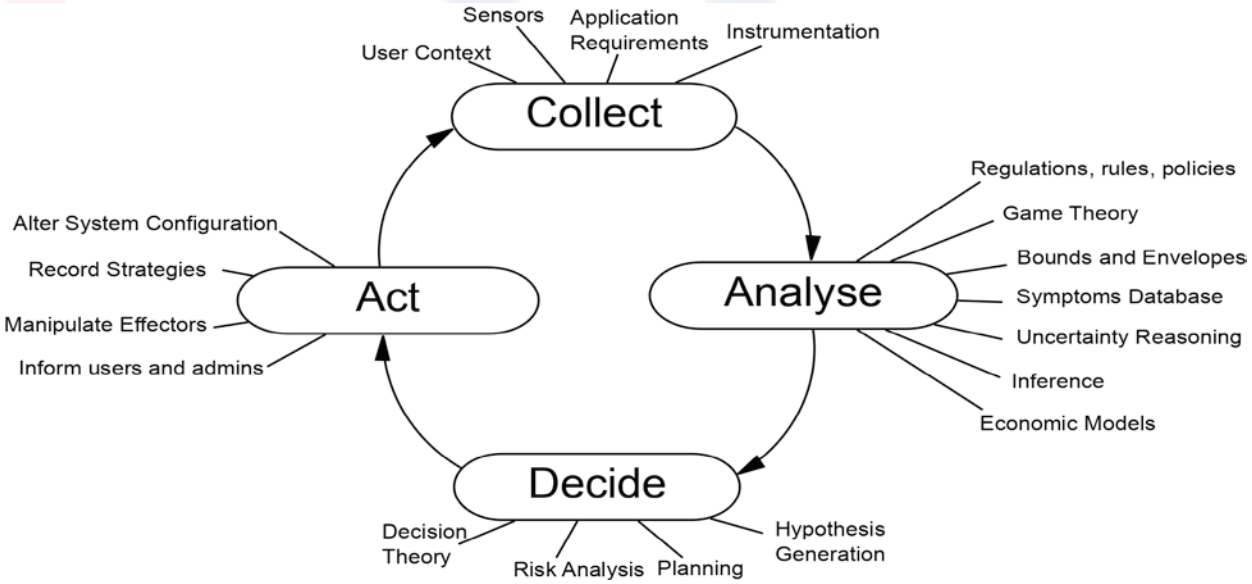

Figure 3: Feedback control loop.

4.1. General implementation of the control cycle steps

In the Collect step, the system is monitored and information is gathered about: critical time-slots, length of student waiting lists, numbers of students per group, number of issues reported by students per category.

In the Analyse step, the operational status is analysed and symptoms are identified: new groups are needed, new teachers are needed, course resources are exhausted, courses will not be activated due to lack of students, students ask for non-existing courses, and that increasing number of students have complaints.

In the Decide step, the system makes decisions on the actions that are to be performed, depending on the severity of the symptoms: send only information and status via e-mails, invoke critical alarms to administration staff, change boundary limits can be changed because number of students expected will not exceed significantly, and to ask advice on action from administration staff.

In the Act step, the actions are orchestrated based on the types of decisions that were made and symptoms that were triggered: status information is sent to all users, symptom analysis

and possible decisions are sent to administrator, critical alarms are activated per symptom, boundary limits are modified, measured parameter values are logged, symptoms, decisions and actions are logged.

4.2. Special considerations regarding self-improvement of recommendations

The previous set of activities defined for each step of the cycle, is used as a tool for general control over the behaviour of the system as a whole. But a special set of measures are taken with regard to the improvement of the social-navigation in the course catalogue.

The recommender engine is configured with several recommendation algorithms, developed as plug-ins for the Easyrec system. An instance is created for each algorithm with the same data and regular analysis are computed in each instance (for all algorithms).Students are divided in groups in random order and each group is served with recommendations from a certain algorithm.

The control cycle has been configured to have a duration of 1 day and the configured activities in each of the steps are:

- Collect step – the recommendation links that were followed by students to enrol as a course are recorded, together with the identifier of the algorithm that was used for the respective recommendation.
- Analyse step – summary computations are performed on the usage of all the algorithms.
- Decide step – analytical results are compared with boundary values and decisions are made on which algorithms should be investigated further, should be kept or should be disabled.
- Act step – internal API is used to revoke some algorithms, or regrouping of students is done, based on the new algorithms that will be tested.

After several cycles without changes on the set of active algorithms, we can expect that only the ones used often have survived. The other algorithms will be disabled.

4.3. Special considerations regarding guidance to better success

The control cycle has also been configured to monitor changes of parameters that depict the general state of the study processes with respect to student success. The configured activities in each of the steps are:

- Collect step – record the average load of the students and the average number of years until graduation per study program from the forecast each student receives, per student school background and other indicators;
- Analyse step – compare the measured parameters to boundary values, warning and critical levels;
- Decide step – decide whether more cycles are needed to calculate data with more precision, or to issue analytical reports to all interested parties.
- Act step – change the parameters for the durations, inform administrative staff.

5. Conclusion and Future Work

An enhanced student information system is proposed and discussed, capable of using social navigation for better choices, and with introduction of self-adaptive feedback control cycles for process orchestration.

Such solution enables future research, especially in these two areas:

- Automatic Choice of Recommendation Algorithms
- Monitoring success, satisfaction for QA and an increase of the overall level of the processes (from quantitatively managed to self-optimizing).

6. Acknowledgements

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Developing Rosenthal Effect on English Teaching in College Classrooms

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Abstract

Based on Rosenthal Effect in psychology, this article explored feasible ways for teachers to apply it into class during English teaching, in order to build confidence of students and improve their English ability. It includes building relaxing class atmosphere and harmonious relationship with students, respecting students and cultivating their confidence, encouraging students to overcome psychological obstacles and practice boldly in English learning, and offering right psychological suggestions and conducting students' act properly in the feasible ways.

Keywords: Rosenthal Effect, English teaching, Expectation

1 INTRODUCTION

In 1968, American psychologist Robert Rosenthal, inspired by a Greek mythology, launched a famous experiment with his assistant and achieved unexpected results. They came to an elementary school claiming to predict the "top students in the future". After a series of research and study, they provided a name list with those "spurters" on, and for the effect of the experiment, it was made known only to the teachers. Eight months later, the psychologist came back to school and published the list, only to find out all the names on it were top students, even some of these who used to behave badly in class.

In fact, Dr. Rosenthal didn't predict at all. The names on the list were chosen randomly from the students' roster, so no emotion factor was involved. The key to the unexpected result was that teachers may behave in different ways to those students on the list, giving more expectation and attention to them. These facilitated and encouraged the students to study harder positively and optimistically. Later, people refer such phenomenon in which the greater the expectation and passion placed upon people by others (especially authorities including teachers and parents), the better they perform, to Rosenthal Effect, or Expectation Effect.

Four educational mechanisms were needed in a Rosenthal Effect: (1) Atmosphere, which is the good mood exerted by the warm, caring, and emotional support of others' high expectation; (2) Feedback, which refers to more encouragement and praise that teachers offered to their expected students; (3) Input, which means teachers express their expectation to the students, tutor them on study, give inspiring answers to their questions and offer useful learning materials; (4) Encouragement, as mentioned by Rosenthal, is the input to students, the interaction with them, and the sincere help.

2 EMPLOYING ROSENTHAL EFFECT IN ENGLISH TEACHING CLASSROOM

The Rosenthal Effect demonstrates that anyone would surely be better if he was loved, cared and helped by the teachers. Education is not only for those straight-As, but for all the students. For frontline college English teachers, some would feel exhausted when facing declines in students' average score, self-teaching ability and passion to learn. However, if a teacher knows how to apply Rosenthal Effect in class, then by redefining his role and regarding the students in a whole new respect, he will find those so called "underachievers" actually boast great potential. So, how should teachers employ Rosenthal Effect in foreign language teaching?

2.1 Building Relaxing Class Atmosphere and Harmonious Relationship with Students

Modern college students are featured with broad view and informative brain; they welcome the new and dare to speak up their own opinions, though sometimes nonsense. Some teachers oppress their students from answering in irrational ways for the ongoing of the whole class, in the belief that good students are those who obey. In

such occasions, students have no choice but to follow the teacher's instructions. Apparently, the sparkles of creation are quenched in such atmosphere. In fact, teachers should motivate and stimulate their students to proactively participate in the process of learning and get the essence of it. With respect, understanding, caring, encouragement and trust, dealing with the misbehaviors artfully is a good way for teachers to help them distinguish between right and wrong, to guide them to think before act, and to direct their attention to the class.

Friendly personal relationship between teachers and students is the key to relieve the pressure caused by study. In this sense, teachers should deliberately set up an amicable image. Psychology has shown that teacher-student relationship directly affects a student's emotions in learning. It is an emotional transference that a teacher's morality and authority can directly influence a student's interest and behavior in a subject. So mutual understanding between teachers and students is vital. Teachers should lead students to their best status in study by showing kindness and generosity, and speaking in humorous way. After class, teachers should communicate from heart to heart with students, talking about opinions and problems in learning, as well as ideas for teaching.

Eye contact is an important form of communication, and it's the best way to express a teacher's expectation. More attention on eye contact will make the students feel that the teacher is talking to everybody, not just interacting with those top ones. If a student comes up with a right answer, praise him immediately. And if doubts emerge on someone's face, answer it right away. Most students seem to be silent in class, and speak in a low voice if necessary. But they can't be labeled as "poor students" because of these. So teachers should interpolate in class with some easy and funny topics to relieve the tension of students, and thus a harmonious atmosphere is formed and the "pump" of knowledge would shift into communication between the two sides.

2.2 Respecting Students and Cultivate Their Confidence

Respect is required in a teacher-student relationship, and the role of teachers should be both mentor and friend. When mistakes occur, teachers should forgive and point them out indirectly, with more affirmation on achievements and progress to alleviate the psychological burden of students. Perfection is always ahead and teachers might frequently use sentences like "Trust yourself", "We believe you are the best", "Keep up your courage please", "Try your best", "Never give up" to inspire and encourage students to "boldly express yourself". It is promoted that teachers should adopt a positive and optimistic vision to see the nature and behavior of students, paying more attention to the internal needs and tendencies of self-improvement and perfection. Seeing the nature of students optimistically is to believe that every student is growing, and thus teachers should be full of confidence to educate. Psychologists have shown that people judge themselves by virtue of the reaction of others. Therefore, teachers should guide the students in finding their unique way to learn and identifying their positive factors. When accomplishment happens, it should be recognized in public,

leaving the student the feeling of success and pride psychologically, which brings confidence. As for those "poor" students, teachers should encourage them more and provide opportunities for them to answer questions in the scope of their ability.

2.3 Encouraging Students to Overcome Psychological Obstacles and Practice

Any effective teaching activity must be student-oriented. Positive activities take creation as prerequisite, and creation only exists without depression, doubt, or fear. There are three major psychological obstacles: shyness, fear of wrong, and lacking confidence, and among which fear of wrong is primary. Two kinds of common mistakes often occur in foreign language learning, the former is the disturbance of mother language, taking up 15% - 30%; and the latter is the misuse of foreign language, taking up 70% - 85%, also labeled as mistakes in learning progress. It is inevasible to have mistakes of the learning progress and some negative transfer of mother tongue, but those two can be overcome along with the deepening of learning. At the same time, the ultimate goal of foreign language learning is usage in real situations, so there's no need to correct the errors in sentences structure if they still make sense. American scholar Thorndike used "Attempted Mistakes" to prove that "language learning is a process to overcome mistakes by attempts". Instead of blaming students for their mistakes in language usage, teachers should encourage their students to proactively join in activities concerning listening, speaking, reading and writing, in order to improve from mistakes.

Of course, it is not approved to plainly encourage and praise without noticing defects and mistakes. Mistakes happened in the process of language learning can be treated in two different ways. For those in language speaking, there's no need to be hypercritical if the communication goes on. Teachers should lead students to practice more in the four basics of language learning and draw lessons from errors. And for those that needs to be corrected, indirectly point them out by saying "you could get closer to the point", "let's see if others have better answers" etc., in which way students with the wrong answers will take it easy and be able to continue to think on the right track.

2.4 Offering Right Psychological Suggestions and Conducting Students' act Properly

Except for teaching knowledge and, teachers should be aware of teaching theories and treat students with a warm heart and a democratic attitude. On one hand, teachers should appreciate every positive aspect of a student; on the other hand, they should also be conclusive on students who "tumble" to face troubles and confusions. A harmonious teacher-student relationship is a key part of a healthy psychological environment, making the two sides cooperate well, and the teaching mechanism functions well. At the time when teaching and learning rise to a spiritual enjoyment for both teachers and students, "teaching is learning".

For those diffident students, teachers should apply more than mere language to boost up their confidence. In designing questions or praising, lower the difficulty of

questions consciously will help students reach success unconsciously, which brings bigger success, thus interest in learning foreign language is triggered.

Educators pointed out that "Every kid is a genius! If he's not a genius, that's the problem of teachers and parents." This is not partial because research has shown that human brain is explored only a tiny part of it. So imagine what it would like if every child fully discovered his potential. According to Rosenthal Effect, the possibility for a child to be talent depends on whether his parents and teachers love him, expect him and educate him like a prodigy. For reasons above, we should fully apply Rosenthal Effect in teaching to warm our kids with eye contact, sweet smile and beautiful voice. Treating their progress with expectation and praise would make students more confident, self-loved, independent, self-respect, happy and as a result their greatest potential will be stimulated.

The power of love serves as another crucial factor, which is closely linked with teachers' expectation on their students. Love lies in expectation, as an inner experience, and a motive of behaviors shown in some tendency or attitude. Love is the root of education, the base of education, serving as one of the fundamental psychological qualities of a teacher. Expectation is on the qualities list, too, because it is closely linked with emotions. A teacher's expectation is the different requirements they make after analyzing all kinds of students.

3 MAIN CHARACTERS OF STUDENTS IN ROSENTHAL EFFECT

In Rosenthal Effect, it mainly discussed the expectation from teachers to students. But according to physics, forces always come in pairs – equal and opposite action-reaction force pairs, so students also have expectation for their teachers, presenting in four major types.

3.1 Emotional Expectation

Students hope to establish trusty and caring relationship with teachers and fellow schoolmates, yearning to get emotional support. So the teacher-student relationship should be based on honesty, and the more empathy teachers trigger on students, the more satisfaction students would feel, thus easier communication. Only in this stage will the students open their heart to teachers without any psychological obstacle.

3.2 Quality Expectation

Psychology has shown that modern education receivers usually put educators in a certain position, with reasonable hypothesis upon non-authority factors such as thoughts, morals, ability, style and character, and fix these "perfect images" in mind, which is called Quality Expectation. In this circumstance, teachers are required to advance with the times, work hard and consistently better themselves.

3.3 Model Expectation

If a teacher can become an example figure in a good way, his students would naturally

follow him to act positively. Teachers should insist in touching students by the "charisma of personality", which means educating with actions.

3.4 Appraisal Expectation

It refers to the psychological demand for respect, understanding and trust in a social group. Students value the appraisals from teachers and classmates, especially the fair, impartial appraisals from teachers. So teachers should stress on the all-round development of students, assessing every student form multi aspects, and emphasize on the good sides of them, offering more encouragement than criticism. Defects should be pointed out in time with proper help to get rid of. On the opposite, if students are judged irrationally, there would be psychological inclination, which results in obstacles in communication.

4 IMPLICATIONS OF ROSENTHAL EFFECT

Rosenthal Effect, the positive reaction of students triggered by teachers' expectation, doesn't work for all. Sometimes, teachers' high expectation may result in zero or negative effect, in which students stagnate or even backward. Like other psychological effects, Rosenthal Effect is also based on some psychological features – the motivation of study, no antagonistic mentality, and low self-consciousness.

At the same time, there is anti-Rosenthal Effect, targeting on a small group of students, who possess high intelligence but wrong attitude towards study. In this sense, teachers should offer anti-expectation on the basis of non-intelligent factors, making those students fight against the anti-expectation, thus form a driving force that make these students dedicate to reverse the image they left in teachers' mind. With the driving force in mind, students are stimulated to work hard and make progress exactly in their teachers' real intention. Although different paths are chosen by positive and negative encouragement, they lead to the same aim and result. Students' personality should be considered in negative encouragement, but for those self-abased ones, the encouragement is better to be positive. The anti-expectation should be prudently planned, for its failure goes against with teacher-student relationship.

Rosenthal Effect implies the importance of teacher's expectation. It is definitely helpful for teachers to convert their perception of education, for students to proactively involve themselves in learning, and for the personal internalization of outside educational aims. While, the following problems should be noticed:

4.1 Proper Expectation

In English teaching, the expectation should be based on the ability of students, or excessive promotion may lead to negative results. Initiative is limited, so overstress the high expectation not only underachieve, but also brings intensive frustration for students. However, expectation shouldn't be set too low, because when success comes without effort, students become lazy to work harder, which is harmful for them to make further progress in the future.

4.2 Suitable Time

The realization of expectation is a process, which needs mutual efforts of both teachers and students. The process can't be too long for its non-pressure or too short for its over-stress. To be perfect, it should be set according to students' intelligence, ability and learning status and adjusted in phase by the level of expectation.

4.3 Flexible Forms

There are many forms of expectation and it shouldn't be limited to some single aspect of English teaching. The expectation for a group could be joined with participating large events or organizing theme discussions. Expectation for special students tend to be conversation, discussion and interchange that comes face-to-face.

5 CONCLUSION

In education, especially higher education, Rosenthal Effect is interactive. It is even more the situation for English teaching, which serves as a basic subject in college curriculum. The expectation of teachers push forward the study and life experience of students, and on the opposite, students' expectation for future and for teaching, exerts important influence on the maturity of teaching staff. With awareness that students in colleges and universities are mainstay of the future, a teacher's major task is to find every sparkle on his students by offering love, caring and expectation, equipping them with knowledge, and lading a solid foundation before entering the society.

In conclusion, teachers should fully adopt Rosenthal Effect in class, by offering more encouragement and expectation, to help students make as much improvements and progress in English learning in college classrooms as possible.

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ePortfolios: From Masters Project to Student Notebook "How a Masters Project Created a New Way of Teaching in a Paperless Classroom"

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Background

In July 2011 I completed my Master of Education Technology Degree from the University of British Columbia. The final project for this degree was an ePortfolio of the work completed throughout my coursework based upon a theme. As I am also a senior history teacher at a boarding school I used the school year as my theme. To create the project I used website maker Weebly.com. The reason for choosing this was that I needed a website creator that easily allowed me to add components and multi-media without having a strong knowledge of computer programming. While this was helpful for me, in the back of my mind I had always envisioned using this with my students.

Application

In September of 2011, I began to use Weebly in my classes. From the beginning I had only imagined that I would use the tool as a note-taking function in order to replace our paper notebooks. However, after creating a rubric with my students, we soon realized that the multi-media aspects of the web site could replace our textbooks (which it has). While the skills taught in the note-taking stage, which students do during class on their laptops, were the primary focus, it soon became apparent that there were far more in-depth skills that the students were learning from these ongoing projects. With the share editor functions, this became a collaborative project that included summaries and subjunctive questions (only added this month!) as the project continued to evolve and take on new life. Having the students learn the art of embedding and being critical of the websites they were linking to became a major focus of their research.

Moreover, a year ago I made the decision to move to open-Internet assessment. This has been the best shift in assessment strategy I have made in my career and I now have the results from a full cohort to support this move. I recently presented on the topic of ePortfolios at the annual Independent Schools of British Columbia Professional Development Conference. The presentation I gave explained how the move to ePortfolios has allowed my classroom to be paperless over the past two years. Some of the other topics for discussion in this presentation include the use of technology breaks, the devices used in delivery, and open-Internet assessment. Furthermore, one of the key changes has been the addition of social media to the project. Incorporating and embedding Facebook, Twitter, Animoto and memes has further enhanced this project. The following links are exemplars of student work from my senior world history classes (some are still in progress):

Exemplars

Nahanni

Joe

Georgie

Analysis

This project has allowed students to take responsibility for their own learning. I have found that limiting the guidelines has allowed for more identity and expression to occur and with the help of social media, students have branched out beyond this assignment and I am pleased to see them sharing their work with the world. Many students have continued to use the tool in their post-

secondary education and still refer to their notes while studying future history classes. Prior to this project, these were only things I hoped for from my students.

Conclusion

While I propose that this presentation will be about the use of an ePortfolio in the classroom for note-taking, I expect to tie in many other aspects of educational technology. As the Chair, of the Technology Committee at Shawnigan Lake School, I have also been heavily involved in creating the policies needed (compulsory 2:1 laptop and smart phone program, campus-wide wifi, embedded educational technology skills and practices in our curriculum, open-Internet assessment) in order to make this project happen. I suspect that sharing some of the experiences will be of some value for those looking to incorporate similar projects at their schools or work places. The presentation is designed for an hour and a half; however, I have managed to do condensed versions lasting 30 minutes for our Board of Governors. I look forward to hearing from you.

*Note: All links are active in digital format.

"Climate Change and its Impact on Archaeological Sites" – Building Awareness in a Virtual Creative Classroom

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Abstract

Nowadays there is much interest in embedding environmental issues to primary and secondary Greek education, which is mainly focused on protecting natural environment and local sites. The purpose of this article is to articulate another type of discourse orientated to the effect climate change bears on archaeological monuments by linking ecological conscience to the protection of cultural heritage through education. Accordingly we present an educational proposal which is inspired by the work of IHC ("Initiative for Heritage Conservancy") and represents the need for instantiating cultural values through education in tangible outcomes related to the preservation of both the natural and cultural heritage. It is a project for Ancient Greek History class and involves the monuments of the classical era the conservation of which is on the focus of scientific interest. The educational environment is a wiki, for putting emphasis on social constructivist pedagogy and for being flexible, reflexive and participatory.

Introduction

This paper presents a project that took place at a Greek secondary school about the impact of climate change on natural and cultural heritage. It is an educational proposal connected with the effort to build ecological conscience and sensitivity through education in Greece. Although environmental education in Greece is not yet an independent subject in the formal secondary school curriculum, it is linked to several non-formal types of school educational activities.

Conversely, since the protection of natural and cultural heritage is a value found in the analytical curricula of many subjects, educators have the option to build environmental projects on an interdisciplinary basis. Within this framework, we piloted an action on an interdisciplinary basis, covering History, Archaeology, Environmental education and Restoration of monuments.

Our principal aim was to portray archaeological sites, and specifically important ancient Greek monuments which are culturally familiar to Greek students, as important cultural heritage which is endangered and should be protected.

Using new technologies in the classroom we attempted to connect the socio-cultural experiences of students to their surrounding world and drive them to shape values and positive attitudes towards contemporary issues such as climate change and the preservation of cultural landscapes.

Students had to complete various tasks using a wide range of cognitive tools. So, they used the Web 2.0 environment in order to interact, systematize their work and provide feedback. Students also searched the internet, played on-line knowledge games, learned how to interview and compose multimedia/multimodal texts via synchronous and asynchronous communication.

Accordingly, metacognition was achieved through feedback and reflexivity, as the wiki allows students to produce and assess experience and knowledge, while also to embed this knowledge and experience into actual communicative instances.

Finally, this educational proposal was inspired by the environmental action of I.H.C. ("Initiative for Heritage Conservancy")[1] and negotiates the need for instantiating cultural values through education in tangible outcomes related to the preservation of both the natural and cultural heritage.

I. Theoretical concepts

The word heritage covers everything passed on to us from the past and originates either from nature or from culture (Lowenthal, 2005). "Heritage is our legacy from the past, what we live with today, and what we pass on to future generations. Our cultural and natural heritage are both irreplaceable sources of life and inspiration" (Unesco: http://whc.unesco.org/en/about).

[1] The Websites of the initiative are: http://www.inherity.org, http://www.climateandmonuments.com & https://sites.google.com/site/climatechangeandmonumentsihc

So, elements of nature like ecosystems would build our natural heritage, while the world created by human intervention would be our cultural heritage. However ambiguous or arbitrary may this distinction be, nature and culture are "at the heart of studies of place and landscape" (Tilley, 2006: 19).

'Heritage' further may signify the need of people to maintain stability and bonds with their past versus change and the perceived instability and fragmentation which modernity supposedly brings (Tilley, 2006). Despite the term employed for the protection of heritage, be it preservation or conservation or safeguard, all these signify the ambivalent disposition of the modern man towards change and its impact on environment. As Cosgrove (2006: 57) maintains "each of these terms parses slightly differently a similar goal of arresting or at least negotiating the social and environmental impacts of change with the intention of sustaining values inherited from the past".

Moreover, natural and cultural heritage are both crucial for building our collective and personal identities. In this sense conservation of natural heritage and preservation of cultural heritage such as archaeological sites are equally important, especially for the modern man who experiences environmental change and feels threatened by the loss and alteration of natural and cultural landscapes.

Since, knowledge of environmental issues covers the consequences of human intervention, developing environmental sensitivity and positive attitudes towards natural and cultural environment lie usually in the core of environmental and cultural educational programmes.

This project builds on the tripartite conception of environmental literacy (Stables 1998) as functional, cultural and critical, and promotes the idea of the school being an integral part of the community and an eco-cultural space-time.

Regarding environmental education as a kind of literacy according to Stables (1998, 2003) lies to the fact that "environment is moulded by human hands, is susceptible to action predetermined by human value systems and cultural norms and is, therefore, appropriately studied using approaches derived from the arts and humanities as well as from the sciences" (Stables, 1998: 156)

In the aforementioned perspective, functional environmental literacy aims at a multiple understanding of environment around us, focusing on natural landscapes, ecosystems and local environmental issues, while cultural environmental literacy takes into account the interaction of cultural and social forces with the environment and, therefore, focuses on eliciting sociocultural values attributed to the environment. Finally, critical environmental literacy is about achieving such deep environmental awareness that would develop into an engagement and creative action for environmental issues (Stables, 1998; Bishop et al, 2010).

Further, taking into account that modern reality is characterized and largely shaped by the extensive use of new technologies and of the new media which enhances the paradox of increasing globalisation while also increasing local diversity (Cazden et al., 1996), social constructivist pedagogy and multiliteracies (Cope & Kalantzis, 2009) would provide a pegagogical framework for considering and applying multiplicity of representations (print, digital and visual).

The project uses online learning communities (Wiki) in the framework of a social constructivist pedagogy which encourages students to set and achieve objectives, to take initiatives and to gradually construct knowledge in a collaborative and pleasant environment. The nature of web-based learning communities not only promotes interaction and collaboration, but also introduces a new sense of time and space in the cognitive processes, broadening situatedness and synchronicity.

From the social constructivist perspective this occurs in social interaction, which is promoted by Web 2.0 collaborative environments (Wang, 2009; Rosen & Nelson, 2008). Wikis, in particular, students of the learning community to communicate, read and write, produce multimodal texts, make statements and receive observations, while also to think over in the discussion or comment sections. At the same time the discussion and comment sections enable the teachers to interact with their students and give feedback, while also the 'history' tool allows teachers to watch, follow up and assess the progress of the students (Rosen & Nelson, 2008).

Online learning communities are based on the rationale of a pedagogical exploitation of student networking. In this way they promote collaborative learning and student-participatory learning environments (Rosen & Nelson, 2008), while they also enable constructivist pedagogy, reflexivity and playful learning.

Cognitive and social constructivist orientated pedagogies are characterised by a variety of parameters based mainly on the recognition of the social nature of learning and the gradual construction of knowledge. Students' active participation is encouraged, in an environment which allows the creation of authentic learning situations, elicitation of prior knowledge, cognitive dissonance and reflexivity. Finally, the aim is for the student to be able to construct and apply new knowledge creatively (Harness & Drossman, 2011).

Moreover, Rosen and Nelson (2008: 220) introduce the term Education 2.0 in order to describe a participatory creative and interactive type of teaching and learning using online environments as "the use of digital tools to transform teaching and learning by having learners, as well as teachers, participate in knowledge creation and interactively build distributed communities, or networks, of learning".

II. The design of the project

We base the proposed project on the hypothesis that heritage in the natural and cultural sense is an ambiguous conception as it relates to the changing values and experiences of human beings and societies. In the modern times this change happens under the transformational shift of modernity and globalization. In this sense cultural heritage and, in particular, archaeological sites could be assessed as a value based on shared knowledge which is adapting and entangled in landscape transformation not only in the past but in the present circumstances as well.

Accordingly, we applied an interdisciplinary approach in the History class of first grade Junior High using new technologies. We selected the chapter about art in the classical era, which covers art and the greatest monuments of which the restoration has been the focus on scientific debates. We chose as our case-studies the Temple of Epicurius Apollo at Bassae and Parthenon and Erechtheion of the Acropolis at Athens that are recognized as world cultural heritage by UNESCO. Their conservation is of

great importance and the various issues of erosion that they face have triggered scientific interest and called for a variety of restoration techniques.

Furthermore, our involvement with the activities of the I.H.C. ("Initiative for Heritage Conservancy") and the idea of creating a transferable exhibition for the impact of climate change on ancient monuments motivated us to transfer our experience in the educational process in the school and give students the opportunity to prepare, be part of and participate in a transferable exhibition open to the local community. So, this process involves broadening of the educational process and allows opening the school community to society.

Our principal aim was to portray archaeological sites, and specifically ancient Greek monuments, as important cultural heritage - being a point of reference for building identity in a modern world which is constantly changing. Climate change in particular causes ongoing alterations to both natural and archaeological sites. However, natural forces as instantiated in the threat of climate change, is only one aspect of the threat for the monuments. The other threat stems from the changing values of the modern man and the gradual detachment from the natural environment.

In particular the project aimed at:

- inviting students to carry out a study of the most important sites of classical era in Ancient Greece and of the problems for their restoration and preservation

- inviting students to carry out a study of historical climate change, by conducting search in the internet sources allowing them to construct a general view on climate change

- conducting research on the possible effects of climate change on the environment, cultural and natural landscapes

- giving students the opportunity to actually and virtually visit monuments

- bringing them into touch with local sources and international organizations for the protection of the monuments

- allowing students to understand the effects of climate change on cultural heritage

- giving them the opportunity to appreciate the value of cultural heritage and the need for its preservation

- allowing students to work in groups and construct experiential knowledge

- allowing them to interact and communicate their knowledge

- inciting them to organize and participate in local events

- take action for the preservation of cultural heritage

Further we aimed at embedding/transferring this knowledge and experience into actual communicative instances which was enhanced by the use of the Web 2.0

environment. The Wiki used in this project enhanced collaborative learning and created authentic communication, both synchronous and asynchronous, since it allowed students to work in groups and also self-reflect, share messages with one another and come in touch with formal institutions for the protection of cultural heritage. The use of blended learning incited students to work together and take initiatives, while it also helped the teacher and the students to trespass the time and space limits of the school formal curriculum.

Metacognition was attributed through commenting, reflection and evaluation provided by the Wiki's tools and offered the participating students the ability to develop skills for producing, assessing and utilizing prior and new experience and knowledge. As part of the feedback provided to and by learners, the IHC assisted by participating both in the virtual learning community and in the setting up of an exhibition for the project called "Climate Change and the Monuments", which will be open to the local community. We also programmed visits to the aforementioned monuments as a part of an experiential approach.

In parallel, the students could virtually access the archaeological sites, learn about the corrosion of various monuments by different factors, including climate change and human factor, and watch the attempts for their restoration. The process included also web search with the simultaneous evaluation of internet sources. This brought children in touch with comparative analysis and enhanced their critical thinking.

Finally the use of general software as Word and Powerpoint, gave the students the opportunity of creating texts in a creative and playful way, since they were able employ and combine various narrative tools such as pictures and sounds in order to create multimodal and flexible texts and produce their own reflection on and interpretation of the modern world and actual problems. It further brought the children in touch with various types of expression in the framework of creative writing and theatrical play. We also created an online learning community, in the form of a Wiki named «ecomonuments», at http://ecomonuments.pbworks.com.

Specifically, the class worked in groups, each on a distinct thematic unit: the first one named "Archaeologists first team" on Parthenon, the second ("Archaeologists second team") on Erechtheion and Epicurius Apollo temple, the third ("Environmental team") with climate change and the impact on monuments and the fourth one ("Restoration team") on restoration of monuments.

The first group had to locate and collect visual and written sources related to Acropolis searching the internet which was loaded on its page on the wiki. Then they focused on Parthenon and its frieze and played the online games from the Museum of Acropolis. Finally, they worked on their worksheets on the Wiki.

The second group had to locate and collect visual and written sources on Erechtheion, the Karyatides and the temple of Apollo at Bassae. They played the online games from the Acropolis Museum and finally they finished their worksheets.

The third group had to locate and collect visual and written sources for the types of environmental pollution, especially those that provoke corrosion of the archaeological monuments, by focusing on the specific problems that Parthenon, Erechtheion and the temple of Apollo face.

The fourth group had to research on the restoration of monuments. This team had also to interview one restoration specialist. The interview was posted on the wiki, taking the form of a questionnaire which was replied and commented by a restoration specialist of the IHC. Finally, the team focused on the selected methods of restoration of the particular monuments.

The final phase of the project was inspired by the particular method used for the protection of Apollo's temple at Bassae and involved the use of general purpose software for the production of multimodal multilevel texts. So, the two first teams had to write a story on the adventures of a column from the temple of Apollo, from the day the temple was created to the present day when it is "trapped" in a tent for its protection from the weather and natural phenomena. Students could utilize the myth of Phaethon, which on one hand is related to Apollo as the Sun-God and on the other to human choice and action as a cause of natural catastrophes. The third team had to make drawings or collage in order to represent scenes of the story, while the last one had to make a movie out of this material using Moviemaker.

All the work was posted on the wiki. It was also presented in the school assembly at the end of the school year and it will be included in the planned exhibition for the climate change and the monuments which will be organized in collaboration with the IHC for the local community.

The procedure helped students to realize the value of important monuments of the classical era and to assess them as monuments of world heritage. They found out various risk factors for the monuments and in particular climate change and learned about the possible methods of their conservation and restoration.

In this way History class was turned into an experiential trip in the world of archaeology, while at the same time this encouraged reflection on climate change and its impact on the monuments and would result in the raising of environmental awareness. Apparently, the project we outlined helped us raise students' awareness for the impact of climate change on the monuments, while also it instigated them to shape values and positive attitudes and take action for the protection of their cultural heritage.

III. Final Outcomes and Suggestions: revaluing heritage

In the framework of a socio-constructivist approach, this school project aims at articulating through education an alternative type of environmental discourse which would put emphasis on the effect climate change bears on archaeological monuments and relate ecological conscience with the protection of cultural heritage.

Historical knowledge is envisaged in an interdisciplinary way, in combination with ecology, environmental knowledge and new technologies, in order to give the children motivation for improvising and taking initiatives.

So, this action is based on the principle of considering the student as the main actor in the educational process. Giving active roles to students and instigating them to work together or share views and experiences with others means engaging them in the process, which is essential for enhancing critical environmental literacy.

The use of the online learning community as an educational medium introduces a communicational framework for team work and blended learning which helps students capturing the interdependence of humans and culture with nature and identifying not only the degree of human responsibility but also the potentials of human intervention. Additionally, the employment of general purpose software and the internet sources broadens and supports skills for research and assessment.

School-based formal learning further interweaves with forms of non-typical and atypical learning, in order to instigate the participation of students in local and other initiatives for the protection of natural and cultural heritage. So, this form of constructing knowledge enhances both students' and the community's awareness and represents the need for instantiating cultural values through education in tangible outcomes related to the preservation of both the natural and cultural heritage.

Understanding the impact of historical climate change on archaeological sites is in part related to the value attributed to those sites, which historically changes over the years. Value assigned to heritage sites represents a two-way link between people and those sites and is instantiated in their diachronic use by people. As Carter and Grimwade (1996: 46) observe, "heritage implies ownership and value to particular groups of humanity".

So, building values and identities through creative learning and the use of new technologies could be a way of motivating interest and building awareness about cultural and environmental issues in a more influential and meaningful way at the level of secondary education.

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Preparing the Next Generation of Leaders Online

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Introduction

Can leadership be taught effectively in an online environment? Is it possible to impact students from a distance, especially when instructor and student never meet? Two online undergraduate courses in leadership offered at Rutgers University demonstrate through student assessments and qualitative/quantitative feedback that it is entirely possible.

"Preparing the Next Generation of Leaders Online" is just one more channel for preparing undergraduates for their future role in society. Since 2005, the author has developed and taught four online undergraduate courses which allows students who are typically science-based majors at the School of Environmental and Biological Sciences to explore leadership and evaluate throughout the semester their role as a leader in their campus, home, and community life. These courses include: Communication for Today's Leader; The Ethical Leader; Stewardship and Leadership; and Leadership and Civic Engagement. Read on to see how posting to the Threaded Discussion (TD) on a regular basis, writing personal reflections in the Student Journal (SJ) or sharing relevant information through Documents Sharing (DS) opens up a whole new world for students.

Course Rationale

Communication for Today's Leader Rationale: Everyone has the capacity to lead. However, the ability to convey the leadership message takes skill and a clear understanding of how a multi-faceted communications approach can have a positive impact on others. More importantly, this skill is developed over time as a leader expands their realm of experience and influence. This course introduces students to communication and its importance to leadership. Communication has been hailed as the cornerstone for effective leadership. This course enables students to dissect leadership from a communication perspective. Communication has also been found to be one of the leading skills desired by employers, and will continue to be one of the most sought after in the future. The National Communication Association asserts that communication education supports: the development of the whole person; improvement of the educational enterprise; becoming a responsible citizen of the world, both socially and culturally; and succeeding in one's career and in the business enterprise. In addition, "communication education improves specific skills and abilities including critical thinking, media literacy and criticism, **leadership skills** and family relational development."

The Ethical Leader Rationale: Students should and will explore the inextricable need for ethics within the realm of leadership. Topics to be addressed in The Ethical Leader include power and self-interest; how values influence leadership; leaders and followers; and leadership for the greatest good. Students participate in dialogue relevant to current societal situations in business, politics and how individuals contribute to the moral fabric of our society.

Stewardship and Leadership
Stewardship and Leadership introduces students to the concept of servant leadership styles and reflects on other effective and ineffective leadership practices in organizational cultures. Topics include: recognizing and facing challenges within an organization, decision-making practices, effective methodology and applications, and

working for the benefit of the community. The course will explain the roles of servant leaders and how the servant leadership approach can influence individuals, organizations, community and the world.

Students will gain a better understanding of Stewardship and Leadership by looking at how servant leadership is used to benefit community service projects. The course will show how servant leadership can be a more effective leadership approach, and also how the approach can influence outcomes.

Leadership and Civic Engagement

The Social Change Model of Leadership Development emphasizes a collaborative approach to leadership that allows for the talent and skills of all members to be utilized. This model is purposeful, collaborative, and a values-based process that results in positive social change. For students, the primary goal is for them to gain self-knowledge and leadership competence and to learn how to facilitate positive social change. "College students consistently affirm that they want their lives to matter and to make a difference (Komives, Lucas, & McMahon, 2007). College seniors seek jobs in which they can do well and do good (Levine & Cureton, 1998.)"

In addition to the social change model, students in this course will also explore the topic of service learning. The findings from "An Exploratory Study on the Value of Service Learning Projects and Their Impact on Community Service Involvement and Critical Thinking" (2007) show that students believe their college experience is preparing them for the job market, their critical thinking skills have been enhanced, and their college academic experience has emphasized community service upon graduation.

Service learning is a teaching and learning strategy used to meet existing academic goals using an experiential approach (National Youth Leadership Council). It involves a combination of curriculum and service and provides an opportunity for students to meet personal academic interests, help address community needs, and increase leadership skills and civic engagement.

Critical Thinking Skills Tested in This Online Environment

These leadership courses were designed around a model of critical thinking. As students think critically about leadership experiences, they are instructed to utilize David Kolb's *Experiential Learning Model* (1984), which is a model that has been found to be practical in nature. Described in Exploring Leadership by Komives, Lucas, and McMahon, this learning model follows a sequence of experience, reflection, generalization, and application. According to the authors:

> Students experience an event or activity, and then share what they saw, heard, felt, smelled, and tasted. By doing this, the experience becomes more complete—some students will see things others missed. In the generalization stage, students are asked if they have ever experienced something like this before or if it relates to other experiences they have had. By doing this, the experience becomes broader and more applicable than it initially appeared. Finally, in the application stage, students are asked how they can apply what they have learned from this experience. This completes the learning cycle by getting students to think about using what they have learned.

This learning model has been intertwined and used effectively throughout all courses. For example, students are asked to write about their personal best leadership experience or evaluate their personal characteristics in relation to their leadership ability. Students share ethical dilemmas or their experience in group and team development. Each assignment calls for them to draw upon personal experiences and apply it to the question at hand.

Engaging Students in An Online Environment

Not every student will thrive in an online environment. If a hint of self motivation to physically log in and visit the course homepage is lacking in a student then an online course may not be the appropriate format to best meet their learning needs. Students are reminded in the course overview that the same dedication required for an on-campus course is required for a distance education course. Students must be self-motivated, manage time efficiently, and approach their studies seriously. There are no shortcuts by taking an online course, other than a shorter "commute" to class.

But what is interesting about leadership education is that we expect to engage in discussions and see action in a face to face setting. Therefore, attending to student engagement is key in an online learning environment so the assignments and online interactions must allow for the creation of a positive learning experience where students can discuss, ponder, and think critically about leadership.

During the 14-week semester, students explore leadership and communication and ethics and leadership from a theoretical, as well as a practical, hands-on perspective. Students apply leadership theories and principles to personal leadership experiences and are asked to think critically by:

- Completing reading assignments
- Writing online journaling and papers to share leadership triumphs and challenges
- Participating in weekly threaded discussions on topics related to course readings
- Serving as a threaded discussion leader where they kick off the discussion and lead fellow students throughout the week by responding to student posts, providing additional resources and modeling how to shape a useful exchange of ideas

Each course is designed so that students move through a series of assignments week by week as a group, logging on several times per week to participate in threaded discussions and to post assignments. A major goal of these courses is to allow students the opportunity to:

- Apply critical thinking skills to evaluate the subjects of leadership and communication or ethics and leadership
- Develop an understanding of his or her capacity for leadership
- Improve communication skills and apply to current leadership roles
- Create a personal agenda for leadership by setting personal and professional goals
- Evaluate traits and characteristics of effective leaders by focusing on

communication skills including their own
- Exercise communication strategies useful in group dynamics
- Validate the importance of diversity in society
- Assess and modify organizational culture and conclude how strong communication can create a mutually beneficial environment
- Interpret and support the need for ethical leadership in this world

Reactions from Students to Online Leadership Education

One student, who had an active role in allocating more than $1.5 million in student fees as the chair of the University Allocations Board, described her online experience in Communication for Today's Leader like this:

My initial expectations for this course were to be opened up to a variety of opinions and hope that they challenged mine. This course has provided me with that tool and allowed me to critically look at my leadership beliefs. My views have not changed drastically, but I have been allowed to incorporate a broader range of thoughts into them. In a very positive way, this course has put more ambiguity into leadership communication. I think that this is a great strength in this course, and I am looking forward to gaining more insight into the topics surrounding leadership communication.

Another student from The Ethical Leader shared at the end of the semester: As I grow in my ethical behavior on the job, I realize that I am intolerant of immoral authority. It is not acceptable to me to engage in conduct that does not coincide with my beliefs. As I continue to grow in my faith, I realize that things that I used to be (uncertain) about now are incredibly clear to me. This references how I would like to be represented as a person. It is not difficult for me to come to a decision on how I feel about a certain topic, because I have many people in my life to steer me in the right direction when I find challenges in my path.

Challenges

For some students, the lack of face time in the classroom is a major issue, because they need the human interaction as both a reminder of their student responsibilities as well as benefit from verbal/nonverbal communication with their instructor. Many students who take an online class do so primarily for its convenience, as many students hold fulltime or part-time jobs and have additional family responsibilities. However, more convenient access to a learning environment does not always spell success for a student. If that student does not carve out time to participate then their grade will suffer. If that student cannot adapt to the technology or does little to learn how to maneuver with the course then they will have great difficulty in adapting and accepting this new learning format for themselves and may have a more negative experience in the course than a positive one.

Issues of plagiarism and cheating still exist in an online environment and therefore an attention to assignment authenticity is necessary. Using an online assessment and originality program has added depth to the instructor's ability to prove that plagiarism occurred whether it was intended or not by the student. To deter students from using this shortcut, many assignments are highly personalized and call for the student to reflect on personal experiences and learning moments.

Conclusions

A majority of the students who have completed these courses have managed to find the right balance between attending to their studies regularly, contributing to this learning experience and completing carefully thought out written assignments which reflect a true evaluation of the topic at hand.

These courses also highlight some of the best practices utilized to engage student and enhance learning, as well as illuminate the continued need for leadership development in undergraduate students. There is a continued interest shown by students to engage in leadership and personal development through online education and such courses offer a unique platform for knowledge acquisition and transfer.

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A socially-driven content repository – Open Discovery Space Portal

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Abstract

The Open Discovery Space Portal (ODSP) is one of the richest online repositories, providing over 1.000.000 digital educational resources for a broad range of topics and domains. In addition, the ODSP advocates a community-driven approach that goes well beyond the mere uploading and sharing of educational resources. ODSP stands out by providing teachers with a social platform where they can dynamically interact with learning materials, bring in their own pedagogical concepts, and create virtual communities.

But what do teachers need in order to adopt such innovative forms of e-learning? How can they be motivated to share their knowledge and engage in collaborative activities? With these questions in mind we analyzed the needs and expectations of 1175 teachers and stakeholders towards the ODSP, focusing especially on the organizational and technical aspects that enable widely adopted repositories.

This paper discusses the main findings from the needs analysis. It identifies the support mechanisms needed to use learning object repositories in a pedagogically meaningful way and to engage with the social functions of the portal. The paper also reports the changes concerning policy, institutions and quality that are deemed necessary to increase the adoption and use of online repositories.

Finally, practical implications for developing socially-powered content repositories are outlined. These recommendations are crucial for ensuring the engagement of change enablers and stakeholders to spread our vision for future learning communities beyond the ODSP.

Introduction

Open Discovery Space (ODS) is a European project funded by the Information and Communication Technologies Policy Support Programme (ICT-PSP). The overall goal of the ODS project is to develop and implement a web-based access point where teachers can find educational resources made by others. Teachers can readily use these materials in their own classes, or adapt them to better match their particular educational context and the capabilities and learning styles of their students.

At the outset of the ODS project, an effort has been made to develop a shared vision on the desired future of resource-based e-learning. This vision covers three related areas. One is the current developments in education: ICT is playing an increasingly important role in teaching and learning. The second area pertains to the design and contents of the web-based access point. Based on a review of existing web portals, recommendations have been proposed with regard to how the ODS web portal can stand out from other, related portals while acknowledging the teachers' needs and preferences.

This leads to the third area, which involves the requirements to engage teachers in innovative forms of e-learning. One question is central to this issue: what do teachers need in order to uptake resource-based e-learning? Insights from the literature and teachers' needs are combined to propose a list of requirements that should be taken into account in the implementation process.

Theory

Many attempts have been made to enrich teaching and learning activities with technology. While at the beginning of this development the technological means set the conditions for their integration into teaching practice, experience and scientific research have shown that more attention should be devoted to the learners and teachers and their role in the teaching and learning process.

In recent years Technology-Enhanced Learning (TEL) theories focusing on learning design have gained importance. Laurrillard et al. (2009) suggest that the "role of technology [is] to enable new types of learning experiences and to enrich existing learning scenarios, and that interactive and cooperative digital media have an inherent educational value as a new means of intellectual expression and creativity" (pp. 289-290). Other views (Conole 2010; Ehlers 2011) mainly target the engagement of stakeholders and address the conditions under which they can be motivated to foster the sustainable integration of Open Educational Resources (OER) and technology-enhanced learning into the teaching communication.

ODS aims to incorporate both perspectives by developing educational scenarios across a range of subjects that utilise an e-learning framework, and creating the ODS Portal (ODSP). This multi-lingual, community-oriented social platform will encourage teachers, students and parents to try out, discuss, develop, adapt, and share educational materials and innovative teaching practices. The ODSP also aims to become the greatest and richest collection of open educational activities in Europe.

To successfully develop a purpose-built social portal, the users' needs, beliefs about learning, and expectations towards such a portal are key to establishing a sustainable pan-European ODS community of education leaders. The needs analysis shall finally create the conditions for teaching by ensuring the congruence between innovation and teacher values (cf. Laurrillard et al. 2009).

Teachers will be engaged in the design of the educational scenarios, the collaboration and reflection with peers, and the exchange of good practices. To enable institutional change and empower teachers to become change agents, they will—based on the described outcomes of the needs analysis—receive training in learning design, technology, creation, usage and sharing of educational resources and learn how to effectively collaborate with their peers. The aim is that teachers will be capable of working collaboratively by sharing and reflecting on ideas and experiences and thereby stimulating the understanding for learning design, technology and cross-curriculum teaching.

Background

Our study targeted stakeholders in the context of school education across Europe. Data collection took place in 92 visionary workshops that were organized in 19 European countries. These workshops were conducted at local level by the ODS partners in order to attract a core group of stakeholders consisting primarily of school teachers (in-service or pre-service) of all education levels, teacher trainers, curriculum developers, and educational policy makers from local/regional/state level.

The goal of the visionary workshops was to build an initial contact with these stakeholders, to explore their teaching praxis and raise awareness of resource based e-learning. The visionary workshops also aimed to collect their feedback, as well as their reflections and needs from the overall project concepts, as well as their requirements for the ODSP facilities.

The general **agenda** was the following:

- Introduce stakeholders to resource based e-learning.
- Introduce stakeholders to the aims, services and facilities of the ODS project and portal.
- Present good practices / educational scenarios in various curriculum areas. Each workshop revolved around a success story, which could be the story of an innovative teacher or school.
- Initiate discussion with the participants in order to elicit the most important needs, limitations and barriers for utilizing the e-learning resources in practice. The discussion also aimed to highlight the potential of resource based e-learning, sharing and re-using resources, examine the pedagogies used in the scenarios presented and associate these issues with ODS project.
- Collect stakeholders' views through a survey in order to be able to analyse the current needs of practitioners around Europe.

The **duration** of each workshop was on average (3) hours in order to keep participants' interest and attention. The approach was also to include various activities designed to stimulate and motivate the participants. (Stakeholders' presentations of actual teaching practices based on resources, demonstration of specific examples from

existing repositories, hands-on activities such as uploading educational scenarios on the Open Science Resources portal.)

Within these workshops, existing OER **repositories** were introduced; the most frequently demonstrated repositories were:

- OpenScout[1] – OER for business and management
- OSR[2] – Open science resources
- Discover the Cosmos[3] – Astronomy resources
- Photodentro[4] – A Greek Digital Learning Object Repository

Approximately 2300 **participants** attended the workshops, 1175 of which completed the survey. These respondents came from the following countries: Austria, Belgium, Croatia, Cyprus, Estonia, Finland, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Netherlands, Portugal, Romania, Serbia, Spain, and United Kingdom. Seventy percent of the respondents were primary or secondary school teachers; the remaining 30% were teacher trainers, curriculum developers, educational policy makers, students and informal learners.

Methodology

The needs analysis utilized a mixed-method approach that combined insights from literature (Webster & Watson 2002) and empirical findings obtained through surveys and observations in order to identify the stakeholders' needs and to analyze the current situation in schools around Europe.

A barrier framework (Pirkkalainen & Pawlowski 2012) was applied to study the most common and significant reasons for various stakeholders to **not** use learning object repositories. This framework intends to capture the various challenges from a broad perspective (organizational and national context) to the usage of a system individually or in a group effort. The framework is not just based on previously identified challenges for teachers in schools, but also comprises potential challenges observed for social platforms applied in higher education, SMEs and large enterprises. The purpose is not to expose this framework as such to the teachers and other stakeholders in ODS but to use it as the basis for analysis, to eliminate irrelevant focal points for this specific context, and study if the "relevant" barriers are actual problems for the stakeholders we have as users.

After each workshop, participants were asked to fill out a survey that addressed their expectations towards the ODSP. Within this paper we focus on the participants' responses to the five open-ended questions. These were:

- How the technology solutions around resources could solve these problems? (e.g. the solutions presented to you/which you tried in the workshop)
- What kind of help/training/tools would you need?
- What did you like/dislike about the technological solution presented?

1 http://learn.openscout.net
2 http://www.osrportal.eu
3 http://www.cosmosportal.eu
4 http://photodentro.edu.gr/jspui/

- How would you improve the current solution? (You can also suggest a portal or website that you think is working well, as an example)
- The main objective of the ODS project is to provide a personalized access point for teachers to search in over 20 repositories containing over one million digital educational resources. What would you expect from such a portal?

These questions were translated in the Lime survey tool into the respondents' native language. All answers were summarized in English by the workshop organizer(s) so as to increase reliability of the translation. These summary reports were then analysed in accordance with the guidelines of Miles and Huberman (1984). The issues risen with most saturation (evidence from various participants) were then mapped to technical requirements as well as to the change enablers that need to take place on national/international, organizational, individual, or technical level to enable wider adoption.

Results

The aim of this study was to understand the needs and expectations of potential users of the ODSP, and to identify what type of aspects could enable or inhibit its adoption. In presenting the main findings, a coarse distinction was made between technical and non-technical recommendations which were further classified under the following dimensions: Curricula, Policy & Strategy, Culture & Linguistics, and Quality.

Technical recommendations

The following table presents the key technical recommendations that were derived from the qualitative data. These recommendations are meant as a guideline for an OER portal directly.

Technical recommendations	Dimensions
The portal should have a large amount of resources available. To satisfy more teachers, the pool of resources must be big enough to offer something for many. The portal must make sure that there is enough content available also in the minority languages.	Curricula
The format of the resources is also significant. For example new technologies such as tablets will require resources which may not be accessible to other operating systems like Microsoft Windows based PCs.	Curricula
Efficient ways to search materials from different curricula backgrounds (e.g. classification by topics, subjects or direct mapping to the countries' curricula).	Curricula
The portal should have a clear distinction between resources that are aimed at the different levels and age groups.	Curricula
The portal should have a quality rating on the resource search page.	Curricula
Guidelines, advice, support, glossaries and tutorials (e.g. in video format) should be easily accessible at all times within a few clicks from where the user is at any time.	Curricula
The linkage of the resources used to specific strands or units on the curriculum and textbooks that could be used in conjunction with the resources was also seen as an enabler to usage.	Curricula
It is important to ensure that the portal functions effectively in conjunction	Policy &

with the schools LMS such as Moodle.	Strategy
The portal should provide content (and navigation) in the users' own language = Multilingual portal. There is a huge difference among countries and teachers when it comes to the ability and/or motivation to use educational resources in other languages (mainly English).	Culture and Linguistic
Providing automatic translation (such as google translator as a widget) can help, but will not remove the whole problem. Another option is to engage the user community in the translation procedure by i.e. setting up a pool of teachers from each language area who volunteers to translate resources.	Culture and Linguistic
The portal should support ways to show an open, trusted community.	Culture and Linguistic
Security mechanisms in the portal regarding personal data of participants need to follow the state of the art	Culture and Linguistic
The portal should follow a mixed-quality assurance approach: by rating, reviewing and commenting on resources as well as highlighting the most used and trusted content.	Quality
The system should recommend resources to the user, based on his actions in the repository.	Quality
The trusted networks approach : We should aim our quality approach more towards providing the users easy-to-use tools to locate the high quality resources	Quality
The portal should use of Creative Commons' standards to allow teachers to upload and download material and remain within proper legalistic parameters.	Quality
Resources which no longer work or are appropriate or relevant should be eliminated from the portal to ensure confidence.	Quality

Overall, the biggest technical gaps between the repositories and users seem to be a) loose connection of OER to curricula, b) difficult search mechanisms, c) lack of materials in minor languages, and c) unpredictable quality of the existing contents.

Non-technical recommendations

However, technical aspects alone will not help the stakeholders to use OER repositories, as many OER repositories suffer from lack of use (Ochoa & Duval 2009). Many non-technical requirement arose from the users in our analysis. In the following table we have turned these requirements into recommendations.

Non-technical recommendations	**Dimensions**
Adapt to the way that teachers have been working before (e.g. linking with low resolution versions of the text books as an access point for the resource), to create easier user acceptance	Curricula
For teachers to adapt to and use the portal effectively requires easily accessible training resources but also hands-on training activities.	Curricula
Promoting face-to-face and online workshops can work as a motivating factor for teachers.	Curricula
Create or enrich digital textbooks by using references to specific RBL activities	Curricula
Teachers need stable and systematic (as opposed to fragmented or	Policy &

discontinued) support on the issues of RBL and ICT in education in general and this includes technological, pedagogical and e-learning matters.	Strategy
Use existing networks for community building. Find partners that have lots of contacts. Ministry involvement can be helpful, but it is not mandatory to make a successful community building effort.	Policy & Strategy
Develop personal learning networks among teachers and identify reward structures to help teachers develop and progress in their careers.	Policy & Strategy
Establishment of new national-wide strategies (for example, the role of the ICT manager) and policies (for example, the ICT adoption plan) that would be applicable in the school-level and help towards the effective adoption of RBL in schools.	Policy & Strategy
Broadband internet access is crucial.	Policy & Strategy
The portal should stimulate the creation of a knowledge sharing culture in schools - teachers are still varying of sharing their resources as well as using others' resources even within their own schools.	Culture and Linguistic
The portal should aim to be an open community focusing on support and experience exchange.	Culture and Linguistic
The portal should provide opportunities for teachers to attend international training events, in order to help overcome cultural barriers in trusting resources from different cultures, as well as to feel members of an international community.	Culture and Linguistic
The quality assurance approach for the users as explained above will succeed only if the community behind it is strong enough (compare Wikipedia). Therefore the biggest change enabler is the community building	Quality

Based on our qualitative analysis, the main change enabler of the OER repositories' success is the community. Strong community strategy will strengthen the quality strategy (as quality content gets highlighted) and will enhance the experience for the teachers who will feel a stronger need to work with this portal as long as they can feel they are working in a community. At the community building stage, rewards like promoting the good work of teachers are vital. This might be a simple badge which shows both the community as well as the evaluators' of the teacher's work that s/he is contributing towards an international community.

Discussion

The word cloud displayed below highlights the concepts that appear frequently in this paper. The image shows that five words stand out: learning, teachers, communities, resources and portal, which present the major areas this paper has been focusing on. As these topics are most prominent in our vision on the desired future, they are also central in the discussion presented below.

Learning

Resource-based e-learning requires access to a vast 'knowledge base' with opportunities for every student to fine-tune his/her knowledge demands and develop a flexible development scheme for him/herself. Resource-based e-learning accordingly requires that teachers can coach and guide their students in engaging in these more open forms of education and learning. For most teachers this will involve a change in their teaching practices that should be gradually brought about.

This change requires at least:

- Knowledge of effective e-learning resources, technologies, and pedagogies, preferably organized by topic or school subject.
- Access to a network of experts and educational centres for consultation.
- Access to networks of peer teachers to exchange ideas, experiences, and resources.

Communities

Teachers should collaborate with their colleagues to produce innovative learning experiences. It is recommended to establish a network of teachers that will continue to expand as they share with one another their successes and failures in using technology in class. Such communities can provide a climate for engaging in inquiry, sharing knowledge of student thinking, and building social supports for managing the uncertainty and ever-evolving nature of communication technology (Domine 2009).

Making the community productive and long-lasting appears to be of a challenge (Barab et al. 2001). The following suggestions could help motivate teachers to become and remain active participants in a community of teachers:

- Allow teachers to share their experiences with learning resources through Web 2.0 tools like rating, tagging, and commenting.
- Provide teachers with a sense of ownership in the community, including the enactment of various roles such as welcomer, mediater, and mentor teachers can adopt (Hur & Hara 2007).
- Ensure that the ODS portal provides useful resources and learning opportunities for practice by involving teachers in the design of the portal.

- Acknowledge active participation, for instance by awarding status to the more active members (for instance, a five-star rating) or consulting them in the maintenance and further improvement of the portal.
- Moderate the online communication by ensuring that all teacher input is on topic and relevant to the learning resources it pertains to.

Some of these aspects of community cannot be built into a portal site directly, but have to be nurtured over time. A core group of committed, conscientious participants is as necessary to a virtual community as a live one. Because of this, top-down efforts by professional developers to produce communities without the agreement and enthusiasm of teachers will likely fail (Hur & Hara 2007). For this reason as well, ODS may want to include teachers from the outset in developing the web portal and the community of teachers itself.

Teachers

Even though teachers can learn a lot from interacting with each other, there remains a need for teacher development programs in which required pedagogical and technological skills can be acquired. Teachers' needs are varied in this respect: some may have to learn to use new teaching methods associated with the use of e-learning resources whereas others merely need to improve their technological knowledge. Schools should enable their teachers to spend time on their professional development, and Governments and academic agencies should seriously consider investing in programs for self-sustainable and long term teacher development.

The question is only: How exactly European teachers can be motivated to adopt and use resource-based e-learning in their lessons. The short answer to this question is to satisfy their needs with regard to professional knowledge and skills, support, and contact with their peers. The longer answer is more complex and involves a range of activities and facilities that should be carefully orchestrated in order to be effective. The list below present a baker's dozen, beginning with the measures that aim to raise teachers' knowledge and skill level.

- Provide training (both online and on-site) and, if possible, offer incentives to participate. The contents of these training activities depend on the teachers' existing knowledge and skills but should in any case be geared toward pedagogical knowledge (i.e., teaching methods appropriate for resource-based learning) and technological knowledge (i.e., the effective use of ICT).
- Demonstrate how ICT can be used effectively in education. Doing so will increase teachers' motivation to try out new ways of teaching and new types of ICT tools and resources in their own classes.
- Offer draft lessons plans and templates to scaffold teachers' use of e-learning resources.
- Provide role models: teachers who have successfully incorporated resource-based learning in their teaching, and could set an example to colleagues who are considering starting using this way of teaching and learning.
- Give recognition with some sort of award that carries career potential for the teacher and peer recognition for the school.

However, offering teachers the knowledge and skills prerequisite to resource-based e-learning is only a first step. In order for teachers to actually apply the newly acquired

knowledge in their own teaching requires support from experts as well as peers. Feedback and guidance from educational experts can be considered a form of mentoring.
In addition to support and feedback from experts, it might be even more important to provide teachers with a platform to share their experiences with fellow teachers who also use the resources offered through the ODSP.

Resources

Teachers need a variety of e-learning resources they can select for their students. These resources should be easily accessible, of high quality, and adaptable to personal needs. A support structure consisting of (more experienced) fellow teachers and educational experts should be established to coach and guide teachers in the use of these resources, and increase their sense of being part of a larger community of teachers.

More specifically, the needs analysis suggests that ODSP and other portals could or should:

- Extend the collection of materials.
- Add e-learning resources for specific target audiences and on specific subjects in order to provide a more balanced resource collection.
- Emphasize e-learning resources that enable teachers and students to dynamically interact with learning materials. Increasing the 'visibility' of these resources, for instance by placing them in distinct categories or enabling a search for dynamic resources, could be another possibility.
- Provide support for the productive use of e-learning resources.

Portal

It is envisioned that easy access to e-learning resources, support, and peers can be realized by designing the ODSP and other portals according to the following principles:

- Offer OER teachers can adapt and distribute to their students.
- Make it easy for teachers to download lesson plans, teacher manuals, and student materials.
- Ensure interoperability of software tools and give quality information about the resources.
- Include search facilities for e-learning resources according to their criteria (combining various search parameters, quick selection of topic, grade, educational level, and language)
- Use metadata to make it easy to find appropriate resources for certain teaching purposes.
- Offer concrete suggestions to use e-learning resources in educational practice, and pay attention to varying purposes, contexts, subjects, and age groups.
- Give access to a rich knowledge base of other users' experiences and information about the context of use.
- Offer a social platform where teachers, pupils, and parents can discover, acquire, discuss and adapt e-learning resources on their topics of interest.

Conclusion

This paper described the outcomes of the ODS needs analysis carried out with 1175 participants from 18 European countries, ranging from teachers in primary or secondary schools to teacher trainers, curriculum developers, educational policy makers, students and informal learners. We described recent research on resource-based e-learning, technology-enhanced-learning, the methodological approach to the requirements gathering and analysis, the major findings from the analysis and formulated recommendations on how to empower teachers to become change-enablers. Within this paper we analysed the requirements and described recommendations for ODS from the change enabler-point of view to guide ODS implementation in general.

The analysis of the collected data provided new insights into portal development and clear suggestions for streaming some of the ODS activities to foster change in the educational system, the school context and in working practices of the teachers.

While the technical portal requirements can be summarized as focus on well-developed but basic functionalities and tools, the learning-, communication and community building needs as well as the learning requirements are more diverse and demanding.

The call for more balanced resources in all domains should be taken seriously and we must find a way for an optimal solution. Regarding the quality of the resources, established and broader ways to indicate the quality of the resources as well as a common approach for monitoring is needed. For the adoption of the ODS resources, an easy and flexible way to customize them to the learners needs will be crucial.

ODS wants to encourage teachers to collaborate and share their resources and their learning and teaching experiences to ensure the sustainability of the ODSP and to increase the engagement and satisfaction of its users. We therefore recommend assigning teachers an active role in the creation of learning and in the development of the communication processes.

The learning demands show that while some teachers need more training on how to use the technology in the development of learning activities, others lack the pedagogical knowledge. Consequently ODS has to work on offering teachers training in learning design to enable them to integrate technology and pedagogy into a meaningful learning process.

Within this article we highlighted ways to overcome some of the crucial challenges. The requirements gathering process will be an iterative one. The requirements will be refined and captured throughout the ODS lifecycle and reported in Year 2 & 3 as well.

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