IEPs and the Web: Maximizing Student Potential

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Abstract
Transitioning into tertiary studies in a foreign language presents a host of challenges and opportunities, even more so when the transition is from one educational culture and set of technologies to another. Technology offers many tools with which to approach this situation. This paper will present action research into leveraging the use of Web-based technology to enhance the educational outcomes of students in a Thai university English for academic purposes (EAP) course. Through the use of VoiceThread and Google Hangouts on Air, students are able to engage interactively with their teachers and fellow students in and out of the classroom, acquire skills efficiently, and discover new methods of learning that significantly assist in achieving the program's goals of preparing students linguistically for academic life. In particular, the technology allows for opportunities to improve listening and speaking skills through online discussions and presentations, thus overcoming a significant barrier to language development; however, the goal should be for the technology to remain in the background. To ensure this, educators are able to evaluate the impact of these technologies on teaching and learning by using a number of frameworks: Bax's (2002) categories of CALL; the *RAT — Replacement, Amplification, and Transformation* framework from Hughes, Thomas, and Scharber (2006); and Davies' (2011) *Framework for Understanding and Assessing Technology Literacy*. This paper will describe methods of integrating the use of Web-based programs to optimize curriculum implementation and student assessment and will be of interest to language educators considering integrating new technology into the classroom.

Keywords: Web-based technology, intensive English program, English for academic purposes (EAP), language teaching

Introduction

This paper describes an action research study that attempts to ascertain the effectiveness of technology in developing language skills. Given the increasing ubiquity and use in language education of digital devices, connectivity, and applications, this is an area of study growing in importance. The instructors in the program described are encouraged to develop and utilize digital tools and resources to facilitate the improvement of students' language skills. As such, instructors are in a continuous dance with the technological possibilities on offer and are in need of methods to evaluate a technology's ability to effectively improve achievement of learning goals. Many aspects of a technology need to be examined in order to determine its appropriateness for use in the language classroom. These aspects could include its functionality, ease of use, and availability. This paper builds on previous action research by adding layers of scrutiny to technology use.

The context of this action research is a Thai international university English-language preparation center, the Preparation Center for Languages and Mathematics (PC). Students enter the program with intermediate English language skills and are expected to exit the program with advanced skills. The students at PC are attempting to enter Mahidol University International College, and they face the challenges of rapidly learning academic English and developing the critical thinking skills expected in a liberal arts education. Thailand as a whole does not rank well in the EF English Proficiency Index (2014), taking 48th place out of 63 countries where English is not the first language. This makes overcoming the challenges of acquiring the English language skills necessary for university study doubly difficult for the students in the program because the Thai population as a whole has a very low proficiency in English. Students are required to bring a notebook computer to every lesson and all classrooms are equipped with Wi-Fi, a class computer, a projector, and a sound system. The four levels of the program are divided into intensive 10-week periods. The students in the program are motivated to enter university classes as quickly as possible, which means that the effectiveness of the technological resources used is of constant concern. Recent Thai governments, and many other governments, have invested sizably in technology hoping for a significant improvements in student achievement (MOE, 2011); however, educators must be wary of the embellished language that normally accompanies discussions of technology in education and its potential. Selwyn's (2015) investigations of students' actual technology use underlines the exaggerated claims of technology's transformative potential. There are a number of methods and frameworks available to aid educators in this endeavor, each with specific strengths and weaknesses. Three of these frameworks, Bax's (2002) categories of CALL; the *RAT — Replacement, Amplification, and Transformation* framework from Hughes, Thomas, and Scharber (2006); and Davies' (2011) *Framework for Understanding and Assessing Technology Literacy*, will be discussed below.

Literature Review

The persistent focus on and increasing use of technology in education has rightly attracted critical attention. Some of the sharpest criticism has come from Selwyn (2015), who points to "Ed-Tech Speak" (p. 2), or the hyperbolic language used when speaking of the impact technology has on education. Most educators have come across this exaggerated language, either in the names for technologies themselves (e.g., Smart Board) or the pedagogical changes possible with some technologies (e.g., technology-enhanced learning). Implicit in much of the discussion of technology and education is the "presumption not only that learning is taking place, but that learning is being driven actively by the use of technology" (Selwyn, 2015, p. 2). It is clear that technology can serve useful purposes in achieving learning goals; however, discussions of technology in education should include the distinct possibility that it may not be helpful or impede reaching those goals. The antidote to the hyperbole in educational technology is strip away the colorful, flattering language often employed and to include in discussions social, political, historical, economic, and other aspects of context in which the decisions are being made (Selwyn, 2015). It has been found in more than one case that when students from lower socio-economic backgrounds are given tablets or computers, they are quite adept at hacking around the intended education software (Purdy, 2015). This is one way in which technology can disrupt education negatively. Learning how to hack an operating system was not the intention of the educators, but that was the main learning outcome. Recent research by Henderson, Selwyn, and Aston (2015) has confirmed technology use among university students is of the more prosaic type and that "digital technologies are clearly not 'transforming' the nature of university teaching and learning". The students in the study used many types of technology and found them extremely useful, but the promises implicit in the language used to describe the technology were not kept.

Over-reliance on technological solutions has been called the "technical fallacy" by Bax (2000, p. 200). It is important to for educators to remind themselves that rarely is there a singular solution, technological or otherwise, to problems in the classroom. Bax (2003) argues that the technology used in the classroom should be "invisible." Thus, in CALL (computer assisted language learning), the computer and related technologies should firmly reside in the background of students' and teachers' attention. This may sound counterintuitive given the value attached to computers, but it becomes clear when one considers that other forms of technology used in classrooms are taken for granted and hardly noticed, e.g., whiteboards and notepads. Bax (2003) describes and redefines how CALL has shifted in use over the years, from "Restricted" to "Open", and how educators are to prepare for it to be fully "Integrated" rendering it "invisible." Predicting over a decade ago that computer use in the language classroom would become commonplace, Bax (2003) further explained that teachers and students would use computers "without an exaggerated respect for what they can do" (p. 24) and that they "will go almost unnoticed" in classrooms with fully "Integrated CALL." This allows for educators to focus on the needs of the learner, which is where the focus should remain, and not on the concern with technology use itself. Bax (2003) describes a process of

integration or “normalisation” which includes various factors such as teachers’ and students’ attitudes and ability to use technology, the size and location of devices, and more complete use of technology throughout the organization. A multitude of factors need to be assessed and plans formulated then implemented for the invisibility of technology use to be realized. This process will also require “more in-depth ethnographic studies of individual environments” (p. 24) to uncover the obstacles and the smoothest paths to integration (Bax, 2003). Thus, it is crucial to understand the specific context in which CALL is being employed. Research by Chambers and Bax (2006) more specifically identified 11 problems with “normalisation,” pointing out the importance of understanding the interconnectedness of the multitude of factors involved in its realization. This holistic approach to integrating CALL in the classroom presents a dynamic view, one which requires a concerted effort on many levels to achieve. In his latest research, Bax (2011) proposes a more detailed process for considering the use of any technology in the language classroom. The process includes three steps: a *Needs Audit* to determine value and necessity of any technology under consideration and whether the specific situation, in all its complexity, warrants the inclusion of the technology; a *Learning Plan* that engages with issues of access, participation, expert intervention, and other types of mediation; and, simultaneously, a *Research Programme* designed to identify and overcome obstacles to “normalisation” (Bax, 2011). Altogether, Bax’s observations and recommended steps to attain “Integrated CALL” represent a challenge in themselves: to cautiously approach technology integration in the language classroom and to continuously and carefully ascertain how to meet learners’ needs.

In complement to Bax’s detailed elucidation of integrating technology into the classroom, there are useful frameworks for evaluating a specific technology’s potential impact. Hughes et al. (2006) have proposed the *RAT — Replacement, Amplification, and Transformation* framework. Of the three levels of outlined in the framework, the last two, amplification and transformation offer the most to educators and learners. Replacement simply exchanges one technology for another, but “in no way change[s] educational practices” (Hughes et al., 2006, p. 1617). A student can type an essay rather than handwrite it; the only change is the medium of behavior. This can often be an unnecessary step, possibly a more expensive one, and offers no advantage in regards to achieving learning goals if the technology is not used further. In order to reach amplification, the technology must “[increase] the efficiency or productivity of instruction, student learning or the curriculum” (Hughes et al., 2006, p. 1618). Using a dictionary function in a word processing program increases efficiency and productivity, for it is much quicker than using a dictionary, and there is one less object to carrying around. This is an important step, potentially saving valuable time. At the highest level, transformative technology offers possibilities previously unavailable. Should the teacher use the added functionality of communication offered in applications such as Google Docs, the technology offers a transformative ability; direct communication, inside or outside of the classroom, can now take place, a possibility not available with paper or offline word processing. The asynchronous or synchronous communication between teacher and student offers clear advantages over technologies lacking

communicative functionality. There are multiple ways in which learning can be transformed. The chances to engage with learning are increased, the considerations taken into account require that "mental processing [is] expanded," and the operations of the organization itself are changed (Hughes et al., 2006). Pea (1985) calls these types of technologies "instruments of cultural redefinition" (p. 168). Use of technology at the transformative level is not common (Ertmer & Ottenbreit-Leftwich, 2010), but is becoming increasingly so as educational institutes, educators, and students engage with technologies and as new technologies become available.

One aspect of technology use in the language classroom that may be overlooked is the proficiency of its users, their technology literacy. Expert proficiency in using a technology is necessary for its effectiveness (Davies, 2011) and an important aspect of reaching Bax's "normalisation." As Selwyn and others have pointed out, technology itself is not evidence of its usefulness in education. A technology may offer transformative functionality, but to reach that level, users must become adept at using it. Davies' (2011) *Framework for Understanding and Assessing Technology Literacy* provides a description of the manner in which technology skills progress. One must become of aware of a technology first and answer the question: "what can the technology do?" (Davies, 2011, p. 48). If the technology does not offer a function that is useful in the specific situation in which it is being evaluated for use or if there are factors that prevent its use, there is no pedagogical reason to learn how to use it. At the *awareness* level, a technology may be deemed to offer clear uses in the classroom. Developing *praxis*, then, is the next step, where learning to use the technology can reveal how it may be employed to accomplish a learning task. Expectations should be tempered at this stage because a user's limited knowledge of the technology may interfere with accomplishing learning goals through its misuse or misapplication. Not all situations call for a technological solution, even if one is available. Achieving *phronesis* — the Aristotelian notion of practical wisdom — is the goal of technology literacy. When users operate at this level, they are able to determine why a technology is used and how best to integrate it (Davies, 2011). It is a level of knowledge and discernment best suited for effective use of technology.

Technology

Hangouts on Air is a part of Google+ that allows group video chats involving up to 10 members. The video can be viewed simultaneously on YouTube, stored there, and viewed later. The comment functions can be used as normal. The video is marked private as the default, so it is not searchable. This useful technology enables teachers to assign students speaking and listening practice. In the upper-level classes at PC, students' ability to engage in a discussion is assessed formally. Hangouts on Air gives students the ability to practice discussions outside of the classroom without having to meet in person. Students can engage in a discussion from anywhere with an internet connection. After reading, listening, and researching a topic such as genetically modified food or business ethics, students are either given questions to discuss or come up with their own. Assigned groups choose a time to meet online, and a group leader initiates the chat. When the chat is complete, it is automatically uploaded to YouTube, and a designated group member sends a link to the teacher.

Teachers can use the recorded discussion in many ways: clips of the video can be viewed in class; chat groups can share recordings for peer assessment; or the teacher may give feedback in the comments or in some other manner. Because there is audio and video, students' performance can be evaluated in various ways: body language, gestures, pronunciation, vocabulary, grammar, interaction, quality of the information arguments, etc. The videos are then available for use at any time to evaluate progress, student reflection, or in preparation for assessed discussions.

VoiceThread is a cloud-based application that allows users to upload, share, and comment on photos, videos, and presentation slides. Comments can be in the form of audio, text, and video, and there is an option to digitally draw on the slides to add emphasis. A link to the VoiceThread can be shared and further comments can be made by those with a link in the forms listed above. Many people can be included in the comments. The interface is simple and the thread of comments easily navigated.

VoiceThread is used at PC for presentation and oral summary practice. Students create presentation slides in PowerPoint, Google Slides, or other presentation software, and upload the slides or images to VoiceThread. The student or group of students records the audio for each slide. Multiple recordings can be made for each slide and saved in the VoiceThread. Students can practice each section until they are satisfied. Each recording can be listened to for strengths and weaknesses and the best overall recording can be kept. As the presentation is broken up by the slides, the activity is easily managed. Feedback from the teacher and peers helps the presenter pinpoint areas to improve. The task can be completed entirely outside of class, or elements of the feedback can be done in class by showing the VoiceThread. Further practice may take place, all in preparation for in-class presentations that are formally assessed.

Discussion

The web-based applications VoiceThread and Hangouts on Air are tools used in the program to improve students' listening and speaking skills. Using the three frameworks described above, and with Selwyn's cautionary message in mind, these two technologies will be evaluated to ascertain where they fall within them. The three frameworks complement each other. Bax's notion of "normalisation" acts as an umbrella under which both the *RAT — Replacement, Amplification, and Transformation* framework and the *Framework for Understanding and Assessing Technology Literacy* fit, where they highlight the transformative potential of the technology itself and the importance of practical competence and wisdom when integrating it into the classroom.

Hangouts on Air is used in the program to give students practice in academic discussions outside of the classroom. It can be a transformative technology. It has made practicing discussion skills more efficient and allows students to engage with each other in new ways that requires an added level of analysis. Formerly, practice discussions went unrecorded or were recorded in a large format digital file, which is

cumbersome to use. Because Hangouts on Air uploads directly to YouTube and internet bandwidth in Thailand is sufficient, the recorded discussions can be used in new and more precise ways: the level of focus on any given skill is enhanced, the opportunity to improve upon weaknesses or mistakes is increased, and the number of people to engage with is expanded. Each of these abilities matches up with the definition of transformation and were evident when students used of the technology.

Within Davies' framework, students' use of Hangouts on Air can be placed somewhere between *praxis* and *phronesis*. It was a new technology for the students to use, so it required some in-class and out-of-class time to become familiar with. Some students continue to have problems setting it up, significantly delaying its use. Once set-up, it did not take long for students to easily use the application. This may be because it is similar to Skype and FaceTime, two popular chat applications. Overall, Hangouts on Air is not "invisible": the internet is not sufficiently stable for it to be used at all times, the set-up process can be confusing and error prone, some students' microphones are poor quality, some students found the format unnatural or inauthentic, etc. Bax's notion of "invisibility" and Davies' formulation of *phronesis* appear to exist hand-in-glove; it seems that for a technology to become "normalized," it needs to be used with expert ease. One way to make the technology more "invisible" by improving students' competency would be to use it throughout the program. Students would then have sufficient time to familiarize themselves with the application to the point where it becomes fully integrated.

VoiceThread appears to have met the criteria for transformation, *phronesis*, and "invisibility". The application has opened up new ways of engaging with presentation practice. The segmented method of recording audio; the ability to record and review multiple recordings; peer and teacher audio commenting; and other features of the application allow students to engage with the application and learning in new, transformative ways. Anecdotal evidence points to improvements in student presentations without using more class time to help students prepare. Many of the students in the program have skills necessary to use VoiceThread with competence by the time they reach the program level in which the application is used. Those who do not have the requisite technology literacy become proficient after a few hours of practice. All students are able to use the application expertly when a second presentation assignment is given. This shows that the technology literacy necessary to reach *phronesis* is within the grasp of the students in the program, which means its use is "naturalised." VoiceThread could easily become an "invisible" application should the program attempt to integrate the application in all classes.

Conclusion

This paper has described the use of two technologies at PC and three complementary frameworks for evaluating the effectiveness of their use. The examples illustrated — VoiceThread and Hangouts on Air — and the experience gained in using them can be applied as models for the integration of other technologies. By using the three frameworks and carefully assessing their context,

language educators should be able to navigate the complex process of successfully integrating technology into their programs. The process is continuous and requires detailed planning but is necessary given the pervasive nature of digital technology and the powerful drive for it to be used in education.

References

Bax, S. (2003). CALL—past, present and future. *System*, *31*(1), 13-28.

Bax, S. (2012). Normalisation revisited: The effective use of technology. *Medical Applications of Intelligent Data Analysis: Research Advancements: Research Advancements*, 35.

Bax, S. (2000). Putting technology in its place: ICT in Modern Foreign Language teaching. In K. Field (Ed.), *Issues in modern foreign languages teaching* (199-210). London: Routledge.

Chambers, A., & Bax, S. (2006). Making CALL work: Towards normalisation. *System*, *34*(4), 465-479.

Davies, R. S. (2011). Understanding technology literacy: A framework for evaluating educational technology integration. *TechTrends*, *55*(5), 45–52.

English First. (2014). *EF English Proficiency Index*. Luzern, Switzerland. Retrieved from: http://media.ef.com/__/~/media/centralefcom/epi/v4/downloads/full-reports/ef-epi-2014-english.pdf

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, *42*(3), 255–284.

Henderson, M., Selwyn, N., & Aston, R. (2015). What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Studies in Higher Education [E]*, 1-13.

Hughes, J., Thomas, R., & Scharber, C. (2006, March). Assessing technology integration: The RAT–Replacement, Amplification, and Transformation-Framework. In *Society for Information Technology & Teacher Education International Conference* (Vol. 2006, No. 1, pp. 1616-1620).

Ministry of Education. (2008). *Towards a learning society in Thailand.* Bangkok, Bureau of International Cooperation. Retrieved from: http://www.bic.moe.go.th/th/images/stories/book/ed-eng-series/intro-ed08.pdf

Pea, R. D. (1985). Beyond amplification: Using the computer to reorganize mental functioning. Educational Psychologist, 20(4), 167-182.

Purdy, M. (2015, July 27). Integrating technology too tightly with education presents its own kind of problems. *Public Radio International*. Retrieved from: http://www.pri.org/stories/2015-07-27/integrating-technology-too-tightly-education-presents-its-own-kind-problems

Selwyn, N. (2015). Minding our language: why education and technology is full of bullshit… and what might be done about it. *Learning, Media and Technology*, (ahead-of-print), 1-7.