

***The Effect of Integrating Diigo Social Bookmarking into Schoology Learning Management System on Autonomy and Reading comprehension of EFL Learners
A Study on Introducing LMS into Conventional Learning Settings***

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Abstract

Since its first appearance in pedagogy, Web-Enhanced Language Learning (WELL) has turned educators' eyes to a novel approach in education. Though many believed that the integration of web into learning environments would go no farther than one way teacher-learner interaction, the development of web 2.0 has added to the sociality of the web even more than ever before. According to the socio-constructivist approach, this sociality can encourage student-generated content, which in turn, can lead to more autonomy on the part of the learner. Although extensive research shows the effectiveness of web 2.0, especially social networks, in promoting language learning and learner autonomy in a traditional classroom setting, researchers have not treated the effectiveness of integrating social networks into the context of web-based Learning Management System (LMS) in much detail. This case study investigated the impact of learning with Schoology® (the LMS selected for this study) on learners' autonomy and use of reading strategies while incorporating Diigo®, a social bookmarking website. The participants were twenty-two intermediate EFL adult learners divided into two control and experimental groups. The learners in both groups received instruction on different reading strategies and practiced using them by bookmarking several articles on a given topic with Diigo toolbar over a 7-session treatment period. While the control group only dealt with Diigo throughout the course, the experimental group additionally performed all the required course tasks using Schoology. At the end of the treatment, the students in both groups were compared in terms of using reading strategies and perception of learner autonomy.

Keywords: Learning Management System (LMS), Social Book Marking System (SBMS), Autonomy, Reading Strategies

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Introduction

Along with the public appeal for the use of the Internet as an information feed, the web became widely visited all around the globe. Between, as a multi-lingual medium, it offers language students a variety of online resources in their target language which are both authentic and easy to access. However, the World Wide Web could initially allow for Asynchronous Computer Mediated Communication (ACMC) (i.e. one-way communication at their best) which was considered to be static, centralized, content-based, readable, and inflexible. On the other hand this was an introduction to the creation of an individual virtual learning environment (Silva, Rahman & El Saddik, 2008). With the rise of socio-cultural approaches, pedagogical web design moved into "...consuming what was available on the Internet to producing the content on the Internet" (Manning & Johnson, 2011). Popularized by Tim O'Reilly (O'Reilly, 2007), Web 2.0 has been introduced as an environment where knowledge is created, shared, remixed, repurposed, and passed along (Mason & Rennie, 2008). The building of Learning Management Systems (LMS) or what is more broadly defined as open-source learning systems which offers the chance of creating online classes is an example of web 2.0 educational affordances.

Massive Open Online Courses (MOOCs) or Massive Open Online Sources (MOOSs) – which are educational contents being delivered from a learning web platform - were formerly more in use. Open access via the web was probably the distinguishing feature of such learning systems, compared to other sources of learning. Additionally, as Sidorenko (2014) pointed out, other features such as bringing independence and autonomy to the learner, and efficiency of resources, cause MOOC to best aid learners as a self-study tool to promote language proficiency. Sidorenko's analysis led to a number of strengths, weaknesses, opportunities and threats of Online Open Sources which are listed below, in table 1.

Strenghts	Weaknesses	Opportunities	Threats
1-High quality content 2-High technological support 3-Integration of language environment 4-Expanding the limits of teaching 5-Expanding professional and terminological vocabulary.	1-Inconsistency between the course content and learning programs 2-Lack of speech communication 3- Lower “language quality” requirements to communicate in forums; 4-learning process administration failure 5-Difficulty to follow up the outcomes 6-Long-term planning failure	1-Receiving new knowledge from the world’s leading universities 2-Global communication 3-Smoothing language and cultural barriers; 4-Flexible learning format and development of skills to manage academic freedom.	1-Disintegration of academic discipline: loss of consistency and succession 2-Loss of knowledge quality due to the lack of control; 3-Disruption of line schedules 4-Transformation of learning goals, discrepancy between obtained results and expected results of learning.

Table 1: The strehgths, weaknesses, opportunities and threats of MOOCs according to Sidorenko (2014)

All in all, due to the absence of an essential factor, still this learning system can not replace in-class learning: management. To make up for this deficiency, Learning Management Systems (LMSs) were developed, which are a managing and tracking add-up to previous open learning platforms.

Along with the learning systems, web 2.0 made way for many other web tools such as bookmarking tools that may not be pedagogical in nature but can be adapted to be used for certain learning purposes such as practicing some reading strategies like using the context, skimming, and scanning. On the other hand, the learner-specific environment provided to the learners via the internet, promotes learner autonomy as it facilitates taking charge of one’s own learning and allows for inter-relational development of mutual interaction between learners and teachers (Lamb & Reinders, 2008).

A Cutting Edge in Web-based Technologies

Presently, technology has become increasingly intertwined with language learning. The question of ‘why’ we should utilize computers in education during late 1970s has changed to ‘how’ to integrate them in language teaching and learning since late 1980s

(Rahimi & Yadollahi, 2011). Today, Computer Assisted Language Learning is defined as the full integration of technology into language learning (Kern, 2013). Therefore, a CALL integrated environment would be ideally one which provides comprehensible input and output and modified interaction between learner and the computer, an opportunity to focus on form and meaning and notice one's error (Chapelle, 1998).

Undoubtedly, World Wide Web has become the dominant essence of CALL. As its competitive edge, the second generation of the web has made user-generated content possible. The term learner/user-generated content has its root in the constructivism theory which suggests that learners are the creators of their course contents. In this path, web 2.0 has been particularly contributive by offering the necessary toolbelt (accessing, selecting, reading, editing, sharing, etc.) to build up this content. Through this process learners transform from a consumer to a creator, for a successive learning.

The creation of such web materials requires the use of a variety of tools. The number of the web tools that are being used now is enormous and their functions are different. However, all can be categorized under several headings according to their field of application. According to Manning and Johnson (2011) web tools are namely: a) The ones that help the user to stay organized, such as calendars, scheduling tools, mind-mapping or graphic organizer tools, social bookmarking, virtual storage and file management, b) Tools to communicate and collaborate, like discussion forums, Voice over Internet Protocol (VOIP), instant messaging and chat, blogs, wikis, microblogs and web conferencing, c) Tools to present content. Instances are audio, video, screencasting and narrated slide shows and sharing images, d) Tools to help the instructors assess learning; such as quizzes, tests and surveys builders, rubrics, matrixes and e-portfolios and finally e) Tools to help the user transform their identity, like avatars, virtual worlds, social networks.

These tools are already being used excessively in language learning environments and by the learners themselves; however, the essentiality of employing web tools becomes more apparent when careful attention is paid to the social aspects they foster. Lee, Williams and Kim (2012) regard sociality as the essential foundation of web applications. Thus, the answer to the question of how these social technologies affect language learning and teaching can be trailed in the social learning theory (Bandura, 1977). According to this theory human beings can learn from their observations of interactions with a model from the real world, media and verbal instructions. Additionally, the capability of these tools in providing the learner with the opportunity to collect, transform, and generate the content highlights the constructivist nature of these social technologies.

Mindful of the benefits and deficits of web-based technologies, it is noted that employing a single technology per se is not enough for learning to occur, and one should not lose sight of other influential factors such as instructional pedagogy and the course content in this process (Mishra & Koehler, 2006). Furthermore in a technology-based learning environment, technical, administrative and educational considerations are also of great importance (Tay, Lim, Lye, Ng and Lim, 2011). Finally to make the most out of an online learning environment Selvi (2010) noted that learning and teaching processes, competencies of instructors, participant's

attention, the online learning environment/technical infrastructure and time management are effective.

Learning Management System

Along with the wide application of web tools in learning, conventional learning environments have given their place to e-learning contexts, which in turn has opened up new horizons for the legendary accounts of managing a whole course online through a specifically organized system called Learning Management System (LMS). Electronic learning management system is a recently introduced web-based platform which offers the possibility to deliver online courses accompanied by electronic tools such as discussion board files, grade book, electronic mail, announcements, assessments, and multimedia elements to manage the course (Gautreau, 2011). It makes way for learner-centered teaching approaches, increased accessibility, online assessment and evaluation features, and improves management of course content and administrative tasks (Gautreau, 2011). A basic structure of an LMS has been illustrated in figure 1.

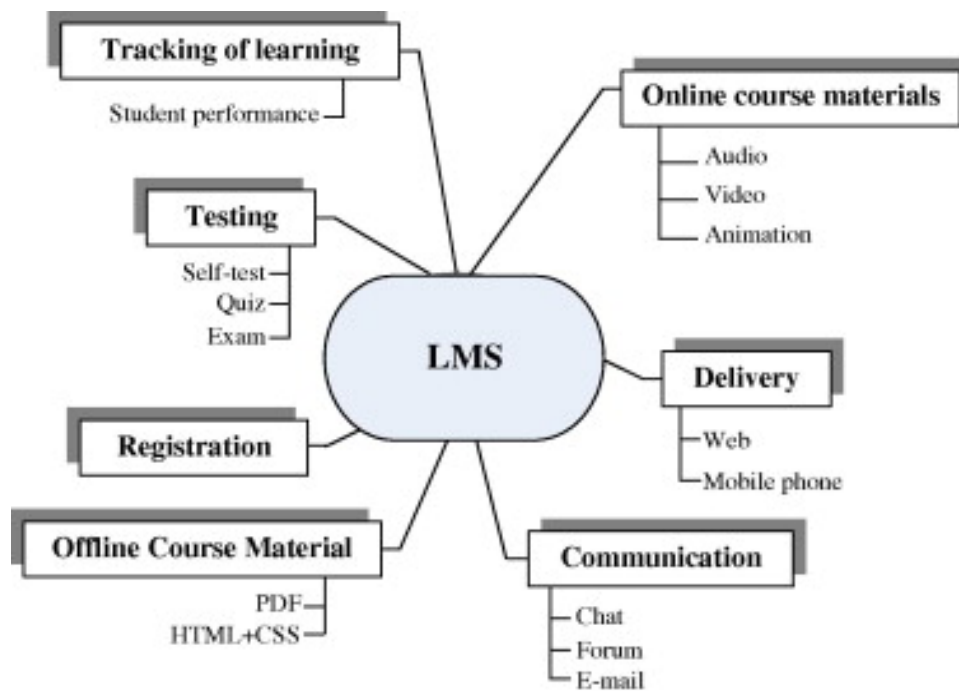


Figure 1: Structure of a Learning Management System (Sharpe, Benfield, Roberts & Francis, 2006).

As depicted in figure 1, LMS usually comprises of a ‘registration section’ through which students join the system and their attendance will be checked, and a ‘course materials section’ which is mainly accessible online and contains files in video, audio, PDF, PPT or word formats. There’s a ‘testing section’ which is designed to evaluate students’ achievements and a ‘communication section’ to enable teacher – learner and learner - learner interactions. Further, as LMS should emphasize the role of management in online learning, it provides the instructor with tracking tools to monitor students’ performance in each section. The delivery of all the aboves, occurs through the web or more recently through mobile phone applications.

However, the main component of LMS is the role of learners themselves both in teaching and learning. LMS encourages students to take the responsibility of their learning and use their creativity to utilize the aiding tools at their hands (Hussein, 2011), thus fosters learner-centeredness and learner autonomy.

As elaborated so far, LMSs and web 2.0 applications seem to have many features in common. Thus, the question that is raised here is ‘why do we need to integrate web 2.0 tools in a Learning Management System?’. First, the proliferation and popularity of these online social tools proves them to be successful in fulfilling the needs that they were designed for. At the same time, learners’ have shown positive attitudes towards the application of them in their learning process. In their analysis Sharpe, Benfield, Roberts & Francis (2006) claimed that the results of 300 studies on students’ experience of using e-learning systems in their learning process have shown that they respond in a positive fashion to the integration of ICT in higher education. Nevertheless, it has been reported that blended courses, i.e. a mixture of in-class and online instruction are more favorable than pure online classes (Sharpe, Benfield, Roberts & Francis, 2006).

Moreover, currently the communication features of conventional learning management systems are poorly being utilized by its users, while inclusion of web-based social technologies can reverse the situation in favor of the LMS.

Blended Learning

Despite receiving worldwide attention, online courses are still not the mainstream in teaching and learning languages. Teachers would like to enjoy the advantages of online learning, while they can not ignore the benefits of in-class instruction. Thus many opt a combination of both, which is called blended learning.

In their study on the effects of integrating blended learning in a research methodology module, Sormus, Rannula and Piirsalu (2014) mentioned blended learning as a means of course delivery that combines face-to-face and technology-based studies and allows learners for the choice of time and the place to study. In another study on blending conventional class with Blackboard LMS by Kashghari and Asseel (2014), they highlighted ease of access to the course materials, ease of use of the LMS and its efficiency over using print media (course books, worksheets and paper exams). However, drawbacks such as experiencing technical problems, lack of proper training to the students and lack of enough technical facilities such as computer labs were also reported.

The most common advantages of blended learning as listed by Marsh (2012) are found to be a more individualized learning experience, a more personalized learning support, supporting and encouraging independent and collaborative learning between learners, increased learner engagement, adapting many different learning styles, creating a place to practice the target language beyond the classroom, creating a less stressful practice environment for the target language, flexibility in meeting learners’ needs and helping learners develop the necessary skills for cutting edges in the field of learning. Web-enhanced Reading

The free and synchronous series of online databases and communication services are rapidly growing and increasingly emphasizing the need for learning a foreign language and developing computer literacy. Here, reading is the primary mode of Internet communication and knowing about useful reading strategies is fundamental to foreign language learners' comprehension of the texts. On the other hand, effective and efficient use of ICT is now considered a must in the modern global business and job market (Tinio, 2003) and so for educational systems. Hence, the functions of web 2.0 tools in computer-assisted language learning can be of prime importance in the development of such reading strategies and enhancement of both digital and language literacy.

Learner Autonomy in Web-based Learning Environments

During the past few decades, the paradigm shift in learning theory has changed many conventional perceptions regarding the learner's role. As Simina and Hamel (2005) pointed out, today learner is assumed as the center of learning and no longer a passive recipient of the content being taught. Similarly, the theory of constructivism has considered the learner as being responsible for constructing the knowledge throughout his interaction with the environment and reflecting on his own experiences. As discussed later, technology-based learning environments encourage both learner-centeredness and constructivism which in turn promote learner's autonomy. However, the definition of autonomy when state-of-the-art technologies are being used may not be as clear as it is in other contexts.

Benson (2011) has described autonomy and autonomous learning as the capacity of the learners in controlling their learning. He added that autonomous behavior would be developed through the process of dealing with learning and this leads to self-directed learning. Cooke (2013) proposed that the creation of a program which can provide an environment for autonomous activity might encourage the development of learner's autonomy. On the other hand, in their study, Borg and Al-Busaidi (2012) suggested that factors such as 'lack of motivation', 'limited experience of independent learning' and 'fixed curriculum' hinder the development of learner autonomy. Shams (2013) proposed that an autonomous learner takes responsibility for his/her learning, monitor the learning progresss, can do self-evaluation and can deal with difficulties in learning whitout teacher intervention.

Indeed, more modern tools are being released every day, and their role in learner autonomy demands more investigation. The present study examined the effects of an LMS integrated reading comprehension course on FL learners' autonomy and mastery of reading strategies.

I think this section needs a thorough replanning. As it is presented right now there are separate pieces of information with no coherence. I don't think you need this many subtitles. What is still missing except for the definitions and advantages and disadvantages is a summary of the previous research conducted on the blending learning.

Study

Research Question

This study addressed the following research question:

1. Does integrating web 2.0 social bookmarking into a Learning Management System lead to a change in EFL learners' perception of learner autonomy?
2. Does integrating web 2.0 social bookmarking into a Learning Management System affect EFL learners' use of reading strategies?

Participants

The present study was conducted as a part of a general English course at a Language Institute. Two classes with the total number of 22 intermediate level, female students, aged between 13 and 63 with low to average computer skills were studied. In one of the classes the participants (the control group) received instruction on how to use reading strategies and practiced using them by bookmarking articles with Diigo social bookmarking on the Internet, while the other class (experimental group) received the same instruction and practiced the strategies by including the Diigo bookmarks in Schoology learning management system.

Instruments and Materials

The following instruments were used to collect the required data:

- a. A reading comprehension pre-test
- b. An autonomy questionnaire (Spratt, Humphreys & Chan, 2002)
- c. A reading comprehension post-test
- d. Two Diigo® accounts for the participants in experimental and control group to invite them to join the network in separately
- e. One Schoology® account to create the online class for the experimental group
- f. Interactive power point slides to teach each reading strategy followed by specifically designed exercises prepared by the researchers
- g. A course time table detailing the reading strategies (using context clues, scanning and skimming, finding the topic and the main idea, identifying the supporting details, understanding the connecting words, and making inferences) that are going to be taught and the reading topics for each session
- h. A video tutorial detailing the steps in using the required web tools

Procedure

At the outset of the study, a reading comprehension pre-test and an attitude to autonomy questionnaire were given to the participants. Then the participants were provided with a timetable regarding the reading strategies to be taught and the topics to be searched for. The target reading strategies included using context clues, scanning and skimming, finding the topic and the main idea, identifying the supporting details, understanding the connecting words, and making inferences. Next, a training session was held to prepare the participants for using the bookmarking tool and the LMS. In the course of the treatment, each session the students learnt about a

reading strategy through interactive power point slides and received some related exercise sheets as controlled practice. Then as a free form of practice, outside the class, they were asked to search for the topic of the day on the Internet, find several articles, bookmark them in their Diigo accounts, and share them with their peers. While enjoying what their classmates had bookmarked, the students also practiced the reading strategy of the day both in the class and at home.

The following session, before moving to a new reading strategy, a previously selected group (of usually three students) was assigned to present a summary of the bookmarked articles in the power point slides to the whole class. Then the teacher raised several comprehension check questions which required them to employ the learnt reading strategies. However, in the experimental group, the bookmarks were posted by the students in the discussion room of the Learning Management System (Schoology), where they were viewed and discussed by the teacher and the learners. Once all the bookmarks had been viewed, the summary presentation assignment was given to the students with an exact submission time and date using the timing features of Schoology.

The uploaded assignments were then collected and scored by the instructor and discussed in LMS's chat room. The participants could view their peers' uploads there and comment on them, while the instructor posted some comprehension check questions about the summaries for them to answer. All the materials presented in the class were available to the students on the LMS. In the control pair, the same activities were performed as in a conventional class. The above procedure lasted for a period of two months. Finally, a reading comprehension post test and the same autonomy questionnaire were given to the participants to check the effects of the treatment.

Data collection and results

Initially, the pairs were given a multiple-choice reading pre test measuring their use of reading strategies. They were also asked to fill in a five-point likert scale autonomy questionnaire. The results indicated that there were no significant differences between the control and experimental group in terms of autonomy and reading strategy use (Independent T-test $p = .084 > .05$) at the beginning of the course. After the two-month treatment period, the same autonomy questionnaire and a multiple-choice reading post test were given to the students. Their marks were considered from 0 - 100 in the reading test and in a 1-5 scale for the autonomy questionnaire.

The results indicated that the experimental group had obtained a significantly higher mean score on the second administration of the autonomy questionnaire (Paired T-test $p = .03 < 0.05$). The control pair have also scored higher on this instrument compared to its first administration, however it was not significant (Paired T-test $p = .14 > 0.05$).

Both groups gained slightly higher mean scores at the end of the treatment in terms of reading comprehension (table 2), though none of them could outperform the other in this regard ($p = .60$ and $p = .53 > 0.05$).

Table 1 – Comparison of the mean scores of control and experimental groups post and pre test scores on the use of reading strategies and their significance

Group		Mean	SD	Sig.
Control	Reading pre-test	20.63	20.20	0.60
	Reading post-test	30.34	11.61	
Experimental	Reading pre-test	42.90	8.57	0.53
	Reading post-test	43.59	9.32	

Discussion

This study investigated the effects of the integration of social bookmarking into a learning management system on EFL learners' autonomy and use of reading strategies.

A comparison of the groups' mean scores on the autonomy questionnaire in pre and post administration indicated that the technique had significantly affected the participants' attitude towards learner autonomy as both groups reached a higher mean score. The analysis of the results of the post administration of the questionnaire showed that the experimental group scored significantly higher than the control. The researchers attribute this to what learners experienced in the process of moving from consumers to creators of their class materials by posting their bookmarks in the LMS and the opportunity that it provides for them to experience learning on their own.

Apparently, the experimental group could not significantly outperform the control group regarding the use of reading strategies. This could indicate that 7 weeks was not long enough for the treatment to lead to significant changes either in the learners' mastery of reading strategies or in getting used to the procedure of the course which was quite novel for them. Therefore it prompted the researchers to carry out a full-scale study on the same variables over a longer period. However, a comparison of the groups' pre and post mean scores on the reading test indicated that both groups scored higher in this regard at the end of the course, provides support for the efficiency of web 2.0 tools in helping the learners to employ more reading strategies and, possibly, become better L2 readers. On the other hand,

In course of the experiment, the researchers observed several interesting facts. The participants entered the study with a rather low level of computer skills. However, at the end of the course, both control and experimental groups had noticeably progressed in this area and stated that they had enjoyed using the technological tools used in this study, which granted them more freedom in terms of the time and place of learning. The experimental pair felt more strongly in this regard since all the learning aids, such as the resources and exercises, were only a few clicks away from them anytime and anywhere during the course. They also believed that the access to the Internet in the class was a motivating element for them in the process of learning.

Besides, in a feedback session at the end of the course, the experimental group stated that the LMS had affected their sense of autonomy. This was because not only could they freely interact with the other learners and their teacher even after the class time, but they could also submit their assignments and participate in discussions, knowing that all of them were being observed and controlled by the teacher through the learning management system.

Finally, the students were quite surprised to see how applying reading strategies could facilitate their understanding of a text. All participants stated that they did not know, at least consciously, that such strategies existed. More importantly, they were satisfied with the way they could use the reading strategies to understand authentic English texts on the Internet. Interestingly enough, the experimental group expressed their willingness in attending other similar courses and said that they would recommend their friends to volunteer for future classes of this type. Overall, the findings of this case study convinced the researchers that it worth repeating the same experience in larger classes in the course of a full semester.

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