

AN ONLINE SOCIAL CONSTRUCTIVIST TOOL: A Secondary School Experience In The Developing World

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ABSTRACT

With the rapid advances in technology, several online learning tools come onto the stage. Being an online learning delivery tool to support a full range of teaching and learning activities conducted by educational institutions Moodle facilitates online content creation and collaboration by entailing various social and communication tools that support teacher-student, student-student, and teacher-teacher interactions. This paper presents the "Moodling"(Moodle, 2005) experience within a secondary school in a developing country, namely Turkey. Based on a focus discussion group with the foreign language teachers, the author depicts the critical points that need to be taken into consideration so that an effective collaborative online platform for both teachers and students to learn together can exist.

Keywords: Social constructivism; Moodle; virtual learning environments; online collaboration; social artifacts.

INTRODUCTION

As instruction and learning gain new dimensions in today's world due to the proliferation of information and communication technologies (ICTs)- multimedia, the Internet or the Web, as a medium to enhance instruction or as a replacement for other media-, education becomes independent of time and space. Consequentially, learners and instructors can utilize new modes of learning and communication due to the proliferation of information and communication technologies (ICTs). One of these new modes of learning and communication to support a full range of teaching and learning activities conducted by educational institutions is Moodle which facilitates online content creation and collaboration and entails various social and communication tools that support teacher-student, student-student, and teacher-teacher interactions. Therefore, Moodle is often seen as contributing to the schools' mandates for the delivery of high-quality education through the provision of a complete set of tools. The aim of this paper is to provide a picture of the role of Moodle for secondary school language teachers rather than making generalizations with regard to the use of Moodle. The findings are not exhaustive since the statements presented in this study include contextualizing and interpretation by the researcher based on a single case study within a developing country.

A BRIEF OVERVIEW OF OPEN-SOURCE (FREE SOFTWARE) MOVEMENT

The terms "free software" and "open-source software" are sometimes often used interchangeably. However, it should not be disregarded that free software the users' *freedom* to run, modify, adapt, customise and share without charge rather than being free in monetary terms.

The concept of “free” in this discussion is best stated as (FLOSS, 2002):

- The freedom to run the program, for any purpose
- The freedom to study how the program works, and adapt it to your needs
- The freedom to redistribute copies so you can help your neighbors
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits

The open-source software, Moodle, fulfills the criteria listed above for “free software” and has rapidly built a community of users who have the freedom to download, install, run, and modify the software without cost.

According to Bonk and Pan (2007) the term “open source” derives its meaning from a ‘gift culture’ where people are allowed to access source code freely becoming engaged in a give-and-take process by modifying and improving the source code. Bonk and Pan (2007) further note that similar to this practice of gift culture and distributed development in open source, participants in an online discussion can post their ideas about a topic freely in a community of inquiry as real people (Rourke & Anderson, 2002). When knowledge sharing occurs, “a common ground of interest and understanding” (Bonk & Cunningham 1998) is established. These shared understandings make up the norms, values, attitudes, beliefs, and paradigms, or in other words, the culture, in this community of practice (Bonk & Pan, 2007). In this way, a community of practice is established that is grounded on the same shared experience of its members (Fisher, Giaccardo, Eden, Sugimoto & Ye, 2005; Mahoney, 2004). Promoting values and sharing ideas occur through asynchronous communication tools and are grounded in existing knowledge contexts (Anderson, 2004). With the emergence of OSS (Open Source Software)/ FS (Free Software) movement, no-cost products such as Moodle that are more flexible and customizable than typical proprietary software are preferred by many instructors to enhance their teaching activities for the student's benefit.

VIRTUAL LEARNING ENVIRONMENTS

A virtual learning environment (VLE) is a set of teaching and learning tools designed to enhance a student's learning experience by including computers and the Internet in the learning process (Everett, 2002). The main components of virtual learning environments are (Everett, 2002):

- Mapping of the curriculum into course topics that can be assessed and recorded
- Tracking of student activity and achievement within the curriculum presented online
- Support of online learning, including access to learning resources, assessment and guidance
- Online tutor support
- Peer group support
- General communications, including email, group discussion and web access
- Links to other systems, both in-house and externally

VLEs also allow the student to control the learning process in a way that they can individualize their learning experience through utilizing different tools such as e-mail, bulletin boards, or threaded discussion aiming for different learning styles. It is through these control activities such as self-evaluation, self-assessment and reflective understanding implemented by students during their learning process that a constructive process takes place (Huffaker, 2003). As Jonassen, Peck and Wilson (1999) assert technology provides a ground for "storing, organizing and reformulating the ideas that are contributed by each community member" and acts a medium for participation in simulated experiences, apprenticeships and cognitive partnerships. The development of software applications such as Moodle focused on these creation principles of virtual learning environments provides an environment for interactive, exploratory, individualized, and collaborative actions (Firdiyewek, 1999). Furthermore, the online VLEs allow more teachers to explore and experiment with online methods (Depow, 2003). Morgan (2003) found that faculty members' use of a VLE increased their instructional effectiveness and improved the pedagogy of their courses due to enhanced communication and restructured learning activities.

A major reason for the relatively slow adoption of VLEs in education is the increasing cost of the software (Depow, 2003). If there are no sufficient institutional infrastructures and support for online learning, instructors may not have the opportunity to utilize the online methods despite their personal readiness to do so (Depow, 2003). Proprietary VLE products such as WebCT and BlackBoard are already used by many education institutions despite being cost-prohibitive. The emerging range of non-proprietary open source (OS) and free software (FS) VLE packages are seen as an alternative solution for these proprietary products. The creation, submission, and publication of educational content can be directly facilitated to a website without a requirement of Hyper Text Markup Language (HTML) skills or use of any other development tools (Depow, 2003).

Definition and Philosophy of Moodle

Moodle, an acronym for the **M**odular **O**bject-**O**riented **D**ynamic **L**earning **E**nvironment, is one of the popular open source software packages that facilitates the design and creation of online courses (Moodle, 2005). It has been developed by Martin Dougiamas as part of his PhD in Education thesis (Moodle, 2005). Due to being an open source software, Moodle is free to download, use, modify, and even distribute and sell (under GNU General Public License), all with no license fee. One of the main advantages of Moodle is that its underpinning pedagogy is social constructivism that supports role sharing and enables each participant to be a teacher as well as a learner (Bonk, 2007). In addition, the instructor in Moodle can moderate or facilitate discussions and activities in ways that help students participate in online dialogues related to the course learning goals (Coppola & Neelley, 2004).

The underlying philosophy of Moodle is maximum instructor control and minimal administrator control (Moodle, 2005). Once the course area is created in Moodle, the instructor manages its materials with minimal (if any) assistance by the administrator (Moodle, 2005). The instructor has also control over which course pages and files to publish (Moodle, 2005). An administrative documentation, a teacher's manual, and documentation created by other users are available on Moodle's web site. For those users and institutions without any server and support infrastructure to host their own online materials, a Moodle hosting service is available at a reasonable price. Moodle can also be utilized as a collaboration tool for remote project partners (Moodle, 2005).

THEORETICAL LENSES

The most prevalent theoretical perspectives concerning online learning are mostly related to social constructivism with a focus on collaborative discourse (Bonk & Cunningham, 1998; Jonassen & Peck & Wilson, 1999) and the individual development of meaning through construction and sharing of texts and other social artefacts (Gergen, 1995).

Before proceeding with these different constructivist theories, it may be useful to briefly mention the characteristics of constructivism. According to constructivism, learning is an active rather than passive process where new insights are developed and knowledge is based on what one already knows (Kanuka & Anderson, 1998). As the teachers scaffold and organize information into conceptual clusters of problems, new conflicting experiences cause "perturbations in the knowledge structures" (Driscoll, 2000). Constructivist strategies such as problem-solving, critical thinking, reasoning and the reflective use of knowledge can be effectively implemented via the interactive environments provided by the computers (Driscoll, 2000).

Two of the several different constructivist-learning theories that are related to web-based learning are cognitive or critical constructivism and social constructivism. To begin with, social constructivism is a closely related set of ideas that focus on the individual development of meaning through communication and the active construction and sharing of social artefacts, including texts rather than receiving them passively from the environment (Dougiamas, 2000). Through conversational language used in a social context the emerging patterns are negotiated into meaning and the construct of the "zone of proximal development" is bridged via deeper learning (Vygotsky, 1990). So, learning occurs through joint problem-solving between partners and social interaction (Vygotsky, 1990).

Within the context of a text-based environment, it is believed that these collaboration and sharing processes increase the quality of dialogue between participants as a tool to construct knowledge (Dougiamas, M., 2000) and make learners get apprenticed into "communities of practice" which embody certain beliefs and behaviours (Lave & Wenger, 1991). A dialogue within these communities of practice is an exchange of information that takes place either directly via a semiotic medium such as language and other signs, or indirectly via tools such as computer interfaces (LeFoe, 1998). Computer softwares, such as web sites, can be considered as both a tool and a language in terms of the medium. Dialogue in online learning situations can be divided into four types (LeFoe, 1998):

- Dialogue of the content development process: A teacher learns while creating content for students during the design process
- Dialogue of each student with content: The student acts and writes in response to the content being read
- Dialogue of students with teacher: This refers to the negotiation and clarification of ideas
- Dialogue of students with other students: Students test their ideas and learn by teaching other students

In a similar vein, Su (2006) states that a Web presence is pursued by the teachers due to the following reasons:

- Teachers might want to share information concerning a particular subject with their peers;
- They might want to write authentically and communicatively to an audience that extends beyond the walls of classrooms (Su, 2006).

Being an open source software, Moodle aims to facilitate this web presence, so that teachers and students can easily interact in an online learning environment. Moreover, throughout the literature it is often asserted that Moodle enables learners to become active creators of knowledge rather than being passive recipients of knowledge. By inventing their own ideas, students are placed at the center of active learning. As their ideas gain in complexity and power (Gullo, 1999) multiple perspectives or interpretations of reality, knowledge construction, context-rich and experience-based activities" (Jonassen, 1991) are supported via learning environments.

Still another learning theory within the framework of constructivism is the cognitive or critical constructivism where knowledge is constructed through the interactions of the student with their corresponding socio-cultural environment rather than through the interactions with other people as is the case in social constructivism (Dougiamas, 2000). New experiences cause the cognitive schemas to get altered in order to make sense of the new information (Rogoff, 1990).

In contrast to the Vygotsky's perspective of joint problem-solving Piaget focuses on individual work with independence where cognitive development occurs via facing cognitive conflicts with peers in meaningful and authentic activities (Rogoff, 1990). Undoubtedly, web-based technology offers many opportunities for sharing perspectives. As seen from these constructivist perspectives, individual cognitive growth is encouraged via the social interaction in the online environment being guided by the teacher. This theoretical framework for learning in a web-based environment is crucial for understanding the underpinning philosophy of Moodle.

THE CONTEXT OF TFS- A TURKISH SECONDARY SCHOOL

Being a developing country, there have been many attempts to integrate the ICTs into Turkish primary, secondary and higher education system since 1990. Some of the factors which have affected the effective deployment and utilization of ICTs for educational purposes not only in Turkey but also in the developing world in general can be summarized as (Akbaba-Altun, S., 2006):

- Inadequate ICT infrastructure including computer hardware and software, and bandwidth/access
- A lack of skilled manpower, to manage available systems and inadequate training facilities for ICT education
- Resistance to change from traditional pedagogical methods to more innovative, technology-based teaching and learning methods, by both students and academics
- The over-dependence of educational institutions on government for everything has limited institutions' ability to partner with the private sector or seek alternative funding sources for ICT educational initiatives
- Lack of effective co-ordination of all the various ICTs for education initiatives

One of the leading secondary schools teaching in English in Turkey, TFS (Terakki Foundation School) tried to integrate the computers into its educational system via funding and grants. Apart from numerous computer laboratories with high-speed Internet connectivity there exists a computer in every classroom as is the case with any other secondary school in main cities in Turkey. Although it is difficult to say whether in comparison to other secondary schools in other developing countries Turkey possess a less or more advanced technological infrastructure this school is an exemplary school in Istanbul in terms of its ICT integration. Teachers also receive regular trainings about the integration of computers into their curriculum. In short, it can be said that with the initiatives taken by the school governance, TFS managed to utilize the computer-mediated communication mostly with regard to its foreign language teaching process.

The Moodle Experience at TFS

One of the main reasons for using Moodle was a shift toward the teaching approaches that combine both face-to-face and online learning environments, especially when teaching English as a foreign language. In the past few years, some popular Web 2.0 tools such as wikis, Hot Potatoes (a free exercise creator) or Voicethread (an online media album) were being used separately according to the preferences of the teachers. Yet, these tools were not deemed as sufficient by the teachers. Furthermore, the conventional lesson design experienced in Turkish schools separates the lesson content and activities from the individual lesson as the central theme.

This is in distinct contrast to Moodle in which content and activities can be grouped together with the discussion forums, content, group areas, etc. in an area that is designated to Forums, Content, etc. Hence, in order to collect all the digital learning resources in one single place via an open-source software as well as to increase the interactivity Moodle has been selected as the most appropriate tool by the related personnel. In terms of the design of the online resources, once the English language courses and the related classroom activities were prepared with the Moodle, related files for listening activities were uploaded to the server. External webpages such as links to the wikis already being used were also added.

METHODOLOGY

The participants were all the foreign language teachers in TFS totaling a number of 20 teachers. Interviews were held in groups of 3 or 4 based on the availability of the teachers. Both structured and unstructured interviews were used in order to get more informed about their experiences with Moodle.

According to Patton (1982), the fundamental principle of qualitative interviewing is providing a framework within which respondents can express their own understandings in their own terms and therefore for which open-ended, rather than closed, questions should be used as far as possible (Patton, 1982). Patton's style of qualitative interviewing is referred to as the 'standardised open-ended interview', through which questions are asked in the same way and order, with a minimum of probing by the interviewer (Patton, 1982). Use of probes were preferred by the researcher in order to allow the informants to answer more on their own terms (Patton, 1982), so the interviewer seeking at the same time both clarification and elaboration on given answers was more free to probe beyond answers (Patton, 1982).

Using a combination of interviews and questionnaires, the following research question was tried to be answered:

“Which benefits does Moodle provide for foreign language teachers within the context of a developing country?”

Towards Theory Evolution

In order to move from the data (face-to-face interviews) to theory evolution several guidelines utilised by Strauss and Corbin (1990) were adapted and employed. The process involved reading the transcript interviews on participants’ experiences with Moodle, developing ideas from the data, reformulating ideas and refining them into basic concepts that reflect the ways that participants talk about their thinking and dealing with Moodle, recording anomalies and clarifying any remaining questions. (Strauss & Corbin, 1990). So, the researcher focused on the set of commonalities encountered during the interviews to understand both the advantages and disadvantages with regard to the use of Moodle. The following questions were asked during the interview:

- What are the main advantages of using Moodle?
- What are the main disadvantages of using Moodle?
- What were the main challenges for you when using Moodle?

Although the researcher’s preference was to use a tape recorder during the interviews the tape recorder could not be used due to the bureaucratic reasons related to obtaining another permission document of recording authorization. The fact that its use might also be inhibiting for teachers was stated as another reason. So, the researcher took notes by handwriting and typed them after each interview.

Table: 1
Views about Moodle (N: 20)

Statement		1	2	3	4	5	Total
1. I enjoyed the Moodle environment.	%	3,3	0	6,7	23,3	66,7	100
2. I prefer Moodle to purely face-to-face teaching.	%	3,3	20,0	3,3	46,7	26,7	100
3. Face-to-face environment was sufficient to achieve our teaching objectives.	%	0	0	3,3	63,3	33,3	100
4. Moodle environment was necessary to achieve our teaching objectives.	%	6,7	6,7	13,3	26,7	46,7	100
5. Time spent in Moodle environment was worthwhile.	%	6,7	16,7	43,3	10,0	23,3	100
6. Students’ having control of my own learning of online material was useful.	%	6,7	0	6,7	33,3	53,3	100

After completing the interviews, the transcribed interviews were sent to those informants who have provided their contact details as promised. In fact, none of the informants declined to be contacted later on, so all of the participants confirmed the reliability of the transcribed results. Furthermore, a small survey was prepared to gain a better understanding of their 'Moodling' (Moodle, 2005) experience. As Table 1 depicts, the extent to which the teachers agreed with the statements in the survey were shown in numbers ranging from "1"- they agree less- to "5"- they agree absolutely- on a scale. A drafted question set for teachers is as follows:

FINDINGS AND DISCUSSION

Although most of the teachers stated that they enjoyed the Moodle environment and they saw it as a necessary tool for achieving their teaching objectives the majority of them was not sure whether the time spent on Moodle was worthwhile. These findings could be related to the material used in the online environment. In fact, it was pointed out during group interviews that,

"The overview is unclear and not very well organised"; "the use of Moodle for submitting course assignments did not work well all the time"; and "its use takes too much time and may be boring".

Some teachers mentioned that apart from Moodle's social interaction and knowledge sharing facilities it allows students to take responsibility of their own learning. Related comments in interviews with twelve of the teachers that supported these findings included the following:

"Our students could easily get into contact with their peers at any time and anywhere via Moodle. Besides, pupils who lost or did not get hand outs can print it off Moodle."

One teacher stated,

"Moodle allows the files to be easily distributed and saves a lot of paper. Besides, it allows one to make comments on one's work outside the class hours and facilitates easy communication for both pupils and teachers. "

With regard to the online communication between teachers and students, some teachers also mentioned that they were unsure whether they should allow the students to develop and exercise their own voice. Their being unsure about how to act on the online forum was evident in the following statement:

"I felt like an outsider providing only occasional contributions, hence I could not develop strong educative relationships with my students. The students mostly were dealing with one another."

Based on these statements, it can be inferred that the emphasis on reflective dialogue rather than serial dialogues should be emphasized by the teachers during the online discussions by emphasizing the crucial points of the discussions. In order to enhance the educative relationship the teachers might pose thought-provoking questions and offer related readings in advance while 'injecting a sense of humour and a helpful degree of informality' (Dougimas, 2000).

As teachers become more engaged in facilitating the dialogue and adapting a more interactive role similar to their role in the classrooms, students' conceptual development can also be extended (Dougimas, 2000).

Besides, as Dougimas (2000) suggests, by encouraging the pupils to get involved in mutually productive dialogues, their sense of accountability and their willingness to seek assistance from each other might also increase.

Five of the teachers admitted: "From the students' point of view if we suddenly said Moodle is stopping tomorrow I think there would be howls of protest from some quarters others would shrug their shoulders and say yes whatever. A significant minority has really enjoyed this and seems to be getting some benefit from it."

In short, the teachers' comments primarily reveal the emphasis given to schools as social environments where a two way communication occurs between teachers and students that may ultimately facilitate constructivist learning.

CONCLUSION

One must bear in mind that the statements presented in this study include contextualizing and interpretation by the researcher based on a single case study within her country, since the aim of this research is not generalization but to provide a picture of the role of Moodle for secondary school language teachers.

The most important conclusion derived from this research is that all the secondary school teachers interviewed stated their willingness to participate in a virtual learning environment in addition to the traditional methods of teaching. So, they would like to embed the ICTs as a learning tool into their teaching process despite both the lack of the required training and the infrastructure.

So, the necessary resources and facilities to use the computer as just another teaching tool must be provided in order for these teachers to adopt the dual role of both content developer and coach. Since only the foreign language teachers in one school participated in this study it would be difficult to claim whether all the teachers in the school would show the same willingness.

Furthermore, the major benefits of Moodle realized by the teachers so far can be summarized as a collaborative online platform for teachers and students to learn together. The teachers also stated that through the interactions of their students with both the teachers and their peers constructivist learning has been realized.

In terms of the implications for other cultural settings, it would be difficult to state that the same results may be obtained in other developing countries with similar technological infrastructure. One of the reasons for this difficulty is as Warschauer and Meskill (2000) argued "the key to successful use of technology in language teaching lies not in hardware or software but in humanware". Unless online learning involves social negotiation and culturally relevant content for the learners whereas teachers act as facilitators of their learning and encourage multiple perspectives, the social-constructivist role of Moodle may not be realized.

As the rapidly growing interest in Moodle within the e-learning community especially around the developing world, it would be unwise to ignore its pedagogical impact.

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