

Distributed Learning and Constructivist Philosophy (Uzaktan Öğretim ve Yapılandırmacı Felsefe)

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Introduction

Distance education and its new form of distributed learning have been used in many countries to provide education to people who need training. Recent developments in instructional technology enable the institutions to distribute their education to more people in distant places than ever before. For instance, computing and communications technologies have been promoting the creation of new media, such as the World Wide Web and virtual reality. In turn, these media enable new types of messages and experiences. Interpersonal interactions across network channels, for instance, lead to the formation of virtual communities. According to Dede (1996), “the innovative pedagogies empowered by these emerging media, messages, and experiences make possible an evolution of synchronous, group, and presentation centered forms of distance education - which replicate traditional “teaching by telling” across barriers of distance and time - into an alternative instructional paradigm: distributed learning” (p. 4).

Seidel and Chatelier (1994) define the term distributed learning as “multi-way knowledge dissemination among teams, crews, etc.” (p. 2). However, in this study I adapt the definition of distributed learning as an educational format that involves multidimensional interactions (e.g., collaborations, discussions, feedback, lectures, etc.) among teachers and learners, at a distance, utilizing a variety of computer and telecommunication technologies. The field of distributed learning has a lot of potential for educational purposes and lifelong learning. Also, some schools, (e.g., Ohio University, University of Phoenix) have combined distributed learning and constructivist learning environments. For instance, Ohio University offers “Master of Business Administration (MBA)” degrees in project-based distributed learning environment with a theoretical base in constructivist philosophy.

Statement of the Problem

Currently most current studies are about course-based distributed learning environments. Thus, in this study, I wanted to discuss project-based distributed learning environment, “MBA Without Boundaries (MBAWB) program” at Ohio University, and the theoretical base, constructivism, behind the environment. Then, I wanted to discuss the advantages and disadvantages of the project-based distributed learning environment, which emerged from my qualitative investigation of faculty and learners’ experiences in the MBAWB program.

The MBAWB Environment

The Ohio University MBAWB program, launched in March 1997, is a project-based learning environment of a virtual learning community on the Internet. The program uses a problem-based learning format with a theoretical base in cognitive constructivism that involves the learner in projects and work situations (Milter & Stinson, 1998). According to Milter and Stinson (1998), the learners in the MBAWB program construct their knowledge of business practices by working their way through the problems. Some of the problems are designed to challenge the learners individually, but most of them are designed to be approached by collaborative learning groups.

The MBAWB program is organized into nine learning units or projects and it requires two years of commitment. Each project in the program begins and ends during a residency that is held during a weekend or week. Learners are expected to have a minimum of two to four years of responsible professional experience and be able to participate fully without having to stop working.

The MBAWB Intranet is based on Lotus Domino groupware, which is software that provides important functions to assist collaborative learning. The MBAWB Intranet is utilized for collaboration and communication to develop deliverable materials for each project in the program. It provides:

A resource center. That center contains materials prepared and posted by faculty and staff and links to other data sources accessible through the World Wide Web.

A collaboration center. In this center members of learning teams ask questions and post responses asynchronously (at anytime from any place) in the process of developing deliverables on learning projects. Each learning team has a private collaboration room, open only to members of that team and faculty.

A tutorial center. In this center learners respond to faculty questions and interact with faculty and other learners to develop concept papers.

A meeting room. In this center learners can arrange to “meet” with other learners synchronously and faculty can hold virtual office hours (Stinson, 1997, p. 3).

Furthermore, the MBAWB Intranet homepage includes announcements, calendar, address book, and technology issues (e.g., trouble-shooting area and FAQ items). Also, it contains links to a help document, earlier project databases, College of Business homepage and Intranet, and Ohio University homepage (Milter & Stinson, 1998).

Constructivism

Constructivism stems from the burgeoning field of cognitive science, particularly the later work of Jean Piaget, the sociohistorical work Lev Vygotsky, and the work of Jerome Bruner, Howard Gardner, and Nelson Goodman, among others who have studied the role of representation in learning (Fosnet, 1996). Cognitive constructivism is “an educational movement in which instruction is designed and sequenced to encourage learners to use their experiences to actively construct an understanding that makes sense to them rather than by having information presented in a pre-organized format” (Borich & Tombari, 1995, p. 206). Cognitive psychologists, e.g. Ausubel, favor constructivist instructional methods such as discussion, collaboration and problem solving. Also, according to Miller and Miller (2000) a constructivist learning environment must provide collaboration, diverse perspectives, and authentic context.

A constructivist approach to instruction requires an understanding of how learners make meaning so that learning environments can promote knowledge construction (Jonassen et al., 1995). Instruction does not involve prescriptive presentation strategies or accurate knowledge representation found in objectivist-based approach (Miller & Miller, 2000). Thus, teaching is not a process of transferring the knowledge to the learners, instead teaching is a process of helping the learners to construct their own meaning from the experiences they have by providing those experiences and guiding the meaning making process (Jonassen, Peck & Wilson, 1999).

Project-based Learning Approaches

Project-based learning approaches are based on constructivist theory (Henze & Nejd, 1997). According to Foshay (1999), the basis of project-based approaches is hardly new. Early in the 1920s William Heard Kilpatrick, a professor at Teachers College Columbia University and colleague of John Dewey, advocated project-based instruction. His notion was that such instruction should include four components: purposing, planning, executing, and judging. He asserted that engaging learners in purposeful activities that they help to select, plan, implement, and evaluate facilitates learners’ learning and helps them solve problems and acquire the skills and judgment necessary to function as adults in a democratic society (Foshay, 1999). Kilpatrick’s philosophy places the teacher in the role of learning facilitator, i.e., coach or guide, and thrusts the learner into a role of active learner as researcher, collaborator, author, artist, or combination of these (Foshay, 1999).

Constructivist learning models and project-based learning can be supported by different approaches and can be viewed in different perspectives (Shank & Cleary, 1994). Henze and Nejd (1994) discuss the following approaches for project-based learning:

Simulation-based learning by doing: Acquisition of knowledge is guided by goals or projects actively pursued by the learners. Knowledge and techniques are learned and used to fulfill specific tasks, which are needed to reach the project goals.

Incidental Learning: Learners can individually control their learning, depending on their previous knowledge and their individual preferences, although the base set of knowledge and skills that will be learned is set.

Learning by Reflection: Learners are encouraged to reflect on given problems and different solutions found by themselves or other groups.

Case-based Teaching: Presentation of knowledge by the teaching staff depends to a certain extent on the progress learners make in solving the given problems. Support is oriented mainly around cases with attached related knowledge, facts and problem solving methods.

Learning by Exploring: Learners are engaged to study and to find out facts, skills and research results on their own. (p. 65)

Project-based learning has to be used to rebuild real-world complexity, no matter which approach is applied. Also, abstraction in project-based learning is necessary and small exercise can be used to discuss specific issues (Henze & Nejd, 1997). The global project context determines the learners' perspective on a given task, while subtasks in a smaller context provide guidance of the learning process. The ability to develop multiple and alternative perspectives on a problem is also a central skill for performing tasks. Collaborative learning promotes the exchange and reflection on different views. As project work is often done in teams, learners train their capabilities for team-work and collaboration (Henze & Nejd, 1997).

Constructivism and Web-based Learning

Web-based learning fits neatly within the category of distributed learning. The 1990s, due to technological innovations, witnessed a blurring and merging of boundaries between formats of distributed learning and classroom education (Wulf, Hanor & Bulik, 2000). Nevertheless, from its inception, the success of distributed learning or Web-based learning has relied upon the independence of learners in the absence of teacher-learner physical presence. Indeed, independence and separation have been definitive characteristics of distributed learning or Web-based learning (Wulf, Hanor & Bulik, 2000).

According to Jonassen, Peck, and Wilson (1999), technologies should be used in the pursuit of meaningful learning in a constructivist environment. Research and experience in implementing learning technologies have proven that technologies teach no better than teachers. That is, when used to deliver instructional messages, learners generally learn no differently from technologies or teachers. Jonassen, Peck & Wilson (1999) claim that instructional delivery is the wrong issue. Technologies should not be used to convey and deliver the designer's message to a passive learner. Instead, technologies should be used by learners to engage in:

Active learning. Learners explore and manipulate the components and parameters of technology-based environments and observe the results of their activities.

Constructive learning. Learners articulate what they know and have learned and reflect on its meaning and importance in larger and social and intellectual contexts.

Intentional learning. Learners determine their own goals and regulate and manage their activities.

Authentic learning. Learners examine and attempt to solve complex, ill-structured, and real-world problems.

Cooperative learning. Learners collaborate with others and socially negotiate the meanings they have constructed (Jonassen, Peck & Wilson, 1999, p. 218).

The task for designers of Web-based learning environments is to integrate constructivist theoretical assumptions, instructional implications and unique features of the Web: hyperlink structure, enhanced media, and synchronous and asynchronous communication capabilities. Constructivist educators view these features in terms of helping learners construct their unique knowledge representation (Miller & Miller, 2000).

Methodology

The researcher adapted Bogdan and Biklen's (1992) fieldwork approach as field investigation to form the methodological framework of this study, which incorporated a set of different qualitative data collection methods such as participant observation, document analysis and interviewing to provide a deeper understanding of faculty and learners' experiences in the MBAWB program.

Participant Observation: I took fieldnotes during my participant observations when the learners were on-campus to present their final projects and to set up a project plan, and when they were interacting with faculty members and among each other asynchronously on the Web.

Document Analysis: Analysis of different documents such as materials on the program Web site, electronic records of asynchronous interaction between the faculty and the learners and among the learners over the program databases and publications about the program were used to understand experiences of faculty and learners in the MBAWB program.

Interviews with the Learners: The interviews were conducted from July 2000 until middle of December 2000. When I conducted my research the program had three classes identified by the starting dates: March 1999 class,

December 1999 class, and July 2000 class. There were 67 continuing learners in these three classes during the data collection period. However, since the researcher included two graduated classes, March 1997 class (22 learners) and February 1998 class (20 learners), the target population of the research were 109 participants, but I was able to interview a total of 54 participants and 46 of them interviewed twice to collect additional data. During the first interview period 42 learners preferred to be interviewed through e-mail, 7 of them wanted to have face-to-face interviews when they were on-campus, and 5 of them wanted to have telephone interviews. However, 8 participants did not wish to participate in a follow-up interview because of time constraints. A total of 46 learners were interviewed twice: 40 through e-mail, 1 through telephone and 5 in face-to-face meetings when they came to the Athens campus of Ohio University for the following residency. All the face-to-face and telephone interviews with the learners were recorded after the permissions were given by the interviewees.

Some of the questions that I asked the learners were: “What kinds of learning experiences do you have in the MBAWB program in general?”, “What kinds of problems do you have in the program?”, and “What are the advantages and disadvantages of studying in the MBAWB program?”

Also, there were 13 faculty members in the MBAWB program who taught in the different projects from the March 97 class until the third project of the July 2000 class. The researcher was able to interview 12 faculty members in face-to-face meetings, and 9 of them were interviewed twice. However, two faculty members did not wish to record the interviews.

Some of the questions that I asked the faculty members were: “What kinds of teaching experiences do you have in the MBAWB program?”, “What kinds of problems do you have in the program?”, and “What are the advantages and disadvantages of teaching in the MBAWB program?”

Triangulation of data from these different data sources was applied to achieve trustworthiness (Denzin, 1989). In qualitative research, the use of multi-methods and multi-data is referred to as triangulation (Denzin, 1989). Many researchers, e.g., Fontana & Frey (2000), Denzin (1989), suggest using of multi-method approaches to achieve broader and often better results.

Data Analysis

The category construction method, that consists of organizing the data sources, reducing the text and generating conceptual categories, themes and patterns by coding units of the data, was used to analyze the collected data (Bogdan & Biklen, 1992; Merriam, 1998). According to Ryan and Bernard (2000), “the codes themselves are mnemonic devices used to identify or mark the specific themes in a text. They can be either words or numbers, whatever the researcher finds easiest to remember and to apply” (p. 781). While reading the data, I assigned coding categories as codes or titles (i.e., communication, learning, advantages, disadvantages, etc.) to the units of data. Also, reduction of unrelated data were considered during the coding process. Once all the units of data were appropriately coded and reduced the researcher used “the cut-up-and-put-in folders approach” to place the coded data in folders under the appropriate categories (Bogdan & Biklen, 1992). Then, I reported the data around the categories generated during the data analysis.

Findings

The learners described their experiences as: project-based learning, self-directed learning, applied learning, team learning and individual learning. Most of them consider their learning experiences as a combination of different forms of learning such as project-based, self-directed, individual and team-based learning. In addition, most discussed that they take active roles in the activities such as setting up a project plan, determining learning outcomes, developing projects, and participating in concept discussions. Also, many learners do not consider their learning experiences “studying” in the sense of traditional learning such as rote learning or memorization, instead they consider their experiences as “research,” “problem solving” and “project-work.”

The learners also reported that they learn and construct their own knowledge when they develop projects and deal with authentic problems, which are embedded in the projects. Thus, the learning experiences in the MBAWB program reflect the experiences found in a constructivist learning environment, which favor instructional methods such as discussion, collaboration and problem solving (Borich & Tombari, 1995).

Similarly, the experiences of faculty members in the MBAWB program (i.e., coaching, guiding, and facilitating the learning) and the instructional methods they apply (i.e., feedback, and problem solving) are consistent with the constructivist teaching experiences as well. According to Jonassen, Peck and Wilson (1999), in a constructivist environment teaching is not a process of transferring knowledge to learners, instead teaching is a

process of helping learners to construct their own meaning from the experiences they have by providing those experiences and guiding the meaning-making process.

Also, in the MBAWB program, project design or problem design is a very crucial experience for the faculty members to meet the needs of the learners and to embed authentic real-life problems in the projects. The constructivist educators believe that knowledge has meaning in an authentic context (Miller & Miller, 2000). Hence, in a constructivist environment teaching includes presentation of real-life problems in authentic contexts that facilitate collaboration (Jonassen, 1999; Wilson, et al., 1993). In the MBAWB program, the project or problem design begins with learning outcomes, then the design team focuses on the learning activities, concept discussions, individual deliverables and the team deliverables that will help the learners to achieve the learning outcomes. Finally, the experiences of the faculty and the learners in the MBAWB program showed that the combination of project-based approach and distributed learning complements the teaching and learning activities, and this combination is more effective in active learning than a simple delivery of a course content through the Web to a passive learner.

Advantages

The majority of the learners considered the time and place flexibilities, attending a graduate school while working, and maintaining everyday activities and taking care a family while studying as the biggest advantages of studying in an online learning environment. In addition, according to the learners, applicability of the project-based learning in the real-life or work place, experience with authentic problems, and active participation are the important advantages of studying in a project-based learning environment. Also, interaction with the professionals from different business backgrounds and the combination of the online interactions with the residencies were considered as some other significant advantages of studying in the MBAWB program.

As similar to the advantages what learners discussed, the faculty explained the advantages of teaching in the project-based online environment as: working with motivated professionals, learning about diverse backgrounds and experiences of the professionals, creating a learning community with the professionals, and experimenting with new educational approaches (i.e., Web-based instruction, project-based teaching). Also, the time and place independence of the online teaching environment was considered as an important advantage by some faculty as well.

Disadvantages

The learners thought that the disadvantages were the lack of face-to-face interactions and the lack of immediate responses during the online interactions. In addition, many learners identified teammates who do not put adequate effort in a team project to be a disadvantage or problem. Also, several learners referred to the lack of a scheduled break or vacation during the two-year commitment as a disadvantage of studying in the MBAWB program.

Similarly, some faculty members considered working without any scheduled break as a disadvantage. Also, other disadvantages, that the faculty referred, were associated with the heavy workload (e.g., accessing the database at least once every two days, monitoring and participating in the discussions, providing feedback) and the time that takes, and overlap of the MBAWB schedule with their other on-campus schedules and responsibilities.

Conclusion

According to the faculty and learners in the MBAWB program, time and place flexibilities, interaction with adult learners with different business backgrounds and experiences, and the combination of online interactions with residencies were important advantages of having commitments in a project-based distributed learning environment. In addition, experience with authentic problems, and applicability of project-based learning in the professional life or work place were significant for most of the learners. Also, attending a graduate program while working and meeting family responsibilities was reported as an important advantage by most learners. According to the faculty members, creating a learning community with motivated adults and experimenting with new educational approaches were advantages of working in the program.

The most common disadvantage that the learners addressed was associated with the lack of responsibility of some teammates on the team projects. Also, according to some learners, the lack of face-to-face interactions and the lack of immediate response during the online interactions were disadvantages of studying in a distributed learning environment. In addition, the lack of a scheduled break during the two-year commitment was considered a disadvantage of the program by some faculty and the learners. Despite the disadvantages, the experiences of faculty and learners showed that combination of project-based approach and distributed learning

complements the teaching and learning activities, and this combination is more effective in active learning than a simple delivery of a course content through the Web to a passive learner.

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