Building an e-Learning System Model with Implications for Research and Instructional Use

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Abstract—This paper demonstrates a model of an e-Learning system based on nowadays learning theory and distant education practice. The relationships in the model are designed to be simple and functional and do not necessarily represent any particular e-Learning environments. It is meant to be a generic e-Learning system model with implications for any distant education course instructional design. It allows online instructors to move away from the discrepancy between the courses and body of knowledge. The interrelationships of four primary sectors that are at the e-Learning system are presented in this paper. This integrated model includes [1] pedagogy, [2] technology, [3] teaching, and [4] learning. There are interactions within each of these sectors depicted by system loop map.

Keywords—e-Learning system, online courses instructional design, integrated model, interrelationships.

I. INTRODUCTION

E-LEARNING is the learning that involves interaction between a learner and a computer. It may incorporate text, graphics, narration, sound effects, music, video, and animation to enhance the learning experience.

There are numerous possible combinations of factors but it is unlikely that a single factor alone will significantly affect student success. However, it is obviously to find teaching style will impact the whole learning process. To this extent, teaching and learning becomes as a center and mutual impact in the e-Learning environment. The issue of e-Learning requires a holistic viewpoint to observe the whole situation. This paper proposes an e-Learning system model to describe the behavior and with implications for research and instructional design reference.

II. THE E-LEARNING SYSTEM MODEL

Fig. 1 shows that there are interactions between teaching, learning, technology, and teaching approach. The most reciprocal of the interactions is between teaching and learning which influence each other. In this interaction, the teacher provides information to the students through his or her teaching style. The student then provides feedback such as tests, quizzes, and homework that shows how much has been learned. Also in the model it demonstrates interaction between teaching and pedagogy. The actual teaching style of the instructor is important because the teaching style actually has

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an interaction with how the students learn. If this interaction has any gaps the students will not learn as much as their potential.
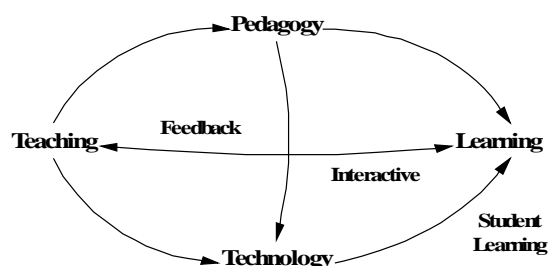

Fig. 1 e-Learning system model

III. INSTRUCTOR-TECHNOLOGY-STUDENT INTERACTIONS

Fig. 2 displays the interaction among teaching, technology, and learning. The instructor needs to be able to effectively use the technology for the purposes of teaching. If there is a gap between teaching and the technology the students will not learn as much as they could in a regular classroom where the interaction between technology and teaching would not be present. In this feedback loop, you can see more closely the interaction between instructor, technology, and student. Notice how technology is a divider in the interactive feedback loop between instructors and students. Because the feedback between the two parties has to go through technology first, there is a greater chance of gaps in feedback. In a normal classroom, the instructor can give his instructions and feedback directly to the students. This also allows the instructor to see and hear the feedback of the students. Because much of human communication is nonverbal, technology acts as a block between communication in instances where interpreting nonverbal signals is critical. For example, in a normal classroom environment, the instructor can see the looks on the student's faces as they go over new material. If the students look like they are not understanding a concept (by making faces, shifting uncomfortably in their seats, etc.,) the instructor can stop and go back over the material in a different way that may allow the students to better understand. This is not possible in the e-Learning environment, as the instructors cannot see the students and their nonverbal queues.
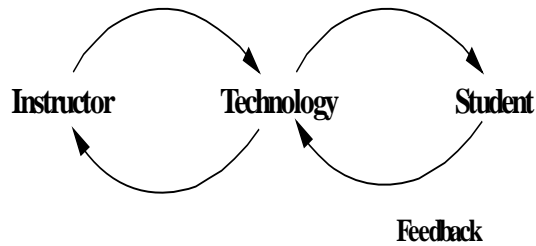
Fig. 2 Instructor-technology-student interactions

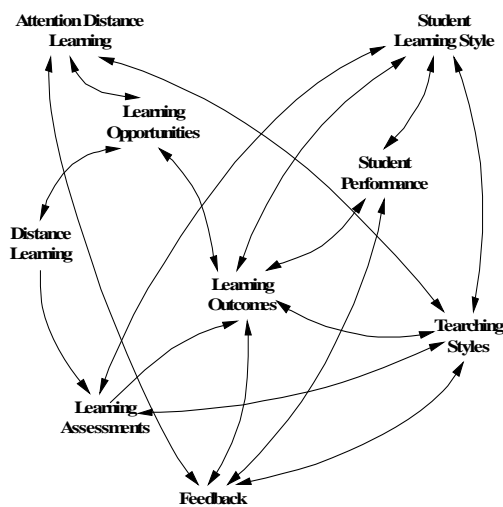## IV. INTERACTION BETWEEN INSTRUCTORS AND STUDENTS

Fig. 3 Interaction between instructors and students

Fig. 3 exhibits the interaction between instructors and students. It consists of the interaction between the instructors and their students; this interaction can be illustrated through nine various activities or elements. Though there are many other elements that lead to the success of e-Learning, these nine components are the core activities performed throughout the process of e-Learning. The model provided above shows the interaction between each element.

As seen through the use of e-Learning it is hard to assess students understanding of the information taught in the class and so it is questionable if the student had gained any knowledge from the experience. This lack of knowledge can have a negative impact on the students' performance not only in the class but also in the application of what they had learned in real life. The students performance in the class acts as a feedback to the instructor who looks at the grades of his students to understand if they can make any further changes in their teaching styles or approaches to better help their students. And so the instructor evaluates the interaction that can occur due to e-Learning and can change accordingly so to integrate videos, live chats, discussion boards, and group activities to increase their students' success. The instructor can also offer feedback to the student after evaluating their performance to give them suggestions on how to improve their learning styles or learning approaches to better their grades.

Under e-Learning system the student can assess their learning abilities and learning outcomes, from there, if they see that their performance is lacking the can change their learning styles to benefit their learning. In another situation if the student finds that they have been successful with their current learning styles (which they assessed through their learning outcomes and performance) they are cued to continue their current approach.

The feedback received from the learning process from both the instructors and the students can be used by the universities to increase or decrease funding to the programs depending on the nature of the feedback. If the university decides to increase the funding provided to the distance-learning program then the learning opportunities of students throughout the world is increased. Also the university can give feedback to the instructors to increase or decrease the class sizes or to change teaching approaches according to past successes or studies conducted.

The learning styles of students are very important; the role of an instructor is to help the student succeed in the academic environment and to acquire as much knowledge as possible. After the instructor gets feedback on the learning styles of students she/he can then change the approach and medias used to reach the student by integrating various medias. Also students can learning the teaching styles of their instructors and learn to integrate other styles of learning to be a successful student.

V. CONCLUSION

e-Learning is now becoming a widely accepted method of training and education within schools, colleges and organizations. It will increasingly become a staple item in the training portfolio, however like all training media, we must learn how and when to use it to its best advantage. On the technology front, Wireless technology is appearing popular in many more devices and this marks the start of a physically independent way of staying connected. The ability to access and participate in learning without the need for a physical connection has brought immeasurable benefits, with learners truly being able to learn at anytime, anyplace and anywhere. Combine this with the future roll out of 3G and the increased take-up of broadband services and we are set for a wonderfully media rich future. To this extent, this system model may provide courses developers and instructors with an alternative to the body of knowledge of the online courses contents, pre-requisites, sequences, and structure. The system sectors are grouped together for ease in implementation and thinking, but are not necessarily independent or designed to be taught in separate courses.

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