

Chapter 1

Computer–Mediated Learning: What Have We Experienced and Where Do We Go Next?

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ABSTRACT

Dramatic changes in information and communication technologies (ICTs) provide a powerful force for the growth of e-learning. E-learning has become the undeniable trend for both secondary and higher education. This chapter provides readers with an overview of e-learning computer technologies within the teaching and learning, an examination of current research studies in related areas, and a discussion of the paradigm shift as well as on the trends and issues pertinent to the development of computer-mediated instruction/learning and e-learning. Furthermore, this chapter will explore how students perceived the effectiveness of computer-mediated instruction and learning and their perceptions and attitudes toward learning using computer technology.

INTRODUCTION

Today, knowledge and technology play a critical role in driving productivity and economic growth. A new phenomenon, commonly known as the “knowledge economy,” uses information and communication technologies (ICTs) to create revolutionary changes in the workplace and in society in general. Kozma (2003) stated:

The knowledge economy gives rise to ICTs because they provide the needed tools and these tools allow us to create, collect, store, and use this new knowledge and information. They also enable us to connect with people and resources all over the world, to collaborate in the creation of knowledge, and to distribute and benefit from knowledge products (p. 2).

Due to their rapid development and growing popularity, ICTs have gained many proponents in

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education. Some researchers (Finger, McGlasson & Finger, 2007, Kozma, 2003) are convinced that the innovative use of new and emerging technologies can bring about quality change in the world of education in terms of opening the possibilities for improved presentation and delivery of programs that benefit both the educators and the students. Many studies (Johnston & Joscelyn, 1989; Kozma & Johnson, 1991; Perkins, 1992) emphasize that the use of computers in a learning environment can increase students' active engagement in thinking and problem solving, promote understanding and mastery learning, and add realism to instruction to enhance knowledge construction.

Even though the majority of researchers and practitioners have positive views related to the potential that information and communication technologies (ICTs) have in our education systems, some have remained cautious in using computer technology to facilitate teaching and learning. Bransford, Brown and Cocking (as cited in Kozma, 2003) noted that the positive impact of the computer does not come automatically because much is dependent on how instructors and students use computers in their classrooms. Oliver (2005) stated that the prevailing use of the new and emerging computer technologies will only occur as greater numbers of teachers perceive that such technology will benefit them and their learners, because for many, ICTs simply present more barriers than opportunities for teaching and learning. Derek Bok (as cited in Kozma & Johnston, 1991), a former Harvard university president, also shared his cautious optimism, saying that technologies can undoubtedly engage students in the active thinking process and problem solving and at the very least, helping students learn. However, he suspected that "computers can contribute much to the learning of open-ended subjects such as moral philosophy, religion, historical interpretation, literary criticism, or social theory – fields that cannot be reduced to formal rules and procedures" (p. 10-11). This chapter provides the reader with an overview of e-learning computer technologies within teaching

and learning, an examination of current research in related areas, and a discussion of the paradigm shift as well as on the trends and issues pertinent to the development of computer-mediated instruction/learning and e-learning. Furthermore, this chapter will explore how students perceived the effectiveness of computer-mediated instruction and learning and their perceptions and attitudes toward learning using computer technology.

COMPUTER-MEDIATED INSTRUCTION

The use of computer technologies has presented numerous opportunities to support teaching and learning for educators and improves quality and excellence in education. Vogel and Klassen (2001) pointed out "teaching methods that assume a single language and shared homogeneity of proficiencies, learning styles, and motivational systems are increasingly inadequate and inappropriate" (p.105). They suggested that educators should reassess current teaching methodologies and incorporate a variety of teaching methods. Bentley (2003) indicated that conducting classes in an entirely computer-mediated learning environment can effectively facilitate students' knowledge construction. According to Bull, Kimball, and Stansberry (1998), computer-mediated instruction means the efficient and effective use of computer and/or technology to support and facilitate teaching and learning activities. There are various forms of computer-mediated educational environments, such as Computer Mediated Communication (CMC), blended Technologies, the Internet, online learning. This section reviews these forms and the practices of computer-mediated instruction and learning.

Computer Mediated Communication

Computer Mediated Communication (CMC) is a broad term used to refer to the use of computers to

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