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Strategy Forenhancing Self-Efficacy: Multimedia

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ABSTRACT *In the present technologically advanced era, multimediaplays the role of catalyst in educational reforms. Multimediais the combination of different media like text, audio, video, graphics & animationthat work together to give direct experience and encourage higher order thinking skills, help to construct knowledge and enhance self-efficacy among students. Self-efficacy is the extent or strength of one's belief in one's own ability to complete tasks.There are four important sources of information for increasing self-efficacy: performance accomplishments, vicarious learning, verbal persuasion, and self-appraisal of emotional and physiological responses. Multimedia strategy directly or indirectly affects and improves self-efficacy through these sources ofself-efficacy. So multimedia strategy must be used in curriculum delivery in classroom to improve the self- efficacy of students.This paper attempts to understand the effectiveness of multimedia instruction package in classroom in improving the self -efficacy of students.*

INTRODUCTION

The use of multimedia tools for delivery curriculum in classroom is one of the most exiting innovations in the 21st Century. It is familiar that conventional media technologies i.e. radio, T.V. can no longer meet the objectives of our teaching and learning processes; as a result, they are being substituted by multimedia technology. Literature shows that the new technologies have the capability to enhance teaching and learning (Fu, 2013)[1]. There is considerable hope that multimedia technology can expand and improve education in all levels with special reference to design and content of instructional materials, delivery, assessment and feedback (Sharma, Gandhar & Sharma ,2011)[2]. Multimedia provide an array of powerful tools that may help in transforming the present isolated, teacher-centered and text-bound classrooms into rich, student-focused, multimedia based interactive knowledge environments(Mahajan,2012)[3]. Multimedia resources are being considered in terms of both products and processes that have great potential to enhance education as well as self-efficacy.

MULTIMEDIA

Multimedia is defined as the combination of various digital media types such as text, images, sound and video into an integrated multi-sensory interactive application or presentation to convey a message or information to students in classroom (Natarajan, 2003)[4]. Multimedia is changing the way in which teachers communicate with students. Ogunbote& Adesoye (2006)[5] expressed that multimedia technology added new dimension to learning experiences because concepts were easier to presented and understood when the words are complemented with images and animations. Multimedia courseware can offer a pedagogical improvement on traditional teaching methods by providing the learners with following advantages:

- Exercise more effectively & efficient control over their own learning
- Secure real time assessment & feedback
- Secure more information on their own learning
- Obtain situational appropriate learning assistance
- Obtain more individualized learning assistance.

Elements of Multimedia

Multimedia Package refers to an integration of different elements of media such as text, sound, graphics, animation, simulation, video, imaging and spatial modeling into a computer system to achieve pre-determined and desired behavioural objectives in the learners (Mayer, 2001)[6]. So, the five main elements text, graphics, audio, video, animations are used to make of multimedia instruction package (fig.1).

Fig. 1: Main Elements of Multimedia

Text is the basic element of multimedia. It involves the use of text types, sizes, colours and background colour. In multimedia application text used for hyperlink other media or screen. Position of the text on the screen, length of the message and legibility of the text are needed to be consider first to produce an effective multimedia program. Graphics make the multimedia application attractive. They help to illustrate ideas through still pictures. There are two types of graphics used: bitmaps (paint graphics) and vector

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(draw graphics). A multimedia application may require the use of speech, music and sound effects. These are called audio or the sound element. There are two basic types of audio or sound: analog and digital audio. Video provides a powerful impact in a multimedia program. In multimedia applications, the digital video is gaining popularity because video clips are being edited easily. Animation is a process of making a static image look like it is moving. In multimedia, digital animation is used. Digital animations are being categorized into two broad areas: 2D (2 Dimension) and 3D (3 Dimension) animations. Thus, mixture of these elements gives a multi-sensory experience to learner in classroom and elicits positive attitude towards this new technology.

SELF- EFFICACY:

The concept of self-efficacy was originally developed by Albert Bandura to constitute a part of his social-cognitive theory. Self-efficacy is a belief in one's own ability to organize and perform a certain task as such; self-efficacy is a self-system that controls most personal activity, including appropriate use of professional knowledge and skills. (Bandura, 1997a)[7]. Self-efficacy beliefs influence thought patterns and emotions, which, in turn, enable or inhibit actions. According to Bandura's theory, self-efficacy has two components: efficacy expectation and outcome expectancy. The former is the conviction that one has the ability, knowledge and skills to perform successfully actions required to produce desired outcome(s). The latter represents a person's estimate of the likely consequences (impact) of performing a task at the self-expected level of performance. This means outcome expectancy is the belief that a given behaviour or action will indeed lead to (an) expected outcome(s). The actual relationship depends on the personal and educational situation. Good self-efficacy and interactive teacher action should coincide: a strong sense of self-efficacy usually correlates positively with teaching strategy. According to social cognitive theory, self-efficacy is a form of self-judgment that influences decisions about what behaviors to undertake, the amount of effort and persistence put forth when faced with obstacles and finally, the mastery of the behavior. Thus, students' self-efficacy focuses on what they believe can accomplish with the knowledge they master during their learning. Students in a technology integration course learn skills and knowledge of technology in an actual classroom.

Sources of Self-Efficacy

According to Bandura(1986)[8], "Self-efficacy beliefs develop in response to four sources of information." (fig. 2). The most powerful influence on self-efficacy is "performance outcome" i.e. "enactive experience" in which self-efficacy for the interpreted result of one's previous or past performance as a result behavior is increased by successfully performing the behaviour. The second most powerful influence is "vicarious experience" in which other similar people are seen to perform a behavior successfully. It permits individuals to learn a novel behavior without undergoing the trial and error process of performing it. A third source of influence is "verbal persuasion" or "social persuasions" they receive from others which can encourage efforts that are more likely to increase efficacy through success. Children's beliefs about their ability to master a situation are influenced by what they hear from their teachers, parents and friends. Children who receive strong messages that they have the skills and capabilities to handle a situation are more likely to put in greater effort and to persist in the face of setback. Finally, self-efficacy beliefs can be affected by physiological and affective states such as stress, anxiety, arousal and mood states. These components help individuals to determine if they believe, they have the capability to accomplish specific tasks. Self-efficacy beliefs help to determine how much effort people will expend on an activity. Self-efficacy beliefs also influence individuals' thought patterns. Williams and Williams (2010)[9] note that individuals with high levels of self-efficacy approach difficult tasks as challenges to master rather than as threats to be avoided (p. 455). Because of these influences, self-efficacy beliefs are strong determinants and predictors of the level of accomplishment that individuals ultimately attain. For these reasons, Bandura have been argued that beliefs of personal efficacy constituted the key factor of human agency.

Fig.2: Self- Efficacy Sources of Information

In the context of education program, enactive experience and resultant increases in self-efficacy might be achieved through successful experiences with the use of computers. In a study conducted by Wang et al. (2004a)[10] explained that goal setting activities and vicarious learning experiences in which students reviewed video segments and other artifacts from K-12 classrooms were determined to have a significant influence on self-efficacy beliefs.

MULTIMEDIA & SELF EFFICACY

There are many studies which showed that multimedia instruction enhance the self-efficacy of the students. Cheung, Li. & Yee (2003)[11] had been found that the multimedia learning system had significant impact on the self-efficacy and improved the teaching of subjects of Information System. The self-efficacy of computer science students improved when they are learning through multimedia. Abbit & Klett(2008)[12] had been found that computer technology was found to be a significant predictor of self-efficacy beliefs towards technology integration for pre-service educator and demonstrated a significant increase in self-efficacy beliefs. While, Ibrahim & Callaway (2014)[13] found flip (multimedia) based teaching method significantly improved the self-efficacy of the pre-service teachers as compare to lecture based teaching method. The study done by Ibrahim and Watts (2014)[14] suggested that when students engage in online discussion activities that involve the use of audio, video, drawing or images, their self-efficacy and learning outcomes improved as compared to their self-efficacy and learning outcomes after completing other online learning activities.

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CONCLUSION

Multimedia in classroom has been extremely effective in teaching individuals a wide range of subjects. The use of multimedia technology has great significance in classroom as the vicarious learning experiences boost up their self-efficacy. Self-efficacy theory suggests that real experience is more effective than vicarious experience for increasing self-efficacy beliefs. Thus, it seems reasonable to say that multimedia instructions give real experiences that encourage in increasing involvement of the user& learners in learning that should be more effective in enhancing self-efficacy beliefs.

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