

DEVELOPING A POSITIVE MIND-SET TOWARD THE USE OF TECHNOLOGY FOR CLASSROOM INSTRUCTION

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ABSTRACT

This paper examines various ways of helping teachers to develop positive mind-sets in using technology to support instruction. Such positive mind-set will assist teachers in achieving the spontaneity and the readiness necessary for technology integration. Developing positive mind-sets represents one way of overcoming computer intimidation. The concept of technology integration is examined from a broad perspective in an effort to show that technology in education should be considered as part of pedagogy. The paper considers the significance of teachers' collaboration with businesses and industries for assistance in selecting technological resources for instruction. A technology-based learning environment is seen as complex, and as such, teachers need a support system in implementing technology integration. Our dependence on technology for survival has made it imperative for teachers to learn to develop positive mind-sets towards the use of technology for classroom instruction.

INTRODUCTION

Most people will agree that technology is changing at an alarming rate. The problem is that while businesses and industries are trying to keep pace with technological advancement, schools are lagging behind. Schools have the responsibility of preparing the American workforce for competitive domestic and global markets. Therefore, it is imperative that teachers keep pace with technological transformation and show a willingness to continually update their knowledge and skill. Lannan (2001) acknowledges that "the workplace is constantly changing due to an increasing global economy and rapid advances in technology"¹. The author warns that "students must be equipped with the academic knowledge and technological skills that will allow them to be successful"² as they become part of a working community.

Efforts to incorporate technology into the process of teaching/learning has primarily emphasized teachers' ability to operate computers without taking into consideration pedagogical issues involved in teaching and learning. For

instance, most teachers' training colleges and universities do not provide instruction designed to teach students the criteria for selecting the media that are relevant to the objectives and methods of instruction. This suggests a mechanistic use of technology without due consideration to pedagogy. Technology competencies taught in most schools focus on the acquisition of basic computer skills in isolation of problem solving skills and context application. It has been observed that some teachers do not think about integrating technology in their teaching until the lesson plan is completed. In this case, technology becomes an appendage to be attached at any convenient point during the delivery of the instruction; thus, technology integration is perceived as a secondary, after-thought event. Technology should be given consideration during lesson planning when learning objectives, instructional methods, and assessment procedures are identified.

Technology has permeated our conscious and sub-conscious daily activities, but our school systems have not shown a similar awakening. Teachers should recognize that technology in education is part of the curriculum and should be viewed as one of the curriculum components. To be able to do this, teachers need to develop positive mind-sets toward the use of technology to enhance teaching/learning. Therefore, teachers must show willingness to learn more and to understand more as well as critically evaluate the impact technology will make in their teaching and learning activities. Until teachers are able to envision the kind of positive impact the application of technology will make in classroom instruction, efforts to integrate technology into teaching/learning will yield minimal results. A teacher who wants to integrate technology successfully in his/her instruction must allow technology to permeate his/her conscious and sub-conscious mind as a prelude to developing a positive mind-set to technology integration.

The aim of this paper is to examine various indicators associated with the development of a positive mind-set toward the use of technology for instruction. The paper also examines the resources available to help teachers keep pace with technological innovation. Electronic classrooms have some complexities associated with them; therefore, support systems are very important to maintain a reasonable degree of functionality. Consequently, this paper explores the nature of the support system that will help teachers to remain current both in theoretical knowledge and technical skills. Schools do not exist in a vacuum; the economic superstructure supports them. As a result, the paper discusses how schools should collaborate with businesses and industries for guidance in terms of developing appropriate technologies that will be relevant and meet workplace demands.

POSITIVE MIND-SET TOWARD THE USE TECHNOLOGY

A teacher who has developed a positive mind-set toward the use of various technologies must be inquisitive and have a burning desire to explore new technologies as they emerge and to apply such technologies in a teaching and learning environment. He or she must be creative, and have a tireless desire to try out new products, be current in his or her theoretical knowledge, read research findings, and assess those findings in relation to his/her work experience. He or she

should endeavor to take advantage of internet technology to explore technological innovations from other cultures. A teacher who has a positive mind-set toward technologies will develop dexterity and the intuition to use technology for problem solving and for troubleshooting and constantly monitor technological trends and innovations.

A teacher who has developed a conscious, positive mind-set toward the use of technology devotes some time on a regular basis to learn more about new technologies by reading journals, books, periodicals, magazines and newspapers dealing with issues related to technology and education. Richards (2000) maintains that to use technology effectively requires time. He asserts that the "desire to save time or effort cannot be part of the equation"³. Attending professional conferences, workshops, and seminars to learn more about the existing technologies and to discover emerging technologies and their use will help teachers update their technical skills and feel confident about themselves.

Developing positive mind-sets toward the use of computers will help teachers who suffer from computer intimidation to overcome their problems. Infrequent use of computers does not help one consolidate one's technical skills nor help one to become familiar with various changes in computer and related technologies. A teacher who has developed a conscious, positive mind-set is no longer intimidated by computers but is willing to face the challenges of learning new computer tricks; thereby allowing his/her comfort level in using computer to support instruction to improve. Developing a positive mind-set toward technology integration represents an effort to overcome inhibitive behaviors toward computers and other technologies. A teacher who has developed a positive mind-set toward the use of technology is likely to have favorable attitude to the use of technology for instruction; and is able to create computer information networks, guide and mentor students on how to use those networks.

O'Donnell (1996) confirms that the "the real roles of the professor in an information-rich world will not be to provide information but to guide and encourage students wading through deep waters of the information flood" as discussed in Wellbum (1996, p. 8). Leslie (1994) supports similar views and maintains that teachers do not know everything but they are expected to guide students to search for information. Developing conscious, positive mind-sets toward technology offers endless opportunity for improvement because it encourages consistent use of technology in ways that create a need, satisfaction and fun. Also developing awareness toward new and emerging technology implies becoming a lifelong learner. The descriptors provided by Akbaba and Kurubacak (1998) fit the profile of teachers who have developed conscious, positive attitude toward the use of technology. These authors maintain that:

Teachers would like reading magazines or books about technology; watching technological TV series, using new technology versus old instructional materials; being in a situation where people talk about technology; hearing information from students about technological improvements; talking about technology with my colleagues; having new technology in my school; informing people about new technological development; encouraging people to belong to new technology clubs; attending technological fairs; searching the internet² (p. 3).

Levin (1994) pointed out that using "technology for personal and professional

productivity”⁶ is important in improving teachers’ skills to integrate technology into teaching and learning.

Lifelong learning provides us with the opportunity to continue growing as knowledge and technology continue to expand and transform. A lifelong learner is sensitive about growth and changes in knowledge and is continually eager to update his/her theoretical and technical knowledge. One of the characteristics of a lifelong learner is that he or she is always on the lookout for new developments in both theoretical and technological knowledge and exhibits willingness to explore and remain current.

Developing a positive mind-set toward technologies does not have a defined parameter or a blue print. However, it entails the confidence to use technology consistently for work and for personal needs. It means being comfortable and at ease in discussing technology with friends, colleagues and peers. It also means customizing the use of various software programs to suit personal idiosyncrasies as well as not being afraid to venture into the unknown world of computers and related technologies.

SUPPORT SYSTEM AVAILABLE TO TEACHERS

It is a recognized fact that teachers need some kind of support as they implement technology in the classroom. Teachers should be provided with funds to carry out action research to improve the use of technology in their various classrooms and schools. Such action research will focus on the areas teachers need improvement, and should be geared toward problem solving. Large technology corporations should sponsor teachers to participate in job shadowing periodically to learn how to apply technology to solve real life problems. Manufacturers of both hardware and software technologies should work closely with educational institutions (universities, colleges, high schools and elementary schools) to identify future technologies and adapt them to learning strategies and instructional objectives. Teachers should work closely with technology specialists, curriculum specialists and instructional design specialists to exchange ideas and enrich each other for the purpose of creating a sound knowledge base. Working with technology specialists will provide teachers with the opportunity to renew their technical knowledge in a consistent manner.

Schools should provide regular faculty development programs where experts in technology are invited to organize workshops and seminars to educate teachers on new technological products and their use. Teachers should be sponsored to attend professional conferences to participate in academic dialogues and assess their teaching methods and curriculum contents for relevance and currency in view of changes in technology. Johnson (1996) explains that part of the teacher’s support system is to help them create “... a variety of technology-rich environments”⁷ for learning. Helping teachers develop positive mind-sets toward technology is seen as a way of helping them to build their comfort level in the use of computers and other electronic devices. Novak (1999) warned that advancement in both computer hardware and software does not have advantage

over competent teachers. The implication of this is that investment in teacher development programs is of paramount importance. D'Ignazio (1993) argued that schools are not keeping pace with technology as businesses are doing. The author states, "businesses have been building electronic highways while education has been creating an electronic dirt road. And sometimes on a dirt road, it's just easy to get out and walk."⁸

EMERGING TECHNOLOGY

The term "emerging technology" represents an awareness that technology changes very rapidly, and to remain current one must constantly up-date one's technical skills. Emerging technology does not only imply technical equipment, but it includes new theories about technology integration, the application of research findings to promote learning, greater interaction between teachers and technology specialists on the one hand and business and industry on the other. Therefore, as teachers use new technologies for instruction, they should endeavor to learn the philosophical base upon which these technologies are rationalized as well as the research findings supporting their usage.

Understanding the concept of emerging technologies should not be restricted to the mechanical application of various new computer hardware and software devices into the process of teaching and learning, but should include the strategies of selecting the desired technologies, skill to demonstrate how the selected technologies will be used, and the skill to evaluate such technologies as well as the skill to customize the use of such technologies.

Gaining confidence in the use of technologies will provide teachers with the encouragement to engage in troubleshooting. Computer troubleshooting means searching for problems or glitches associated with computer and seeking out ways to provide solutions. Such troubleshooting effort provides additional learning opportunities for teachers thereby enriching their technical knowledge. Trusting in one's ability to find a solution for some minor technology related problems without allowing oneself to become frustrated is one of the ways of developing positive attitude toward computers and related technologies.

TECHNOLOGY INTEGRATION

In educational context, technology is perceived as any tool, material, device or equipment adapted for educational use and for the purpose of enhancing teaching/learning. Thus, technology integration is viewed as a process, and a resource through which teaching/learning becomes active, engaging and meaningful. Integrating technology into instructional delivery encompasses a complex network of activities and processes. It includes the understanding of the theoretical concepts and their application to learning/teaching. It involves the teachers' ability to design appropriate instructional strategies based on learning objectives and proven learning theories. It also involves the selection of suitable technology based on the learning needs as well as ability of teachers to adapt such technologies to fit specific learning tasks.

A teacher who has developed a positive mind-set toward the use of technology does not only use technology to teach pre-packaged curriculum, but also uses it to educate his/her students in historical, social political settings and in various cultural contexts to show connectedness among various disciplines. Dewy (1994) wrote, “an array of tools for acquiring information and for thinking and expression...”⁹ would help more children learn more. Many people perceive technology as a way of life, and as a result, it should be taught in a way that encompasses human broad view of life. The national report on *How People Learn* advocates that for technology to be effective in education it should include the following five conditions of how humans learn

- Real-world contexts for learning
- Connections to outside experts
- Visualization and analysis tools
- Scaffolds for problem solving
- Opportunities for feedback, reflection, and revision (Means, Penuel & Quellmatz, 1999, p. 1)

In most teacher training programs, technology for learning is perceived as an isolated object, and effort to view such technology as an integral part of the learning process is limited. Thus, newly trained teachers approach teaching believing that technology is a separate entity to be applied when it is convenient to do so or because of the pressure to jump on the bandwagon (i.e. being seen as using technology for teaching). Such an effort is superficial and does not take into consideration that teaching is a sequence of coordinated human activities.

Bjorklund (2000) remarked that sometimes school administrators and technology specialists do not seem to remember that technology is not out there for itself but to support the teaching/learning process. Hoffman (2000) warned that curriculum content cannot be substituted with equipment or a “cool website.”¹⁰ Beattie (2002) argued that teachers do not believe that they are being adequately trained on the mechanics of technology integration. McCombs (2000) explained that those working with technology have recognized that technology and its role cannot be divorced from the influence of human touch. Boyle and Rigg (2000) pointed out that it was the network from humans that triggered innovation and changes in technology. The importance of this is that humans invented technology for the benefit of human infrastructures like schools and business organizations, therefore technology should be implemented in a way that recognizes adult learning traits. Adults do not learn in a vacuum, they learn by recognizing the immediate application and relevance of the knowledge and skill they will acquire. A teacher who has developed a positive mind-set toward the use of technology should also learn to recognize the subjective differences of how humans learn.

Technology integration represents an inclusive concept which embodies the ability and the skill to use various kinds of resources to enhance and aid teaching as well as promote meaningful learning. Most writers would argue that technology is a means to accomplish a given task and not an end itself. But the present writers believe that technology represents not only the means but it is tied to the end itself. Both means and end are inter-woven in a complex intricate relationship.

DEPENDENCE ON TECHNOLOGY

Technology has assumed far greater prominence in our lives. In fact this is an understatement. Modern life is dependent upon technology. The scaring doom predicted for Y2K demonstrated our helplessness in the event of technological malfunction and disruption. The recent electoral quagmire in Florida was blamed on out-dated voting machines. Our dependence on technology is observed through our expectations of each other and also our expectations of business establishments and educational institutions. We expect each other to be comfortable in using technology as a measure of our ability to remain current in our chosen career. Hospitals advertise the quality of their health care by describing the sophistication of their healthcare technologies. Metrologists brag about the accuracy of their weather forecast by showing the immense speed with which their Doppler radar technology can track the movement of weather conditions. American military dominance rests on its superiority in technological advancement.

If technology controls the nerve center of both our social and economic activities as well as the defense of our life style, we must make sure that teachers who have the responsibility of training our children to be productive members of the society are consciously aware of various technologies as they emerge and are also able to demonstrate their different uses to their students.

CONCLUSION

Developing an awareness and positive attitude toward technology represents an effort to situate the use of technology within the context of our conscious and sub-conscious mind. Such conscious awareness will provide us with the opportunity to be familiar with various kinds of technologies as they become available. It will motivate us to eliminate infrequent use of computer and related technologies which constitutes problems for some teachers in their effort to consolidate their technical skills. Computers and other technologies should not be perceived as "out there" but within our conscious self. Developing a conscious attitude or positive mind-set toward the use of technology increases teachers' desire to use it more frequently, in different forms and for different purposes. It will enhance teachers' confidence as they face professional challenges in a world that is technologically driven.

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