

INTEGRATION OF TECHNOLOGY IN TEACHING AND TEACHER EDUCATION

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ABSTRACT

The aim of this study is to know about learning technology and technological education and the questions explain the effects of technology on education. This research also studies about technology' impact on student learning. Technology integrates in teaching and teacher education. The research is talking about this subject that technology has a very important rule in education and for technology integrations and improvements in education. We must shift in approaches and techniques and improve the technology in education.

KEYWORDS: The Aim, Technology, Integrates, Teaching and Education

INTRODUCTION

Technology has an important role in our life. In developed countries, computers and Internet are abundant in schools and classrooms. Furthermore, there is a rapid increase in the proportion of schools that are connected to the Internet. Technology is developed and most centered for teaching and learning. Over head projectors for presentations of lessons in classes are used from 1960 and 1970 centuries and nowadays teachers and professors use power point and very important technologies for presentation and teaching in classes, so one question is that is there a very high relationship between technology, training and teaching?

Review of Literature and Methodology

The presentation ways change highly during these years. The about teaching methods such as power points and videos are very books about the references of presentations and the books that are attractive. Some researchers found that so many books talk about utterances that are about teaching such as test banks and so on.

Technology has the potential to support curriculum reform. There is a reciprocal relation between reform and technology. The majority of teachers in developing countries in primary schools have not been prepared during their college years of integrating computers in their teaching. Therefore, there is a strong need for designing in-service professional's development programs for these teachers. Buying computers and soft ware for schools and connecting them into the Internet does not automatically imply effective use of technology.

Estimates show that at least %30 of technology budgets should be devoted on teacher training and support. In order to enhance competence of preserves teachers, technology instruction is provided by the inclusion of a separate technology course in many teacher education institutions. Very high increases of information cause that saving and processing of information is complicated.

Daily changes in technology hard wares and soft wares need the professional employees for increasing the effectiveness of that technology. The art of generative teaching by learners is between teaching and text. Learners create the relationships between something that they hear and see.

The second question is about what technology in classes are used?

Do students understand special environments of technology for so many training and teaching?

The previous researches about using of technology in universities show that students with technologies are affected in different ways and show that the university classes are using the developed and improved technologies fast, although the use of videos and training plans for teaching students have been from so many years, it is shown that nowadays technology usage improved. Along history of technology use in education shows that the first inclination is to use new technology in the same traditional ways as the old technology. Technology has the potential to support constructivist learning and be used for active and cooperative education facilities educational approaches.

The use of technology and cultural tools to communicate, exchange information, and construct knowledge is fundamental in constructivism. It is clear that there is a shortage of teachers, especially technology education teachers, and the shortages will continue to increase.

Previous researches done about the use of technology at universities have shown that students communicate with others with technology in different ways, but it is clear that nowadays use of technology is very fast. The research results in these days in table 1 show that this utterance is correct. %98 of students in this research announces about the course that they had with professors which use of power points. Also %84 said that it is used of black boards.

Table 1

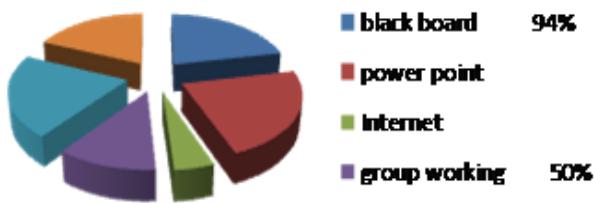
| Percentage of Testers | Technology |
|-----------------------|--------------------------------|
| %94 | Black board |
| %97 | Power point |
| %50 | Group working with black board |
| %91 | Over head |
| %80 | Black board |
| %20 | Internet |
| %80 | video |

This means that students in each period use of these technologies, but these results show that these experiences are not something that students can deny from those.

Observation and writing can help oneself integrate theoretical knowledge with practice. One of the findings in the study is that there was a significant difference for pre service teachers applying computer technology and instructional theories in their teaching exhibition. If the class is more intense, then the instructor and the learners usually have only one-way communication. However, the online discussion has no limitation in class time, and each person has chances and enough video clips. To different use of time, the pre service teachers often felt that they did not know what other people meant and this resulted in a lack of effective communication. In addition, Internet disconnection was a frequent occurrence, when they watched videos on line, so the class presentation on line was sometimes not smooth.

So, it is hard to overcome the difficulties attributed to current Internet quality and the speed for delivering the course information without Internet transmission delay. Considering what we already know about teacher technology use, and in spite of the fact that technology using teachers see the impact on students, published studies support what we suspect, that teachers are not using technology. Yet, the integration of technology and quality teaching are said to be inseparable.

In Figure 1 we can see the distribution of the percentage of students that is shown in research results in experimental group:

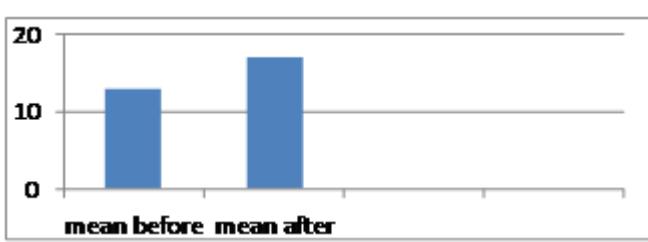
**Figure 1**

After implementations, data were analyzed and classroom activities revised to strengthen the desired use and impact of the soft ware. Impact of these areas could include any change in recommendations for technology. Analysis of soft ware use for teaching, teacher' methods of evaluating soft ware. All of which have not been researched in relation to the impact of technology and special education or at risk students.

Studies that focus on the impact of the technology on learning and teaching are evident in the special education literature. Pedagogical designs for teacher education must offer models in which their students can experience learning and representation. When learning takes place in a variety of interactional environments, teachers and students have more opportunities to reverse rules. When that happens, teachers become guides and encourage the students. Fundamental changes in the social relations established between students and teachers. The impact of technology may also be determined by examining the role of technology for the student with disabilities environment and on technology's impact on student outcomes and related benefits.

In this part of the research we report on findings from 20 students of the pre-university degrees. At the beginning of the semester we examine that how students can work in this way without technology just by a book and a pen. But, at the end of the semester after using technology tools during the semester such as Internet, computer, journals and so on we saw the impact of these tools on the students' learning and improvement. At the beginning of the semester after a test and at the end of the semester after a re test, we found that the students are interested in studying with technology tools. The mean of the class at first was 13 but at the end of the semester the mean of the class improved to 17.

In Figure 2 we show the mean of the students before and after the tests that we change the tools of teaching and using the technology:

**Figure 2**

A number of tools can be used for developing mental representations of the phenomena students study and for allowing students to represent their ideas visually computer modeling tools enable students to explore the meaning of abstract concepts and to clarify and correct alternative conceptions of specific phenomena. Computer programs can be used model qualitatively the behavior of complex systems and processes. So, they are essential tools for facilitating learner's qualitative understanding of how things in science work and why they work the way they do.

The application of a digital tool such as voice thread can augment, extend and refined teacher reflection experience by facilitating and structuring the analysis processes. Web technology educational innovations begin in the classroom but inserted into continental texts through repeated applications.

Students will gain the ability to identify and solve problems for which there are no routine solutions. Institutional barriers are depicted as the lack of access to technology, inadequate technological support or deficient technology skills. In addition, using technology can be time- intensive for both the student and teacher. Another barrier maybe related to intrinsic beliefs about teaching and learning in a global world. It is essential that teachers understand how to generate reflection learning opportunities using technologies to create optimal reflection learning environments.

It is widely assumed that graduates entering initial teacher education in the 1990s will be competent in various applications of information technology (IT) and will be confident in using computers. Original policy was to support the development of cross curricular methodology and the integration of computing skills within subject areas so that pupils learned about the technology, by using it in the context. The use o technology has a long history in education in secondary school. Researchers have found that, movie advanced tools are necessary. These advanced tools help students learn by supporting computation and by giving abstract ideas or more tangible form researchers have found that whereas physical manipulative are the right tangible form of elementary school, ICT based tools are the right tangible form of secondary school.

Using technology to do this thinking for the students would be inappropriate. Teachers should encourage and model the skills of scientific inquiry as well as the curiosity and openness to new ideas and data, which characterizes science. Appropriate technology tools and specific teaching strategies that can afford the desired content transformations/ representations are selected, and computer activities are integrated in the classroom with appropriate pedagogy, such as inquiry-based pedagogy. Often technology itself turned out to be the point of instruction, and not the role that technology can have in designing technology-enhanced learning environments.

Moreover, it could also be the case that the cognitive load imposed by learning the technology was so high that student teachers were left with not enough cognitive resources to attend to the process of designing appropriate technology- supported instruction. The findings of the researchers suggest that preparing technology- competent teachers in teacher education programs is a challenging and difficult issue that needs to be systematically planned and carefully implemented. It seemed that teacher educators need to do a better job with what researchers call pedagogical reasoning.

Further suggestions, as well as guide lines for using an action research modern, are included in an overview of experimental designs that also could be implemented in special education action research projects to determine technology effectiveness in secondary and post secondary settings. The use of technology with at-risk students connecting to real-world problems, to encourage problem solving, and higher order thinking skills are areas for school aged students with disabilities. Associative technology and its impact on student learning and everyday life continue to be important.

However, the success of selection and matching of assistive technology to the student with disabilities needs student by teachers and researchers, not only developers. Teachers need to know how to select and evaluate software and other assistive technology for students with disabilities, as well as assessment in the classroom. Issues related to second language learners with learning disabilities, as well as assessment accommodations using technology for students with disabilities in a critical topic in relation to high stakes testing.

The researchers present a descriptive account of a learning technology by design approach to teacher education, which basically addresses this problem. Students and teachers must be active, creative and transformative actors in their own process of learning. When technology is good enough, and by that they mean it allows enhanced interactivity, student's agentive design and management of their learning, and access to extensive relevant supporting materials. One approach toward assisting new teachers who enter technology education classrooms/ laboratories is to make them aware of

state-developed technology education instructional materials and the vast amount of resources available through the international technology education association to assist them with their daily work. Also it might be suggested that we, the members of the technology education profession, need to ensure that we have the qualified teachers that we need in the future. Furthermore, teacher representation programs should not simply offer a course in educational technology, but also demonstrate effective use of technology in teaching teachers several other courses.

There are numerous ways of integrating technology in teacher education since technology can provide a rich context for learning. So, there are important benefits to be gained from the use of technology in language learning and teaching, and technology should be incorporated in to teaching pedagogy, so that students will not only effectively acquire a second language but will also develop electronic literacy skills and technology in language learning is not being used to its full potential and that inadequate teacher training and learner training are some the use of the main reasons for this.

Researchers said that the use of technology in teacher education involves much more than simply adding technology to an existing course structure, and they recommended that to develop and execute a 21 century focused teacher education program. If the standards are to serve as a common framework for the development of technological literacy, it would then follow that a broad understanding of the influence of design in the study of technology ought to be a matter of importance to the profession.

The teacher training curriculum in the world does not fully acknowledge the new age environment in schools and classrooms in terms of constructivist learning. Learner-centered instructions and integrating technology in to the process of teaching and learning. The current system of teaching and evaluating does not allow creativity, innovation and research, which are important tools for lifelong learning.

Technology teacher education sources used or contained some component of design. Technology takes on increased importance as we continue to move from an industrial to information based society. Teachers must be skilled in technology applications and knowledgeable about using technology to support instruction and to enhance and extend student learning movement toward sustainability of the infusion of technology in the larger teacher education program requires that faculty and instructions increasingly rely on each other as a means for obtaining technological support.

The multimedia element of the video representations provided motivation for students to discuss controversial issues. Indeed, technology can serve many functions simultaneously. We realized early on that we were not in the business of providing faculty with a definition or understanding of meaningful, content-specific, pedagogical uses of technology, but instead we expected that such understandings would emerge through the relationships, discourse, and ideas that evolved through situated practice and reflection. So, integrating.

Technology in to the classroom can improve mathematics teaching, too. Many countries still do not have enough teachers. Teacher quality is an issue in most countries. Many teachers are untrained or under qualified or trained. In addition, teachers face a widening range of demands and roles. The developments of learners who are self-managing are independent, skilled in critical thinking and problem solving, equipped with life skills; the preparation of learners who are competent for knowledge-based economies, capable in the use of information technology.

Teacher education and training is the program of studies which leads to qualified teacher status according to the official standards of a country. The poor thinking of any teachers has been a matter of concern. ICT is very important in teacher education. In any countries this is being done through face-to-face training programs, often as part of initial teacher education. The advantages of ICT lie in its potential for increased interaction with and between learners, speeder delivery and response times to quires and feedback on assignments, greater access to communities of teachers and quicker lead-in

times for updating course materials while at the same time needing the establishment of effective quality assurance procedures.

Some of programs are located in universities or institutions, some are provided through consortia or collaborations, and others are time-limited projects. In addition, teacher education programs often involve partnerships, with schools, local education officers, teachers' colleges, school inspectors, head teachers and district authorities. Teacher education programs are not immune to the call for the integration of technology in to curriculum and may have developed course work that addresses this issue. In general, colleges of education reported an increased level of support for technology but still felt that support for technology in their college was meager at best. The increased expenditures have resulted in greater professional development in technology.

The expenditures for technology infrastructure have had a marked effect on the number of campuses and classrooms with internet accesses. The most cited topics identified for technology coordinators appeared to be more inclusive, including emphasis on hard ware applications, technology planning and grant procurement. Web technology provides various new learning environments where students can expand their understanding and challenge themselves. However, there are only a few web technology courses. The web-based technology can capitalized on the role of communication and collaboration in meaningful learning.

Teacher education programs are responsible for developing pedagogical skills in their candidates, and computer technology is a part of the curriculum that falls within that domain. The importance of developing technological literacy skills for ELLs is critical to equitable accesses and participation in the types of 21th century language skills that are a requirement in our increasingly technological society and this need is underscored in the TESOL technology standards. In addition, the skills are best built in context rather than in a general technology course since the lessons learned in such courses, while valuable, may not transfer in discipline specific way to the candidates' specific subject area.

Programs need to be evaluated thoroughly to determine their effectiveness in preparing teachers to teach with technology. However, technology can help reform education and education system needs to be reformed for successful technology integration. The researchers learned that the pre service teachers could enhance the application of technology and knowledge by integrating technology in to teacher education courses.

Researchers have also supported the integration of technology across teacher education courses, as opposed to teaching technology in isolation. Currently colleges of education are limited in their ability to provide substantial pre-service training in cutting edge technologies. An analysis of university course projects, activities, and assignments to determine levels of technology integration could reflect faculty modeling of technology use at both the learner and instructor-centered levels as well as determine if standards are being met and technology impact is being assessed. The impact of technology may also be determined by examining the role of technology for the student with disabilities.

In an investigation of assistive technology articles that included studies that indicating that assistive technology had an impact on learning, the failure of many studies to find significant correlation between selection and matching of assistive technology and students with disabilities was noted. Teachers need to know how to select and evaluate soft ware and other assistive technology for students with disabilities as well as how to determine and assess its impact on student learning.

Studies must document the what, the how, and the impact of teacher technology use in the classroom. Issues related to second language learners with learning disabilities, as well as assessment accommodations using technology for students with disabilities is a critical topic in relation to high stakes testing preparing technology-competent teachers in

teacher education programs is a challenging and difficult issue that needs to be systematically planned and carefully implemented.

Some researchers recommended that a platform for modeling educational technology integration would be the methods course in teacher education. There has been no policy decision to make hardware more available to teachers who teach core skills in communication to all pupils of school age.

The adult education learning theory of transformational learning provides insight into these teachers' experiences as critical reflection and development. Focusing on educators engaged in educational technology as adult learners leads to teacher education and faculty development initiatives that can build on best practice from the field of adult education.

New technology is being introduced at such a rapid rate today that it is difficult for teachers to keep up with it on their own. Because of this professional development of teachers has become more urgent. Teacher education programs are responsible for developing educational skills, and computer technology is a part of the curriculum that fall within that domain.

Some continuing professional development programs do not have a sequenced course with assessment at the end and are more like open learning. We must recognize and accept the fact that knowledge is changing so fast that no traditional curriculum can sufficiently supply students with the fact-based learning needed for the challenges they will face. Instead we must teach the students the skills to continue learning independently long after they are out of school.

Developing a 21st century requires the development of the spirit of creativity and enquiry, and intellectual professional competencies among in-service and pre-service teachers. It also depends upon certain characteristics of teachers, the teacher educators, the environment as well as methods of instructions. It could be expected that the content and organization of the courses for the study of design during the undergraduate experience will evolve to reflect a broader understanding of the influence of design toward the study of technology.

We continue to use the critical framework as a tool for achieving shared language because we believe that it brings to the fore issues that can help to generate discussions of critical and meaningful uses of technology.

We are not convinced, however, that a shared vision about the role of technology in teacher education has yet emerged in our universities' school of education. The stage has been set for a transition of educational technology support and maintenance, currently provided solely by the team, to within the normal operations for university.

CONCLUSIONS

Programs need to be evaluated thoroughly to determine their effectiveness in preparing teachers to teach with technology. However, technology can help reform education and the education system needs to be reformed for successful technology integration. Then a good place to start is by reforming our teacher education programs to better prepare teachers to take advantage of the affordances of the various technologies and works should explore the development of a more critical attitude towards technology.

This research is about the evaluation of the attitudes of the students depending on the information technology and technology tools. Students said that the technology always may not cause the improvement of teaching and learning, and they said that the technology tools always are not important but somewhat they are useful. For example we may need the evaluation of syllabus of the lessons and teachers and professors may need to use their teachings in their syllabuses and then learning is improved.

REFERENCES

1. Claydon, T., & MC Dowell, I. (1993). Watching yourself teaching and learning from it. In S. Brown, G. Jones, & S. Rawnsley (Eds), observing teaching staff and Educational development Association.
2. Langer, J.A., & Applebee, A.N. (1987). How writing shapes thinking: a study of teaching and learning. Urbana, IL: National Council of teachers of English.
3. Ministry of Education (2001). The blueprint of the Technology education for middle and elementary school. Taipei: Ministry of Education.
4. Pringle, R., Dawson, K., & Marshall, S. (2002). Technology, Science, and Pre service teachers: Creating a Culture of Technology Savvy elementary teachers. Paper presented at the society for information technology and teacher education, Nashville.
5. Council of Exceptional children (2005) Council for Exceptional children's responses to IES proposed research priorities.
6. Daniels, I. IT. (2003). Authentic learning: writing across the curriculum using Easy Book Deluxe in a special education classroom. In Proceedings of society for Information Technology and Teacher Education 2001.
7. Morris, B. & Milem, P (2004). Instructional Technology improves test scores: Implications from research. In Proceedings of Society for Information Technology and Teacher Education International Conference 2004.
8. Roblyer, M. D. (2004). If technology is the answer, what's the question? Research to help make the case for why we use Technology in Teaching. In Proceeding of Society for Information Technology and Teacher Education. 2004
9. Roth, W-M. (1996). Art and artifact of children's designing: a situated cognition perspective. The Journal of The Learning Sciences, 5.
10. International Society for Technology In Education. (2008). National educational technology standards for students: connecting curriculum and technology.