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Procedia Computer Science 3 (2011) 1178–1183

Procedia  
Computer  
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## Influences of digital classrooms on education

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### Abstract

Information technology affects in all aspects of human activity, and education is not exception, so its impact on education and training is inevitable. A digitally literate citizen will be able to learn and take responsibility for their learning so this results in a higher demand for education and feel of the needs for more equipment and tools.

By spreading the use of World Wide Web, internet and intranet, integrating technology that support the education became a prevalent subject in the 1990s. So today you can achieve information wherever in the world you are. By using information technology, students can decide about their study, its time, its place and their resources. In digital environment students can share their ideas and experiences and using help from other students and teachers. Digital classroom comprises all forms of electronically supported learning and teaching. The Information and communication systems, whether networked or not, serve as specific media to implement the learning process. It is essentially the computer and network-enabled transfer of skills and knowledge. Digital classroom applications and processes include Web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. Acronyms like CBT (Computer-Based Training), IBT (Internet-Based Training) or WBT (Web-Based Training) are different forms of digital classroom. For utilizing digital class, some features must be met. Students, and teachers must be trained and qualified to fulfill their roles; Schools and organizations must be developed and prepared for the new context.

This paper displays how digital classroom affects education and how it proliferate learning process. This study also demonstrates the benefits and defects of digital classroom.

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Selection and/or peer-review under responsibility of the Guest Editor.

*Keywords:* Information technology, Digital classroom, education technology

### Introduction

Nowadays, the use of information technology has been improved expeditiously. Most of the people use internet and computer to share information, investigation, ideas and so on.

Since appropriately used technologies have significant effect on teaching and learning, if they used inappropriately will hinder the process of learning and teaching. So integrating technology into the classroom is an approach to develop better understanding of basic concepts provided for learning, if it is applied appropriately.

Although technology can never replace the human mind, it can intensify it, and increase the pace of learning. Thus, teachers have a critical role in this area – teaching students how to use technology as a tool to help, rather than

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hinder, their learning. Students use information and communication technologies to build knowledge and to communicate with others.

Equipment and software have improved, so the more complicated technology, such as internet and intranet can support the growth of distributed or asynchronous learning better (Moore 1990). Meanwhile financial pressures have urged the development of more cost-effective method of delivering education to different clients (Meyer 2002).

Students still spent a lot of time listening to what teachers have to say. As in traditional learning environment, the teacher is the center of the class, and acts as the lecturer. Sarason (1996) mentions that educational reform is bound to fail if teachers experience what he calls the content of productive learning. Such content affirmed this fact that both teacher and student should have logical control over what happens in the classroom, and that a mutual understanding of each other and the context is an important part of the learning process. "Teacher and student have different frames of reference, which can vary from no overlap in mutual understanding to a productive mutual understanding" (Gwazek & Sarason, 2007, p. 12). Unfortunately, research on teacher education program confirms that there is no productive learning in the ways in which teacher candidates are trained during their preserve preparation programs (Cochran-Smith & Zeichner, 2005). When the teachers themselves have no experience of productive learning how we can expect them to create contexts of productive learning in their classrooms. When the teacher candidates experienced a pedagogy based on productive mutual understanding, we can anticipate them to use similar pedagogy in their class.

Integrating technology into the classroom begins with the teacher preparing lessons that use technology in authentic and meaningful situations. Teachers should use the technology in a way to support curriculum rather than prevail it. Technology should help the teacher in creating a cooperative learning environment and help the teacher transition from the role of facilitator to that of a learner, the teacher himself learns as well as helping the students to learn [2]. A major goal of using integrated technology is to prepare a situation that students use technology, deal with real world problems and manipulate them to find different aspects of the problem. Thus, students can imagine the possible consequences when the variables are changed. Therefore, when teachers are trying to combine technology into their classroom lessons, they can demonstrate the basic concepts and then ask the students to work with the computer or other technology [2]. Finally, both teacher and student can take the advantage of using technology if teachers know how to integrate it successfully into the curriculum. The belief that technology will hinder students learning has been discarded as long as students are taught to use it as a tool in their learning. Now researchers came to this conclusion that using desegregating technology not only is not harmful for learning and learners, but it is beneficial to both teacher and learner.

The advancement of the variety of technologies also followed by a parallel development in media organizations which try to apply the technologies commercially, such as film companies, radio and television stations and networks, computer software companies such as Microsoft and WebCT, and internet service providers such as American Online (Ranasinghe, 2009).

Thus not only have technologies become more complicated in terms of hardware, software, and networks, they have become even more complex in terms of organization. Educational technology is no exception. It requires a relatively sophisticated organization support structure, and we see that the lack of success of many educational institutions to address organizational issues adequately is one of the major obstructions to the effective use of technology in teaching.

### **Definition of educational technology**

Educational technology entitles any means of communicating with learners except communicating in direct form, face-to-face interaction, or personal contact. Educational technology in our definition would consist following elements:

The instruments and equipment which are used to support teaching(including software, programs, and networks, web, video player, data projector, overhead, computer, television monitors, and so forth)

The skills needed to produce or apply the tools and equipment effectively.(for example, writing, designing, programming, and production)

An understanding of teaching and learning process and how knowing educational instruments and materials can be chosen and used appropriately to support such processes.

The human resource needed to make the most effective use of the instruments, including technicians, engineers,

educational designers, web programmers, and so on, as well as experienced teachers.

This is the organization role to apply the tools and equipment which can be developed and used appropriately.

We therefore define educational technology as all the components of an integrated system necessary for appropriately using tools and equipment for educational purposes, which can be upgraded and altered.

### **The Digital Classroom**

Researchers have reached to this conclusion that technology integration involves the educators' and students' seamless use of technology as a tool to complete a task in a disciplined study that promotes higher order thinking skills. The incorporation of technology in the classroom is a process that involves change in an educational system and occurs over a period of time (NCES, 2002).

The combination of the Internet and multimedia make it possible that digital classrooms adjust many forms of distance learning. Classrooms too, can be thought of as a platform, and they certainly are no exception to increasing amounts of research and the pervasiveness of multimedia. The digital classroom is quickly spreading into many campuses and is increasing in visibility. The attainment of this goal entails a reform in an educator's method for the delivery of instruction with students.

A Digital Educator creates a learning environment in the classroom that provides the opportunity for students to develop both academic skills and 21st century skills. The digital classroom is conducive for all students by expanding the classroom beyond the four walls into the community. Students are engaged in authentic tasks that have a connection to the real world. In addition, the digital classroom involves all partners of the learning community such as teachers, students, parents, business partners, and higher education experts.

We can distribute digital classroom on two parts. First, synchronous digital classroom equipped with computer for each student and online students which can participate in the classroom via internet and a teacher using computer to learning with advance technology and managing learning process. Second, asynchronous digital classroom that each student participate in the class via internet at any time and from any place. This kind of learning is a student-centered teaching method that uses online learning resources to facilitate information sharing outside the constraints of time and place among a network of people. This learning is a combination of self-study with asynchronous interactions to promote learning, and it can be used to facilitate learning in traditional on-campus education, distance education. The online learning resources used to support asynchronous learning include email, electronic mailing lists, threaded conferencing systems, online discussion boards, and blogs. In this paper we concentrate on asynchronous digital classroom and demonstrate the impact of using technology on different part of the learning process.

### **Impact of Using Digital Learning Objects**

A digital learning object is a resource that can be used and re-used to support learning. Digital learning objects offer a new conceptualization of the learning process: rather than the traditional "several hour chunk", they provide smaller, self-contained, re-usable units of learning. Teachers selected a range of DLOs to which students were given access. Teachers presented some examples of these DLOs to whole-class audiences, leaving students to choose those that best supported their needs as they prepared for Science and Technology Fair presentations. If the variety of DLOs were increased, students will have more choices to select for learning. By utilizing this process, students' learning power will be enhanced, and they may use other DLOs too.

### **Strengths of asynchronous learning**

Asynchronous learning's greatest benefit to students is the freedom it gives them to access the course and its instructional materials at any time they choose and from any location with an Internet connection. This allows for accessibility for diverse student populations, ranging from traditional, on-campus students, to working professionals, to international students in foreign countries.

Asynchronous learning environments provide a "high degree of interactivity" between participants who are separated both geographically and temporally and afford students many of the social benefits of face-to-face interaction (Mayadas, 1997). Since students can express their thoughts without interruption, they have more time to

reflect on and respond to class materials and their classmates than in a traditional classroom. The other advantage is that most asynchronous courses have the potential to reach far more students than a traditional course and course-wide updates or modifications can be disseminated far more quickly and efficiently than traditional lecture models. Another advantage of asynchronous learning (and, as technology develops, many synchronous learning environments) is that there is a record of nearly everything that occurs in that environment. All materials, correspondence, and interactions can be electronically archived. Participants can go back and review course materials, lectures, and presentations, as well as correspondence between participants. This information is generally available at any time to course participants.

### **Impact of Digital Classroom on Teacher Practice**

Digital classroom requires a shift from a teacher-centered to student-centered environment where the instructor must take on multiple new roles. The constructivist theory that supports asynchronous learning demands that instructors become more than dispensers of knowledge; it requires that they become instructional designers, facilitators, and assessors of both grades and their teaching methods. As instructional designers, emphasis is placed on establishing the curriculum, methods and the media through which the content will be effectively delivered. Once the design is in place and executed, the instructor must then facilitate the communication and direct the learning. Through this project, teachers became involved in building their knowledge base. They took an active role by determining a wider vision for their learning journey, taking part in the process from start to finish. They readily took their learning to the next level; this progress was evident when teachers, subsequent to adopting DLOs, seized the opportunity to expand on their managerial skills or risked venturing into new territory by transforming organizational culture or mastering new educational software. As such, they displayed leadership in shaping their learning experiences.

### **Impact of Digital Classroom on Students**

The student-centered nature of asynchronous online learning requires students to be actively involved with and take more responsibility for their own learning. In addition to their normal duties as learners, students are required to:

- Become proficient with the technology required for the course;
- Use new methods of communication with both peers and instructors;
- Strengthen their interdependency through collaboration with their peers

Students use background knowledge and then interpret, implement, analyze, and evaluate it to create a new product. To borrow Anderson and Krathwohl's (2001) categories, this process involves moving from lower-order thought processes (for example, remembering, understanding, and applying) to higher-order ones (for example, analyzing, evaluating, and creating). Guided by their teachers, students working on fair testing DLOs from the Learning Federation completed the Science Fair learning process and entered display boards in the regional competition. They then produced digital stories (Exhibit 3) to describe their uses of DLOs. Teachers viewed these outcomes as evidence that learning had taken place and was being transferred into other activities (Falloon 2006).

### **Learning with Technology**

In studies of students using the computer as a tool for instruction, teachers have reported it provides them the opportunity to create a student-centered environment. The teachers become more open to multiple perspectives on problems and are willing to experiment in their teaching (Knapp & Glenn, 1996). Some of the important advantages of using technology in learning process are:

Innovative way of teaching with technology enabled education making them flexible and technologically gymnastic.

- A Picture is worth a thousand words
- Animation adds spice to teaching and create a fun atmosphere in learning
- “Save” and reuse of Lecture when needed.
- Most Important of all is that technology saves the time for more learning activities.

The increased use of L/CMSs such as ANGEL™, Blackboard™, and WebCT™ has resulted in a need for clear policies about ownership, use, management, distribution, and sustainability of digital resources (DiRamio and Kops 2004).

Content management concerns extend beyond the limits of one institution when learning objects are shared through consortia.

The ability to “disaggregate” course content into content modules may also improve student performance. Some students may have enough prior knowledge to skip sections of a course, while others may need remediation. Disaggregation can allow a more customized approach to course design rather than the lock-step and one-size-fits-all method that is currently used. This, in turn, improves course completion and graduation rates and also reduces an institution’s cost per student (Diaz 2004).

A managed system for storage and access is required for learning objects, as is the appropriate staffing to support such a system. Two options are available for managing the system, one of which is used by institutions using L/CMSs, which limits access to learning objects developed for courses to those registered for a course. However, once the semester has ended, the course is deactivated and the course content cannot be accessed unless it is made available through archived materials. The second system employs a method of learning object management based on a framework for managing content rather than courses, an approach that increases access and the opportunities linked to access.

There are four key characteristics of content management: concept, process, function, and strategy (Siemens 2003). Concept includes how content is designed, what format it takes, and how and when an intended population may access it. They must devise a system for storage and retrieval to support both internal and external distribution, and to ensure the proper use of their intellectual property. Distribution also requires tracking to document that the object is being used in the way it was intended. One strategy for tracking that is proving effective is use of the Digital Object Identifier (DOI®) system (see [www.doi.org/](http://www.doi.org/)) designed to identify and track the use of digital objects and to protect and document the use of intellectual property.

Furthermore, technological advances are creating innovations that can potentially support the unique and individualized needs of learners in distributed education.

### **Benefit of asynchronous digital classroom**

This method leads to more and deep learning. Effective relation developed between students and teacher and also between students with themselves. They can share their ideas, experiences and investigations. This method is effective for all students especially for student with low learning speed and even for those with high learning speed. Traditional classrooms were place and time bound but asynchronous digital class has no limitation in time and place. In other hand, in traditional class source of knowledge and learning was only teacher but now it is beyond the teacher, beyond the school and even beyond the country. The other benefit of digital classroom is that in this method education is open and flexible which cause opportunity for deep learning. The process of learning in traditional class was: listen, remember, synthesize and interpret knowledge which was drudgery but with digital tools it will be effective because there is a chance to repeat, practice and fail. In digital classroom, efficiency increases since students attention is 100% on learning rather than on his notes and spellings. Students at various universities can swap their notes in a fraction of time, and share their knowledge and experience with each other.

### **Defects of asynchronous digital classroom**

Critics charge that asynchronous digital classroom is cold and impersonal, and cannot replicate the experience of a real classroom. The other defect is that it almost certainly requires more student initiative than traditional classroom learning. Because in a virtual classroom, teachers are less likely to notice when students daydream or slack off. It can be difficult to manage student classroom behavior: During class sessions, it may be hard for the instructor to maintain the attention and participation of the students in the class. If only the instructor is visible during the meeting, it is easy for students to become distracted by other things and not pay attention. It is probably this fact that leads to this belief that e-learning is less effective than traditional classroom learning. The other defect

is that, flexibility doesn't necessarily mean better student performance: Though it is nice for students to work at their own pace, it doesn't necessarily mean that flexibility will facilitate skill or knowledge acquisition. Its other defect is that, web-based learning requires relatively sophisticated technology and knowledge. This may be beyond the scope of some individuals, though it probably is not an issue for a school or organization of any size. One disadvantage of asynchronous learning is that learners need to have access to a computer as well as the Internet. They also need to have computer skills with programs such as word processing, Internet browsers, and e-mail. Without these skills and software it is not possible for the learner to succeed in eLearning. Learners in this method need to be very comfortable using a computer. Slow Internet connections or older computers may make accessing course materials difficult. This may cause the learners to get frustrated and give up. Another disadvantage of asynchronous learning is managing computer files, software compatibility and learning new software. For learners with beginner-level computer skills it can sometimes seem complex to keep their computer files organized. The lesson points you to download a file which the learner does and later cannot find the file. The file is downloaded to the folder the computer automatically opens to rather than a folder chosen by the learner. This file may be lost or misplaced to the learner without good computer organizational skills. Building a powerful digital classroom needs to have powerful management on students, teachers, lessons and so on. Teachers have a critical role on course contents, leadership of student to final objects and so on. And the last but not the least is that some restriction exists for information transmission.

## Conclusions

Digital classrooms are considered as the vital element in promoting and improving the traditional methods of teaching and learning. So all schools and universities focus on it, and try to attract more virtual students. So they apply the most friendly user software and technology with skillful teachers and engineers to fulfill this aim. In fact digital class transforms the education process, and cause universal interactivity between teacher and learners as well as among learners themselves, all around the world. This global interactivity cause mutual understanding between teacher and learner, and among the learners. It also causes more adjustability of materials and methods, which are used in the process of education. So different educational organizations enter a competitive situation for promoting their materials and methods, and the result is the improvement of learning and educational process. Digital classroom also reduce the gap of qualification and knowledge of students in different geographical areas. Even in a far most areas, by having a computer and access to internet you can enter a digital classroom to use the same materials and benefit the same teachers that are available for those who live in big and developed cities. Digital classroom has also influences on the cost of the education. For starting a course in a desired university, students do not need to move to that city, and pay for your trip, accommodation and transfer. In addition, Timesaving is one of the most important consequences of digital classroom on education.

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