

Using Multimedia: *Teaching and Learning in the information age (Interactive Learning)*

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ABSTRACT

This paper discusses multimedia technology as a teaching tool for handicapped college students. Emphasis is on easy and intuitive handling of the various multimedia technology controls. The multimedia application is developed in higher special education. The modules of the program are described for college students. Current developments in computer hardware and software, in computer networks, in cognitive science, and in information theory indicate that there are better multimedia technology systems for the handicapped college students to study in higher special education.

1. Introduction

Educational technology provides educators with valuable tools to teach, develop and reinforce 21st century skills by dramatically altering the options for inquiry, analysis, and expression [1]. Broadband digital networks are becoming the critical pipeline for information processing and communication. This trend is causing significant changes in society's demands on schools, students and teachers [2]. For example, organizations, including schools, will become more distributed and have less need for constant physical presence. The classroom and physical laboratory will cease to be the sole locus for learning [3]. Whether this trend will, ultimately, mean the total disappearance of the school as a physical location remains to be seen. It is clear, however, that a significant amount of learning will take place at a distance, supported by high-bandwidth interactive communications and educational software [4]. There have been three major shifts that have occurred in the history of information technology. The first was the development of writing, which resulted in the shift from an oral to a written system. [5] This depended on several other developments, such as an alphabet and an educated community who were literate. The second shift was from a written to a printed document, which was a result of the invention and development of the printing press [6]. This also depended on several technologies, including paper, ink, and movable type presses. The third shift is occurring just now and that is from a print to an electronic or digital system [7]. It is more difficult to see this shift because we are all in it and part of it. However, the supporting technologies of computers, networks, radio, video, software, storage, and miniaturization coupled with results from information theory, cognitive science, artificial intelligence, computer languages, computer systems, and open source software allow systems such as connections to be developed [8]. Lastly, computer networks do more than just provide access to information and computing resources and create connections among people. They can help organize and channel complex flows of information among groups. Scholars and researchers already are developing powerful new

ways to use computer communications to make multimedia teaching easier.

2. Development of multimedia and information technology

Multimedia teaching has expanded the amount of knowledge and information in the classroom, and also has improved teaching efficiency. Teachers can design before class, and make the most of teaching contents into the courseware, so that the teacher in the classroom saves a lot of time.

A. The advantage of multimedia teaching

Many exciting applications of information technology in colleges validate that new technology-based models of teaching and learning have the power to dramatically improve educational outcomes. With the successful adoption of IT networks, the role of teacher will shift from directing individual students in self-contained classrooms to responsively distributing teaching and expertise. Some teachers will have expertise in development, disciplinary specialties and/or learning resources. They will serve as coaches and guides in distributed environments, showing students how to find and use current, relevant and reliable information. Technology is now considered by most educators and teachers to be an integral part of providing a high-quality education.

B. The advantages of traditional teaching

It is convenient for the teaching interaction and emotional communication. By observing students face lectures, teachers can understand the students' mastery of knowledge, with a auxiliary simple question to examine whether students understand fully. Two-way communication and interaction make the teaching content coordinated with classroom atmosphere.

It is easy to control the rhythm of teaching. Teachers explaining as writing, students will have enough time to think. It allows students to think asynchronously with writing on the

blackboard and follow the teacher's ideas, ensuring students thinking continuously.

The process of explanation is flexible. In the process of explanation teachers can change methods properly according to the students' reaction, flexible teaching will make classroom lively.

C. The Using technology reasonably to improve quality teaching

Select the appropriate knowledge points. The mathematics teacher is supposed to have a deep understanding of subject content of the courseware, and pick the proper knowledge point the proper knowledge point during the courseware development.

Combined with the traditional teaching methods, the multimedia application is combined with the blackboard writing. The blackboard has strong real performance and can be brushed immediately after writing and explaining, you can better control the teaching rhythm, so it has many advantages that cannot be replaced by multimedia courseware.

Focus on the innovation and extension of the multimedia technology. Only if developing and producing the excellent multimedia courseware can the modern educational technology give full play to the role in teaching, which requires teachers to be proficient in general computer operation, have solid mathematics knowledge and teaching skills, combine multimedia technology with advanced mathematics teaching, so as to use the courseware to teach the students' knowledge accurately and effectively. As an extension of multimedia technology, by combining the multimedia technology with network technology to develop teaching system, which goes beyond the time and space constraints, you can browse the teaching community, download the courseware, and access to counseling and learning materials outside of the classroom teaching after class.

There is concern, however, that not all students, particularly students in higher special education colleges, have equal access to educational technology, both in terms of the availability of equipment and the successful integration of technology into the classroom. Teachers serve as guides to information resources, mentors of learning activity, assessors of student understanding, and managers and coordinators of distributed learning activities. Technological innovation, long a hallmark of academic research, may now be changing the very way that universities teach and students learn. For academic institutions, charged with equipping graduates to compete in today's knowledge economy, the possibilities are great. Distance education, sophisticated learning-management systems and the opportunity to collaborate with research partners from around the world are just some of the transformational benefits that universities are embracing. Research is needed to help teachers fulfill these roles and adapt to change. Clearly, a wide range of new tools and resources is needed, such as resource location and coordination tools, assessment tools, libraries of educational materials and customizing mechanisms for adapting materials to individual students' goals and developmental levels.

Technology's functional roles can build upon a student's interests or intrinsic motivations to create new opportunities for learning. Many activities students may find to be exciting and intriguing might not be possible or accessible without a computer. Yet it is not currently known how systems can provide advanced functionality at a level or in a manner that students find approachable. Perhaps this challenge can be met by designing appropriate representations and metaphor-based interfaces and by somehow encouraging interconnections between students' existing knowledge and the challenges they find in these various new settings. Technology has had—and will continue to have—a significant impact on higher education. University respondents view technology as having a largely positive impact on their campuses, but acknowledge that operational challenges may hinder the full benefits from being realized (for example, tenure, promotions and other organizational practices may need adjustment to encourage faculty members to adopt new technologies). In addition, technology may be disruptive in ways not intended: respondents note a rise in student plagiarism, cheating and distractibility, which they attribute to easy and ready access to mobile technologies. Software architecture serves as a framework for fitting together components and identifying how different pieces of software (in this case, a learning system) interact with one another. Providing good architectures can make development and implementation easier, including the creation and use of tools for building learning environments. No generation is more at ease with online, collaborative technologies than today's young people—"digital natives", who have grown up in an immersive computing environment. Where a notebook and pen may have formed the tool kit of prior generations, today's students come to class armed with smart laptops. The need for architecture arises from the inherent complexity of learning processes. Layers of support are needed for educational activity structures: for using particular notations, models, simulations and representations; for gathering and organizing information resources; for constructing and expressing ideas and skills; for communicating with peers, teachers and the world; and for instructional processes such as assessment and tutoring. Technology allows students to become much more engaged in constructing their own knowledge, and cognitive studies show that ability is key to learning success.

Broadly speaking, these support layers can be conceived of as types of support within learning software. Within these layers, software architecture for learning systems requires modular objects that provide commonly useful facilities, such as notebooks, graphs, tables and calculators, and markup and annotation. Decades of research have taught us much about how an individual layer or object can be designed to enhance learning. Now designs need to be scaled up to suites of layers and objects that offer solutions to learners' overall needs. Online distance learning has gained a firm foothold in universities around the world.

What was once considered a niche channel for the delivery of educational content has rapidly become mainstream, creating wider access to education? Technology is a significant factor in our changing world. Media now infuse our lives and inform the ways in which we encounter and appreciate ideas,

information and knowledge. There is an increasing use of technological tools in the fields of science, mathematics and engineering. Education technology is a valuable tool to achieve educational objectives. Particularly when combined with the other key factors that increase achievement, such as clear, measurable objectives, parental and community involvement, increased time spent on task, frequent feedback and teacher subject matter expertise, technology can help deliver significant and positive results. The networks will have an equally powerful impact on collaborative educational activities as shown in Fig.1. The technological and organizational infrastructure that enables creation, storage, communication and use of information in electronic form is evolving rapidly within and among neighborhoods, communities, institutions, households and individuals. It is also changing the very concept of "community," with information repositories, online events, virtual work groups and electronic communications redefining communities' temporal and geographic boundaries. These changes, in turn, are generating changes in the roles and responsibilities of traditional institutions for providing educational opportunities for college students.

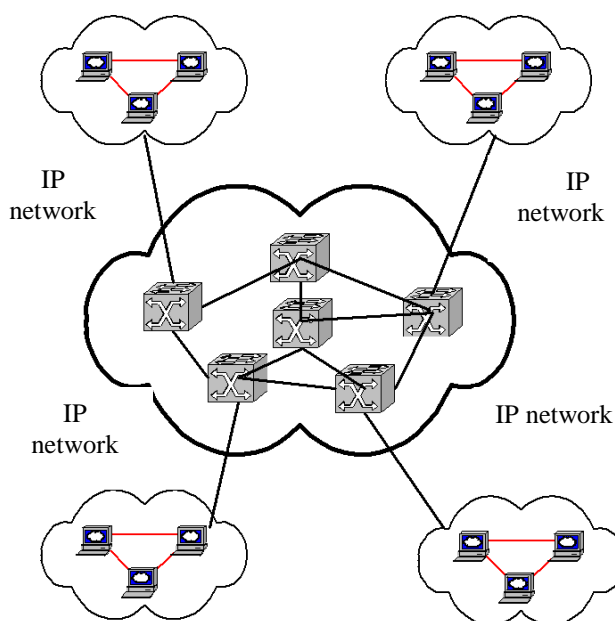


Figure 1. Communication Network

3. Multimedia and IT in Education

Technology transforms the learning environment so that it is student-centered, problem and project centered, collaborative, communicative, customized and productive. This creates the digital learning environments that improve student achievement and develop new skills. New technologies are also affecting other areas of campus administration. Social-networking tools are helping to build connections with alumni and support career service activities. E-marketing campaigns expand the reach and success of recruiting and fundraising efforts, and drive down the cost of direct-mail campaigns. And automated, self-service programs reduce administrative requirements, streamline course registration and enhance academic life. Students can learn more about different cultures, immediately access scientific, geographic, social, cultural and historical information about our life on our ever-evolving globe. This information is relevant, up-to-date, and authentic. These

include language proficiency, namely, reading, writing, listening and speaking ; scientific literacy, defined as the knowledge of science, scientific thinking, mathematics and the relationships between science, mathematics and technology; and, technological literacy, including competence in the use of computers, networks and digital content. The powerful tools of technology allow every student access to the vast resource of information about the world. Several research studies offer evidence that educational technology can provide significant benefits for special needs students, including learning disabled, low achieving, special education and gifted students. A study on performance in which students participated in an integrated technology rich curriculum demonstrated that learning disabled students gained good achievement in combined verbal. In writing, we studied document the potential of software, expert systems, videodisc, hypermedia, optical character recognition, speeches synthesis and speech recognition as effective tools for learning disabled students. Technology enables students to interact and communicate in more exciting and creative ways than ever before. The increased ability to communicate with experts both inside and outside school walls enhances the learning process. Students in a school can work on projects together, or communicate and collaborate with experts at universities or other students across the country or in other nations. Students learn more sophisticated writing skills, tailoring their products to different audiences, and hone teamwork and collaboration skills. Most notably, disabled students who employed speech recognition software to compose essays performed significantly are higher than fellow learning disabled students with no assistance and approximately as well as their non-disabled peers. Social interaction as used herein encompasses most aspects of networked communication widely touted in the popular press, and many others yet to be conceived. Widespread school networking will not merely change the ways learners get information or surf the Net; it will fundamentally reshape the way people engage in interpersonal communication for learning purposes. Thus, the challenging opportunity is to adopt the perspective that social interaction is the means to understanding classrooms and classroom work. Seen in this light, even the simple finding of information can be viewed as the connection of students to distant communities and ways of knowing. With educational technology, the learning environment shifts from teacher centered to student-centered. In this new student-centered environment, students are able to define individual objectives, create an accountability plan to reach them, and thus are more empowered to attain the state and local objectives set for them. This ownership and responsibility encourages students to be more directly engaged in their educational process. Additionally, technology offers many tools for self-assessment, so that students can monitor their own progress. No longer confined to the material in necessarily condensed textbooks, a student who wants to delve deeper into a subject can immediately find additional materials. This increases expertise, research skills and ultimately translates into improved student achievement. Education technology can help develop a broader range of assessment tools in order to measure defined educational objectives and to link assessment to ongoing instruction. When access to information becomes interactive and available on multiple levels through technology, students are able to deepen their knowledge, investigation and

inquiry according to their needs and interests. For example, if a college district defines an educational objective of developing students' ability to collaborate, then assessment should reflect and measure that objective. However, technology can monitor and measure a student's collaborative and teamwork process and provide immediate feedback. Likewise, technology can help provide different kinds of assessment to serve diverse student needs. The program is structured into several separate modules, which are created in Macromedia Director Environment. Modules are inter-connected and share global variables. The advantage of this solution lies in possibility to develop every module separately. The modules are then integrated into application. Such concept is supported within the Director. Project includes one special module root, several main modules and several auxiliary modules. The connection between main module and auxiliary modules is shown in Fig.2. It is the module, which is using all auxiliary modules and that, is why it is the good module for presentation of communication within application.

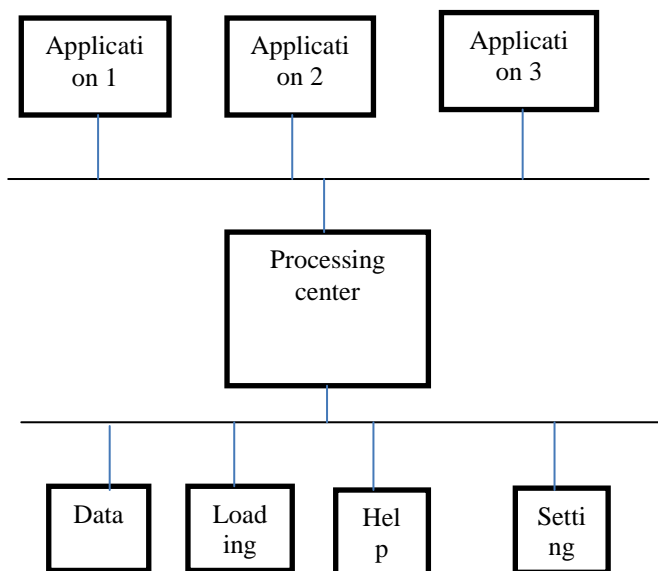


Figure 2. Main Module and Connection

The purpose of networks in classrooms is not to merely amplify what already exists, and key research questions must not be constrained to how to make the same classroom activities occur faster, become less expensive or take place over longer distances. Today's classrooms already orchestrate social interaction for learning. Networking, however, offers the potential for the formation of new social structures and new

References

1. C. Gloria, "Teaching Students About Their Disabilities:Increasing Self-Determination Skills and Self-Concept," International Journal Of Special Education, Vol 23 No 2 ,pp.137-144, 2008.
2. L. Vito and A. Barton, "Are Special Education Teachers Prepared To Teach The Increasing Number Of Students Diagnosed With Autism?" International Journal Of Special Education, Vol 23 No 2 , pp.120-127, 2008.
3. V. Angela, "Inclusive Education Support Systems:Teacher

ways of interacting. Modern network classroom architecture is a high efficient teaching system as shown in Fig.3

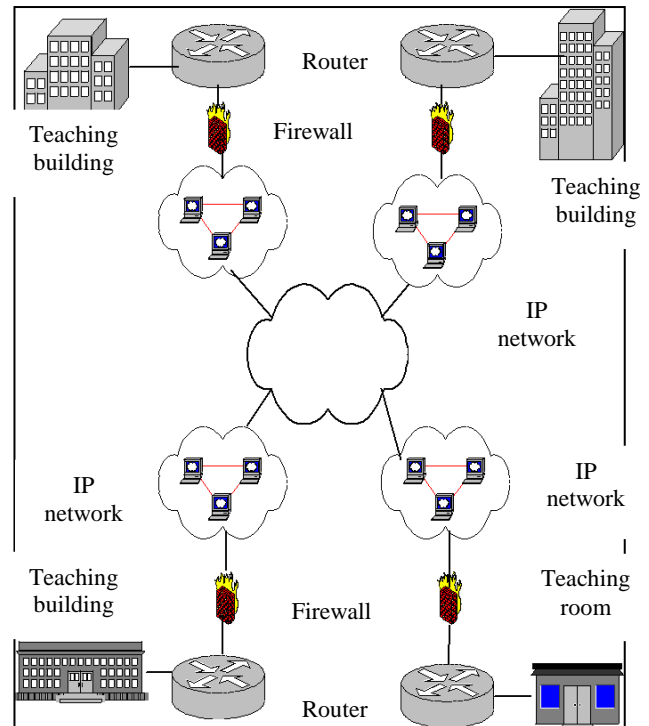


Figure 3. Network Classroom Architecture

4. CONCLUSION

Multimedia technology plays an important role in higher special education. Underpinning this growing demand for educational use of computer technology is a phenomenal and ongoing technological progress. Nowadays, many handicapped college students can sit at personal computers equipped with gigahertz processor chips, hooked into data communication networks with transmission speeds of millions of bits per second. These and other technologies, memory, display and the like, are improving at an extraordinary rate. And the end is not in sight. But, powerful as that social demand is and impressive as those technological capabilities are that we are just beginning to understand how to connect them seamlessly with the education process and with the actual needs of the students and the institutions responsible for their education. Clearly, a major research effort is needed to close that gap. Obviously, Multimedia technology will make great progress in higher special education.

6. T. Cook, B. Means, G. Haertel, & V. Michalchik, The case for randomized experiments. In Haertel, G.D. & Means, B. (Eds.) Evaluating the effects of learning technologies. New York, NY: Teachers College Press, 2003.
7. N. Denzin, & Y. Lincoln, (Eds.), The Sage handbook of qualitative research. Thousand Oaks, CA: Sage Publications, 2005.
8. N. Brouwer, G. Muller, and H. Rietdijk, "Educational Designing with MicroWorlds," Journal of Technology and Teacher Education, 15(4), pp.35-47, 2007.