

Change In Student and Teacher Roles Using Technology In Class Room

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Abstract

Changing instructional approaches is no easy task, particularly when technology is involved. Adopting and integrating technology-based instructional strategies has a long history of challenges, but with it has come a great understanding of how to achieve success with them. For achieving of success there should be an healthy environment where student can get education with latest technology in class room.

Introduction

When students are using technology as a tool or a support for communicating with others, they are in an active role rather than the passive role of recipient of information transmitted by a teacher, textbook, or broadcast. The student is actively making choices about how to generate, obtain, manipulate, or display information. Technology use allows many more students to be actively thinking about information, making choices, and executing skills than is typical in teacher-led lessons. Moreover, when technology is used as a tool to support students in performing authentic tasks, the students are in the position of defining their goals, making design decisions, and evaluating their progress.

The teacher's role changes as well. The teacher is no longer the center of attention as the dispenser of information, but rather plays the role of facilitator, setting project goals and providing guidelines and resources, moving from student to student or group to group, providing suggestions and support for student activity. As students work on their technology-supported products, the teacher rotates through the room, looking over shoulders, asking about the reasons for various design choices, and suggesting resources that might be used.

Learning From and Learning with Technology

There are two major approaches to using technology in schools: students can learn “from” technology, and they can learn “with” technology (Jonassen & Reeves, 1996). Learning “from” technology is often referred to in terms such as instructional television, computer based instruction, or integrated learning systems (Hannafin,

Hannafin, Hooper, Rieber, & Kini, 1996; Seels, Berry, Fullerton, & Horn, 1996). Learning “with” technology, less widespread than the “from” approach, is referred to in terms such as cognitive tools (Jonassen & Reeves, 1996) and constructivist learning environments (Wilson, 1996).

Regardless of the approach, technologies have been introduced into schools because it is believed that they can have positive effects on teaching and learning. The purpose of this report is to summarize the evidence for the effectiveness and impact of technology in schools around the world.

Good Learning

What is good learning? That may be a subjective question. But it’s likely that many educators would give answers that fall in the same ballpark... ..

Students collaborating and discussing ideas, possible solutions... ..

Project-based learning, designed around real world contexts... ..

Connecting with other students around the world, on topics of study... ..

Immersing students in a learning experience that allows them to grapple with a problem, gaining higher-order thinking skills from pursuing the solution...

Importance of Technology In Education

Why is so much attention paid to media and technology in education? First, with respect to media, there are many issues of concern to students, parents, educators, governments, and society at large. For example, important questions are asked about the effects of different media on the cognitive and moral development of children. With respect to technology, people want to know whether various new technologies are more effective for teaching and learning than more traditional classroom approaches, whether some technologies are more motivating than others, or at the very least, whether technologies can be used to increase access or reduce costs within education. Questions about the impact of media and technology in terms of increasing access to education and reducing the costs of education are especially high on the agendas of politicians and government agencies around the world. In the USA, the Panel of Educational Technology of the President's Committee of Advisors on Science and Technology (1997) included as one of its six major strategic recommendations that technology be used to “Ensure equitable, universal access”

Learning Technology

Technology has many definitions ranging from “the application of the scientific method to solve problems as in ‘the technology of space exploration’” to “the things or processes which embody knowledge or craft within a culture as in ‘the technology of writing.’”

The foundation for the use of technology as “tutors” in schools is “educational communications,” i.e., the deliberate and intentional act of communicating content to students with the assumption that they will learn something “from” these communications. The instructional processes inherent in the “from” approach to using media and technology in schools can be reduced to a series of simple steps:

- 1) Exposing students to messages encoded in media and delivered by technology,
- 2) Assuming that students perceive and encode these messages,
- 3) Requiring a response to indicate that messages have been received, and
- 4) Providing feedback as to the adequacy of the response.

Effects of Technology on Student and Teacher

Motivation and Self Esteem

The most common--and in fact, nearly universal--teacher-reported effect on students was an increase in motivation. Teachers and students are sometimes surprised at the level of technology-based accomplishment displayed by students who have shown much less initiative or facility with more conventional academic tasks:

Teachers talked about motivation from a number of different perspectives. Some mentioned motivation with respect to working in a specific subject area, for example, a greater willingness to write or to work on computational skills. Others spoke in terms of more general motivational effects--student satisfaction with the immediate feedback provided by the computer and the sense of accomplishment and power gained in working with technology:

In many of these classes, students choose to work on their technology-based projects during recess or lunch periods. Teachers also frequently cite technology's motivational advantages in providing a venue in which a wider range of students can excel. Compared to conventional classrooms with their stress on verbal knowledge and multiple-choice test performance, technology provides a very different set of challenges and different ways in which students can demonstrate what they understand (e.g., by programming a simulation to demonstrate a concept rather than trying to explain it verbally).

A related technology effect stressed by many teachers was enhancement of *student self esteem*. Both the increased competence they feel after mastering technology-based tasks and their awareness of the value placed upon technology within our culture, led to increases in students' (and often teachers') sense of self worth.

Students clearly take pride in being able to use the same computer-based tools employed by professionals. As one teacher expressed it, "Students gain a sense of empowerment from learning to control the computer and to use it in ways they associate with the real world." Technology is valued within our culture. It is something that costs money and that bestows the power to add value. By giving students technology tools, we are implicitly giving weight to their school activities. Students are very sensitive to this message that they, and their work, are important.

Technical Skills

Students, even at the elementary school level, are able to acquire an impressive level of skill with a broad range of computer software. Although the specific software tools in use will likely change before these students enter the world of work, the students acquire a basic understanding of how various classes of computer tools behave and a

confidence about being able to learn to use new tools that will support their learning of new software applications.

More Collaboration with Peers

Another effect of technology cited by a great majority of teachers is an increased inclination on the part of students to *work cooperatively* and to provide *peer tutoring*. While many of the classrooms we observed assigned technology-based projects to small groups of students, as discussed above, there was also considerable tutoring going on around the use of technology itself. Collaboration is fostered for obvious reasons when students are assigned to work in pairs or small groups for work at a limited number of computers. But even when each student has a computer, teachers note an increased frequency of students helping each other. Technology-based tasks involve many subtasks (e.g., creating a button for a *HyperCard* stacks or making columns with word processing software), leading to situations where students need help and find their neighbor a convenient source of assistance. Students who have mastered specific computer skills generally derive pride and enjoyment from helping others.

In addition, the public display and greater legibility of student work creates an invitation to comment. Students often look over each others' shoulders, commenting on each others' work, offering assistance, and discussing what they are doing.

I've also seen kids helping each other a lot at the computer. The ones that pick it up faster, they love teaching it to someone that doesn't know it yet. --Fifth-grade teacher

The ones who have used it from the beginning have become peer coaches. --Fifth-grade teacher

Students' ability to collaborate on substantive content can be further enhanced through the use of software applications specifically designed for this purpose. Students in several classes at one of our case study sites used a research package called CSILE (Computer Supported Intentional Learning Environment), for building a communal database and exchanging comments about each others' ideas.

Though the use of technology often promoted collaboration and cooperation among students at these case study sites, there were still concerns about appropriate student conduct. Many schools implement *acceptable use policies*, especially if they offer student's access to the Internet.

Conclusion

Overall, fifty years of educational research indicates that media and technology are effective in schools as phenomena to learn both from and with. Historically, the learning from or tutorial approaches have received the most attention and funding, but the with or cognitive tool approaches are the focus of more interest and investment than ever before. Media and technology have many other advantages in terms of repeatability, transportability, and increased equity of access.

Experiences in developing the kinds of rich, multimedia products that can be produced with technology, particularly when the design is done collaboratively so that students experience their peers' reactions to their presentations, appear to support a

greater awareness of audience needs and perspectives. Multiple media give students choices about how best to convey a given idea (e.g., through text, video, animation). In part because they have the capability to produce more professional-looking products and the tools to manipulate the way information is presented, students in many technology-using classes are reportedly spending more time on design and audience presentation issues.

They also do more stylistic things in terms of how the paper looks, and if there is something they want to emphasize, they'll change the font . . . they're looking at the words they're writing in a different way. They're not just thinking about writing a sentence, they're doing that, but they are also thinking about, "This is a really important word" or "This is something I want to stand out." And they're thinking in another completely different way about their audience. --Elementary school teacher

While most teachers were positive about the design consciousness that technology fosters, a potential downside was also noted by a few teachers. It is possible for students to get so caught up in issues such as type font or audio clips that they pay *less* attention to the substantive content of their product. We observed one computer lab within which several students with a research paper assignment spent the entire period coloring and editing the computer graphics for the covers of their as-yet-unwritten reports, pixel by pixel. Teachers are developing strategies to make sure that students do not get distracted by some of the more enticing but less substantive features of technology, for example, by limiting the number of fonts and font sizes available to their students.

References

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