IS TECHNOLOGY AN EFFECTIVE TEACHING AND LEARNING TOOL –
Introduction and Exercise

KEY QUESTION:
Should schools spend a portion of the district budget on integrating technology into curriculum planning, teaching training, hardware and software purchases, and connectivity?

“Our schools are populated by multimedia/electronic learners” (Golden, 1997, p. 1). Children and teenagers are forced into schools with curriculum Systems rooted in the 1950’s. Schools need to transform classrooms to increase interaction and communication. One way to do this is through technology use.

By middle school, for many students, motivation and curiosity wanes and teachers struggle to keep attention and focus on learning. The current curricular focus may not be appropriate given changes in student expectations, interests, and abilities.

Should we throw out all forms of traditional teaching, curriculum, and instructional strategies? OF COURSE NOT…but we need to re-examine student needs, abilities, and our planning and delivery systems. Part of this process includes evaluating the capabilities and potential contributions of technology.

A second important issue is what RESEARCH has to say about the effectiveness of using technology as part of the teaching and learning process.

TASK: Open a browser and type in one of these three search terms:
✓ Effectiveness of Learning With Technology
✓ Impact of Technology on Student Learning
✓ Effects of Technology Use in Classroom

Choose one source, review it carefully, and then answer the following questions:
1. What are the potential benefits of technology use with children and teens?
2. What did your source conclude about limitations of technology use with children and teens?
3. What are the difficulties researchers encounter in assessing the impact of technology use on learning?
Effectiveness of Tech Use with Children and Teens – RESEARCH CONCLUSIONS

Apple Classrooms of Tomorrow (ACOT) research in the 1970’s and 1980’s and more recent studies have found that computer-based technology can enhance or positively impact...

1. student motivation and enthusiasm for learning;
2. time on task and engagement in the learning process;
3. student productivity;
4. ability to access, organize, interpret, and use information.
5. problem solving and decision making.
6. cooperation and interaction among students in a classroom.
7. willingness to seek individual help with a problem or task.
8. knowledge transfer to real-world situations and problems.
9. foster creativity;
10. lifelong learning skills;
11. intrapersonal skills and understanding;
12. quality and quantity of writing;
13. teacher-student collaboration;
14. motor skills;
15. diagnosis of learning problems and remediation;
16. interdisciplinary teaching and learning;

(Roblyer and Havriluk, 1997; McClellan, 1996; Turkle, 1995; Fisher, Dwyer, and Yocam, 1996; Geisert and Futrell, 1990; Schofield, 1995; Rakes, 1996; and many other studies)
LIMITATIONS OF RESEARCH ON IMPACT OF TECHNOLOGY ON LEARNING

A number of variables determine how effective computer-based technology is in the classroom:

1. how technology is actually used...whether it is an add-on in a traditional, teacher-directed learning environment or is infused within the school curriculum.
2. quality of hardware and software available and the amount of training provided to teachers and learners.
3. quality of planning prior to integrating computer-based technology.
4. philosophy and expectations associated with teaching and learning...directive learning/teaching vs. constructivist teaching/learning.
5. degree of teacher resistance to technology use
6. administrative commitment to computer-based teaching and learning.
7. HOW technology is used with students
8. Inability of researchers to isolate and study the impact of technology since are numerous confounding variables
9. There is no single accepted definition of “good teaching” or what constitutes adequate evidence of “learning.”

Quote: Bertelsen Foundation, University of Georgia - research on computer effectiveness in American schools...

“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. In addition, although the research evidence is sparse, the cost-effectiveness, cost-benefit, and return-on-investment of media and technology may be of great benefit under certain conditions, especially in developing countries.

Longitudinal studies such as the ten year investigation of the Apple Classrooms of Tomorrow (ACOT) Project show that pedagogical innovations and positive learning results do eventually emerge from the infusion of media and technology into schools, but the process takes longer than most people imagine.

Large investments in time and support for teachers are especially critical if the adoption of constructivist pedagogies accompany the infusion of media and technology. This is critical given that it is pedagogy that is most influential on learning, not media or technology. Media and technology, however, are integral to the implementation of innovative pedagogies.

The need for long-term, intensive research focused on the mission of improving teaching and learning through media and technology has never been greater. This research should be developmental in nature, i.e., focused on the invention and improvement of creative
approaches to enhancing human communication, learning, and performance through the use of media and technology. …In the final analysis, the esoteric and complex nature of human learning may mean that there may be no generalizable best approach to using media and technology