
IMPACT OF ICT ON LEARNING AND ACHIEVEMENTS

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ABSTRACT

The main aim of education is not only acquisition of information but also the development of that bent of mind and attitude, which will make us responsible citizens. Therefore, goal is commitment to knowledge and advancement of learning. In the present scenario where the knowledge is exploding and the educational institutions are unable to disseminate the exploding knowledge to the students, population is exploding and the resources are limited, aspirations of the people are also exploding, there is an increasing gap in the development level of different countries, moreover, there is need for quality education, how can the objectives of education for 21st century met? The answer to all such problems is use of technology in education .This paper contains a brief exploration of how ICT is affecting the learning and achievement of students.

INTRODUCTION

Information and communication technology has a significant positive impact on achievement and the learning of students in all subject areas, across all levels of schools, and in regular classrooms and also has a pivotal role to play for special-needs students. It has positive effects on student attitudes and the degree of effectiveness is influenced by the student population, the instructional design, the teacher's role, how students are grouped, and the levels of student access to technology. Technology makes instruction more student-centered, encourages cooperative learning, and stimulates increased teacher-student interaction.

Through the use of ICT, learning can also be qualitatively different. The process of learning in the classroom can become significantly richer as students have access to new and different types of information, can manipulate it on the computer through graphic displays or controlled experiments in ways never before possible, and can communicate their results and

conclusions in a variety of media to their teacher, students in the next classroom, or students around the world. For example ,using technology,students can collect and graph real-time weather, environmental, and population data from their community, use that data to create colour maps and graphs, and then compare these maps to others created by students in other communities. Similarly, instead of reading about the human circulatory system and seeing textbook pictures depicting blood flow, students can use technology to see blood moving through veins and arteries, watch the process of oxygen entering the bloodstream, and experiment to understand the effects of increased pulse or cholesterol-filled arteries on blood flow.

We know now-based on decades of use in schools, on findings of hundreds of research studies, and on the everyday experiences of educators, students, and their families that properly used technology can enhance the achievement of all students, increase families involvement in their children's schooling, improve teacher's skills and knowledge and improve school administration and management. Thus ICT has a significant positive impact on achievement and the learning of students.

DESCRIPTION ;-

ICT has demonstrated a significant positive effect on achievement in all major subject areas. Investing in ICT can be considered as physical investment that improves the educational environment. It may act as a means by which educational institutions implement interactive learning based on reduced class-size approach. The use of ICT in education allows a shift from a teacher-based approach to a student-based approach. Using computers and internet, students have more time to interact with the course. They are not constrained by the available face-to-face time where their understanding and participation depend on the number of students.

The following points further elaborate the impacts of ICT on achievement and the learning of students.

1. ICT has positive effects on student attitudes toward learning and on student self-concept. Students feel more successful in school, more motivated to learn and have increased self confidence and self-esteem when using computer-based instruction. This is particularly true when the technology allowed learners to control their own learning.
2. The level of effectiveness of ICT is influenced by the specific student population, the software design, the teacher's role, the grouping of students and the level of student access to the technology.
3. Introducing technology into the learning environment makes learning more student centered, encourage cooperative learning, and stimulate increased teacher student interaction.
4. Positive changes in the learning environment brought about by the technology are more evolutionary than revolutionary. These changes occur over a period of years, as teachers become more experienced with technology.
5. Courses for which computer-based networks are used increases student-student and student-teacher interactions. It was seen that many students who seldom participate in face-to-face class discussion become more active participants online.

ICT LITERACY

While many different terms have been used to describe what students need, such as digital literacy, technological literacy and 21st century skills, education leaders, nationally and internationally are beginning to come together around a new common definition of what students need to know is ICT LITERACY. It reflects the need for students to develop learning skills that enable them to think critically, analyze information, communicate, collaborate and problem solving and the essential role that technology plays in realizing these learning skills in today's knowledge-based society. The ICT literacy skills has following six areas critical to students success in the workplace.

1. COMMUNICATE EFFECTIVELY

Students must have a range of skills to express themselves not only through paper and pencil but also audio, video, animation, design software as well as a host of new environments {e-mail, web sites, message boards, blogs, streaming media, etc.}

2. UNDERSTAND COMPUTATIONAL MODELLING

Students must possess an understanding of the power, limitations and underlying assumptions of various data representation systems such as computational models and simulations which are increasingly driving a wide-range of disciplines.

3. ANALYZE AND INTERPRET DATA

Students must have the ability to crunch, compare and choose among the huge amount of data now available web-based and other electronic formats.

4. MANAGE AND PRIORITIZE TASKS

Students must be able to manage the multi-tasking, selection and prioritizing across technology applications that allow them to move fluidly among teams, assignments and communities of practice.

5. ENGAGE IN PROBLEM SOLVING

Students must have an understanding of how to apply what they know and can do to new situations.

6. ENSURE SECURITY AND SAFETY

Students must know and use strategies to acknowledge, identify and negotiate 21st century risks.

MULTIPLE INTELLIGENCES AND MULTI-MEDIA

Seven or more 'multiple intelligences' that are of equal importance in human beings and develop at different times and in different ways in different individuals. Multi-media can go along way to addressing these intelligences much more than traditional teaching methods.

Below is a list of the intelligences and the technology tools that can be used to teach them.

VERBAL / LINGUISTIC INTELLIGENCE

The ability to think, communicate and create through words both in speech and in writing.

- (i) Computer software which allows young children to write and illustrate their own stories before their fine motor skills are developed enough to allow them to do so by hand.
- (ii) Audio and video recording can give students instant feedback on their story-telling skills and can help them to develop further.
- (iii) Multimedia software helps students to produce multimedia reports.
- (iv) Telecommunications programs link students who correspond in writing.

LOGICAL / MATHEMATICAL INTELLIGENCE

Memorize and perform mathematical operations, ability to think mathematically, logically and analytically and to apply that understanding to problem solving.

- (i) Providing challenging visual / spatial tasks which develop mathematical and logical thinking.
- (ii) Develop higher-order mathematical thinking by making abstract ideas concrete.

MUSICAL INTELLIGENCE

- (i) The ability to understand, appreciate perform and create music by voice or instruments or dance.

Students can hum into a synthesizer and make it sound like any instrument they want.

- (ii) Musical Instrument Digital Interface{MIDI} makes it possible to make music on an electronic keyboard, which can be made to sound like any instrument and then can be orchestrated electronically.
- (iii) Interactive presentations of renowned classical music let students understand music on many different levels; listening to it, seeing the score as it is played, hearing individual

instruments played alone, reviewing biographical material about the composer and learning about the music, historical and cultural backgrounds.

VISUAL/ SPATIAL INTELLIGENCE

The ability to understand the world through what we see and imagine and to express ideas through the graphic arts.

- (i) "Paint" programs that allow students who are unskilled with paper and brush create art on computer screens.
- (ii) Camcorders to create documentaries.
- (iii) Internet links to museums and virtual tours.

BODILY INTELLIGENCE

The ability to learn through physical coordination and the ability to express oneself through physical activities.

- (i) Educational games which challenge fine motor coordination while developing logical thinking skills and mastery over abstractions.
- (ii) Construction of demonstrative robots and program their movement through the computer.
- (iii) Electronic fieldtrip programmes that allow students to interact electronically with a scientist who is exploring the depths of the Mediterranean or the inside of a volcano.

INTERPERSONAL INTELLIGENCE

The ability to work cooperatively with other people and to apply a variety of skills to communicate with and understand others.

- (i) Clusters of students working together on computers learn more than individual students working alone.
- (ii) Electronic networks linking students with their peers with in the community and around the world.

INTRAPERSONAL INTELLIGENCE

The ability to understand, bring to consciousness, and express one's own inner world of thoughts and emotions.

(i) Multimedia gives teachers the tools to turn the classroom into centres of student-directed inquiry.

(ii) Technology offers tools for thinking more deeply, pursuing curiosity and exploring intelligence as students build "mental models" with which they can visualize connections between ideas on any topic.

(iii) Individual growth plans developed jointly by the students, parents and the teachers can encourage the development of intrapersonal intelligence. Technology supports such plans with electronic records, videotaped interviews and multimedia portfolios of student work.

EDUCATIONAL TECHNOLOGY AND DATA DRIVEN DECISION MAKING

The effectiveness of educational technology on student learning depends not only on what outcomes are targeted and how the technology is integrated into instruction, but also on how teachers assess student performance in classrooms and adjust instruction accordingly. Technology offers teachers a broad range of tools to collect and analyse data and richer sets of students data to guide instructional decisions. Schools are now expected to monitor their efforts to enable all students to achieve and administrators and teachers are now expected to be prepared to use data to understand where students are academically and to establish "targeted, responsive and flexible" ways to improve this academic standing.

FACTORS TO CONSIDER

INCLUSION; REACHING ALL STUDENTS

A major concern of many educators with regard to educational technology is its potential to exclude those who may not have access to it, or may not be able to use it. Regardless of what research may indicate concerning positive effects of technology on student learning, technology will be of limited use in achieving the goals if it is not available to students.

STUDENTS AT RISK

Also the challenge of helping teachers and students achieve ICT literacy and the challenge of establishing frameworks for assessing their skills is most acute in schools serving low-socioeconomic minority students.

THE COMPLEX NATURE OF CHANGE

Another factor influencing the impact of technology on student achievement is the complex nature of changes in classroom technologies correlate to changes in other educational factors as well. For example, teacher's perceptions of their students capabilities can shift dramatically when technology is integrated into the classroom. Because the technology becomes part of a complex network of changes, its impact cannot be reduced to a simple cause and effect model that would provide a definitive answer to how it has improved student achievement.

TECHNICAL INFRASTRUCTURE AND SUPPORT

Increased use of technology in the school requires a robust technical infrastructure and adequate technical support. Teachers also must have access to on-site technical support personnel who are responsible for troubleshooting and assistance after the technology and lessons are in place.

MISCELLANEOUS FACTORS

ICT can distract learning. This may be particularly salient at home, where Internet access could be a source of distraction because of chat rooms or online games reducing the time spent in doing homework or learning. Thus the impact of the availability of ICT on student learning will strongly depend on their specific use.

ICT-based instruction could restrict the creativity of the learner. It tends to allow acting only in a predefined way with limited interactive possibilities. This might reduce the student's abilities in terms of problem solving and creative thinking in predetermined schemes but not their ability to come.

CONCLUSION

ICT Technology allows students to work at their own pace and encourages them to take initiative and learn independently. Currently available technologies like communication computer systems (including Internet connections), and interactive videodisk and CD-ROM systems, provide a learning environment in which problem solving and intellectual inquiry can flourish.

The analysis of the effects of technological innovations on the students' attitude towards the learning process and on student's performance seems to be evolving towards a consensus, according to which an appropriate use of digital technologies in education can have significant positive effects both on students attitude and their achievement. ICT use can enhance learning by making education less dependent on differing teacher quality and by making education available at home throughout the day. The use of ICT can positively transmit knowledge to students. Furthermore ICT use can help students exploit enormous possibilities for acquiring information for schooling purposes and can increase learning through communication. ICT constitutes an input in the student learning process that should help produce better learning output and thus help students achieve their goals.

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