

A Study the review of computer education in relation to the Academic Achievement

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Abstract- *Computer is one of the most useful and powerful tool for everyone. Computers play a crucial role in the classroom as a means of increasing efficiency. As the changes of world is becoming very fast, computers have occupied a powerful place in both societal and educational purpose. Every dimension of modern life involves computer in some way or another. People who do not have any experience about computers face great difficulty in their daily work. Students of all ages require the help of computers to stay up to date. Luckily, most students over the past few decades have had many chances to learn about computers in school. Thus computer education has come to be accepted as an essential element of modern scientific era. Students' perspectives on the value of computer education in improving their academic achievement in school were investigated.*

Keywords- *Computer Education, Academic Achievement, Attitude, Teachers, Students*

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INTRODUCTION

Computers are electronic machines that can read data (input), process it according to predetermined rules (process), generate results (output), and store the results for later use. In today's postmodern world, knowledge is seen as currency of the highest value. The essential actors in the information-based economy are those who either own critical information or know how to acquire & utilize it (Simmons, 2009). He went on to say that the ability to use computers & skills that may be gleaned from doing so are crucial in today's society, impacting not just the workplace but also education, personal finance, and quality of life. Computers play a crucial role in the classroom as a means of increasing efficiency. Word processing, graphics, problem-solving lessons, spreadsheets, databases, networking, & communication are all examples of how computers & modern technology have influenced the classroom. In addition, from the constructivist approach's point of view, computers facilitate the differentiation of student & teacher roles, as well as the implementation of education, by giving all students access to the same high-quality resources and ensuring that they fully comprehend and apply what they are learning. With the use of computers, the educational cycle may be adapted from a teacher-centered to a child-centered model (Forcier, 1996). When students have access to information on CD-ROMs or the Internet, computers become a powerful educational tool. Using a computer, they may have access to a plethora of material on almost any subject, do research in archives spanning decades, communicate with experts, and even enroll in classes.

Woodrow (1991) argued that students' attitudes about computers were essential concerns in computer courses and computer-based curricula, demonstrating the need of a foundational grasp of computer technology regardless of one's chosen field of endeavor. If the computer is to be utilized as a teaching and learning tool, monitoring the user's attitudes about computers should be an ongoing activity. Attributes such as gender and age as well as computer anxiety (Paxton 1984) were shown to be associated with computer attitudes.

Before the advent of the microprocessor in the early 1970s, schools seldom had access to computers powerful enough to teach computer programming. As computers and technological applications spread more widely, people started worrying about how vital it would be to have basic knowledge of computers. As public understanding of the importance of computer literacy expanded, it became a major factor in the decision of many educational institutions to acquire computing devices. When personal computers became less expensive for schools in the late 1970s and early 1980s, the ratio of students to computers dropped precipitously. While the development of instructional and D&P software progressed. Nonetheless, the need to improve pupils' computer literacy was cited as the primary justification for bringing more computers into classrooms. As internet-based services like electronic mail & WWW grew in popularity and accessibility, the 1990s became known as the "decade of the computer" in terms of communication & information access. The floppy disk was

supplanted by the CD-ROM as the preferred medium for delivering prepackaged software. Because of this, encyclopedias and other huge information-based software programs might be widely disseminated at little cost. Educators' justifications for spending money on technology shifted to center on its potential to enhance their students' education. Computers are now both a subject of study in and of themselves (technology education) & tool for teaching and learning (educational technology) in schools. Both the importance of computer literacy & the value of employing computers in the classroom may be defended.

COMPUTER USEFUL TOOL FOR EDUCATION

According to David Noursund 1983 "A computer IS a machine designed for the input, storage manipulation and output of symbols (digits, letters, punctuation marks etc.). It can automatically follow step by step set of instructions called a computer program that has been stored in the memory."

The following points can clearly justify the use of microcomputers for being considered as a tool for school education:

1. A computer's ability to hold vast amounts of information is useful for solving many different types of problems.
2. A computer can be programmed to automatically carry out lengthy and even complex sets of directives detailing how to solve a certain kind of problem.
3. It's fast since it's on a computer. Many thousands of directional steps can be performed by even the cheapest device in a single second.
4. A computer can be used to help with any kind of difficulty. It has the potential to be a helpful resource for students in all majors.
5. The interactive mode of computer may help students achieve their educational goals and satisfy their needs by requiring active learner's participation in the process of education.
6. Self-directed learning activities can also be developed through computer.
7. In using mainframe systems there can be a possibility of some delays in response to users enquiry causing frustration. Such a delay in responses is avoided in the use of a computer because it permits only one user in each machine.
8. Last but not the least the small size and an affordable low cost are the additional plus points in favour of computers for their use in school education.

Around the close of 1945, the first fully functional electronic digital computer was introduced. It used vacuum tubes for its technology, was so massive that it needed its own room, ate up a lot of power, and need a lot of cooling. It could take a week or more to

configure the machine for use on a certain problem class. In the 1960s, vacuum tube technology gave way to transistorized computers, which shrank in size while cutting back on energy use and the need for cooling.

CONCEPT OF ATTITUDE

Although attitude is utilized frequently in everyday discourse, it is difficult to define scientifically. An attitude is complicated and cannot be defined. Experience & time affect attitudes. Teaching is usually considered the noblest and most important vocation in civilized society. User traits & talents influence such use. One computer activity may be challenging but not another. A person's attitude toward computer activities may affect future performance. Computer-related school programs depend on teachers' attitudes (Lloyd and Gressard, 1986). Teachers view classroom computer use differently. "The computer is a tool," instructors said when asked about computers in the classroom. The researchers examined confidence in computer use, computer anxiety, like for computers, utility of computers, and use of computers in instruction.

ATTITUDE TOWARDS USE OF COMPUTER APPLICATIONS

New educational programs depend on instructors' support and attitude (Woodrow, 1991). If teachers distrust computers or think a new application won't work, they'll use them less. Teachers are likely to aggressively resist a program if they don't think it meets their needs or their pupils'. Attitude affects schooling. The necessity should be assessed before introducing technology into the classroom (Stevens, 1982). It makes reasonable that technology mindset influences implementation success (Choo & Cheung 1990-91). Teachers were underusing computers. Teachers must learn technological integration. Marcinkiewicz (1994) examined what motivates some teachers to use computers and what discourages others. The study indicated that self-competence, belief in computer use for teaching, innovativeness, & openness to change were most closely connected to teacher computer use. Despite schools having computers, studies found that teachers rarely used them. Other factors prevent teachers from using computers in the classroom. Self-efficiency and innovativeness, attitude & anxiousness, and conviction that computers improve instruction & learning are these aspects. Thus, the present study examined secondary school students' computer application attitudes and study habits.

CONCEPT OF ACHIEVEMENT

Achievement is the amount of knowledge derived from bearing. The child gains knowledge by the instruction he receives at the educational institutions, classroom etc which are organised around a set of core activities a teacher assigns task to the pupil and evaluate, compares the quality of their work. In the

course of time pupils differentiate themselves according to how well they perform a variety of task, most of them require symbolic skills. The concept of achievement has several referents. "It usually denotes activity and mastery an impact on the environment rather than fatalistically, accepting it competing against some standard of excellence (DREEBAN, 1968)."

According to the direction education (CARTER, 1959) academic achievement means "the knowledge attained or skills developed in the school subjects, usually derogated by the test scores, or by marks assigned by teachers or both." Dictionary of Psychology CHAPLIN (1961) defines education or academic achievement as specified level or attainment of proficiency in academic work as evaluated by the teachers, by standardised test or by a combination of both.

IMPORTANCE OF ACADEMIC ACHIEVEMENT

The role of academic achievement in educational system in particular and in development of nations in general is assuming greater proportion. This is because of the new demands arising from the rapidly changing societies and because of the increase aspiration of individuals for economic cultural and intellectual improvement. Life in general and for a student in particular has become highly

ATTITUDES AND ACHIEVEMENT

The fact that attitude play a dominant role in shaping social behaviour both at individual and group level has long been recognised. The significance of attitudes in human life is tremendous. The organisation of emotional reactions into habitual forms and human social relationships result in regular and constant modes of behaviour affecting a man's way of loving and hating his likes and dislikes in everything. It has been long known that feelings and emotions play a critical role in blocking or enhancing learning and they are major determinants of what will be learn in any situation. Learning which is accompanied by specific attitude is meaningful. A person attitude towards any object or person is likely to influence his reaction towards the person or object. Similarly in any situation, we will find that people tend to learn quicker that object or any learning materials to which they possess a positive attitude. Any subject for which one has an unfavourable attitude will not be learned quickly or might not be learnt at all. Such case, a person's achievement on particular subject is greatly determined by his attitudes towards it.

Teacher Attitude & Technology

Technology integration in teacher education may improve teachers' technology attitudes (Abbott & Faris, 2000; Kumar & Kumar, 2003). Teacher readiness affects teacher attitude, & research suggests that teacher attitudes towards computers are crucial to technology integration in the classroom (Russell, O'Dwyer, Bebell, & O'Conner, 2003). Teachers who

like computers employ technology (Gabriel & MacDonald, 1996; Marcinkiewicz, 1996; Milbrath, & Kinzie, 2000).

However, instructors' attitudes towards using computers in class can improve their effectiveness in a computer lab. Some professors dislike utilising computers in class. Brickner (1995) cites teachers' ideas about teaching, computers, classroom practises, & unwillingness to change as a barrier to computer integration. McMeniman (1998) have suggested that language teachers modify their attitudes by practising & seeing how technology improves learning. They may also feel insecure and need computer training in class.

Computer Anxiety & Teacher Attitude

This researcher found few studies on teachers' anxiety about using technology in the classroom after a thorough search of educational research journals, databases, magazines, technology journals, and psychological journals. Most study on technology and anxiety has focused on computer anxiety and teachers' use of word processors, grade books, databases, and presentations. Kotrlik (1999) showed no difference in computer anxiety between agriculture teachers and other professionals indicated by Oetting (1983). In both investigations, computer abilities explained computer anxiety.

Kotrlik and Smith also observed no differences in computer anxiety among teachers in agriculture, home economics, business, & industrial arts. Four variables—principals' encouragement of computer use, school computer availability, perceived mathematics competence, and instructor computer training—explained a large percentage of computer fear. According to Budin (1999), teachers are anxious because technology is introduced into classrooms without preparation or curricular consideration. Russell (1995) proposed six stages that naive technology users go through: awareness, learning the process, comprehending an application, familiarity & competence, adaption to various contexts, and creative application to new contexts. Technology empowers learners by relieving anxiety & frustration. Khan (1997) says understanding these stages will help teachers reduce tension and get through them faster. Early success with technology will inspire teachers and boost their confidence. Hardy (1998) found similar results in her research of teacher computer knowledge & attitudes.

Age & Teacher Attitude

Age differences in teacher attitudes & computer use vary (Anderson, 1999). Lebediker (2001) found age variations in teacher computer usage and attitude. He found that faculty used computers slightly less as they aged. As professors aged, classroom technology use decreased significantly. Schifter (2002) found no age-related disparities in faculty distant education participation. Schifter also found age disparities in faculty motivation for online

education. Younger faculty (under 30) were more concerned than older teachers with personal requirements including credit and lack of credit towards promotion & tenure, job security, and reduced teaching load. Warburton (2002) surveyed faculty telecommunications use nationwide. Age and various instructional technology were negatively correlated among teachers. As instructors aged, instructional email & class webpages declined.

Gender & Teacher Attitude

Over the last 20 years, females have been less willing to learn about and use technology in schools than males (Comber 1997; Fey, 2001; Green, 2000). Female students viewed computers more negatively than male students.

DiSabatino, 2000). Gender variations in education, computer use, and computer attitudes are well-studied (Campbell 2002; Lebedicker, 1997). Females have less computer experience & more negative attitude than males. Recent research suggest the gender gap may have disappeared or diminished (Solvberg, 2003).

Male students have higher computer self-efficacy than female students in 1980s–1990s research (Comber, et al., 1997). They were more comfortable using computers than women. Female students thought computers were "nerdy," hence male students were more interested in learning about and utilising them (Lockheed 984; Zehr, 1998). After 2000, gender inequalities in computer views & confidence diminished (Rainer, 2003; Solverb, 2003). However, the few recent research on the topic make it difficult to say that computer use is no longer gendered.

Ethnicity & Teacher Attitude

Few research examined ethnicity-based computer technology attitudes among teachers. Pittman (1999) claims minority instructors lack computer access & training. Pittman also noted that Hispanic and African American teachers participate less in technology planning. Minority instructors should have equitable technology planning, training, & access. Venning-Twonsley (1995) examined teachers' attitudes towards computer technology in K-12 schools with majority ethnic & linguistic minorities. Teachers rarely used computers for classroom management & student drill and practise. All interviewees stated that they had not integrated computers into curriculum, but they wanted to. Technology training and technical support for teachers were lacking. Rosen (1999) examined computer attitudes of 171 elementary teachers. Eight percent were Asian, five percent African American, five percent Hispanic, eighty-one percent white, and one percent other. African-Americans & Asians exhibited negative attitudes towards computers, fewer computer experience, and less classroom computer use.

Education Level & Teacher Attitude

Some research revealed that teacher views towards computers were unaffected by schooling (Bin Lbrahim, 1995). Becker (1999) discovered that teachers' Internet use values were influenced by schooling. Becker explained that higher-educated teachers are more inclined to learn computers.

Teaching Field & Teacher Attitude

Education has gotten little attention. Northrup (1990) examined Social Studies instructors' computer views. The results showed that teachers had wide access to computers and a favourable attitude towards them. Most teachers wanted software & classroom technique instruction. McCaslin and Torres (1999) studied how secondary vocational teachers see microcomputers. Computer confidence & belief in their instructional worth explained 44% of the variance in attitudes towards using computers in in-service workshops. Pope (2000) observed that most mathematics professors have extensive computer experience.

Older teachers had less computer skills than younger ones. However, Becker (1999) showed that mathematics teachers were less likely to use the Internet to find teaching resources. LaMaster (1998) examined 23 districts in a large southern California county's physical education instructors' attitudes towards computer technology. Technology-savvy teachers were found. This study also suggested that teachers learn more about computer technology in their programmes.

Computer Training & Teacher Attitude

If a university or college that offers teacher education has prioritised the incorporation of technology, then those graduates will likely consider it as a vital part of their own professional development. Yidirim (2000) notes that education majors who become teachers hesitate to use technology & feel unprepared to integrate it into their instruction. Ropp (1999) adds that even tech-savvy teachers won't use it if they don't think it's useful.

Electronic School (2001) indicated that most teachers feel the World Wide Web has not changed their teaching. Teachers mostly use the Internet for research. Time prohibits 78% of instructors from logging on. Seventy-three percent said there was no administration push to use technology, and 50% said the lack of equipment & technical support limited their utilisation. Senator Bob Kerry said, "The Internet is revolutionising all parts of society, but its impact on education is just beginning to understand." Abbot (2000) reported that teachers were uneasy using computers before literacy training in technology integration. After a semester-long literacy

course that heavily used technology, teachers' attitudes about technology improved statistically.

LITERATURE OF REVIEW

Sofia Simões et al. (2022) Due to the rapid development of technology, educational institutions must embrace and make extensive use of technology. The aim of this research is to determine how various computer-related variables affect students' academic performance. We provide a model for understanding how factors such as mothers' education, parents' marital status and family size, and children's computer-learning surroundings & incentives affect students' academic performance. 286 students between the ages of 16 and 18 took part in an online survey designed to evaluate the conceptual model. Computer usage, job incentive, and maternal education are the most critical factors that contribute to a favorable environment for AA. AA is badly impacted by a lack of fun, a hostile school climate, a lack of interest motivation, and isolation. There is a mediating effect of computer usage between exposure to computer-based learning settings & student success in school, and moderating effects of family size & computer self-efficacy.

Abari M. T et al. (2022) This research looks at how fluency with computers affects how well kids do in computer science classes in high school. In this study, we investigated two hypotheses based on the literature & posed three research questions at the 0.05 level of significance. The research method chosen was a causal comparative one. The city of Makurdi in Nigeria's Benue State is the focus of the research. Benue State's capital city is Makurdi. Students in their last year of secondary school in the Benue state capital of Makurdi were the study's intended participants. From a total of 1,200 pupils, a random sample of 60 was chosen. Sixty pupils from Level 3 of the Senior Secondary School system will make up the study's sample. Methods of random sampling were used to choose the sample. There are two parts to the survey on the effects of computer literacy on students' performance in CS courses in secondary school. Parts A & B are included. The student's personal information is included in Section A, while the remaining six (6) things make up Section B. Validation and pilot testing were conducted at a school other than those selected for the research to evaluate the instrument's dependability. Mean and standard deviation were used to get answers to the study questions, and the T-test was used to check the hypothesis. The results suggest that both male & female students in secondary school benefit greatly from learning how to use computers, and that computer literacy has a major effect on students' success in computer science courses.

Mrs. Pramila Parida (2021) The purpose of the research was to assess the current state of computer instruction in Balasore district's secondary schools. Using a descriptive sampling technique, the sample includes one hundred educators & one hundred pupils drawn from twenty secondary schools in two blocks of the Balasore district. Both instructors & students

participated in the survey that yielded the statistics. It was discovered that teaching kids to use computers in the classroom encourages them to pursue jobs in technology & deepens their appreciation for the ways in which computers affect everyone's life. The students' exposure to computers in the classroom may inspire them to pursue it further. New educational techniques, like simulation or cooperative learning that are difficult to execute may be made more viable through the use of Information & Communication Technology, according to studies. It was shown that secondary school educators generally welcome the introduction of computers into their classrooms. They also underline the need of providing more computers in classrooms so that pupils may have more hands-on experience with the topic and be more interested in studying it. They wanted extra computer lessons included into the school schedule to provide students enough time to finish the course, and they wanted the curriculum to be more explicit about what was expected of them. This demonstrates the educator's dedication to the goals of computer education.

Nura Bawa (2021) The purpose of this research was to analyze the impact of computer science curriculum materials on the academic success of secondary school students in Kebbi State, Nigeria. The methodology used was quasi-experimental, consisting of non-equivalent comparisons taken both before and after treatment. Thirty-one and thirty-four JSS3 girls from Government Girls Secondary School Birnin Kebbi and Salamatu Hussaini Girls Secondary School Birnin Kebbi, respectively, were selected using a purposeful selection strategy to serve as the experimental and control groups. The experts' consensus on the validity of the CSAT was confirmed by a Kuder Richardson 21 (KR-21) reliability coefficient of 0.93. Preliminary & final assessments were conducted using the same instrument. At the 0.05 level of significance, the proposed hypothesis was evaluated, and two research issues were resolved. The mean & z-test were used to evaluate the data. The results showed that pupils who were taught using instructional materials (computer) had higher test scores and grades than those who were taught using traditional methods. The results favored the "experimental group," which consisted of students who were taught utilizing computer-based educational materials. In order to effectively offer computer science education at the secondary school level, it was suggested that the education board commit to supplying secondary schools with relevant and economically updated instructional materials, as well as providing secondary schools with additional computers.

Mohsen rezayi et al. (2021) The goal of this research was to find out how Chamestan students' creativity & academic performance were affected by playing instructional video games on computers. This study is semi-experimental in nature, including a control group and a pre-post test design. All 1397 Chamestan universities' student bodies served as the study's statistical population. Thirty students

were used as the statistical sample; fifteen were placed in the control group, while the remaining fifteen were placed in the experimental group. The cognitive and mean flexibility was used as a measure of academic success. SPSS 21 was used for the statistical analysis. Covariance analysis (ANCOVA) was used to determine whether there was a significant difference between the experimental and control groups in the time intervals before and after the intervention. The KS was used to normalize the data for this purpose. The results of this research demonstrated that pupils in Chamestan benefited from playing instructional video games on computers because they were more creative and had higher test scores.

Nilesh B. Gajjar (2021) According to the results of this study, male & female high school educators do not differ significantly in their familiarity with the internet. Teachers in both urban & rural secondary schools have similar levels of familiarity with the internet. It was observed that most educators could easily navigate the internet. It seems that the more people learned about the "internet," the less they remembered about the "internet explorer." There was no discernible difference in computer literacy between male and female high school educators. It was not determined whether or not instructors' familiarity with computers varied by geographic location in secondary schools.

CONCLUSION

The study of attitude towards computer and academic achievement, a majority of the students having access of computers at home have positive attitude. Overall the students have positive attitude without any gender difference. Different school boards showed no difference in attitude. A high academic achiever has a better positive attitude than a low academic achiever. However the type of schools the students attended showed a difference in their attitude. Students with positive computer education attitude had a positive effect in their achievement. The type of school board that the student attended did not affect the attitude towards computer. The trend towards this is seen with the use of technology in everyday lives from a simple typing of documents to major decision in choosing an occupation, be it in the software or hardware skills.

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