

The Impact of ICT on Learning Outcomes of Secondary School Students in Rishikesh Tehsil, Dehradun District

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Abstract

Technology drives every aspect of our lives, and we increasingly rely on new developments. In today's rapidly evolving world, the integration of Information and Communication Technology (ICT) in education has become a pivotal force in transforming traditional learning approaches. ICT in education, often referred to as e-learning or digital learning, has revolutionized teaching and learning by enhancing accessibility, interactivity, and effectiveness. This digital transformation has significantly impacted the educational landscape, unlocking a myriad of possibilities in the learning process. The present research paper, 'The Impact of ICT on Learning Outcomes of Secondary School Students in Rishikesh Tehsil, Dehradun District,' focuses on the impact of ICT on the learning of secondary students in Rishikesh Tehsil of Dehradun District.

Key word: ICT, Learning, Students, Secondary Level

Introduction

Before we understand what is ICT in education? we will have to understand what is the full form of ICT in education. The full form of ICT is Information and Communication Technology. Information and communication technology has a significant impact on how well students learn. It greatly expands educational opportunities while also adding value to education. To understand the significance the ICT in education, let us look at the advantages of ICT in education.

In today's rapidly evolving world, integrating Information and Communication Technology (ICT) in education has become a pivotal force for transforming traditional learning approaches. ICT in education, often called e-learning or digital learning, has revolutionized how students learn and teachers teach. This digital transformation has significantly impacted the educational landscape by enhancing accessibility, interactivity, and effectiveness.

Background of the study

Contemporary educational institutions are widely adopting Information and Communication Technology (ICT) within their pedagogical systems, transforming the student experience. The integration of ICT in education empowers students, educators, and parents by providing

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enhanced access to relevant information, fostering connections with learning communities and broader educational networks, and increasing the overall efficiency of education.

Educational settings employ a variety of ICT resources for communication, content creation, information dissemination, data storage, and administrative management. Furthermore, ICT is increasingly central to the teaching-learning dynamic, exemplified by the adoption of interactive digital whiteboards in place of traditional chalkboards, the utilization of students' personal digital devices for classroom learning activities, and the implementation of the "flipped classroom" model, wherein students review lectures remotely and dedicate classroom time to interactive exercises.

Driven by the forces of globalization and technological advancement, many nations are prioritizing the widespread adoption of Information and Communication Technology (ICT) across their educational infrastructure. Consequently, numerous ICT tools have been introduced into schools, with increasingly sophisticated equipment being integrated into science education. The rationale for incorporating advanced ICT tools in schools and colleges is multifaceted, with the recognition that technical literacy will constitute a fundamental prerequisite for future employment being a primary driver. ICT is widely acknowledged for its potential to contribute significantly to national progress. For students, it provides valuable tools for assignment completion, data acquisition, digital learning engagement, and research endeavors, effectively serving as a crucial conduit for both instruction and knowledge acquisition.

Significance of the Study

The field of education has been profoundly reshaped by Information and Communication Technologies (ICTs), undeniably affecting teaching methodologies, learning experiences, and research endeavors. ICTs hold the remarkable potential to accelerate skill acquisition, enrich understanding, and deepen knowledge. They serve to motivate and engage students, effectively connecting academic learning with real-world work practices, thereby enhancing the economic prospects of tomorrow's workforce. Furthermore, ICTs strengthen teaching effectiveness and facilitate positive transformations within schools. By offering curricular support in challenging subject areas, they play a crucial role in improving and developing the overall quality of education. Ultimately, the strategic implementation of ICT not only elevates learning environments but also equips the next generation with essential skills for their future lives and careers.

The integration of ICT into teaching and learning processes significantly enhances interaction and the effective reception of information. Such advancements necessitate a re-evaluation of traditional communication models and pedagogical approaches, giving rise to innovative scenarios that foster both individualized and collaborative learning. The imperative for ICT integration in education to enhance pedagogical practices and reflect the dynamic changes in society is a globally recognized necessity.

ICTs offer multifaceted enhancements to the quality of education by bolstering learner motivation and engagement, streamlining the acquisition of fundamental skills, and optimizing the teaching-learning dynamic. As transformative tools, when strategically employed, ICTs can

catalyze a fundamental shift towards a learner-centered educational paradigm. A central vision for the utilization of ICT is to ensure that students, upon completing their education, emerge as confident, creative, and productive users of cutting-edge technologies, possessing a critical understanding of their profound impact on society.

In light of the above discussion and the understanding of ICT's importance in education, as well as its widespread implementation in schools to facilitate teaching and learning, the present research study was conceived to specifically investigate the impact of ICT on Learning Outcomes. The researcher felt the need to conduct the research study on the topic, **"The Impact of ICT on Learning Outcomes of Secondary School Students in Rishikesh Tehsil, Dehradun District."**

Objectives of the Study

Given the significant impact of technology in school education, the present study aims to achieve the following objectives in the context of secondary schools students in Rishikesh one of the Tehsil of Dehradun district:

1. **To assess the availability and utilization of ICT resources.**
2. **To determine the extent of students' interest in using ICT for learning.**
3. **To evaluate students' perceived competence and preferences for different ICT tools.**
4. **To investigate the relationship between ICT integration and students' motivation.**

Hypothesis of the Study

The hypotheses of the study are as follows:

- H₀₁: There was no significant difference between the mean score of ICT resources in private and government schools.
- H₀₂: There was no significant difference between the mean score of interest among the students through learning with ICT in the private school and government school.
- H₀₃: There was no significant difference between the mean score of aptitude of students through learning with ICT in the private school and government school.
- H₀₄: There was no significant difference between the mean score of motivation of students through learning with ICT in the private school and government school.

Methodology

For the present research study, the researcher has taken the descriptive survey method as her research method.

Population of the study

Both the schools, private and government, use ICT in teaching and learning, and they contribute to students' education. The population of the study is the secondary schools of **Rishikesh Tehsil** within the **Dehradun district of Uttarakhand**. The proposed study contained sixty samples, in

which thirty samples are from the government schools and the remaining thirty are from the private schools were collected.

Tools for the data collection

The research used self-made questionnaire tools based on Information and Communication Technology. The questionnaire was applied to the students of both government and private secondary schools of Rishikesh to collect the data with the help of proposed sampling.

Delimitations of the Study

The present study is specifically delimited to secondary school students of **Rishikesh Tehsil** within the **Dehradun district of Uttarakhand**. The sample for this study comprises **60 secondary school students**. These students were selected with **30 students from two government schools** and **30 students from two private schools** located within Rishikesh Tehsil. The data collection was conducted exclusively from these secondary schools within the aforementioned geographical area.

Major findings of the study

The major findings of this research are as follows:

- After the analysis of data, it was found that the mean score of ICT resources in private schools and government schools is significantly different. The mean score of technical resources of private schools (26.93) is higher than that of government schools (23.67), and also the calculated value of the 't' test is more than its table value (calculated value is 2.86; table value at 0.05 level is 2.00 and at 0.01 level is 2.66). Hence, there are significant differences, which indicate that the null hypothesis is rejected. It is also found that there were no students in the private schools who gained the lowest score, which indicates that ICT resources were available in those schools. While, in government schools, about twenty-three percent of students gained a low score, it shows that there are no resources available in this school. Eighty percent of students in private schools gained an average score (19-28), and twenty percent of those gained a high score (29-38). It shows facility is at an average level.

From the above discussion, it is concluded that the ICT-related resources in the private schools are remarkably better than in government schools.

- After the analysis of data, it was found that the mean score of interest of students towards learning with ICT in private schools and government school gain equally average and high score, indicates that skill are also increased in the students of that school.

It is concluded that students' aptitude of the private school is significantly better than that of the government school.

- After the analysis of data, it was found that the mean score of the students' motivation of private schools is significantly higher (24.5) than that of government schools (21.00), and

also the calculated value of the 't' test is higher than its tabulated value (calculated value is 3.57; table value at 0.05 level is 2.00 and at 0.01 level is 2.66). These results show that there are significant differences between these schools; it indicates that here the null hypothesis is rejected. It was also found that about ninety-six percent of students of private schools have an average level of motivation towards ICT, while there is a very low or nil percentage of students scoring low and high. These results indicate that the motivation is of average level. About sixty-three percent of students of government schools score an average level, and about thirty-three percent score a low level; these results show that students of these schools have average motivation.

It is concluded from the above results that students' motivation is higher in the private schools than that of the government schools.

Educational Implication

Technological resources that are available for teaching and learning include computer hardware and software, in addition to electronic communication media. The rapidly changing nature of computer technology continues to be a wide range of resources available for any school significantly differ. The mean score of private school is higher (25.30) than that of government school (17.67), and also the calculated value of the 't' test is more than its tabulated value (calculated value is 7.82; table value at 0.05 level is 2.00 and at 0.01 level is 2.66). Hence, there are significant differences; it indicates that here the null hypothesis is rejected. There were no students of the private schools those gaining the lowest score, and about twenty-three percent of students of this school gained a high score; these show they have high interest to learn with ICT. While, in government schools, about sixty percent of students gained a low score; it shows that they have very less interest. It is also found that no student got a high score in the government school; this indicates that students of this school are very less interested in learning through ICT.

From these results, it is concluded that the ICT-related interest among the students of private schools is remarkably higher than in government schools.

After the analysis of data, it was found that the mean score of the students' aptitude of private schools is significantly higher (30.43) than that of government schools (27.07), and also the calculated value of the 't' test is more than its tabulated value (calculated value is 3.56; table value at 0.05 level is 2.00 and at 0.01 level is 2.66). Hence, there are significant differences; it indicates that here the null hypothesis is rejected. The aptitude's results show that students of private schools have a high score of aptitude (80%) in ICT rather than government schools (46.67%), which indicate aptitudes are increased among the students of private schools by learning through ICT. About, forty-six percent of students of subject-specific learning Technology have an important role in every aspect of modern life. The technological device finds its usage every day. The use of Information and Communication Technologies (ICT) has become universal.

Hence, the Educational Implication of the present study is stated as follows:

- The study would be helpful to students to increase motivation, achievement, and learning opportunity with Information and Communication Technology (ICT) devices.
- The study would be helpful to make student-teacher relationships in a friendly manner.
- The study would be helpful for the teachers to increase the attitude towards ICT as well as the students.
- The study would be helpful to the student to assist in acquiring essential occupational skills.
- This technology is helpful in making curriculum planning to plan their curriculum scientifically as well as modern technologically.
- The ICT would be enlightening for the student, which helps in the development of knowledge and fulfills the desire for the acquisition of correct knowledge and truth.
- This study would help the students for better confidence in their abilities to seek knowledge with their own efforts through ICT.
- This study would help for adequate ability of problem-solving and believes that the problems can be solved through proper efforts involving scientific observation and experimentation.
- Communication technology. It can be extended by taking other dimensions.

Conclusion

The use of ICT in teaching helps students to expand knowledge, experience, and increase understanding, especially in education. As we know that information and communication technologies can be used as a huge source of information and have been adapted or developed to facilitate critical thinking and higher-order learning. With the revolution of technology in this age of globalization, many countries trend to maximize the use of information and communication technology (ICT) in their educational institutions. ICT in education includes computers, laptops, smartboards, projectors, etc. ICT also encompasses both the internet-enabled sphere as well as the mobile one powered by wireless networks. By adding it into schools, learners will be outfitted with scientific tools and knowledge so as to make a changeover from school to the workplace. Without hesitation, technology has today become critical and mandatory not only in education but in each and every aspect of our lives because it offers more knowledge to learners and also makes them ambitious.

From the above discussion, we conclude that ICTs can enhance the quality of education in several ways, by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing the teaching-learning process. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centered environment. The implement technology education promoting creativity, empowerment, and equality, producing efficient learners, problem solvers, potential...

ICT allows students to monitor and manage their own learning, think critically and creatively, solve simulated real-world problems, work collaboratively, engage in ethical decision-making, and adopt a global perspective towards issues and ideas.

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