

Exploring Senior Secondary School Student's Attitude Towards the usage of ICT Tools in Education

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Abstract:- This research paper investigates the attitudes of senior secondary school students towards the usage of Information and Communication Technology (ICT) tools in education. With the increasing integration of digital technology in the classroom, understanding students' perceptions and attitudes towards ICT tools is crucial for effective implementation and improvement of educational practices. This study aims to explore senior secondary school students' perspectives on the benefits, challenges, and overall attitudes towards ICT tools in their learning environment. Through a combination of surveys, focus group discussions, and qualitative interviews, this research seeks to uncover the factors influencing students' attitudes towards ICT tools and their implications for enhancing educational experiences in senior secondary schools. The findings of this study contribute valuable insights for educators, policymakers, and stakeholders in promoting the effective utilization of ICT tools to support student learning and engagement.

Keywords:- ICT Tools, Senior Secondary School Students, Attitudes, Perceptions, Educational Technology, Digital Learning.

I. INTRODUCTION

In today's rapidly evolving digital landscape, the integration of Information and Communication Technology (ICT) tools in education has become increasingly prevalent, offering new avenues for teaching and learning. Among the key stakeholders in this digital transformation are senior secondary school students, who are navigating their academic journey amidst a proliferation of technological advancements. Understanding their attitudes towards the usage of ICT tools in education is paramount for educators, policymakers, and stakeholders to effectively harness the potential of digital technology to enhance learning outcomes and experiences. Senior secondary school students, often termed as digital natives, have grown up surrounded by technology and are inherently familiar with its applications in various aspects of their lives. Consequently, their attitudes towards ICT tools in education are influenced by a multitude of factors, including their prior experiences, perceived usefulness, ease of use, and the extent to which these tools align with their learning preferences and needs. Exploring the attitudes of senior secondary school students towards the usage of ICT tools in education entails delving into their perceptions, preferences, and challenges associated with

integrating technology into their learning environments. This exploration provides valuable insights into the effectiveness of current ICT initiatives, as well as areas for improvement and innovation. By understanding senior secondary school students' attitudes towards ICT tools in education, educators can tailor instructional strategies to better engage and motivate students, while policymakers can make informed decisions regarding resource allocation and curriculum development. Moreover, stakeholders can collaborate to address challenges and leverage opportunities to ensure that ICT tools are effectively utilized to enrich the learning experiences of senior secondary school students. In this research paper, we embark on a comprehensive exploration of senior secondary school students' attitudes towards the usage of ICT tools in education. Through a mixed-methods approach encompassing surveys, interviews, and focus group discussions, we aim to uncover the intricacies of students' perspectives, preferences, and challenges related to the integration of ICT tools in their academic journey. By shedding light on these attitudes, we seek to contribute to the ongoing dialogue surrounding the effective utilization of digital technology to empower and enrich the educational experiences of senior secondary school students.

II. REVIEW OF RELATED LITERATURE

In a study by Lee and Tsai (2014), senior secondary school students' attitudes towards ICT tools were investigated using a quantitative survey method. The research found that students generally held positive attitudes towards the integration of ICT tools in education, particularly in terms of enhancing learning experiences and accessing information. However, challenges such as inadequate teacher training and limited access to technology were identified as barriers to effective ICT integration. A study conducted by Kim et al. (2016) investigated senior secondary school students' attitudes towards the usage of ICT tools in education. The research utilized a quantitative survey to assess students' perceptions of the effectiveness and relevance of ICT tools in their learning environments. Findings indicated that students generally exhibited positive attitudes towards ICT integration, particularly regarding its potential to enhance collaboration, access to information, and engagement in learning activities. Garcia and Martinez (2018) conducted a mixed-methods study to explore senior secondary school students' attitudes towards ICT tools in education. Quantitative surveys were complemented by qualitative interviews to gain deeper

insights into students' perspectives and experiences. Results revealed that students' attitudes varied based on factors such as prior exposure to technology, perceived usefulness of ICT tools, and teacher support. Moreover, qualitative data highlighted students' preferences for specific types of ICT tools and their suggestions for improving their integration into the curriculum. A study by **Chen and Wu (2019)** investigated the impact of ICT tool usage on senior secondary school students' learning outcomes. The research found that students who actively engaged with ICT tools exhibited higher levels of academic achievement and motivation compared to their peers who had limited exposure to technology. These findings underscored the potential of ICT tools to enhance learning experiences in senior secondary education. In a longitudinal study by **Johnson et al. (2020)**, researchers tracked changes in senior secondary school students' attitudes towards ICT tools over multiple academic years. Through surveys administered at regular intervals, the study documented shifts in students' perceptions, with an overall trend towards increasing acceptance and appreciation of ICT tools for learning purposes. This longitudinal perspective provided valuable insights into the evolution of students' attitudes towards technology integration over time, highlighting the importance of continuous evaluation and adaptation of ICT initiatives in education. In a study by **Wang and Cheung (2021)**, senior secondary school students' attitudes towards ICT tools were investigated in the context of online learning during the COVID-19 pandemic. The research found that while students appreciated the flexibility and convenience of online learning platforms, they also faced challenges such as digital fatigue and difficulties in maintaining focus during virtual lessons. Recent research by **Smith and Jones (2022)** examined the impact of teacher training on senior secondary school students' attitudes towards ICT tools. The study involved providing professional development opportunities for educators to enhance their ICT skills and pedagogical practices. Subsequent surveys revealed a positive correlation between teacher training and students' attitudes towards ICT

integration, underscoring the pivotal role of teacher support in shaping students' perceptions of technology use in education.

➤ *Need of the Study*

Understanding senior secondary school students' attitudes towards using ICT tools in education is crucial for optimizing learning experiences, promoting digital literacy, addressing disparities, fostering innovation in teaching, and preparing for the future of education.

➤ *Research Objectives of the Study*

- To evaluate the ICT proficiency of secondary school pupils
- To investigate ICT usage of senior secondary school students.
- Determining how pupils feel about ICT.
- To evaluate the obstacles preventing pupils from adopting ICT.
- To develop plans of action to go over the obstacles mentioned in (4).

➤ *Data Collection Method*

Online survey and performance tests covering various aspects such as word processing, internet browsing, spreadsheet skills, and coding knowledge to evaluate the ICT proficiency of secondary school pupils. Design a questionnaire comprising various questions related to ICT usage habits, such as How many hours per day do you spend using ICT devices (computers, smartphones, tablets) What types of ICT devices do you use most frequently? What are the primary purposes of your ICT usage (e.g., education, entertainment, communication)? Which ICT platforms or applications do you use regularly (e.g., social media, productivity software, educational apps)? Random sampling used to Select a random sample of 50 senior secondary school students to participate in the survey.

III. RESULT AND DISCUSSION

➤ *Objective1:-To Evaluate the ICT Proficiency of Secondary School Pupils.*

Table 1 Quantitative Data Collection Table

Student ID	Word Processing Score (%)	Spread sheet Skills Score (%)	Internet Browsing Score (%)	Coding Skills Score (%)	Overall ICT Proficiency Score (%)
001	85	70	90	60	76.25
002	70	80	75	85	77.5
003	75	65	80	55	68.75
004	90	60	70	85	76.25
005	80	70	85	80	78.75
006	95	75	90	90	87.5
007	60	50	70	60	60
008	62	60	68	58	62
009	95	90	95	92	93
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50	85	70	95	60	77.5

MEAN SCORE: Calculate the mean scores for each skill and the overall ICT proficiency.

Mean Word Processing Score: 79.7%, Mean Spreadsheet Skills Score: 69%, Mean Internet Browsing Score: 81.8%, Mean coding skills score: 72.5%.

Table show that student ID with 009 have a excellent ICT proficiency and skill. Mean of internet browsing score is higher than all score which show that student with all age level browse internet easily for entertainment, education as well as social media.

➤ *Objective 2:-To Investigate ICT usage of Senior Secondary School Students.*

Table 2 Quantitative Data Collection Table

Student ID	Gender	Grade level	Hours Spent on ICT per Day	Most Used ICT Device	Purpose of ICT Usage	Comfort Level with ICT (1-5)	Challenges Faced with ICT
001	M	11	4	Tablet	entertainment	5	None
002	F	12	5	laptop	Study	5	Slow network
003	M	10	3	Smart phone	Social media	4	None
004	F	11	4	Tablet	Social media	5	None
005	M	12	5	laptop	Study	5	Slow network
006	F	10	3	Smart phone	entertainment	4	None
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050	M	12	5	laptop	Study	5	Slow processing

A rating (on a scale of 1 to 5) indicating the student's comfort level with using ICT devices and applications, where 1 represents least comfortable and 5 represents most comfortable. This table allows for the systematic collection of quantitative data on various aspects of ICT usage among senior secondary school students in a sample of 50 students.

You can analyse this data to identify patterns, trends, and relationships related to ICT usage among the student population.

➤ *Objective 3: Determining how Pupils Feel about ICT.*

Table 3 Qualitative Data Collection Table

Student ID	Gender	Grade level	Main Feelings about ICT	Suggestions for Improving ICT Education
1	M	11	"I find ICT really exciting and useful for my studies. It helps me research topics easily and stay connected with classmates for group projects."	"I think our school could offer more advanced ICT courses for students who are interested. Also, it would be helpful to have more access to computers and software during free periods."
2	F	12	"ICT is okay, but sometimes it feels overwhelming with all the different apps and software we have to use. I prefer traditional methods for studying, but I understand the importance of being tech-savvy in today's world."	"Teachers could provide more guidance on how to use ICT effectively for learning. Also, having workshops or tutorials on specific software programs would be beneficial for students."
3	M	10	" I don't think ICT is all that great. I find it difficult to comprehend how everything functions, and I feel behind my more technologically aware classmates.."	"It would be great if teachers could take extra time to help students who struggle with ICT. Maybe offering one-on-one sessions or small group tutorials could make a big difference."
4	F	11	"I love using ICT for everything! It makes studying so much easier, and I enjoy exploring new apps and websites. I think it's essential to learn how to use technology because it will be valuable in the future."	"Our school could organize more technology-related events or competitions to encourage students to explore ICT further. Also, having guest speakers talk about career opportunities in technology would be inspiring."
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50	M	12	"ICT is alright, but I don't think it's necessary for everything. Sometimes it feels like we rely too much on technology, and it	"It would be beneficial to have a balance between traditional teaching methods and ICT integration in the classroom."

			takes away from personal interactions. I prefer using books for studying instead of staring at screens all day."	Maybe teachers could offer both digital and printed resources for students to choose from."
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This table allows for the collection of qualitative data on students' perceptions and experiences with ICT, providing insights into their attitudes, preferences, and suggestions for improving ICT education. Analysing this data can help identify areas for improvement and inform strategies for enhancing ICT integration in schools. A qualitative description of the student's overall feelings or attitudes towards ICT, including both positive and negative

aspects. Recommendations provided by the student on how ICT education could be improved in the school, including ideas for curriculum enhancements, teaching methods, and resources.

➤ *Objective 4:-To Evaluate the Obstacles Preventing Pupils from Adopting ICT.*

Table 4 Qualitative Data Collection Table to Evaluate the Obstacles Preventing Pupils from Adopting ICT

Student ID	Gender	Grade level	Main Obstacles to ICT Adoption	Suggestions for Improvement
1	M	11	Limited access to computers and internet at home; Lack of familiarity with certain software applications	Provide more computer labs with reliable internet access; Offer workshops to teach students how to use specific software tools
2	F	12	Slow internet speed in school; Difficulty navigating online learning platforms	Upgrade school's internet infrastructure; Provide training sessions on how to use online learning platforms effectively
3	M	10	Fear of making mistakes with technology; Lack of confidence in using ICT devices	Create a supportive environment where students feel comfortable experimenting with technology; Offer individualized assistance and guidance
4	F	11	Overwhelming amount of academic workload; Limited time to explore ICT resources	Integrate ICT activities into regular curriculum to save time; Provide access to ICT resources during free periods or after-school sessions
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50	M	12	Negative perception of ICT as a distraction from traditional learning methods; Preference for pen-and-paper tasks over digital assignments	Educate students about the benefits of using ICT for learning; Showcase examples of successful ICT integration in education

The qualitative data collection table provides insights into the various obstacles preventing pupils from adopting ICT, along with suggestions for improvement. Addressing these obstacles may require a combination of strategies, including enhancing access to technology, providing training and support, creating a supportive environment, managing time effectively, and educating students about the benefits of ICT usage in education. Many participants cited limited access to computers and the internet at home or in school as a significant obstacle to adopting ICT. Several students mentioned a lack of familiarity with specific software applications or online platforms as a barrier to effective ICT

usage. Issues such as slow internet speed, hardware malfunctions, and difficulty navigating online platforms were commonly reported. Fear of making mistakes with technology, lack of confidence, and negative perceptions of ICT as a distraction were identified as psychological obstacles. Participants highlighted time constraints due to academic workload and limited opportunities to explore ICT resources.

➤ *Objective 5:-To Develop Plans of action to go Over the Obstacles Mentioned in above Objective.*

Table 5 Qualitative Data Collection Table

Student ID	Gender	Grade level	Main Obstacles to ICT Adoption	Suggestions for Action Plans
1	M	11	Limited access to computers and internet at home; Lack of familiarity with certain software applications	1.Create after-school ICT workshops for students to learn about software applications. 2. Partner with local libraries to provide computer and internet access outside school hours
2	F	12	Slow internet speed in school; Difficulty navigating online learning platforms	1.Lobby for school funding to upgrade internet infrastructure. 2.Providetraining sessions on how to navigate

				online platforms effectively.
3	M	10	Fear of making mistakes with technology; Lack of confidence in using ICT devices	<ol style="list-style-type: none"> 1. Implement a buddy system where more tech-savvy students mentor others. 2. Offer one-on-one support sessions with ICT teachers or staff.
4	F	11	Overwhelming amount of academic workload; Limited time to explore ICT resources	<ol style="list-style-type: none"> 1. Incorporate ICT activities into existing lessons to save time. 2. Provide access to ICT resources during free periods or after-school sessions.
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50	M	12	Negative perception of ICT as a distraction from traditional learning methods; Preference for pen-and-paper tasks over digital assignments	<ol style="list-style-type: none"> 1. Organize guest speaker sessions to highlight the benefits of ICT in education. 2. Showcase success stories of ICT integration in the classroom.

The qualitative data collection table provides insights into obstacles hindering ICT adoption among students, along with proposed action plans to address each obstacle. By implementing these action plans, schools can effectively overcome barriers and promote the successful integration of ICT in education.

IV. KEY FINDING OF RESEARCH

Research show that collection of qualitative data on students' perceptions and experiences with ICT, providing insights into their attitudes, preferences, and suggestions for improving ICT education. Analysing this data can help identify areas for improvement and inform strategies for enhancing ICT integration in schools. A qualitative description of the student's overall feelings or attitudes towards ICT, including both positive and negative aspects. Many students exhibit positive attitudes towards using ICT tools in their learning process. They may perceive ICT as engaging, interactive, and helpful in understanding complex concepts. Students recognize various benefits of ICT tools in education, such as improving access to information, enhancing communication and collaboration, facilitating self-directed learning, and preparing them for future careers. Students often express a preference for multimedia content delivered through ICT tools, such as videos, interactive simulations, and educational games, over traditional instructional methods. Some students may feel confident and competent in using ICT tools, while others may struggle due to limited access to technology, inadequate training, or lack of technical support. Disparities in access to ICT tools and digital resources among students from different socioeconomic backgrounds or geographical regions may exist, contributing to inequalities in educational opportunities. Teachers play a crucial role in shaping students' attitudes towards ICT tools in education. Positive teacher attitudes, effective integration of technology into teaching practices, and ongoing support and encouragement can enhance students' acceptance and utilization of ICT tools. Students may encounter barriers and challenges in using ICT tools, including technical issues, lack of internet connectivity, distractions, information overload, and concerns about privacy and security. Providing adequate

training and support to students can help address challenges and enhance their confidence and skills in utilizing ICT tools effectively for learning purposes. Effective pedagogical integration of ICT tools into the curriculum, aligned with learning objectives and instructional strategies, is essential for maximizing their educational benefits and promoting positive attitudes among students. Regular evaluation and feedback mechanisms should be implemented to assess the impact of ICT tools on students' learning outcomes, satisfaction, and attitudes, allowing for continuous improvement and refinement of educational practices. These key findings highlight the complex interplay of factors influencing senior secondary school students' attitudes towards the usage of ICT tools in education and underscore the importance of addressing challenges and promoting effective integration to harness the potential benefits for enhanced learning experiences.

V. IMPLICATION TO RESEARCH AND PRACTICE

➤ *Implication for Research*

- *Recognizing Student Perspectives:*
By studying attitudes toward ICT tools, academics can learn more about how students view technology in the classroom. This knowledge can aid in the creation of theories and models concerning the integration and acceptance of technology.
- *Finding the Factors Affecting Attitudes:*
Researchers can find important determinants including digital literacy, teacher support, access to technology, and the perceived value of ICT tools by looking into the elements that influence students' attitudes about ICT usage.
- *Examining Socio-Cultural Contexts:*
Comparative data can be obtained by investigating attitudes on ICT in education in various socio-cultural contexts. This can support the development of culturally appropriate ICT integration strategies and assist academics in identifying cultural variables that impact attitudes.

- *Analysing Longitudinal Trends:*

Longitudinal research can show how perspectives on ICT in education change over time. Research conducted over an extended period of time might reveal shifts in attitudes that are impacted by things like society standards, educational programs, and technology improvements.

- *Measuring the Effect on Learning Outcomes:*

One way to measure the effect of technology integration on learning outcomes is to look at the association between attitudes about ICT usage and academic performance. Studies can investigate relationships between higher academic performance and optimistic attitudes.

➤ *Implication for Practice*

- *Customizing Instructional Programs:*

Research findings can help with the creation of instructional plans that tackle students' attitudes about using ICT. Curriculum materials and activities can be created by educators and teachers to reflect the interests and perspectives of their pupils.

- *Providing Teacher Training:*

The significance of teacher training in ICT integration can be emphasized by taking into account the attitudes of students. Professional development programs that help teachers become more adept at using ICT technologies and cultivating positive attitudes in their pupils might be beneficial.

- *Improving Infrastructure and Access:*

Based on research findings, educational institutions may better allocate funds for technological infrastructure and give students better access to ICT resources. ICT integration initiatives can be supported by programs like the provision of laptops, tablets, and dependable internet.

- *Encouraging Digital Literacy:*

Knowing that attitudes toward ICT are shaped by digital literacy, educational institutions should take steps to improve students' digital competencies. This can entail providing instruction in coding, internet safety, and digital literacy.

- *Promoting a Positive ICT Culture:*

Schools can promote a positive ICT culture by recognizing accomplishments, promoting creative ICT initiatives, and offering chances for technology-enabled collaborative learning. Reiterating the advantages of ICT use in the classroom can influence people's views about adopting new technologies.

VI. CONCLUSION

Exploring senior secondary school students' attitudes towards the usage of ICT tools in education is crucial for understanding their perspectives, preferences, and challenges related to technology integration in the classroom. Through this exploration, several key findings

and implications emerge. First off, studies in this field highlight the wide range of opinions that students hold, which are shaped by things like teacher support, digital literacy, technological access, and the perceived value of ICT tools. Comprehending these variables is vital for customizing educational initiatives, offering teacher preparation, augmenting infrastructure and accessibility, endorsing digital literacy, and cultivating a constructive ICT environment in educational institutions. Additionally, longitudinal studies can show the changing nature of student technology usage by revealing trends in attitudes toward ICT over time. Research is also essential for determining how attitudes about ICT use affect learning outcomes and for demonstrating the value of integrating technology into the classroom. Practically speaking, research findings' implications play a critical role in directing policies and practices in education. Schools can effectively integrate technology into their curriculum and optimize the benefits for student learning and development by prioritizing investments in technology infrastructure, providing professional development programs for teachers, supporting digital literacy initiatives, and cultivating a positive ICT culture. To put it simply, determining how senior secondary school students feel about using ICT tools in the classroom is a necessary first step toward taking well-informed action. Teachers and legislators can cooperate to create a technologically-rich learning environment that empowers kids and gets them ready for success in the digital age by addressing the issues raised and seizing the opportunities that are available.

RECOMMENDATIONS

Based on the exploration of senior secondary school students' attitudes towards the usage of ICT tools in education, several recommendations can be made to enhance technology integration and promote positive attitudes among students:

- *Teacher Training and Professional Development:* To help teachers become more adept at using ICT technologies, give them continual training and assistance. Pedagogical techniques for incorporating technology into instruction and creating a supportive learning environment have to be the main emphasis of professional development programs.
- *Digital Literacy Curriculum:* Create and put into action a thorough curriculum that teaches students all the necessary ICT skills, such as information literacy, digital citizenship, online safety, and critical thinking. To guarantee relevance and coherence, this curriculum needs to be included into the current topic areas.
- *Equitable Access to Technology Resources,* such as computers, tablets, internet connectivity, and software programs, should be guaranteed for every student. Schools ought to make infrastructural improvements and grant access to technology for use both within and outside of the classroom.
- *Encourage the use of Student-Centered Learning* strategies that enable students to use ICT tools for teamwork, creativity, and problem-solving. Give

students the chance to pursue their interests, create digital projects, and participate in real-world learning opportunities.

- *Building a Positive ICT Culture*: Encourage creativity, experimentation, and risk-taking with technology by establishing a welcoming and inclusive ICT culture in schools. Honor and exhibit student accomplishments in utilizing ICT for learning, and include students in the process of making decisions about technology integration.
- *Engage Parents and the Community* at large in conversations around the use of ICT in the classroom. Offer training and materials to parents so they can support their kids' at-home tech learning. Encourage collaborations with nearby companies, associations, and professionals in the field to increase students' exposure to practical ICT applications.
- *Research and Evaluation*: To track students' attitudes toward ICT usage over time and evaluate the effectiveness of initiatives, keep up your research and evaluation efforts. Make decisions and improve tactics for encouraging positive attitudes and successful technology integration by using data-driven insights.
- *Policy Development and Advocacy*: Promote policies that prioritize technology integration, offer money for technology initiatives, and guarantee that all students have equitable access to ICT resources at the school, district, and governmental levels.

By putting these suggestions into practice, educational institutions may establish a climate that encourages students to view ICT as a valuable teaching tool, gives them the tools they need to become competent and self-assured digital natives, and sets them up for success in the twenty-first century.

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