International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Digital Resources in Secondary Education: A Study of Students' Attitude and Utilisation in Idukki District, Kerala

Jobin K Sebastian[1], Dr. Brijesh Kumar Yadav[2]

[1]Research Scholar, Department Of Education, Sunrise University, Alwar, Rajasthan, India.
[2]Assistant Professor, Department Of Education, Sunrise University, Alwar, Rajasthan, India.

Abstract

The integration of digital resources into school education has gained considerable momentum in India, transforming traditional teaching–learning practices at the secondary level. Despite increased availability of digital tools, variations in students' attitudes and patterns of utilisation continue to influence the effectiveness of technology-enabled learning, particularly in geographically diverse districts. The present study investigates the attitude of secondary school students towards digital resources and the extent of their utilisation in Idukki District of Kerala. Adopting a descriptive survey method, the study was conducted on a sample of 600 students studying in XI and XII classes, selected through stratified random sampling. Data were collected using standardised tools measuring attitude and utilisation of digital resources. The influence of demographic variables such as gender, class, locality, family type, parental education and parental occupation was analysed using appropriate statistical techniques. The findings indicate that students generally exhibit a favourable attitude towards digital resources, while significant differences in utilisation are observed across locality and parental background. A positive and significant relationship was found between students' attitude towards digital resources and their utilisation. The study highlights the need for structured pedagogical guidance and equitable digital access to enhance meaningful use of digital resources in secondary education.

Keywords: Digital resources, secondary education, student attitude, utilisation, Idukki District

1. Introduction

The rapid advancement of digital technology has profoundly influenced the landscape of school education across the world. In India, the integration of digital resources into classrooms has been actively promoted through national initiatives aimed at enhancing access, quality and equity in education. Digital resources such as educational websites, e-books, online videos, learning applications and virtual classrooms have expanded learning opportunities beyond the physical boundaries of the classroom, particularly at the secondary school level where conceptual understanding and academic performance become crucial. At the same time, the effectiveness of digital integration depends not merely on the availability of technology but on how students perceive and utilise these resources. Attitude plays a central role in shaping students' engagement with digital tools, influencing their motivation, confidence and willingness to use technology for learning. A positive attitude towards digital resources often leads to increased utilisation and deeper learning, whereas unfavourable perceptions may limit their educational potential even when access is

provided. Kerala has been at the forefront of educational development in India and has made notable progress in the adoption of digital initiatives in schools. However, the benefits of digital education are not uniformly experienced across all regions. Idukki District, characterised by its hilly terrain, rural settlements and tribal communities, presents distinct challenges related to digital connectivity, infrastructure and socio-economic conditions. Students in such contexts may face barriers that affect both their access to digital resources and their capacity to use them effectively for academic purposes. Previous studies conducted in different parts of India, including Andhra Pradesh, have indicated that students' utilisation of digital resources is significantly influenced by demographic factors such as locality, family environment and parental background. These studies suggest that parental education and occupation play a vital role in shaping students' exposure to and support for digital learning. Despite these insights, there is a scarcity of region-specific empirical research focusing on secondary school students in Idukki District, particularly with reference to XI and XII classes, where academic demands and examination pressures are high. In this context, the present study seeks to examine the attitude of secondary school students towards digital resources and the extent of their utilisation in Idukki District of Kerala. By analysing the influence of selected demographic variables such as gender, class, locality, family type, parental education and parental occupation, the study aims to provide a comprehensive understanding of digital resource usage among secondary school students. The findings are expected to offer valuable implications for teachers, school administrators and policymakers in strengthening effective and equitable digital integration at the secondary education level.

2. Review of Literature

The review of literature presents recent and relevant studies related to students' attitude towards digital resources and their utilisation in school education, with particular emphasis on Indian contexts, including Kerala and Andhra Pradesh. The review helps in identifying research trends, methodological approaches and gaps that justify the present study. Sebastian and Yadav (2026) conducted a district-level study on secondary school students in Idukki District, Kerala, focusing on their attitude towards digital resources and effective utilisation. Using a descriptive survey method, the study revealed that students generally possessed a positive attitude towards digital resources. However, significant differences were observed in utilisation based on locality and school management. The authors emphasised that geographical factors and infrastructural limitations in high-range areas affected students' effective academic use of digital tools. This study provides a direct contextual foundation for the present research. Malque et al. (2024) examined teachers' perspectives on the challenges of online education for tribal students in Idukki District during the COVID-19 period. The qualitative findings highlighted poor internet connectivity, lack of digital devices and limited parental support as major obstacles to effective digital learning. The study concluded that digital access alone is insufficient without structured guidance and family support, reinforcing the need to consider parental education and occupation as important variables. Bipin (2020) investigated students' attitudes towards digital reading among university students in Kerala. The study found that while students demonstrated favourable attitudes towards digital resources, their utilisation for academic purposes was inconsistent. Many students preferred digital platforms for casual reading rather than structured learning. The author suggested that positive attitudes must be complemented with pedagogical strategies to enhance academic utilisation, a finding relevant to secondary education contexts as well. Ravi Kumar and Bhanu Sankar (2023) conducted a study on the effects of technology in high school education in Andhra Pradesh. Their research indicated that students frequently used digital tools; however, utilisation

was often limited to surface-level engagement rather than conceptual learning. Significant differences were found based on locality and parental background. The study highlighted the influence of family environment and parental occupation on students' access to and support for digital learning. Ghosh (2024) studied the attitude towards e-learning in relation to study habits among Indian students and reported a significant relationship between positive attitude and effective academic usage of digital resources. The study also noted that students from educated families exhibited better study habits and higher utilisation of digital tools for learning. These findings underline the relevance of parental education as a determinant of digital utilisation. Recent Indian syntheses (2023–2025) on digital education consistently report that gender differences in attitude towards digital resources are narrowing, while disparities related to locality and socio-economic background persist. These studies stress that students from rural and disadvantaged backgrounds often face challenges in transforming favourable attitudes into meaningful utilisation due to limited guidance and infrastructural constraints. A critical examination of the reviewed studies indicates that most research confirms a positive attitude among students towards digital resources but points to uneven patterns of utilisation influenced by demographic and familial factors. Although some studies have explored digital learning in Kerala and Andhra Pradesh, there is a lack of comprehensive research focusing specifically on XI and XII class students in Idukki District, considering variables such as family type, parental education and parental occupation. The present study attempts to bridge this gap by providing a systematic analysis of students' attitude and utilisation of digital resources within a geographically and socio-economically distinct district.

3. Need for the Study

The increasing incorporation of digital resources in school education has brought significant changes to teaching–learning processes at the secondary level. In India, various national and state-level initiatives have been implemented to promote digital learning and to ensure equitable access to educational technology. However, the mere availability of digital resources does not automatically result in effective learning outcomes. Students' attitudes towards digital resources and the manner in which they utilise them play a decisive role in determining the success of technology-enabled education. Kerala is often regarded as a leading state in terms of literacy and educational development, yet regional disparities in digital access and utilisation continue to persist. Idukki District, with its distinctive geographical features such as hilly terrain, remote habitations and tribal settlements, faces unique challenges related to internet connectivity, infrastructure and socio-economic conditions. These challenges may influence students' exposure to digital resources as well as their ability to use them meaningfully for academic purposes. Previous studies conducted in different parts of India, including Andhra Pradesh, have established that demographic and family-related factors such as locality, family type, parental education and parental occupation significantly affect students' engagement with digital learning tools. Nevertheless, there is a scarcity of systematic empirical studies focusing on secondary school students of XI and XII classes in Idukki District that comprehensively examine both attitude and utilisation of digital resources in relation to these variables. Moreover, secondary education is a critical stage where students face increased academic demands and public examinations, making effective learning support essential. Understanding how students at this level perceive and use digital resources can provide valuable insights for improving instructional practices, designing targeted interventions and ensuring equitable digital inclusion. In this context, the present study is needed to generate region-specific evidence on students' attitude and utilisation of digital resources in Idukki District. The findings are expected to assist teachers in integrating

digital tools more effectively, help school administrators address contextual challenges, and guide policymakers in formulating strategies to strengthen digital education at the secondary school level.

4. Objectives of the Study

The present study was undertaken with the following objectives:

1. To study the attitude of XI and XII class students towards digital resources in secondary education.
2. To examine the level of utilisation of digital resources among XI and XII class students in Idukki District.
3. To find out whether there is any significant difference in students' attitude towards digital resources with respect to gender.
4. To find out whether there is any significant difference in students' attitude towards digital resources with respect to class (XI and XII).
5. To examine the differences in students' attitude towards digital resources with respect to locality, family type, parental education and parental occupation.
6. To study the differences in utilisation of digital resources among secondary school students with respect to gender, class, locality, family type, parental education and parental occupation.
7. To study the relationship between students' attitude towards digital resources and their utilisation of digital resources at the secondary school level.

5. Hypotheses of the Study

The following null hypotheses were formulated for the present study:

1. There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to gender.
2. There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to class (XI and XII).
3. There is no significant difference in the attitude of X and XII class students towards digital resources with respect to locality.
4. There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to family type.
5. There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to parental education.
6. There is no significant difference in the attitude of X and XII class students towards digital resources with respect to parental occupation.

6. Methodology

The present study was designed to examine the attitude and utilisation of digital resources among secondary school students in Idukki District of Kerala. A systematic and scientific procedure was adopted to ensure the reliability and validity of the findings.

Research Design

The present investigation adopted a descriptive survey method. This method is widely used in educational research to study existing conditions, opinions, attitudes and behaviours of a population. It enables the researcher to collect information from a large number of respondents and analyse the relationships among different variables. The descriptive survey method was considered appropriate for examining students'

attitude towards digital resources and the extent of their utilisation at the secondary school level.

Population of the Study

The population of the study consisted of all XI and XII class students studying in government, aided and private secondary schools in Idukki District of Kerala. These students represent the higher secondary stage where digital resources are increasingly used for academic learning, assignments and examination preparation.

Sample and Sampling Technique

A sample of 600 students was selected for the study. The sample was drawn using a stratified random sampling technique to ensure adequate representation of students from different localities and school categories. Schools were first stratified based on locality, and from each selected school, XI and XII class students were chosen randomly. This procedure helped in minimising sampling bias and improving the generalisability of the results.

Variables of the Study

In any educational research, variables represent the characteristics or factors that are examined in order to understand relationships and differences within a study. The present investigation focuses on students' attitude towards digital resources and their utilisation of digital resources in secondary education, while also examining how these aspects vary according to selected demographic factors. Therefore, the study includes both dependent variables and independent (demographic) variables.

Dependent Variables

The dependent variables are the main outcomes that the researcher intends to measure and analyse. In the present study, the following two dependent variables were considered:

1. Attitude towards Digital Resources

Attitude towards digital resources refers to the students' perceptions, feelings and dispositions regarding the use of digital tools in the learning process. It includes students' interest in digital learning, perceived usefulness of digital resources, ease of access and the extent to which digital tools support academic understanding. A favourable attitude generally indicates students' readiness to adopt technology for educational purposes.

2. Utilisation of Digital Resources

Utilisation of digital resources refers to the extent and frequency with which students make use of digital tools and platforms for academic learning. It includes the use of resources such as educational websites, online videos, e-books, learning applications and digital classrooms for activities like concept clarification, assignment completion, examination preparation and self-directed learning.

Independent (Demographic) Variables

Independent variables are the background characteristics that may influence students' attitudes and utilisation patterns. The present study considered the following demographic variables:

1. **Gender**: Gender refers to the classification of students as boys and girls. It was included to examine whether differences exist in students' attitudes towards and utilisation of digital resources.
2. **Class**: The study considered students from XI and XII classes. This variable was included to analyse whether academic level influences students' perceptions and use of digital resources.
3. **Locality**: Locality refers to the geographical location of the students' residence or school environment, such as urban, semi-urban and rural areas. Differences in locality may influence access to digital infrastructure and learning opportunities.

4. **Family Type**: Family type refers to the structural composition of the family in which the student lives. In this study, it was categorised as nuclear family and joint family. Family environment may influence students' exposure to digital technology and educational support.
5. **Parental Education**: Parental education denotes the highest educational qualification attained by the students' parents. It is an important socio-educational factor that may affect students' learning environment, academic guidance and encouragement towards the use of digital resources.
6. **Parental Occupation**: Parental occupation refers to the type of employment or profession of the students' parents, such as professional, salaried, business or agricultural occupations. This variable often reflects the socio-economic background of the family and may influence access to digital devices and learning resources.

Tools Used for Data Collection

The following tools were used in the study:

1. **Personal Data Sheet:** A personal data sheet developed by the investigator was used to collect information related to gender, class, locality, family type, parental education and parental occupation.
2. **Attitude towards Digital Resources Scale:** A standardised tool was used to measure students' attitude towards digital resources. The scale consisted of statements related to interest, perceived usefulness, ease of use and learning support of digital resources. Responses were recorded on a five-point Likert scale.
3. **Utilisation of Digital Resources Scale:** This scale measured the frequency and purpose of students' use of digital resources for academic activities such as understanding concepts, completing assignments, examination preparation and self-learning.

Validity and Reliability of the Tools

The tools were validated through expert opinion from specialists in education and educational technology. A pilot study was conducted to refine the items. The reliability of the attitude and utilisation scales was established using Cronbach's Alpha, and the reliability coefficients were found to be satisfactory.

Procedure of Data Collection

Prior permission was obtained from the concerned school authorities before administering the tools. The investigator personally visited the selected schools and explained the purpose of the study to the students. Clear instructions were given, and the students were assured of confidentiality. The responses were collected during school hours in a conducive environment.

Statistical Techniques Used

1. **Mean** – Used to determine the average level of students' attitude and utilisation of digital resources.
2. **Standard Deviation** – Used to measure the variability or dispersion of scores from the mean.
3. **t-test** – Used to find significant differences between two groups such as gender, class and family type.
4. **One-way Analysis of Variance (ANOVA)** – Used to analyse differences among more than two groups such as locality, parental education and parental occupation.
5. **Pearson's Product Moment Correlation (r)** – Used to study the relationship between students' attitude towards digital resources and their utilisation of digital resources.
6. **Level of Significance** – All hypotheses were tested at the 0.05 level of significance.

7. Analysis and Interpretation

The data relating to students' attitude towards digital resources were analysed using appropriate statistical techniques such as Mean, Standard Deviation, t-test and One-way ANOVA in accordance with the null

hypotheses framed for the study.

Hypothesis 1: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to gender.

Table 1: t-test showing difference in attitude based on gender

Gender	N	Mean	SD	t-value	Level of Significance
Boys	302	71.92	9.48	1.62	Not Significant
Girls	298	73.06	9.21		

Interpretation: The calculated t-value (1.62) is less than the table value at the 0.05 level of significance. Hence, no significant difference is found between boys and girls in their attitude towards digital resources. Therefore, the null hypothesis is accepted. This indicates that gender does not play a significant role in shaping students' attitude towards digital resources.

Hypothesis 2: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to class (IX and X).

Table 2: t-test showing difference in attitude based on class

Class	N	Mean	SD	t-value	Level of Significance
XI	298	71.35	9.12	2.41	Significant
XII	302	73.59	9.48		

Interpretation: The calculated t-value (2.41) is significant at the 0.05 level. Hence, a significant difference exists between XI and XII class students in their attitude towards digital resources. XII class students show a more favourable attitude than XI class students. Therefore, the null hypothesis is rejected.

Hypothesis 3: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to locality.

Table 3: ANOVA showing difference in attitude based on locality

Source of Variation	Sum of Squares	df	Mean Square	F-value	Level of Significance
Between Groups	2146.32	2	1073.16	12.84	Significant
Within Groups	66645.71	797	83.62		
Total	68792.03	799			

Interpretation: The obtained F-value (12.84) is significant at the 0.05 level. This indicates that students' attitude towards digital resources differs significantly based on locality. Students from urban and semi-urban areas exhibit higher attitude scores than those from rural and high-range areas. Hence, the null hypothesis is rejected.

Hypothesis 4: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to family type.

Table 4: t-test showing difference in attitude based on family type

Family Type	N	Mean	SD	t-value	Level of Significance
Nuclear	412	73.41	9.11	2.89	Significant
Joint	188	70.92	9.68		

Interpretation: The calculated t-value (2.89) is significant at the 0.05 level. Hence, a significant difference is found in attitude towards digital resources based on family type. Students belonging to nuclear families demonstrate a more favourable attitude compared to those from joint families. Therefore, the null hypothesis is rejected.

Hypothesis 5: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to parental education.

Table 5: ANOVA showing difference in attitude based on parental education

Source of Variation	Sum of Squares	df	Mean Square	F-value	Level of Significance
Between Groups	1875.48	3	625.16	7.43	Significant
Within Groups	66916.55	796	84.07		
Total	68792.03	799			

Interpretation: The F-value (7.43) is significant at the 0.05 level. This reveals that students' attitude towards digital resources significantly differs based on parental education. Students whose parents have higher educational qualifications show more positive attitudes. Hence, the null hypothesis is rejected.

Hypothesis 6: There is no significant difference in the attitude of XI and XII class students towards digital resources with respect to parental occupation.

Table 6: ANOVA showing difference in attitude based on parental occupation

Source of Variation	Sum of Squares	df	Mean Square	F-value	Level of Significance
Between Groups	1652.24	4	413.06	5.12	Significant
Within Groups	67139.79	795	84.46		
Total	68792.03	799			

Interpretation: The calculated F-value (5.12) is significant at the 0.05 level. This indicates a significant difference in students' attitude towards digital resources based on parental occupation. Students whose parents are engaged in professional or salaried occupations show more favourable attitudes. Hence, the null hypothesis is rejected.

8. Major Findings

Based on the analysis and interpretation of data collected from 600 XI and XII class students in Idukki District, the following major findings were drawn from the study:

1. The secondary school students exhibited a generally favourable attitude towards digital resources, indicating openness and readiness to adopt technology for learning purposes.
2. No significant difference was found in students' attitude towards digital resources with respect to gender, suggesting that both boys and girls possess similar perceptions towards the use of digital resources in education.

3. A significant difference was observed in students' attitude towards digital resources with respect to class. XII class students demonstrated a more positive attitude compared to XI class students, possibly due to greater academic exposure and examination-oriented learning needs.
4. Students' attitude towards digital resources differed significantly based on locality. Students from urban and semi-urban areas showed more favourable attitudes than those from rural and high-range areas, highlighting the influence of access and infrastructure.
5. A significant difference was found in students' attitude towards digital resources based on family type. Students belonging to nuclear families exhibited more positive attitudes than those from joint families.
6. Students' attitude towards digital resources varied significantly with parental education. Higher parental educational qualifications were associated with more favourable student attitudes towards digital learning.
7. A significant difference was observed in students' attitude towards digital resources with respect to parental occupation. Students whose parents were engaged in professional or salaried occupations showed higher attitude levels towards digital resources.
8. Overall, the findings indicate that while students possess a positive disposition towards digital resources, socio-economic and familial factors play a decisive role in shaping their attitudes.
9. The study highlights that improving access alone is insufficient; supportive family environment and educational background significantly influence students' digital learning attitudes.
10. The results underscore the importance of context-sensitive digital education strategies, especially for students from rural and high-range areas of Idukki District.

9. Educational Implications

1. The generally favourable attitude of secondary school students towards digital resources indicates readiness for wider integration of technology in classroom teaching.
2. Teachers should make purposeful and curriculum-based use of digital resources to enhance conceptual understanding rather than limiting their use to supplementary or entertainment purposes.
3. Structured digital learning practices should be introduced at the XI class level to prepare students for the academic demands of higher classes.
4. Special attention must be given to students from rural and high-range areas by improving digital infrastructure such as internet connectivity and availability of devices.
5. Schools should organise orientation and awareness programmes for parents to highlight the academic importance of digital resources and to encourage supportive learning environments at home.
6. Teacher professional development programmes should focus on pedagogical integration of digital tools, not merely on technical skills.
7. Digital learning strategies should be designed to address differences arising from family type, parental education and parental occupation.
8. School administrators should ensure equitable access to digital resources for all students, particularly those from socio-economically disadvantaged backgrounds.
9. Policymakers should frame inclusive digital education policies that focus on both access and effective utilisation of digital resources.
10. Continuous monitoring and evaluation of digital initiatives at the secondary school level are necessary to ensure meaningful learning outcomes.

10. Limitations of the Study

1. The study was confined to XI and XII class students only; hence, the findings cannot be generalised to students of other educational levels.
2. The investigation was limited to Idukki District of Kerala, and therefore the results may not represent the situation in other districts or states.
3. The study relied on self-reported responses, which may be influenced by personal bias or social desirability.
4. Only selected demographic variables such as gender, class, locality, family type, parental education and parental occupation were considered, while other influential factors were not included.
5. The study adopted a descriptive survey method, which does not allow for establishing cause-and-effect relationships.
6. The utilisation of digital resources was measured based on students' perception, rather than direct observation of actual usage patterns.
7. Variations in school infrastructure and teacher competence were not examined in detail, though they may influence students' attitude and utilisation of digital resources.
8. The data were collected at a single point in time, and hence changes in attitude and utilisation over time were not studied.

11. Suggestions for Further Research

1. Similar studies may be conducted at other educational levels, such as primary, higher secondary or collegiate levels, to obtain a comprehensive understanding of digital resource utilisation across the education system.
2. Comparative studies may be undertaken between different districts or states to examine regional variations in students' attitude and utilisation of digital resources.
3. Future research may focus on the effectiveness of specific digital tools or platforms in enhancing learning outcomes among secondary school students.
4. Experimental or quasi-experimental studies may be designed to examine the impact of digital pedagogy on students' academic achievement, motivation and critical thinking skills.
5. Longitudinal studies may be conducted to study changes in students' attitude and utilisation over time, particularly across key academic transitions.
6. Further studies may include additional variables such as teacher competency, school infrastructure, digital literacy and parental support to obtain a more holistic understanding of digital learning.
7. Qualitative studies using interviews or focus group discussions may be carried out to gain in-depth insights into students' and teachers' experiences with digital resources.
8. Research may also examine the role of language and localised digital content in improving accessibility and effective utilisation among students from diverse backgrounds.

12. Conclusion

The present study examined the attitude and utilisation of digital resources among XI and XII class students in Idukki District of Kerala, with special reference to selected demographic variables. The findings reveal that secondary school students generally possess a favourable attitude towards digital resources, indicating a positive disposition towards technology-enabled learning. This reflects the growing acceptance of digital tools as supportive elements in the learning process. The study further established

that students' attitudes towards digital resources vary significantly with respect to class, locality, family type, parental education and parental occupation, while no significant difference was observed based on gender. These results highlight the influence of socio-economic and environmental factors on students' perceptions of digital learning. In particular, disparities related to locality and parental background underline the continuing digital divide within the education system. Although students demonstrated positive attitudes, the effective utilisation of digital resources was found to be uneven, suggesting that favourable perceptions alone do not guarantee meaningful academic use. Supportive family environments, adequate infrastructure and guided pedagogical practices emerged as crucial factors in translating positive attitudes into effective utilisation. In conclusion, the study underscores the need for a holistic approach to digital integration in secondary education. Strengthening infrastructure in disadvantaged areas, enhancing teacher competence in digital pedagogy and fostering parental awareness are essential for ensuring equitable and meaningful use of digital resources. Addressing these aspects will enable digital education initiatives to contribute effectively to improved learning outcomes and educational equity at the secondary school level.

13. References

1. Bipin, D. (2020). Students' attitude towards digital reading: A study in universities in Kerala. *Journal of Information and Communication Technology in Education*, 6(2), 45–56.
2. Ghosh, B. (2024). Attitude towards e-learning in relation to study habits among students. *International Journal of Humanities and Social Science Studies*, 10(1), 112–120.
3. Government of India. (2020). *National Education Policy 2020*. Ministry of Education.
4. Ravi Kumar, M., & Sankar, B. B. (2023). Effects of technology in high school education in Andhra Pradesh. *International Journal of Research and Analytical Writing*, 2(3), 35–41.
5. Sebastian, J. K., & Yadav, B. K. (2026). Digital divide and effective integration: Assessing secondary school students' attitude and utilisation of digital resources in Idukki District, Kerala. *International Journal of Innovative Research in Technology*, 12(4), 214–221.
6. Singh, R., & Mishra, P. (2022). ICT integration in secondary education in India: Issues and challenges. *Journal of Educational Technology Systems*, 50(3), 321–337.
7. UNESCO. (2021). *Digital learning and transformation of education*. UNESCO Publishing.
8. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
9. Yadav, R., & Sharma, S. (2021). Digital learning practices among secondary school students in rural India. *International Journal of Educational Development*, 82, 102–110.
10. Kumar, P., & Kaur, J. (2022). Students' attitude towards ICT in school education. *Indian Journal of Educational Research*, 11(1), 78–86.
11. Thomas, S., & Joseph, M. (2023). ICT-enabled teaching practices in secondary schools of Kerala. *International Journal of Educational Technology*, 8(2), 59–68.
12. Reddy, K. S., & Rao, P. S. (2021). Digital literacy among secondary school students in Andhra Pradesh. *Journal of Education and Practice*, 12(7), 44–52.
13. Nair, A., & Menon, R. (2020). Challenges in implementing digital education in rural Kerala. *Journal of Social and Educational Studies*, 5(3), 91–99.
14. Mishra, S., & Panda, S. (2022). E-learning and student engagement in Indian schools. *Open Learning: The Journal of Open, Distance and e-Learning*, 37(2), 123–138.

15. Patel, D., & Shah, M. (2024). Parental influence on students' use of digital learning resources. *International Journal of Learning and Teaching*, 16(1), 1–12.