INTERNATIONAL JOURNAL OF RESEARCH CULTURE SOCIETY
Monthly Peer-Reviewed, Refereed, Indexed Journal
Volume - 10, Issue - 3, March - 2026
ISSN(O): 2456-6683
[Impact Factor: 9.241]
IJRCS

DOIs:10.2017/IJRCS/202603013 --:-- Research Paper / Article / Review

Attitude of higher education students toward ICT in education with reference to gender and locality in Murshidabad district

Md Ammarul
M.A. in Education, Department of Education, University of Kalyani.
Email – ammarul444@gmail.com

Abstract: *The present study entitled "Attitude of higher education students toward ICT in education with reference to gender and locality in Murshidabad district" was undertaken to investigate the attitude of higher education students toward the use of Information and Communication Technology (ICT) in the teaching–learning process. In the contemporary educational scenario, ICT plays a significant role in enhancing instructional effectiveness, promoting independent learning, and improving students' academic engagement. The study employed the descriptive survey method to examine students' attitudes toward ICT in education. A sample of 200 higher education students studying in colleges of Murshidabad District was selected through the Stratified Random Sampling Technique, ensuring proper representation on the basis of gender (male & female) and locality (urban and rural). For the analysis and interpretation of data, both descriptive and inferential statistical techniques were used. The findings of the study indicated that higher education students generally demonstrated a favourable attitude toward ICT in education. The results further revealed that no significant difference existed between male and female students in their attitudes toward ICT. Similarly, no significant difference was observed between urban and rural students regarding their attitudes toward ICT usage in education. The study concludes that ICT has been widely accepted by higher education students irrespective of gender and locality. The findings emphasize the importance of strengthening ICT infrastructure and encouraging effective integration of technology in higher education institutions to enhance the quality of teaching and learning.*

Key Words: *Attitude toward ICT, Information and Communication Technology (ICT), Higher Education Students, Technology Integration.*

1. INTRODUCTION:

In the modern digital era, **Information and Communication Technology (ICT)** has become an essential component of the educational system. ICT refers to a wide range of technological tools and resources such as computers, the internet, multimedia applications, mobile devices, and digital communication platforms that are used to create, store, process, and share information. The integration of ICT in education has significantly transformed traditional teaching–learning processes by promoting interactive, collaborative, and learner-centred environments. In higher education institutions, ICT facilitates innovative teaching methods, improves access to educational resources, and supports flexible learning opportunities for students **(Thomas Teo, 2020).**

ICT tools such as e-learning systems, virtual classrooms, digital libraries, and multimedia presentations enable students to engage actively in the learning process and enhance their academic performance. Studies have indicated that the use of ICT in education not only improves the effectiveness of teaching but also promotes independent learning and critical thinking among students **(Getenet, Cantle, Redmond, & Albion, 2024; Habók & Nguyen, 2024).**

Attitude refers to an individual's beliefs, feelings, and predispositions toward a particular object or activity. Positive attitudes toward ICT encourage students to adopt digital technologies and utilize them effectively in their learning activities, while negative attitudes may hinder the successful implementation of technology in educational settings. Research has shown that students with favourable attitudes toward ICT demonstrate higher levels of engagement and motivation in technology-supported learning environments **(Ronny Scherer & Siddiq, 2018; Teo & Scherer, 2021).**

Several studies have reported that students' attitudes toward ICT may vary depending on different demographic and socio-educational factors such as gender, academic background, and locality. Gender differences in technology usage and attitudes have been widely discussed in educational research. Some studies suggest that male and female students may differ in their confidence, frequency of ICT use, and perception of technology due to differences in social exposure and technological experience **(Granić & Marangunić, 2019).** In addition, locality—particularly the distinction between urban and rural areas—can influence students' access to digital technologies and internet facilities. Students from urban areas generally have greater exposure to ICT resources compared to those from rural areas, which may affect their attitudes toward technology-based learning **(Helsper, 2019).**

In recent years, several empirical studies have explored students' attitudes toward ICT in education and highlighted its importance in enhancing learning outcomes. For instance, studies conducted by **Bhati and Dahiya (2024) and Suriaman, Manurung, and Rofiqoh (2024)** reported that students generally demonstrate positive attitudes toward ICT and recognize its importance in improving the quality of teaching and learning. Similarly, research by **Camilleri et al. (2022)** emphasized that students' attitudes toward ICT play a significant role in determining the successful integration of digital technologies in higher education. These findings suggest that understanding students' perceptions and attitudes toward ICT is essential for designing effective technology-integrated educational practices.

In this context, examining the **attitude of higher education students toward ICT in education with reference to gender and locality** is highly significant. Such an investigation can provide valuable insights into how students perceive the role of ICT in their learning experiences and whether differences exist based on gender and locality. The findings of the study may help educators, policymakers, and educational institutions develop effective strategies to integrate ICT in higher education and ensure equitable access to digital learning opportunities for all students.

2. LITERATURE REVIEW:

Devi, B. & Meitei, D. (2025) conducted a study on the attitude of prospective teachers toward ICT in Manipur. The study emphasized the important role of ICT in improving the teaching–learning process, enhancing student performance, and supporting instructional material design. Using a descriptive research method, data were collected from 100 student teachers selected through simple random sampling with the help of the ICT Attitude Scale (ICTAS-GM, 2022). The findings indicated that **most prospective teachers had a favourable attitude toward ICT, and no significant differences were observed based on gender, type of institution, locality, or marital status.** The study concluded that developing ICT skills and positive attitudes is essential for effective integration of technology in education.

Bhati, G. & Dahiya, J. (2024) Conducted a study on secondary school students' attitudes toward ICT in education. Their research found that a large majority (about **88%**) of students owned at least one ICT device, had internet access, and possessed adequate ICT skills. Most participants demonstrated a **positive attitude toward e-learning and ICT**, highlighting students' readiness to engage with digital learning, especially after increased adoption of online platforms during and after the COVID-19 pandemic.

Patra, J. & Kishor Trivedi, A. (2024) reviewed attitudes and confidence factors influencing ICT integration among B.Ed. and M.Ed. trainee teachers in West Bengal. The review found **attitudes toward ICT and self-confidence** to be significant in predicting ICT use in classroom practices, and emphasized gender and locality as key variables in influencing these attitudes.

Kaur, A. & Pratap, A. (2023) Noted a study on Attitude towards e-learning among university students in relation to computer self-efficacy. The present study examined attitude towards e-learning among university students of Punjab and Haryana in relation to computer self-efficacy. For this purpose, samples of 800 university students were selected randomly. Findings reveal that there **is no significant difference between mean scores of Punjab and Haryana university students on attitude towards e-learning"** was retained as students belonging to different states exhibited comparable attitudes towards e-learning.

Roma, k. & Ajay Kumar Salgotra, A. (2021) examined attitudes of university students toward ICT in education at Central University of Jammu. In this study using a perception questionnaire and chi-square analysis, they reported that students exhibited **varied attitudes, but overall differences in attitude were not statistically significant**. This study highlights that even at the higher education level, attitudes toward ICT can be generally positive but may not differ significantly across student groups.

Ayar, Z. (2025) conducted a study on the *perceptions and attitudes of university EFL teachers toward the use of ICT in language teaching*. The study aimed to examine teachers' views on the usefulness of ICT in online education, especially in the context of developing countries. Data were collected from 70 English teachers working in 16 higher education institutions using a structured survey questionnaire. The findings revealed that teachers generally had positive attitudes toward the use of ICT in language teaching, with cognitive and behavioural attitudes being stronger than affective attitudes. The study also found that perceptions regarding factors influencing ICT attitudes were positive overall, though cultural perceptions were slightly lower. However, no significant relationship was observed between teachers' demographic variables and their attitudes or perceptions toward ICT.

Kamei, M. (2024) A study on Students' ICT usage, attitude, barriers and challenges: the case of university of Hyderabad. This paper investigates the level of Information Communication Technologies ICT use for educational purposes by students in University of Hyderabad (UOH), India. The paper will contribute to the body of knowledge regarding the level of ICT use and also, concerning the importance of students' attitudes towards the use of ICT for educational purposes. The data for the study were collected through the use of quantitative and qualitative data. The findings of the study, which were obtained by analysing the data collected from the students revealed that, students had a low level of ICT use for educational purpose, but held positive attitudes towards the use of ICT. The findings suggest that ICTs use for educational purposes should be given greater consideration than it currently receives. In general, the results were consistent with those previously reported in studies related to the use of ICT in the educational settings.

Isnani, K. (2020) Investigated on an analysis of teachers' attitude and teaching practice toward ICT use in English language teaching. Information and Communication Technology (ICT) is the current issue in this digital era, particularly regarding English language teaching. Then, attitude as the force of teachers' behaviour to use ICT in teaching becomes a crucial case. However, a similar study is quite scarce in Indonesian ELT context. This survey study aimed to describe the English teachers & #39; attitude towards ICT use and the frequency of using ICT in their teaching practices. This study also aimed at finding out the correlation between two variables. The participants of this study were 322 English teachers of Junior high schools in Yogyakarta provinces, Indonesia. The questionnaires paper-based were distributed as the instrument for data collection. The research data were analysed using descriptive and inferential statistics through SPSS program version 24. The results revealed that the teachers had a positive attitude towards the use of ICT by an overall mean score of 3.32.

Research Gap:

- Although many studies have examined students' attitudes toward ICT in education, most of them have focused on general student populations rather than specifically on higher education students.
- Several previous studies have analysed gender differences or locality differences separately, but very few studies have simultaneously compared both gender and locality variables.
- Most existing research has been conducted at national or state levels, with limited district-level studies, particularly in Murshidabad District.
- The socio-educational and technological environment of Murshidabad District may differ from other regions; therefore, findings from other areas may not be fully applicable to this context.
- Due to rapid technological advancements and increasing digital integration in higher education, there is a need for updated empirical research to assess current student attitudes toward ICT.
- Limited research has focused on comparative analysis of higher education students' attitudes toward ICT with reference to both gender and locality within a defined geographical boundary.

The present study attempts to fill these gaps by examining higher education students' attitudes toward ICT with respect to gender and locality in Murshidabad District.

4. SIGNIFICANCE OF THE STUDY:

The present study on Attitude of Higher Education Students Toward ICT in Education: A Study with Reference to Gender and Locality in Murshidabad District holds considerable importance in the context of modern educational transformation. As technology becomes an essential component of teaching and learning, understanding students' perceptions and readiness to use ICT is crucial for ensuring effective implementation of digital education initiatives.

The significance of the study can be understood from the following perspectives:

Educational Significance:

The study provides insights into how students perceive ICT as a learning tool. Understanding their attitudes helps educators design instructional strategies that effectively integrate technology, thereby improving learning outcomes, engagement, and motivation.

Pedagogical Significance:

Teachers can use the findings to adapt teaching methods that align with students' technological preferences and comfort levels. Knowledge of students' attitudes allows teachers to select appropriate digital resources and instructional approaches that enhance classroom interaction and participation.

Institutional Significance:

Educational institutions can utilize the results to assess students' readiness for ICT-based learning environments. The findings can guide administrators in planning infrastructure development, digital training programs, and technology-based curriculum innovations.

Policy Significance:

For policymakers and educational planners, the study offers empirical evidence regarding students' acceptance of ICT. This information can support the formulation of effective educational policies, digital literacy initiatives, and resource allocation strategies aimed at strengthening technology integration.

Social Significance:

The study highlights whether demographic factors such as gender and locality influence attitudes toward ICT. Understanding these aspects can help ensure equitable access to technology and reduce potential disparities among different groups of learners.

The results can assist stakeholders in designing training programs, workshops, and awareness initiatives that promote positive attitudes toward ICT. Such efforts can improve students' technological competence and prepare them for digital learning environments and future careers.

5. DELIMITATION OF THE STUDY:

- The present study is delimited to a selected sample of students from specified educational institutions and does not represent students from all regions or educational contexts.
- It focuses exclusively on students' attitudes toward ICT in education and does not examine related aspects such as ICT competency, actual usage behaviour, or academic achievement.
- Only selected demographic variables—gender and locality (urban and rural)—are considered, while other possible influencing factors such as socio-economic status, digital access, institutional facilities, and academic stream are excluded.
- Data collection is limited to responses obtained through a standardized questionnaire, and no qualitative methods such as interviews or observations are used.
- Furthermore, the study is restricted to a specific geographic area and time period; therefore, the findings are applicable only within these defined boundaries.

6. OBJECTIVES OF THE STUDY:

- To assess the attitude of students toward ICT in education.
- To compare attitude based on gender (male & female).
- To compare attitude based on area (urban & rural).

7. HYPOTHESIS OF THE STUDY:

$^{1}H_0$: There is no significant difference in attitude toward ICT between male and female students.

$^{2}H_0$: There is no significant difference in attitude toward ICT between urban and rural students.

8. METHODOLOGY OF THE STUDY:

The present study employed the **descriptive survey method**. This method was considered appropriate because it enables the researcher to collect information regarding existing conditions, opinions, attitudes, and perceptions of respondents without manipulating any variables. Since the study aims to assess students' attitudes toward ICT and compare them across selected variables, the descriptive approach is suitable.

9. POPULATION AND SAMPLE OF THE STUDY:

The population of this study is higher education students in Murshidabad District. The sample for the present study was selected using the **Stratified Random Sampling Technique**. The total population of higher education

students in Murshidabad District was first divided into different strata based on **gender (male and female)** and **locality (urban and rural)**. From each stratum, respondents were selected randomly to ensure adequate representation of all subgroups and to facilitate meaningful comparison.
The final sample consisted of **200 higher education students**, of whom 92 were male and 108 were female. With respect to locality, 103 students belonged to urban areas and 97 students belonged to rural areas.
This method ensured balanced representation of gender and locality and enhanced the reliability and validity of group comparisons in the study.

10. TOOL FOR THIS STUDY:

ICT Attitude Scale developed by the researcher.

Validity:

The validity of the ICT Attitude Scale is established through **expert judgment**. Specialists in education and educational technology examined the items for relevance, clarity, and representativeness of the construct. Necessary modifications were made according to their suggestions. The scale was thus found to possess satisfactory content and face validity and was considered suitable for measuring students' attitudes toward ICT.

Reliability of the Tool:

The reliability of the ICT Attitude Scale determined using **Cronbach's Alpha method**, which measures internal consistency among items. The obtained reliability coefficient: **Cronbach's Alpha (α) = 0.82** This value indicates that the instrument possesses **high internal consistency** and is considered reliable for research purposes.

11. DATA ANALYSIS AND INTERPRATATION OF THE STUDY:

The collected data were analysed using both descriptive and inferential statistics:

11.1 Descriptive Analysis:

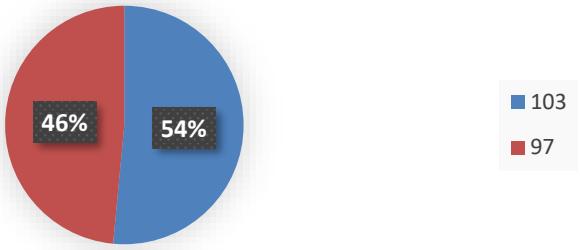
Descriptive statistics were used to summarize the characteristics of the sample and the distribution of ICT attitude scores.

Gender-wise Distribution:

Gender	N	Percentage
Male	92	46%
Female	108	54%
Total	**200**	**100%**

The sample consisted of slightly more female students (54%) than male students (46%).

fig: Gender-wise Distribution

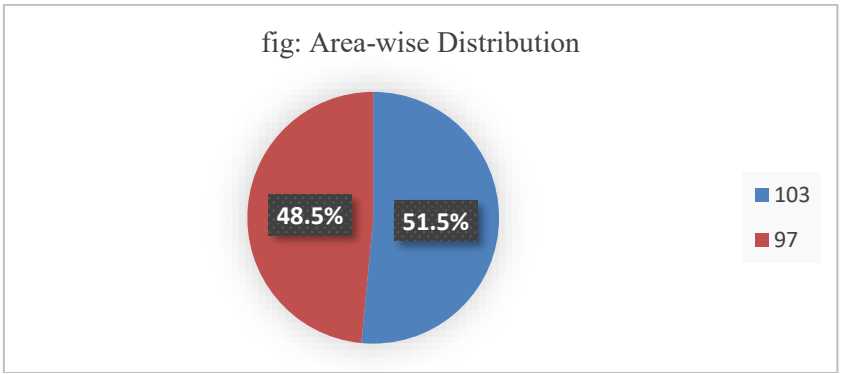


Area-wise Distribution:

Area	N	Percentage
Urban	103	51.5%
Rural	97	48.5%
Total	**200**	**100%**

The sample shows nearly equal representation of urban and rural students.

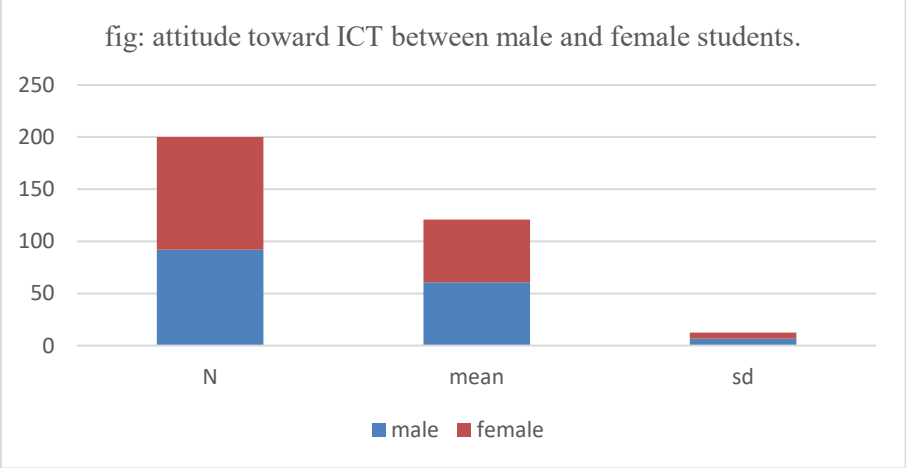
ISSN(O): 2456-6683
[Impact Factor: 9.241]



11.2 Hypothesis Testing:

[1]H₀: There is no significant difference in attitude toward ICT between male and female students.

Gender	N	Mean	SD
Male	92	60.74	6.53
Female	108	60.21	5.88



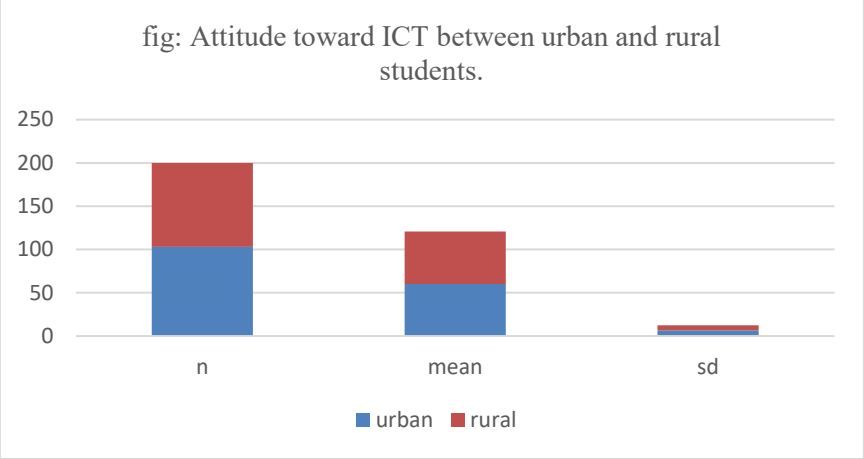
Independent Samples t-test:

Variable	t	df	p	Result
Gender	0.59	198	0.55	Not Significant

Interpretation:
Since $p > 0.05$, the result is not statistically significant. Therefore, the null hypothesis is accepted.
Conclusion:
There is no significant difference between male and female students regarding their attitudes toward ICT.

[2]H₀: There is no significant difference in attitude toward ICT between urban and rural students.

Area	N	Mean	SD
Urban	103	60.20	6.40
Rural	97	60.72	5.95



Independent Samples t-test:

Variable	t	df	p	Result
Area	-0.59	198	0.55	Not Significant

Interpretation:
Since $p > 0.05$, the result is not statistically significant. Therefore, the null hypothesis is accepted.
Conclusion:
There is no significant difference between urban and rural students in their attitudes toward ICT.

12. SUMMARY OF MAJOR FADINGS:

On the basis of statistical analysis, the following findings emerged:

- Students generally demonstrated a favourable attitude toward ICT in education, indicating acceptance and readiness to use technological tools for learning.
- The calculated t-value for gender comparison was found to be statistically non-significant, suggesting no significant difference between male and female students in their attitudes toward ICT.
- The calculated t-value for locality comparison was also non-significant, indicating no significant difference between urban and rural students in their attitudes toward ICT.
- The overall distribution of scores showed that only a small proportion of students possessed low levels of ICT attitude, while the majority exhibited moderate to high levels.
- The findings imply that students' perceptions of ICT are relatively uniform across demographic categories.

14. LIMITATIONS:

- Sample limited to 200 students.
- Study restricted to selected institutions.
- Self-reported responses may contain bias.
- Only two demographic variables were analysed.

15. CONCLUSION:

In conclusion, the present study demonstrates that students possess generally positive attitudes toward ICT in education, reflecting readiness to accept technology-based learning environments. The absence of significant differences across gender and locality suggests that ICT acceptance is becoming widespread and equitable. These findings reinforce the importance of integrating ICT into educational practices and highlight the need for continued support, infrastructure, and training to maximize its potential. Positive student attitudes toward ICT can serve as a strong foundation for the successful implementation of technology-enhanced education systems.

REFERENCES:

1. Garima Bhati, & Dr. Jyoti Dahiya. (2024). A Study of Students' Attitude Towards ICT At Secondary School Level. *Educational Administration: Theory and Practice*, *30*(4), 5834–5839. https://doi.org/10.53555/kuey.v30i4.2303

2. Paris, P. G. (2004). E-Learning: A Study on Secondary Students' Attitudes towards Online Web Assisted Learning. International Education Journal, 5(1), 98-112.
3. Opoku, M. O. & Kuranchie, A. (2014). Understanding Student Attitude Towards Computer Education: A Survey of SHS in the Sunyani Municipality. Academic Journal of Interdisciplinary Studies, 3(1), 11.
4. Patra, J. & Kishor Trivedi, A. (2024). Attitudes and confidence factors influencing ICT integration among B.Ed. and M.Ed. trainee teachers in West Bengal. Gyanshauryam International Scientific Refereed Research Journal (GISRRJ), ISSN : 2582-0095, Volume 7, Issue 1, pp.128-132, January-February-2024.
5. Aslan, A., and Zhu, C. (2015). Pre-Service Teachers' Perceptions of ICT Integration in Teacher Education in Turkey. The Turkish Online Journal of Educational Technology, 14(3), 97–110.
6. Beri, N., and Sharma, L. (n.d.). Teachers' Attitude Towards Integrating ICT in Teacher Education. International Journal of Innovative Technology and Exploring Engineering. Retrieved February 21, 2025, from
7. Kumar, R. & Sankar, B. (2023.) ICT awareness and attitude towards ICT of undergraduate students – a relational study. International Journal of Research and Analytical Reviews (IJRAR). www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138)
8. Kumar Behera, R. & Kumar Seth, M. (2023). One of the unique contributions of technology in the field of Education is E-learning. i-manager's Journal of Educational Technology 20(2):38-45.
9. Kaur, A. & Pratap, A. (2023) Attitude towards e-learning among university students in relation to computer self-efficacy. International Journal of Creative Research Thoughts (IJCRT) www.ijcrt.org
10. Draboo, S. (2020) Analysis of recent trends in higher education in India using information communication technology (ICT). Indian Journal of Educational Technology Volume 2 No. 2, July 2020.
11. Kumar Salgotra, A. (2018) Investigated on Attitude of university students towards ICT in education: an empirical study. Indian journal of research, ISSN - 2250-1991.
12. López-Sánchez, J. A., Patiño-Vanegas, J. C., Valencia-Arias, A., & Valencia, J. (2023). Use and adoption of ICTs oriented to university student learning: Systematic review using PRISMA methodology. *Cogent Education*, *10*(2). https://doi.org/10.1080/2331186X.2023.2288490
13. Isnani, K. (2020) An analysis of teachers' attitude and teaching practice toward ICT use in English language teaching.
14. Ayar, Z. (2025). Investigation of university EFL teachers' perceptions and attitudes to resort to ICT. Investigation of University EFL Teachers' Perceptions and Attitudes to Resort to ICT: Post-Local-Crisis Context. https://doi.org/10.58221/MOSP.V119I3.54913
15. Alzahrani, L. (2023) Analyzing students' attitudes and behavior toward artificial intelligence technologies in higher education. International Journal of Recent Technology and Engineering (IJRTE) 11(6):65-73 https://doi.org/10.35940/ijrte.F7475.0311623.
16. Meerza, A. (2017) factors influencing undergraduates' attitudes towards ICT: an empirical study in kheis. The Turkish Online Journal of Educational Technology – April 2017, volume 16 issue 2.
17. Funda Erdogdu & Erkan Erdogdu. (2025) Beyond rankings: a multidimensional analysis of factors shaping student achievement in the PISA 2022 dataset. *Educational Review* 77:5, pages 1585-1626.
18. Míde Griffin, Gretta Mohan, Selina McCoy & Seán Lyons. (2026) Who says school provides computer skills? Early ICT exposure and later skill perceptions – evidence from school and home environments in Ireland. *Technology, Pedagogy and Education* 35:1, pages 103-128.
19. Abdulhamed, R., & Beattie, M. (2024). The link between teacher–student relations and sense of school belonging is not equal for all: The moderating role of immigrant status. *Journal of Community & Applied Social Psychology*, *34*(6), 1–22. https://doi.org/10.1002/casp.2892
20. Kumar, S. & Priyanka, (2023) The effects of information and communication technology (ICT) on pedagogy and student learning outcome in higher education. EAI Endorsed Transactions on Scalable Information Systems. https://doi.org/10.4108/eetsis.4629.
21. Kamei, M. Students' ICT Usage, Attitude, Barriers and Challenges: The Case of University of Hyderabad.
22. Romero Martínez, Sonia J. (2020) Reported on attitudes toward technology among distance education students: validation of an explanatory model. Online Learning Journal –Volume 2 4 Issue 2 – June 2020.
23. Rosaline, S. & Wesley, J. (2017) factors affecting students' adoption of ICT tools in higher education institutions: an Indian context. IJICTE. Volume 13, Issue 2, April-June 2017
24. Kaur, S. (2012) Attitude of students towards use of ICT in Higher Education. International Journal of Computer Science and Technology. ISSN: 0976-8491.
25. Laguna, K., & Babcock, R. L. (1997). Computer anxiety in young and older adults: Implications for human–computer interactions in older populations. *Computers in Human Behavior, 13*(3), 317–326.

26. Kubiatko, M. (2010). Czech university students' attitudes towards ICT used in science education. *Journal of Technology and Information Education, 2*(3), 20–25.
27. Edmunds, R., Thorpe, M., & Conole, G. (2012). Student attitudes towards and use of ICT in course study, work and social activity: A technology acceptance model approach. *British Journal of Educational Technology, 43*(1), 71–84.
28. Bates, T. (2015). *Teaching in a digital age: Guidelines for designing teaching and learning.* Vancouver: BCcampus.
29. Cox, M. (1999). Gender differences in attitudes towards ICT. *Educational Research*.
Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
30. Teo, T. (2011). Factors influencing teachers' intention to use technology. *Educational Technology & Society*.
31. https://www.lisedunetwork.com/ict-concepts-and-meaning-definition/
32. https://en.wikipedia.org/wiki/Information_and_communications_technology