



ICT SELF-CONCEPT OF SECONDARY SCHOOL TEACHERS: AN EMPIRICAL STUDY

Dr. Preeti Dhiman

Assistant Teacher

Shem Hills International School,

Dehradun

ABSTRACT

Information and Communication Technology (ICT) has become an essential part of modern classroom practice, and teachers' psychological positioning toward technology plays a significant role in defining how efficiently it is combined into pedagogy. Among the affective-motivational variables shaping this orientation, ICT self-concept - a teacher's self-perception of their ability, comfort, and individuality in relation to technology use has occurred as a significant interpreter of technology acceptance and classroom integration. This study examines the ICT self-concept of secondary school teachers, with attention to variations across gender (Male- Female), locality (Rural-Urban) and school type (Government- Private). Employing a descriptive survey method, data were collected from a sample of 320 secondary school teachers using a standardized ICT Self-Concept Scale. The study aims to create the overall level of ICT self-concept among the sampled teachers and to examine whether significant differences exist across key demographic variables. Findings are expected to inform teacher training and professional development interventions aimed at firming teachers' technological self-perception as a basis for effective digital pedagogy.

Keywords: *ICT self-concept, secondary school teachers, technology integration, self-perception.*

INTRODUCTION

In the current digital age, Information and Communication Technology (ICT) plays a significant role in enhancing the learning experience of students, particularly in secondary education. ICT provides students with access to diverse digital resources and facilitates meaningful learning, problem-solving, and critical thinking, which are essential for academic success and lifelong learning (Brush, Glazewski & Hew, 2008). It helps to improve skills such as communication, collaboration, and creativity- outcomes that are crucial in the 21st century (International Journal of Education and Development using ICT, 2023). Nationally, the National Education Policy (NEP) 2020 advocates the integration of ICT into school education to make learning more engaging, flexible, and effective, and to prepare students for future digital challenges (CIET-NCERT, 2025) Information and Communication Technology (ICT) has become an integral



component of modern education, with policies such as India's National Education Policy (NEP) 2020 emphasizing its role in teaching, learning, and educational quality. However, the effective integration of ICT depends not only on the availability of technological resources but also on teachers' psychological readiness to use them. One important factor influencing ICT integration is **ICT self-concept**, which refers to teachers' overall perception of their competence, confidence, and comfort in using digital technologies for teaching. Unlike self-efficacy, which focuses on confidence in performing specific tasks, ICT self-concept reflects a broader and more stable perception of one's identity and capability as a technology user. Studies have shown that teachers with a positive ICT self-concept are more likely to adopt and effectively integrate technology into classroom practices (Kundu, Dey, & Bej, 2022). Secondary school teachers play a crucial role in preparing students for a digitally driven society. Therefore, understanding their ICT self-concept is essential for promoting effective technology-enabled teaching. Although previous research has examined teachers' technology-related beliefs, limited studies have explored ICT self-concept among secondary school teachers, particularly in the Indian context. This study addresses this gap by examining the ICT self-concept of 320 secondary school teachers and investigating its variation across gender and locality, thereby providing insights for teacher education and professional development.

SIGNIFICANCE OF THE STUDY

The present study is significant because ICT has become an integral part of the teaching and learning process, particularly with the implementation of the National Education Policy (NEP) 2020, which emphasizes the effective integration of technology in education. Teachers' ICT self-concept influences their confidence, willingness, and competence in using digital technologies for instructional purposes. By examining the ICT self-concept of secondary school teachers, the study provides valuable insights into their readiness to adopt technology-enhanced teaching practices. The findings will be useful for teachers, school administrators, teacher educators, and policymakers in designing targeted professional development programmes, strengthening digital competencies, and improving technology integration in schools. Furthermore, the study contributes to the existing literature on ICT in education and provides a basis for future



research on teacher-related variables such as teaching effectiveness, professional development, work accountability, job satisfaction, and digital competence, ultimately supporting the achievement of quality education and the successful implementation of NEP 2020.

REVIEW OF LITERATURE

The integration of Information and Communication Technology (ICT) into education has become an important part of modern teaching and learning process. As technology continues to reshape classroom practices, researchers have increasingly focused on understanding teachers' perceptions of their own technological competence, commonly referred to as ICT self-concept. Teachers who possess a positive ICT self-concept are generally more confident in using digital technologies and are more willing to incorporate them into their instructional practices. Bandura (1997) explained that individuals' beliefs about their own abilities influence the choices they make, the effort they invest, and their persistence when facing challenges. This theoretical perspective has been widely used to explain why teachers with greater confidence in their technological abilities are more likely to adopt ICT in classroom instruction. De Vries (2000) emphasized that teachers' knowledge and understanding of technology are essential for developing positive attitudes toward technology among students. The study suggested that teachers' technological competence and confidence directly influence the quality of technology education delivered in schools. Mumtaz (2000) conducted a comprehensive review of factors affecting teachers' use of Information and Communication Technology (ICT) in schools. The study concluded those teachers' beliefs, confidence, access to technological resources, institutional support, and professional training were the major determinants of ICT integration in teaching. The review emphasized that teachers' positive perceptions of technology significantly influence their classroom use of ICT. Paraskeva, Bauta, and Papagianni (2008) examined computer self-efficacy among secondary school teachers and found that teachers' prior computer experience, professional training, and general self-efficacy significantly influenced their confidence in using educational technologies. The study concluded that teachers with higher computer self-efficacy were more willing to integrate technology into classroom instruction. Building on this perspective, Sang et



al. (2010) found that teachers' beliefs about technology and their confidence in using ICT significantly influenced the extent to which they integrated digital tools into their teaching. The researchers concluded that psychological factors are as important as technical knowledge in promoting effective ICT use. Rohaan, Taconis, and Jochems (2010) further reviewed the relationship between teachers' technological knowledge and students' attitudes toward technology. The study concluded that teachers possessing stronger technological knowledge and confidence were better able to foster positive learning experiences and technology acceptance among students. Agbatogun (2010) examined the relationship among computer self-concept, computer anxiety, gender, and teachers' attitudes toward interactive computer technologies. The study found that teachers' self-concept significantly predicted their attitudes toward ICT, whereas gender did not make a significant contribution. The findings highlighted the importance of strengthening teachers' confidence to promote effective technology integration. Similarly, Teo (2011) reported that teachers with greater confidence in their technological skills demonstrated more positive attitudes toward ICT and stronger intentions to use technology in their classrooms. The study suggested that teachers' perceptions of their own competence play an important role in technology acceptance. ICT self-concept specifically refers to a teacher's perception of their own knowledge, skills, and competence in using information and communication technology (ICT) for educational purposes. It influences their confidence, teaching practices, and ability to integrate technology effectively in the classroom (Marangunic & Granic, 2015). Tondeur et al. (2017) emphasized that teachers develop stronger confidence in using ICT when they receive continuous professional development, institutional support, and opportunities to practice technology-enhanced teaching. According to the authors, these experiences contribute to the development of a positive ICT self-concept and encourage meaningful technology integration. Hatlevik, O. E. and Hatlevik, I. K. R. (2018), examined ICT self-concept and digital competence among teachers. The study concluded that ICT self-concept plays a foundational role in the development of digital competence, as teachers who perceive themselves as capable are more motivated to learn, practice and refine their technological skills. Gupta et al. (2019) examined ICT self-concept among teacher



THE STANFORD JOURNAL

(AN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH) IJIN VALUE/

IMPACT FACTOR : 8.3

Volume-3, Issues-3

July-September: 2026

trainees and found that female trainees reported slightly higher levels of ICT self-confidence and comfort than their male counterparts. The study also observed that trainees from urban areas demonstrated stronger ICT self-concept than those from rural areas, highlighting the influence of access to technological resources and learning opportunities. Kundu et al. (2022) further demonstrated that ICT self-concept significantly influenced teachers' perceptions of the ease of using digital technologies. Teachers with a stronger ICT self-concept perceived educational technologies as easier to use and showed greater readiness to integrate them into teaching. More recently, Pozas and Letzel (2024) identified ICT self-concept as one of the strongest predictors of future technology integration among pre-service teachers. Their findings suggest that strengthening teachers' confidence in using ICT during teacher education programmes can enhance their preparedness for technology-rich classrooms. Zhang and Li (2025) investigated the relationship between teachers' ICT capacity, self-efficacy, and classroom teaching quality. Using a mediation model, the study found that teachers with stronger ICT competencies demonstrated better teaching quality, while self-efficacy partially mediated this relationship. The findings emphasized that strengthening teachers' ICT competence and confidence contributes significantly to effective technology integration and improved classroom practices. Lu, Lee, and Gu (2025) explored pre-service teachers' perceptions and practices regarding the integration of digital technologies into teaching. The study reported that positive perceptions of digital technologies, together with greater technological competence and confidence, significantly enhanced teachers' willingness to integrate ICT into classroom instruction. The authors recommended continuous professional development to strengthen teachers' digital confidence and technology integration skills. Sambyal, S. (2025), This study was conducted by the researcher on 487 pre-service teachers and 38 in-service teachers with the objective of studying the impact of ICT competency on teachers. The results of this research study revealed a significant difference in the ICT competency of pre-service and in-service teachers. Overall previous research indicates that ICT self-concept is closely associated with teachers' confidence, technology acceptance, and successful classroom integration of digital technologies. Although existing studies have provided valuable insights, relatively few have examined



ICT self-concept among secondary school teachers by simultaneously considering gender, locality, and type of school. This gap provides the basis for the present study.

OBJECTIVES OF THE STUDY

- 1) To assess the level of ICT self-concept among secondary school teachers.
- 2) To examine the difference in ICT self-concept between male and female secondary school teachers.
- 3) To examine the difference in ICT self-concept between rural and urban secondary school teachers.
- 4) To examine the difference in ICT self-concept between government and private secondary school teachers.
- 5) To propose recommendations for strengthening secondary school teachers' ICT self-concept through professional development programmes.

HYPOTHESIS OF THE STUDY

Based on the objectives, the following null hypotheses are proposed for testing:

H₀1: There is no significant difference in ICT self-concept between male and female secondary school teachers.

H₀2: There is no significant difference in ICT self-concept between rural and urban secondary school teachers.

H₀3: There is no significant difference in ICT self-concept between government and private secondary school teachers.

RESEARCH METHODOLOGY

Research Design

The present study employed a quantitative research method using a descriptive survey research design. A descriptive survey design was considered appropriate because it enables the researcher to collect information from a representative group of participants and describe the existing level of ICT self-concept among secondary school teachers.

Population and Sample

The population of the present study included all secondary school teachers working in government and private secondary schools in Dehradun district, Uttarakhand. These teachers constituted the target population for the study. The sample of 320 secondary

school teachers was selected from government and private secondary schools located in Dehradun district, Uttarakhand, using the stratified simple random sampling technique. The sample included both male and female teachers from rural and urban areas to ensure suitable representation of different demographic groups.

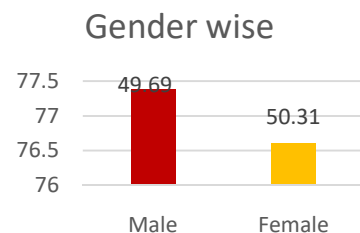
Variables	Category	N	Percent	Graphical Representation
Gender	Male	159	49.69 %	
	Female	161	50.31 %	

Table &Figure 1: Gender wise distribution of the sample

Table &Figure 2: locality wise distribution of the sample

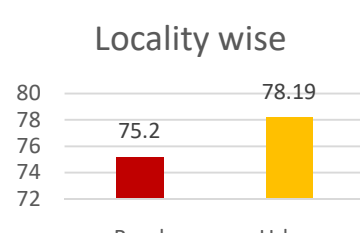
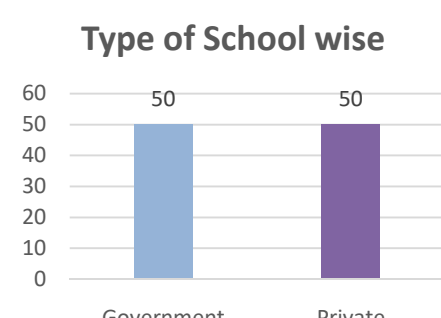
Variables	Category	N	Percent	Graphical Representation
Locality	Rural	128	40 %	
	Urban	192	60 %	

Table &Figure 3: Type of School wise distribution of the sample

Variables	Category	N	Percent	Graphical Representation
Type of School	Govt.	160	50%	
	Private	160	50%	



TOOL USED

The data for the present study were collected using the ICT Self-Concept Scale developed and standardized by Dr. Manmohan Gupta. The scale consists of 22 items covering two dimensions: Self-Confidence in ICT (10 items) and Comfort in the Use of ICT (12 items). The scale contains both positive and negative statements, and the responses were scored according to the scoring procedure prescribed by the author.

VARIABLES

- 1) **Dependent variable:** ICT self-concept (as measured by total scale score).
- 2) **Independent/demographic variables:** Gender (male/female), Locality (rural/urban) and Type of School (Government/ Private).

STATISTICAL TECHNIQUES USED

The following statistical techniques were used for data analysis: Descriptive statistics (mean, standard deviation, percentage distribution) to determine overall levels of ICT self-concept. Independent samples t-test to compare ICT self-concept scores between the gender (male/female) locality (rural/ urban) and Type of School (Government/ Private).

ANALYSIS AND INTERPRETATION OF DATA

H₀1: There is no significant difference in ICT self-concept between male and female secondary school teachers.

Table 4: Gender-wise Comparison

Category	Group	N	Mean	SD	t-value	p- value	Result
ICT Self-Concept	Male	159	77.38	11.46	0.65	0.51 (NS)	Accepted
	Female	161	76.61	9.72			

RESULT AND INTERPRETATION

Table 4 shows the comparison of overall ICT self-concept (ICT SC Total) between male and female secondary school teachers. Male teachers scored a mean of 77.38 with a standard deviation of 11.46, whereas female teachers scored a mean of 76.61 with a standard deviation of 9.72. Although the t-value of 0.65 corresponds to a p-value of 0.51, which is not statistically significant at the 0.05 level. This means the actual difference in ICT self-concept between male and female teachers is not statistically significant. The mean scores of both groups are very similar, showing that both male and female teachers possess almost similar levels of ICT self-concept. Therefore, the null hypothesis, which

states that there is no significant difference in overall ICT self-concept between male and female teachers, is accepted.

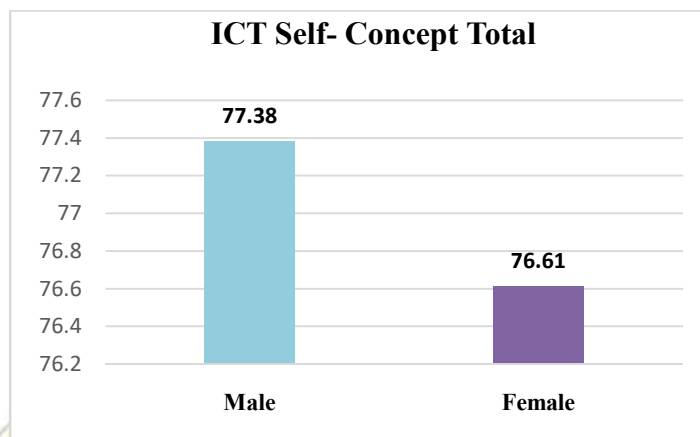


Figure 4: Gender-wise comparison of ICT Self- Concept

H₀2: There is no significant difference in ICT self-concept between rural and urban secondary school teachers.

Table 5: Locality-wise Comparison

Category	Group	N	Mean	SD	t-value	p- value	Result
ICT Self- Concept	Rural	128	75.20	8.40	2.48	0.014 (S)	Rejected
	Urban	192	78.19	11.74			

RESULT AND INTERPRETATION

Table 5 shows the comparison between rural and urban secondary school teachers on the total ICT self-concept. The mean score of rural teachers (N=128, M = 75.20, SD = 8.40) is lower than that of urban teachers (N= 192, M =78.19, SD =11.74). This indicates that urban teachers have higher level of overall ICT self-concept compared to rural teachers. The calculated t-value (t = 2.48) and the corresponding p-value (p = 0.014) is less than the 0.05 level of significance, indicating that the difference between rural and urban teachers is statistically significant. Therefore, the null hypothesis stating that There is no significant difference in the total ICT self-concept of rural and urban teachers, is rejected.

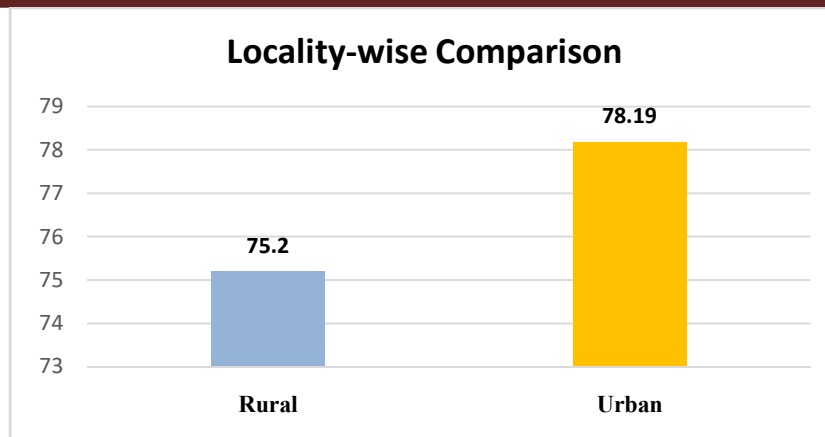


Figure 5: Locality-wise comparison

H03: There is no significant difference in ICT self-concept between government and private secondary school teachers.

Table 6: Type of School wise Comparison

Category	Group	N	Mean	SD	t-value	p- value	Result
ICT Self-Concept	Government	160	74.55	7.57	1.32	0.186 (NS)	Accepted
	Private	160	75.76	8.76			

RESULT AND INTERPRETATION

Table 6 shows the comparison between government and private secondary school teachers on the total ICT self-concept. The mean score of government teachers (N = 160, M = 74.55, SD = 7.57) is slightly lower than that of private teachers (N = 160, M = 75.76, SD = 8.76). This indicates that private school teachers have a marginally higher level of overall ICT self-concept than government school teachers. However, the calculated t-value ($t = 1.325$) and the corresponding p-value ($p = .186$) are greater than the 0.05 level of significance, indicating that the difference between government and private teachers is not statistically significant. Therefore, the null hypothesis stating that There is no significant difference in the total ICT self-concept of government and private secondary school teachers, is accepted.

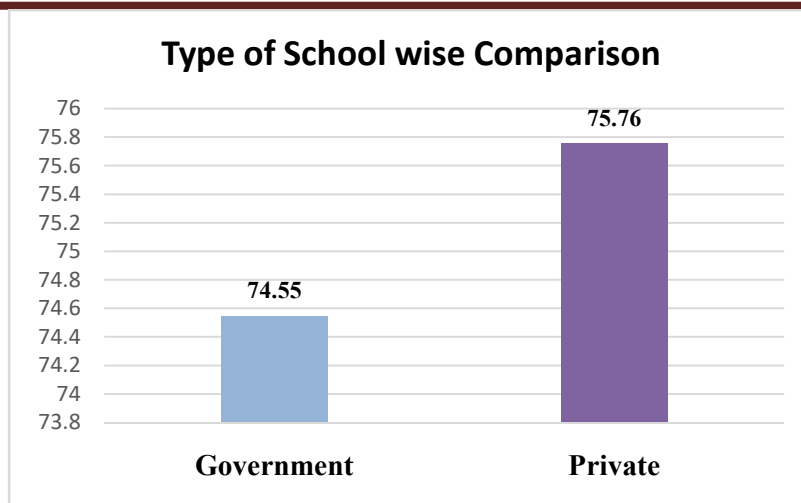


Figure 6: Type of School-wise comparison

FINDINGS OF THE STUDY

- 1) There was no significant difference in ICT self-concept between male and female secondary school teachers. Both groups showed a similar level of ICT self-concept.
- 2) There was a significant difference in ICT self-concept between rural and urban secondary school teachers. This indicates that urban teachers have higher level of ICT self-concept compared to rural teachers.
- 3) There was no significant difference in ICT self-concept between government and private secondary school teachers. Both government and private teachers had showed same level of ICT self-concept.
- 4) Overall, gender and type of school did not significantly affect the ICT self-concept of secondary school teachers, whereas locality emerged as a significant factor influencing teachers' confidence and perception of their ICT abilities.

EDUCATIONAL IMPLICATIONS

The findings of the present study have several implications for educational policy, teacher education, and school administration.

1. The study highlights the status of firming up teachers' ICT self-concept, as confidence in using technology is important for the effective integration of ICT into classroom teaching and learning.



2. Teacher education institutions should include more practical ICT-based activities, training, and digital teaching strategies into pre-service and in-service teacher education programmes to enhance teachers' confidence in using technology.
3. Schools should organize regular professional development programmes, workshops, and training sessions to help teachers update their ICT knowledge and skills in line with changing educational technologies.
4. School administrators should provide suitable technological infrastructure, internet connectivity, and technical support to create a helpful environment for the effective use of ICT.
5. Teachers should be encouraged to participate in online courses, webinars, and collaborative learning communities to improve their digital competence and confidence in using ICT.
6. Educational authorities should frame policies that promote continuous ICT capacity building and inspire teachers to mix technology into classroom practices effectively.
7. The findings may contribute policymakers and educational planners in designing teacher development programmes that focus not only on ICT skills but also on strengthening teachers' confidence and positive perceptions toward technology.

CONCLUSION

ICT self-concept signifies a critical, identity-level factor of how secondary school teachers engage with and integrate technology into their pedagogical practice one that is analytically unique from, and often more dominant than, related constructs such as self-efficacy. This study set out to empirically examine the level of ICT self-concept among a sample of 320 secondary school teachers and its variation by gender and locality. While the specific statistical findings depend on the primary data collected, the theoretical and methodological framework established here underscores the importance of treating ICT self-concept as a distinct, measurable construct worthy of targeted attention in teacher training and policy design, particularly given the well-documented urban-rural digital divide in Indian education. As education systems continue to invest in digital infrastructure, parallel investment in strengthening teachers' technological self-



perception, especially among rural and otherwise underserved teacher populations, will be essential to ensuring that such infrastructure translates into meaningful classroom practice.

REFERENCES

- Agbatogun, A. O. (2010). Self-concept, computer anxiety, gender and attitude towards interactive computer technologies: A predictive study among Nigerian teachers. *International Journal of Education and Development Using Information and Communication Technology*, 6(2), 55-68.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- De Vries, M. J. (2000). What should be the aims of technology education? *International Journal of Technology and Design Education*, 10(1), 67-80.
- Gupta, M., Sharma, P., & Singh, R. (2019). ICT self-concept among the teacher trainees in teacher education: An analytical study. *Journal of Gujarat Research Society*, Vol.21(13).
- Hatlevik, O.E., & Hatlevik, I. K.R. (2018). *Examining the relationship between teachers' ICT self-efficacy and digital competence*. *Computers & Education*, 121, 1-14.
- Kundu, A., Dey, K. N., & Bej, T. (2022). ICT self-concept and teachers' acceptance of digital technologies: Extending the Technology Acceptance Model. *Education and Information Technologies*, 27, 11721-11744.
- Lu, C., Lee, J. C.-K., & Gu, M. M. (2025). Integrating digital technologies into teaching: A study on pre-service language teachers' perceptions and practice. *Education and Information Technologies*, 30, 19537–19557.
- Ministry of Education, Government of India. (2020). *National Education Policy 2020*. Government of India.
- Mumtaz, S. (2000). Factors affecting teachers' use of information and communications technology: A review of the literature. *Journal of Information Technology for Teacher Education*, 9(3), 319-342.



THE STANFORD JOURNAL

(AN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH) IJIN VALUE/

IMPACT FACTOR : 8.3

Volume-3, Issues-3

July-September: 2026

- Paraskeva, F., Bouta, H., & Papagianni, A. (2008). Individual characteristics and computer self-efficacy in secondary education teachers to integrate technology in educational practice. *Computers & Education*, 50(3), 1084-1091.
- Pozas, M., & Letzel, V. (2024). Predictors of pre-service teachers' intention to integrate digital technologies in teaching: The role of ICT self-concept and digital competence. *Education and Information Technologies*, 29, 1475-1496.
- Rohaan, E. J., Taconis, R., & Jochems, W. M. G. (2010). Reviewing the relations between teachers' knowledge and pupils' attitude in the field of primary technology education. *International Journal of Technology and Design Education*, 20(1), 15-26.
- Sang, G., Valcke, M., van Braak, J., & Tondeur, J. (2010). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers & Education*, 54(1), 103-112.
- Sambyal, S. (2025). ICT competency of pre-service and in-service teachers. *Journal of Teacher Education Research*, 14(1), 55-63.
- Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education*, 57(4), 2432-2440.
- Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. *Educational Technology Research and Development*, 65(3), 555-575.
- Zhang, F., & Li, Q. (2025). Research on the influence of teachers' ICT capacity on classroom teaching quality: An intermediary model based on self-efficacy. *International Journal of Educational Research*, 134, 10277.