| **RESEARCH ARTICLE**

Teachers' Attitude toward Technological Integration and Self-Esteem among Special Education Teachers in Sped Centers

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| **ABSTRACT**

This study examines the attitudes of Special Education (SPED) teachers towards the integration of Information and Communication Technology (ICT) in teaching, as well as their self-esteem levels. Using a descriptive research design, data were collected from 23 SPED teachers in the North District of Cebu City. The study utilized a quantitative approach, employing a survey adapted from previous research to measure attitudes toward technology and the Rosenberg Self-Esteem Scale to assess self-esteem. Results indicate that most respondents are young female teachers, with the majority holding a Master's degree and having 0-8 years of teaching experience. The overall attitude towards ICT integration is positive, with high ratings for the effectiveness of technology in enhancing teaching and learning. However, some respondents expressed moderate comfort levels with using ICT tools in the classroom. Regression analysis showed that age, educational attainment, and years of teaching experience do not significantly predict teachers' attitudes towards technology integration. Self-esteem levels were generally high among the respondents, although some reported occasional feelings of inadequacy. These findings suggest that while teachers recognize the benefits of ICT, additional factors, beyond demographics, may influence their attitudes towards technology use in education.

| **KEYWORDS**

Special Education, Technology Integration, ICT, Teacher Attitudes, Self-Esteem, SPED Teachers, Educational Technology

| **ARTICLE INFORMATION**

1. Introduction

Technology integration in special education plays a pivotal role in enhancing educational experiences for students with disabilities by offering tools that provide tailored support for their unique needs (Pradeep, 2023). Assistive technology, such as speech recognition and text-to-speech software, has been crucial in helping students overcome challenges related to communication, mobility, and learning accessibility (Anderson & Putman, 2020). Additionally, technology integration can facilitate the development of life skills, boost motivation, and improve academic performance among special education students (Malicay, 2023). It enables differentiation in instruction, supporting diverse learning styles and promoting independence for students with disabilities (Kojayan et al., 2021). Technology tools can also help with formative assessments, improving both student engagement and teacher efficiency (Mertala, 2019). Despite these benefits, there are challenges such as technology malfunctions, which can hinder its seamless integration in special education classrooms (Harris & Crawford, 2020).

Self-esteem is a critical factor in the teaching profession as it influences teachers' confidence, decision-making, and ability to handle the challenges of the classroom environment (David et al., 2023). Among special education (SPED) teachers, high self-esteem is even more essential due to the demanding nature of working with students with diverse needs (Cheng & Lai, 2020). SPED teachers often encounter challenges that can impact their emotional well-being, making it crucial for them to maintain a strong sense of self-worth to provide effective support for their students (Mertala, 2019). Teachers with high self-esteem are more

likely to embrace innovation, adapt to new teaching methods, and develop positive relationships with students (Hero, 2019). Moreover, they exhibit greater resilience when faced with the stresses of the profession, enabling them to foster a nurturing and productive learning environment (Giovannini, 2019).

The attitudes of SPED teachers toward technology integration are generally positive, as many recognize the benefits technology brings to both teaching and learning outcomes (Jaafar et al., 2021). Teachers often believe that technology can enhance student engagement, foster independence, and provide meaningful opportunities for differentiated instruction (Anderson & Putman, 2020). They perceive it as a tool that can bridge the gap between students' abilities and educational requirements, especially for those with disabilities (Kojayan et al., 2021). However, some SPED teachers express concerns about the overreliance on technology and the potential for digital distractions, which could hinder learning if not managed effectively (Utami & Hidalgo, 2020). Additionally, the lack of professional development in technology use is often cited as a barrier to more effective integration (Ramaila & Molwele, 2022).

SPED teachers' level of self-esteem has a direct influence on their attitudes toward technology integration (David et al., 2023). Teachers with higher self-esteem are more likely to view technology as a valuable tool that can enhance their teaching practice and student outcomes (Malicay, 2023). They tend to have more confidence in their ability to navigate technological challenges, making them more open to adopting new tools and methodologies (Anderson & Putman, 2020). In contrast, teachers with lower self-esteem may experience anxiety around using technology and might be less inclined to integrate it into their lessons (Hero, 2019). This apprehension can result in missed opportunities to enhance the learning environment through technological means (Vogt & Westerlin, 2021).

There is a strong correlation between SPED teachers' attitudes toward technological integration and their self-esteem levels (David et al., 2023). Teachers who exhibit high self-esteem are often more optimistic about the use of technology in the classroom and its potential to improve learning outcomes (Pradeep, 2023). Conversely, those with lower self-esteem may exhibit resistance or apprehension toward using technology, perceiving it as an additional burden rather than a helpful tool (Ramaila & Molwele, 2022). Professional development programs that focus on both self-esteem enhancement and technology skills can help foster more positive attitudes among teachers toward technology integration (Akram et al., 2022).

The primary objective of this research is to investigate the level of SPED teachers' attitudes toward technological integration in their classrooms and to measure their self-esteem levels. Specifically, this study aims to explore how these two variables are interrelated, with the goal of identifying ways to support SPED teachers in adopting technology effectively. The research will also examine how self-esteem impacts teachers' willingness to engage with technology, with the hypothesis that higher self-esteem correlates with more positive attitudes.

2. Methodology

This study employed a descriptive research methodology, aimed at providing a detailed and factual representation of a naturally occurring phenomenon (Burns & Grove, 2003). The descriptive method is highly appropriate for answering questions related to who, what, where, when, and how, making it well-suited to this study's goal of understanding the relationship between SPED teachers' attitudes toward technology integration and their self-esteem levels. The study utilized a quantitative approach to gather data from 23 SPED teachers currently teaching at eight SPED centers in the North District of Cebu City, Department of Education. The data collected included respondents' demographic profiles, their attitudes toward technology integration, and their self-esteem levels. The research employed an Input-Process-Output (IPO) continuum to structure the study, ensuring a logical and clear flow from data collection to analysis. The study used two primary instruments for data collection: a survey adapted from the study of Arhin et al. (2022), which assessed teachers' attitudes towards the integration of ICT in teaching and learning, and the Rosenberg Self-Esteem Scale, a 10-item self-report instrument used to measure self-esteem. The data were analyzed using multiple regression to explore the relationship between socio-demographic factors and attitudes towards technology integration, while Pearson's Product Moment Correlation Coefficient (PPMC) was used to examine the correlation between resiliency and self-esteem, as well as resiliency and optimism. To interpret the results, a scoring procedure was used, with descriptive ratings assigned to respondents' attitudes toward technology integration on a scale from 1 (Very Low) to 5 (Very High).

3. Results and Discussions

Table 1. Age

Age	Gender		Frequency	Percentage
	Male	Female		
49 and above	0	4	4	17.39
40-48	0	4	4	17.39
31-39	1	6	7	30.44
22-30	0	8	8	34.78
Total	1	22	23	100

The data in Table 1 summarize the age distribution of respondents by gender. The total sample consists of 23 respondents, with 1 male and 22 females. The majority of respondents (34.78%) are in the 22-30 age group, all of whom are female. The 31-39 age group follows with 7 respondents (30.44%), including 1 male and 6 females. Both the 40-48 and 49 and above age groups have 4 female respondents each, representing 17.39% of the total sample in each category. Overall, the data indicate that the majority of respondents are young female teachers, with the highest concentration in the 22-30 age range.

Table 2. Highest Educational Attainment

Education Level	Frequency	Percentage
Masters Degree	12	52.17
Bachelors Degree	11	47.83
Total	23	100.0

Table 2 provides a summary of the highest educational attainment of the 23 respondents. The majority of the respondents, 12 individuals (52.17%), hold a Master's degree, while the remaining 11 respondents (47.83%) have attained a Bachelor's degree. This distribution shows that over half of the respondents have pursued postgraduate education, indicating a relatively high level of academic qualification among the group.

Table 3. Number of Years of Teaching

Years of Teaching	Frequency	Percentage
25 and above	0	0
17-24	2	8.70
9-16	6	26.09
0-8	15	65.22
Total	23	100.0

Table 3 presents the distribution of respondents based on their number of years of teaching experience. The majority, 15 respondents (65.22%), have 0-8 years of teaching experience, indicating that most of the participants are relatively early in their teaching careers. Six respondents (26.09%) have 9-16 years of experience, while only two respondents (8.70%) have been teaching for 17-24 years. This data suggests that the majority of the respondents are relatively new or mid-career teachers.

Table 4. Attitude of Teachers Towards Technological Integration

Statement	Mean	SD	Verbal Description
The ICT helps teachers to teach concepts and skills in more effective ways	4.52	0.593	Very High
I feel comfortable with the idea of using ICT as an instructional tool in teaching	2.61	0.656	Moderate
The use of the Internet in teaching and learning is most advantageous.	4.48	0.511	Very High
Teaching with the use of ICT is more useful than traditional ways of teaching.	2.61	1.118	Moderate
The ICT helps learners learn because it allows them to express their thinking in better and different ways.	4.30	0.765	Very High
The ICT will change the way learners learn in my classes.	4.00	0.603	High
The use of the smartphone as an instructional or learning tool excites me.	3.57	0.843	High
The ICT will change the way I teach	3.00	0.674	Moderate
If something goes wrong with the ICT gadget, I will know how to fix it.	3.48	0.665	High
The ICT is not conducive to learner's learning because it is not easy to use.	3.74	0.752	High
Overall Weighted Mean	3.63	0.718	High

The data in Table 4 illustrate the attitudes of teachers towards the integration of Information and Communication Technology (ICT) in teaching and learning. The overall weighted mean of 3.63, with a standard deviation of 0.718, indicates that teachers generally hold a high attitude towards technological integration. The highest-rated statement, "ICT helps teachers to teach concepts and skills in more effective ways," received a mean score of 4.52 (SD = 0.593), indicating that teachers strongly agree with the effectiveness of ICT in enhancing instruction. Similarly, the use of the internet in teaching was rated very high (M = 4.48, SD = 0.511), showing that teachers recognize its significant advantages. However, some areas reveal moderate levels of comfort, such as "I feel comfortable with the idea of using ICT as an instructional tool in teaching" (M = 2.61, SD = 0.656), and "Teaching with the use of ICT is more useful than traditional ways of teaching" (M = 2.61, SD = 1.118), suggesting that while teachers acknowledge the benefits, they are less comfortable with direct ICT use in their teaching. Additionally, the moderate score of 3.00 for "The ICT will change the way I teach" reflects some uncertainty about the transformative impact of ICT on teaching practices. Overall, teachers hold positive attitudes towards ICT, particularly regarding its potential to enhance student learning and change learning dynamics, though some discomfort with practical ICT usage still exists.

Table 5. Self-esteem of the Respondents

Statement	Mean	SD	Verbal Description
On the whole, I am satisfied with myself.	4.00	0.798	High Self-esteem
At times I think I am no good at all.	3.35	0.885	Moderate self-esteem
I feel that I have several good qualities	4.00	0.603	High Self-Esteem
I can do things as well as most other people	4.00	0.739	High Self-esteem
I feel I do not have much to be proud of.	3.26	0.864	Moderate self-esteem
I certainly feel useless at times.	3.39	0.988	Moderate self-esteem
I feel that I'm a person of worth, at least on an equal plane with others.	4.09	0.733	High Self-esteem
I wish I could have more respect for myself	2.96	0.928	Moderate self-esteem
All in all, I am inclined to feel that I am a failure.	3.91	0.900	High Self-esteem
I take a positive attitude toward myself.	4.30	0.822	Very High Self-Esteem
Overall Weighted Mean	3.73	0.822	High Self-Esteem

The data in Table 5 present the self-esteem levels of the respondents, revealing an overall weighted mean of 3.73 with a standard deviation of 0.822, indicating high self-esteem among the participants. The highest-rated statement, "I take a positive attitude toward myself," received a mean score of 4.30 (SD = 0.822), reflecting very high self-esteem in terms of self-positivity. Additionally, statements such as "I feel I'm a person of worth, at least on an equal plane with others" (M = 4.09, SD = 0.733) and "I can do things as well as most other people" (M = 4.00, SD = 0.739) further support the conclusion that the majority of respondents view themselves positively and possess a strong sense of self-worth. However, moderate self-esteem levels were evident in responses such as "At times I think I am no good at all" (M = 3.35, SD = 0.885) and "I certainly feel useless at times" (M = 3.39, SD = 0.988), suggesting that some respondents occasionally experience feelings of inadequacy or low self-esteem. Despite these occasional doubts, the majority of respondents maintain a generally positive and confident view of themselves, as evidenced by the overall high self-esteem rating.

Table 6 provides the model summary of the regression analysis conducted to examine the relationship between the independent variables and the attitude towards technological integration. The multiple correlation coefficient (Multiple R) is 0.227, indicating a weak positive relationship between the predictors and the attitude towards technological integration. The R Square value of 0.051 suggests that only 5.1% of the variance in attitudes toward technological integration can be explained by the predictors used in this model, indicating a limited explanatory power.

Table 6. Model Summary of the Regression Analysis on Attitude Towards Technological Integration

Regression Statistics	
Multiple R	0.227
R Square	0.051
Adjusted R Square	-0.220
Standard Error	2.89989
Observations	19

The adjusted R Square of -0.220 further emphasizes that the model may not be a good fit, as it shows a negative adjustment when accounting for the number of predictors. The standard error of 2.89989 reflects the typical deviation of the observed values from the predicted values, implying considerable variability in the data. With only 19 observations, the results suggest that the model's ability to predict attitudes towards technological integration is minimal, and additional factors not included in this model might better explain the variability in teachers' attitudes.

Table 7. Summary of ANOVA of the Regression Analysis on Attitude Towards Technology Integration

	Model	Sum of squares	df	Mean square	F	sig
1	Regression	6.374	4	1.594	0.189	0.940*b*
	Residual	117.731	14	8.409		
	Total	124.105	18			

Table 7 presents the summary of the ANOVA results for the regression analysis examining attitudes towards technology integration. The regression model shows a sum of squares of 6.374, with 4 degrees of freedom (df), yielding a mean square of 1.594. The residual sum of squares is 117.731 with 14 degrees of freedom, resulting in a mean square of 8.409 for the residuals. The total sum of squares for the model is 124.105. The F-value for the model is 0.189, which indicates a very low ratio of explained variance to unexplained variance, suggesting that the predictors in the model do not significantly explain the variability in teachers' attitudes towards technology integration. The significance value (p-value) is 0.940, which is far above the conventional threshold of 0.05. This indicates that the regression model is not statistically significant, meaning that the independent variables used in the model do not have a meaningful impact on predicting attitudes towards technology integration. Consequently, the model does not provide sufficient evidence to conclude that the predictors are useful in explaining the variations in attitudes.

Table 8. Influence of the Profile on Attitude Towards Technological Integration

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Intercept	37.613	5.410		6.953	0.000
	Age	-0.060	0.174	-0.249	-0.348	0.733
	Educational attainment	0.734	1.768	0.143	0.415	0.684
	Years of Teaching	-0.025	0.170	-0.118	-0.149	0.884

The regression analysis reveals that none of the independent variables—age, educational attainment, or years of teaching experience significantly predict attitudes towards technology integration. The intercept is significant, but the individual variables show no meaningful relationship with the outcome. Specifically, age has a negligible and non-significant negative effect on attitude

(p = 0.733). Educational attainment shows a small, positive but non-significant effect (p = 0.684). While, years of teaching experience has a minimal, non-significant negative effect (p = 0.884). Overall, these results indicate that age, educational attainment, and years of teaching do not have a significant impact on teachers' attitudes towards technology integration in this model.

4. Conclusion

The findings indicate several key insights into the attitudes of SPED teachers towards technological integration and their self-esteem. The majority of respondents are young female teachers with relatively few years of teaching experience, and over half have attained a Master's degree. Teachers generally hold positive attitudes towards the integration of ICT in teaching, recognizing its potential to enhance learning, though there are moderate levels of discomfort in some areas, such as using ICT tools in instruction. The respondents also exhibit high levels of self-esteem, with most feeling positive about their worth and capabilities, though some report occasional feelings of inadequacy. However, the regression analysis reveals that demographic factors such as age, educational attainment, and years of teaching do not significantly predict teachers' attitudes toward technological integration, indicating that other variables may influence these attitudes. Overall, while teachers have a positive disposition towards technology, their confidence in using it is mixed, and traditional demographic factors do not strongly influence these attitudes.

Conflicts of Interest: The authors declare no conflict of interest.

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