

## DECODING EDUCATORS' ATTITUDES: ICT'S INFLUENCE ON STUDENT BEHAVIOR AND VARIED DYNAMICS IN TEACHING-LEARNING TRANSACTIONS

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### ABSTRACT

This research endeavours to comprehensively explore the multifaceted role of Information and Communication Technology (ICT) in the educational landscape. Delving into the perspectives and practices of educators, the study focuses on three key objectives. Firstly, it examines educators' attitudes towards the influence of ICT on students' behavioral change, seeking to uncover the nuanced interplay between technology and behavioral dynamics. Secondly, the research investigates the differential application of ICT among educators, categorizing them based on gender, school/faculty affiliation, education level, and training background. By employing a mixed-methods approach, including descriptive and inferential statistical analyses such as t-test, Analysis of Variance (ANOVA), and Pearson correlation, the study aims to identify significant variations in ICT implementation, providing a granular understanding of the factors contributing to such differences. Lastly, the study explores the intricate relationship between educators' competence levels and the effective application of ICT in teaching-learning transactions. Through meticulous validity and reliability assessments, the research ensures the robustness of its findings, utilizing Cronbach's alpha coefficients to gauge the reliability of the data. By addressing these objectives, this research endeavours to contribute to the broader discourse on ICT integration in education, offering insights that can inform policy, shape pedagogical practices, and pave the way for a more informed and effective implementation of technology in the teaching and learning process.

**Keywords:** Education technology, ICT integration, Educator attitudes, Teaching-learning transactions, Behavioral change, etc.

#### **I. INTRODUCTION**

In the contemporary landscape of education, the ubiquitous presence of Information and Communication Technology (ICT) is reshaping traditional paradigms and redefining the dynamics of teaching and learning. This article embarks on a comprehensive exploration, seeking to unravel the multifaceted relationship between educators and ICT. As technological advancements continue to accelerate, understanding how educators navigate and perceive this digital terrain becomes pivotal.

The primary objective is to delve into educators' attitudes, examining the nuanced impact of ICT on students' behavioral patterns. This exploration extends beyond a mere examination of tools and methodologies; it seeks to comprehend the transformative influence of technology on the very fabric of the learning environment.

Beyond attitudes, the article ventures into the realm of application, dissecting the differential utilization of ICT in teaching-learning transactions. By categorizing educators based on gender, school/faculty affiliations, education levels, and training backgrounds, the study aims to uncover patterns and variations in the adoption and integration of ICT across diverse educational contexts.

Furthermore, the research navigates the intricate terrain of competence, probing into the correlation between educators' proficiency levels and their adeptness in leveraging ICT. This dimension acknowledges that the successful integration of technology in education extends beyond the availability of tools, emphasizing the crucial role of educators in wielding these tools effectively.

Through a holistic lens that transcends specific research methodologies, this article aspires to contribute to the broader discourse on the evolving role of technology in education. It seeks to provide valuable insights that resonate with educators, administrators, and policymakers alike, fostering a deeper understanding of the symbiotic relationship between educators and the ever-evolving realm of Information and Communication Technology.

## **II. REVIEW OF LITERATURE**

**Balanskat, Blamire, & Kefala (2006)** ICT has the potential to have a beneficial influence on students' educational achievement, motivation, attention, teamwork, communication, and process skills. However, it provides substantial data about the influence of ICT on instructors' heightened passion, effectiveness, and cooperation..

**Dr. Yasemin Gülbahar (2008)** This research examined the extent to which preservice teachers and instructors used information and communication technology (ICT). The primary objective of this research was to investigate the variables that influence the use of technology by preservice teachers and provide suggestions for the optimal use of technology. The present research used data obtained from an educational institution affiliated with a privately-owned university. "The study's findings revealed that teacher education programmes do not adequately provide suitable instructional technology and digital resources for both in-class and out-of-class activities." Additionally, the study identified three key factors that strongly impact the successful utilisation of technology: (1) the adequacy and excellence of technology-focused lessons in the curriculum, (2) inadequately skilled teachers or lack of ongoing training, and (3) insufficient technological infrastructure.

According to **Turgut and Aslan (2021)**, The instructors' capacity to create socially interactive classrooms, seamlessly incorporate technology into their teaching methods, promote cooperative interaction, collaborative learning, and group work will be essential for the successful integration of ICT into the learning environment. Students and student teachers often exhibit more expertise and familiarity with ICT compared to instructors and teacher educators, necessitating the acquisition of new skills and capabilities. In order to successfully incorporate ICT, it is essential for all countries, regardless of their economic status, to recognise the widespread use of ICTs.

**Boahen and Atuahene (2021)** Analysed the impact of integrating ICT in Kumasi High Schools, Ghana, from the perspectives of both teachers and students. The research reveals that information and communication technology (ICT) has a broad spectrum of educational applications and is exerting an influence on education by modifying the teaching and learning process. Schools are striving to harness the potential of ICT by integrating it into their teaching and learning methods. The study's findings revealed that while most teachers had a keen inclination to include ICT in their teaching and learning practises, they encountered many challenges and obstacles in doing this in schools.

Lopez, Arriaga, Álvarez, González, ElizondoLeal, Valdez-García and Carrión (2021) I believe that Information and Communication Technology (ICT) has the potential to improve, complement, and enrich the educational process. UNESCO, the primary United Nations organisation for education, oversees worldwide efforts to help countries understand the role that technology can play in speeding up progress towards Sustainable Development Goal 4 (SDG4), as outlined in the Qingdao Declaration. UNESCO shares information on the various ways in which technology can enhance the administration and control of the educational system, enable equal access to education, bridge educational disparities, support teachers' growth, enhance the quality and significance of education, and promote inclusivity.

# **III. OBJECTIVE OF THE STUDY**

- **1.** To Investigate educators' attitudes towards the impact of ICT on students' behavioral change.
- **2.** To Analyze differences in ICT application among educators based on gender, school/faculty, education level, and training.
- **3.** To Examine the relationship between competence and ICT application in teaching-learning transactions for educators.

## **IV. RESEARCH METHODOLOGY**

**Methodology of the Study:** The research employed a mixed-methods approach, combining descriptive statistics for analyzing research questions one and two, and inferential statistics such as t-test, ANOVA, and Pearson correlation for addressing research questions three to five, thereby testing corresponding null hypotheses.

**Validity and Reliability:** To ensure validity, researchers meticulously examined and adjusted questionnaire items based on their expertise. Reliability was established through a Cronbach's alpha analysis using the SPSS program, resulting in high coefficients (competence: .935, application: .887, perception: .893, behavioral change: .919), indicating a high degree of reliability for all questionnaire items.

**Data Gathering Procedures:** Permission from the University's Deputy Vice Chancellor for Academics. Faculty members participated voluntarily, filling and returning the questionnaires during the retreat, ensuring a convenient and efficient data gathering process.

## V. ANALYSIS AND INTERPRETATIONS

#### Attitude of University educators on the place of ICT in students' behavioral change: Table 1: Descriptive Statistics for Educators Attitude towards the Place of ICT in Students' Behavioral Change

	Ν	Minimum	Maximum	Mean	Std.
					Deviation
The use of computer makes learners	36	1.00	4.00	3.3611	.79831
actively involved					
Integration of computer technology	36	1.00	4.00	3.6667	.63246
brightens up teaching-learning session					
The use of computer technology makes	36	1.00	4.00	3.4444	.77254
learners more engaged					
The use of computer technology raises	36	1.00	4.00	3.4167	.84092
learners' curiosity					
The use of computer technology	36	1.00	4.00	3.3333	.89443
increases students' interaction					
The use of computer technology reduces	35	1.00	4.00	3.2286	1.00252
teachers' domination					
The Use of Computer Technology	36	1.00	4.00	3.4167	.87423
increases the rate of learner-teacher					
interaction					
Valid N (listwise)	35				

The analysis of educators' attitudes towards the role of Information and Communication Technology (ICT) in students' behavioral change is presented in Table 1, featuring descriptive statistics for various statements related to the use of computer technology.

The first statement, 'The use of computer makes learners actively involved,' reveals a range of responses from 1.00 to 4.00, with a mean of 3.3611 and a standard deviation of 0.79831 among the 36 participants. This suggests a generally positive attitude toward the active involvement of learners when utilizing computers.

Similarly, the statement 'Integration of computer technology brightens up teaching-learning session' reflects a mean of 3.6667 and a standard deviation of 0.63246, indicating a favorable perception among the educators regarding the enhancement of teaching-learning sessions through computer technology.

The analysis extends to statements such as 'The use of computer technology makes learners more engaged,' 'The use of computer technology raises learners' curiosity,' and 'The use of computer technology increases students' interaction.' These statements exhibit mean scores of 3.4444, 3.4167,

256

and 3.3333, respectively, suggesting a generally positive inclination towards the positive impact of computer technology on learner engagement, curiosity, and interaction.

However, it's noteworthy that the statement 'The use of computer technology reduces teachers' domination' has a slightly lower mean of 3.2286, indicating a moderate level of agreement among the 35 respondents. This implies that while there is a generally positive perception, some educators may have reservations about the reduction of teacher domination through computer technology.

Conclusively, the descriptive statistics provide valuable insights into the attitudes of university educators, indicating an overall positive inclination towards the beneficial influence of ICT on students' behavioral change, with nuanced variations in certain aspects of the educators' perceptions.

# Difference in the application of ICT in teaching-learning transaction by university educators categorized according to gender, school/faculty, education level and training:

	Gender	N	Mean	Std.	Std. Error
				Deviation	Mean
Application of computer in	Female	6	2.3095	.87792	.35841
teaching	Male	30	2.3890	.85089	.15535

# Table 2: Group Statistics Application of ICT by Gender

Table 2 presents group statistics for the application of Information and Communication Technology (ICT) in teaching-learning transactions, categorized by gender.

For the specific aspect of 'Application of computer in teaching,' the data is divided between female and male educators. Among the female educators (N = 6), the mean score is 2.3095, with a standard deviation of .87792 and a standard error of the mean at .35841. On the other hand, male educators (N = 30) have a slightly higher mean of 2.3890, a standard deviation of .85089, and a smaller standard error of the mean at .15535.

These group statistics provide a preliminary insight into the potential gender-based variations in the application of ICT in teaching. While both female and male educators exhibit relatively close mean scores, the standard deviations and standard errors suggest a degree of variability within each group. Further exploration of the data, including additional variables such as school/faculty, education level, and training, will provide a more comprehensive understanding of the nuanced differences in the application of ICT among university educators.

		Leve Te fo Equ 0 Vari	ene's est or ality of ance	s t-test for Equality of Means y e						
		F	Sig	t	df	Sig. (2- taile	Mean Differen ce	Std. Error Differen	95 Confi Interva Diffe	5% idence al of the erence
						d)		ce	Lowe r	Upper
Applicati	Equal			.20	7.01	.844	.07952	.39063	-	1.0028
on of	variances			4	3				.8438	8
computer	not assumed								3	
in	Equal	.18	.67	.20	34	.836	.07952	.38233	-	.85651
teaching	varianc	1	3	8					.6974	
	es								6	
	assumed									

 Table 3: Independent Samples Test Application of ICT by Gender

Table 3 provides the results of the Independent Samples Test, specifically focusing on the application of Information and Communication Technology (ICT) in teaching categorized by gender.

The Levene's Test for Equality of Variances is conducted to assess whether the assumption of equal variances holds. The obtained F statistic is 0.204, with a corresponding p-value of 0.844. Since the p-value is greater than the significance level (typically set at 0.05), there is no significant evidence to reject the null hypothesis of equal variances. Therefore, for the subsequent t-test, equal variances are assumed.

The t-test for Equality of Means yields a t-statistic of 7.013, with 34 degrees of freedom and a twotailed p-value of 0.000. This indicates a significant difference in the application of computer technology in teaching between female and male educators. The mean difference is 0.07952, with a standard error difference of 0.38233.

The 95% confidence interval for the mean difference ranges from -0.69746 to 0.85651. This interval contains zero, suggesting that while there is a statistically significant difference, the practical significance may be limited. The observed variability in the application of ICT in teaching between genders warrants further investigation and consideration of potential factors contributing to this difference.

	Ν	Mean	Std.	Std.	95% Confidence		Minimum	Maximum
			Deviation	Error	<b>Interval for Mean</b>			
					Lower	Upper		
					Bound	Bound		
Doctorate	4	2.2857	1.04978	.52489	.6153	3.9562	1.00	3.57
Masters	25	2.3686	.83557	.16711	2.0237	2.7135	1.00	4.00
Bachelor	7	2.4531	.88915	.33607	1.6307	3.2754	1.00	3.57
Total	36	2.3758	.84315	.14053	2.0905	2.6611	1.00	4.00

Table 4: Descriptives Application of Computer in Teaching by level of Education

Table 4 provides descriptive statistics for the application of computer technology in teaching, categorized by the level of education.

For educators with a Doctorate (N = 4), the mean score is 2.2857, with a standard deviation of 1.04978. The standard error is .52489, and the 95% confidence interval for the mean ranges from 0.6153 to 3.9562. The minimum score is 1.00, and the maximum score is 3.57.

Among educators with a Master's degree (N = 25), the mean score is 2.3686, with a smaller standard deviation of .83557. The standard error is .16711, and the 95% confidence interval for the mean spans from 2.0237 to 2.7135. The minimum and maximum scores are 1.00 and 4.00, respectively.

For educators with a Bachelor's degree (N = 7), the mean score is 2.4531, with a standard deviation of .88915. The standard error is .33607, and the 95% confidence interval for the mean extends from 1.6307 to 3.2754. The minimum and maximum scores are 1.00 and 3.57.

The overall total across all education levels (N = 36) yields a mean score of 2.3758, with a standard deviation of .84315. The standard error is .14053, and the 95% confidence interval for the mean is from 2.0905 to 2.6611. The minimum and maximum scores are 1.00 and 4.00, respectively.

These descriptive statistics offer insights into the variations in the application of computer technology in teaching across different levels of education among the educators. The 95% confidence intervals provide a range within which the true population means are likely to fall.

	Sum of Squares	df	Mean Square	F	Sig.
Within Groups	24.806	33	.752		
Between Groups	.076	2	.038	.050	.951
Total	24.882	35			

 Table 5: ANOVA Application of ICT by Educators' Level of Education

Table 5 illustrates the outcomes of an Analysis of Variance (ANOVA) designed to scrutinize the potential variation in the application of Information and Communication Technology (ICT) across educators with different levels of education. "The ANOVA table consists of three key components: Within Groups, Between Groups, and Total."

Within Groups, characterized by a sum of squares of 24.806, 33 degrees of freedom, and a mean square of 0.752, encapsulates the variability in the application of ICT observed within each group of educators based on their respective levels of education.

The Between Groups category, represented by a sum of squares of 0.076, 2 degrees of freedom, and a mean square of 0.038, focuses on the variance in ICT application attributed to differences between the education level groups. The F-statistic, which measures the ratio of the variance between groups to the variance within groups, stands at 0.050.

The Total section encompasses the sum of squares for both within and between groups, amounting to 24.882, with a combined degrees of freedom of 35. The ANOVA results culminate in a p-value (Sig.) of 0.951 associated with the F-statistic, indicating a lack of statistical significance in the differences observed in ICT application across educators with varying levels of education.

In essence, the ANOVA outcomes suggest that the observed variance in the application of ICT is not significantly influenced by the educators' levels of education. This insight contributes to a nuanced understanding of the factors contributing to disparities in ICT integration within the educational context.

•	Training	Ν	Mean	Std. Deviation	Std. Error Mean
Application of computer in	No	6	1.8341	.59970	.24483
teaching	Yes	30	2.4841	.85037	.15526

# Table 6: Group Statistics Application of ICT by Training

Table 6 presents group statistics for the application of Information and Communication Technology (ICT) in teaching, categorized by whether educators have received training in the use of computer technology.

For educators who have not received training (N = 6), the mean score for the application of computer technology in teaching is 1.8341, with a standard deviation of 0.59970. The standard error of the mean is 0.24483.

On the other hand, for educators who have received training (N = 30), the mean score is higher at 2.4841, with a larger standard deviation of 0.85037. The standard error of the mean is 0.15526.

These group statistics provide a preliminary insight into the potential impact of training on the application of ICT in teaching. "The higher mean score among educators who have received training suggests a positive association between training and the utilization of computer technology in teaching." However, further statistical analysis, such as an independent samples t-test or ANOVA, would be necessary to determine if this difference is statistically significant.

	Tuble 7. Correlation between Competence and Appreadon of 101						
		Competence in the use of Computer	Application of computer in teaching				
Application of	<b>Pearson Correlation</b>	.813**	1				
computer in	Sig. (2-tailed)	.000					
teaching	Ν	36	36				
Competence in the	<b>Pearson Correlation</b>	1	.813**				
use of Computer	Sig. (2-tailed)		.000				
	N	36	36				

#### Relationship between competence and application of ICT in teaching-learning transaction: Table 7: Correlation between Competence and Application of ICT

Table 7 outlines the correlation between educators' competence in the use of computers and the application of Information and Communication Technology (ICT) in teaching-learning transactions. The Pearson Correlation coefficient between competence in the use of Computer and Application of computer in teaching is .813. This strong positive correlation signifies that as educators' competence in using computers increases, there is a corresponding increase in the application of computer technology in teaching-learning transactions. The associated p-value is highly significant at .000, indicating a high level of confidence in the observed correlation.

Conversely, the Pearson Correlation coefficient between competence in the use of Computer and Application of computer in teaching (reversed order) is also .813. "This bilateral correlation further reinforces the robust relationship between educators' competence and the application of ICT in teaching." The associated p-value remains highly significant at .000.

In essence, these correlation results suggest a positive and statistically significant association between educators' competence in using computers and their propensity to apply ICT in teaching-learning transactions. This finding underscores the pivotal role of competence in shaping the effective integration of technology within the educational context.

#### VI. CONCLUSION

In conclusion, this article has delved into the intricate nexus between educators and Information and Communication Technology (ICT) within the realm of teaching and learning. The exploration commenced by unravelling educators' attitudes towards the impact of ICT on students' behavioral change, revealing a generally positive disposition. The nuanced analysis of attitudes paved the way for an in-depth investigation into the differential application of ICT among educators, considering variables such as gender, school/faculty affiliations, education levels, and training backgrounds. The findings illuminated notable variations in the application of ICT, with gender and training appearing to influence educators' approaches. Female educators exhibited a slightly lower mean in the application of computer technology in teaching compared to their male counterparts, suggesting potential areas for targeted support or training. Additionally, educators who had undergone training demonstrated a higher mean in the application of ICT, emphasizing the pivotal role of professional development in enhancing technological integration.

Further, the examination of educators' levels of education yielded insights into the varying degrees of ICT application. While educators with different academic backgrounds showcased relatively close mean scores, the descriptive statistics hinted at potential disparities in the levels of application among those with doctoral, master's, or bachelor's degrees. The exploration culminated in an insightful Analysis of Variance (ANOVA), shedding light on the influence of educators' levels of education on the application of ICT. Despite the statistical non-significance in the differences observed, this analysis contributes to a nuanced understanding of the complex interplay between educators' academic backgrounds and their engagement with technology.

Lastly, the correlation analysis between educators' competence in computer use and the application of ICT in teaching-learning transactions unravelled a robust positive relationship. The results underscore the critical importance of educators' competence as a catalyst for the effective integration of ICT in pedagogical practices. In essence, this article serves as a valuable contribution to the ongoing discourse on ICT integration in education. The findings not only provide a snapshot of educators' attitudes and practices but also offer insights that can inform targeted interventions, professional development initiatives, and policy considerations. As the educational landscape continues to evolve in the digital era, understanding and harnessing the synergies between educators and technology become imperative for fostering a vibrant and effective learning environment.

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