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Harnessing the Power of Digital Collective Synergy: The Mediating Role of Knowledge Sharing in Enhancing Innovative Work Behaviour

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Abstract:

This study investigates the impact of Information and Communication Technology (ICT) utilization and digital collective synergy on the Innovative Work Behavior (IWB) of teachers in Islamic elementary schools (SDI). The study aims to fill the gap in understanding how knowledge sharing mediates the relationship between ICT utilization, digital collective synergy, and IWB. A quantitative approach was employed, using a structured survey distributed to 144 teachers selected through multistage cluster sampling. The data were analyzed using Structural Equation Modeling (SEM) to test the hypothesized relationships. The findings reveal that ICT utilization and knowledge sharing significantly contribute to enhancing IWB, while digital collective synergy does not have a direct impact. However, knowledge sharing proved to be a key mediator between ICT utilization and IWB. These results suggest that fostering a collaborative environment and encouraging knowledge sharing among teachers can enhance their innovative capabilities. The implications of this study highlight the importance of integrating ICT and knowledge-sharing initiatives in teacher development programs. This research contributes to the understanding of how technology and collaboration influence innovation in education, offering insights for policymakers and educational leaders to create more effective learning environments.

Keywords: *ICT Utilization, Digital Collective Synergy, Knowledge Sharing, Innovative Work Behaviour*

Abstrak:

Studi ini menyelidiki dampak pemanfaatan Teknologi Informasi dan Komunikasi (TIK) dan sinergi kolektif digital terhadap perilaku kerja inovatif guru di Sekolah Dasar Islam (SDI). Penelitian ini bertujuan untuk mengisi kekurangan pemahaman mengenai bagaimana berbagi pengetahuan memediasi hubungan antara pemanfaatan TIK, sinergi kolektif digital, dan perilaku kerja inovatif. Pendekatan kuantitatif digunakan, dengan menyebarkan survei terstruktur kepada 144 guru yang dipilih melalui teknik multistage cluster sampling. Data dianalisis menggunakan Structural Equation Modeling (SEM) untuk menguji hubungan yang diajukan. Hasil penelitian menunjukkan bahwa pemanfaatan TIK dan berbagi pengetahuan berkontribusi signifikan terhadap peningkatan IWB, sementara sinergi kolektif digital tidak memiliki dampak langsung. Namun, berbagi pengetahuan terbukti menjadi mediator kunci antara pemanfaatan TIK dan IWB. Hasil ini menyarankan bahwa menciptakan lingkungan kolaboratif dan mendorong berbagi pengetahuan di antara guru dapat meningkatkan kemampuan inovatif mereka. Implikasi dari penelitian ini menyoroti pentingnya integrasi TIK dan inisiatif berbagi pengetahuan dalam program pengembangan guru. Penelitian ini memberikan kontribusi dalam memahami bagaimana teknologi dan kolaborasi

memengaruhi inovasi dalam pendidikan, serta menawarkan wawasan bagi pembuat kebijakan dan pemimpin pendidikan untuk menciptakan lingkungan belajar yang lebih efektif.
Kata Kunci: *Pemanfaatan TIK, Sinergi Kolektif Digital, Knowledge Sharing, Perilaku Kerja Inovatif*

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INTRODUCTION

Education systems worldwide are undergoing radical transformations, primarily driven by the rapid integration of digital technologies (Hashim et al., 2022). The constant evolution of ICT has reshaped teaching practices, making technology a critical tool for enhancing both teaching and learning. However, despite the increasing reliance on digital tools, questions remain regarding how these tools influence the behavior of educators, particularly their ability to innovate (Deroncele-Acosta et al., 2023; Rof et al., 2022). Previous studies have examined various aspects of ICT's role in education, from improving student engagement to enhancing access to information (Bouchrika et al., 2021; Panigrahi et al., 2021; Salas-Pilco et al., 2022). However, the specific mechanisms through which ICT utilization fosters innovative work behavior among teachers remain underexplored. This research seeks to fill this gap by focusing on the dynamics of ICT utilization, the importance of knowledge sharing, and their combined effect on teachers' innovative work behavior, especially within the context of Islamic primary schools in Bogor City.

Numerous studies have examined the role of ICT in education, but few have specifically focused on its influence on teachers' innovative work behavior. For instance, Tao et al. (2022) highlight that ICT adoption can significantly improve educational outcomes, but they focus primarily on student engagement rather than teacher behavior. Additionally, research by Garrido-Moreno et al. (2024) has shown that digital tools facilitate knowledge sharing in professional environments, yet their direct impact on innovation in teaching remains unclear. A study by Iqbal (2021) found that knowledge sharing directly contributes to innovation in organizational settings, suggesting that this may also be applicable in educational contexts. Finally, Ghazali et al. (2024) argue that self-efficacy is crucial for fostering innovation, particularly when teachers feel empowered to use ICT effectively. These studies collectively contribute to the understanding of ICT's role in education, yet they leave critical questions about the interplay of ICT, knowledge sharing, and teacher innovation unanswered.

While there is a growing body of literature on ICT in education, much of it overlooks the detailed relationships between ICT utilization, collaborative knowledge sharing, and innovative work behavior (IWB) among teachers (Middleton & Hall, 2021; Usmanova et al., 2023; Liu et al., 2024). Current research fails to explore how these factors interact in real-world educational settings, particularly in developing regions where access to technology may vary significantly. Most studies focus on student outcomes or technological access, not the internal behaviors of teachers. This gap in the literature is particularly critical because teachers are key agents of change in the classroom. Without a clear

understanding of how ICT and collaboration influence their innovative practices, educational policies and training programs may fail to support teachers in the digital age effectively. This study addresses this gap by investigating how ICT utilization, through knowledge sharing, shapes innovative work behavior among teachers in Islamic elementary schools in Bogor City.

This research introduces a novel perspective by focusing specifically on the mediating role of knowledge sharing in the relationship between ICT utilization and innovative work behavior among teachers. While previous studies have explored the individual impact of ICT and knowledge sharing, this research uniquely combines these factors to uncover a deeper understanding of how ICT can enhance innovation in educational practice. The context of Islamic primary schools in Bogor City provides a unique lens through which to explore this issue, as these schools face specific challenges related to resources, training, and technological access. By highlighting the importance of knowledge sharing as a key mechanism for innovation, this study offers new insights into how teachers can be better supported in adopting and utilizing digital technologies to foster innovation in the classroom, especially in resource-constrained environments.

This research aims to explore the relationship between ICT utilization, knowledge sharing, and innovative work behavior (IWB) among teachers in Islamic elementary schools in Bogor City. Specifically, it investigates how ICT can drive innovation in education by enhancing knowledge-sharing practices among teachers. The study seeks to answer key questions regarding the role of digital technologies in fostering a culture of innovation in the classroom and how collaborative practices influence teachers' ability to engage with new technologies. By understanding these dynamics, the study concludes to provide actionable insights that can inform educational policies, teacher training programs, and the development of digital tools that support innovation in teaching. Ultimately, this research contributes to a more nuanced understanding of the factors that influence educational innovation, with implications for both practice and future research in the field of educational technology.

RESEARCH METHOD

This research was conducted in Bogor City, Indonesia, focusing on permanent teachers (GTY) working in Islamic elementary schools (SDI) under the Ministry of Education. The decision to explore this context was driven by the increasing emphasis on integrating Information and Communication Technology (ICT) in education, particularly in schools that are undergoing modernization. Bogor City, with its diverse educational settings, provides a unique opportunity to understand how ICT influences teachers' innovative work behavior (IWB) in the face of varying levels of access and familiarity with technology. The study adopted a quantitative descriptive research design, which is appropriate for examining the relationships between ICT utilization, knowledge sharing, and IWB on a larger scale (Lederle et al., 2021; Petrongolo & Toothaker, 2021; Tamata & Mohammadnezhad, 2023). The survey method was chosen to systematically collect data from a vast population, allowing the research to quantify variables and identify patterns within the teachers' practices and behaviors, contributing to a

clear understanding of the topic (Kwon et al., 2022; Lucas et al., 2022; Su et al., 2022).

Data for this study were collected using a structured survey with four sets of questionnaires designed to measure ICT utilization, knowledge sharing, and innovative work behavior among teachers. The Multistage Cluster Sampling technique was applied to select participants, which ensured that a representative sample of teachers was chosen from the 876 permanent teachers across six sub-districts in Bogor City. In the first stage, 80% of the sub-districts were selected, resulting in 5 sub-districts being included. In the second stage, 12 schools from the selected sub-districts were randomly chosen, giving access to 200 reachable GTYs. The sample size was determined using the Taro Yamane formula with a 5% margin of error, leading to a final sample of 144 teachers. The reliability of the survey instrument was verified using Cronbach's Alpha, and its validity was confirmed through product moment, Pearson. These procedures ensured that the data collected was both reliable and representative of the broader population (McBride et al., 2021; Newman et al., 2021; Stantcheva, 2023).

The data collected were analyzed using Structural Equation Modeling (SEM), a powerful statistical technique for testing relationships between multiple variables. SEM was chosen because it allows for the simultaneous analysis of direct and indirect relationships between ICT utilization, knowledge sharing, and innovative work behavior (Khmeleva et al., 2022; Mohammadi et al., 2023; Thorson et al., 2023). The analysis was conducted using SmartPLS software. Initially, descriptive statistics were used to provide an overview of the participants' demographics and their responses to the survey questions. Following this, inferential statistics were employed to test the hypotheses, with a focus on assessing the direct effects of ICT utilization and knowledge sharing on IWB, as well as the mediating role of knowledge sharing. This method provided insights into the significance of each variable and their interrelationships, offering a comprehensive understanding of the factors that promote innovative behavior among teachers.

RESULT AND DISCUSSION

Result

Respondent Demographics

This study used questionnaires to collect quantitative data from permanent teachers at Islamic primary school foundations in Bogor City. The questionnaire, available both online and offline, enabled data collection within a short timeframe. Besides the main research variables, the questionnaire included respondents' demographic data such as gender, age, education, job title, and tenure, which serve as a context for analyzing the research findings, as shown in Table 1.

Table 1. shows the demographic distribution of respondents consisting of 144 permanent teachers at Islamic Elementary Schools (SDI) in Bogor City. Most respondents had a Bachelor's degree in education (90%), followed by a Master's (7%) and Senior High School (3%). In terms of length of employment, the majority

of teachers have between 6 to 10 years (30%) and more than 15 years (27%), while those with 1 to 5 years and 11 to 15 years of work experience are 17% and 26%, respectively. In terms of age, most teachers are over 35 years old (63%), followed by the age groups of 31-35 years (19%), 26-30 years (15%), and 20-25 years (3%). Most respondents worked as primary grade teachers (74%), followed by subject teachers (21%) and vice-principals (5%). Finally, the majority of respondents were women (67%) compared to men (33%).

Table 1. Distribution of Respondent Demographic

Demographic data	Quantity (N=144)	%	Demographic data	Quantity (N=144)	%
Education			Length of employment		
Senior highschool	5	3%	1-5 yrs	24	17%
Graduate	129	90%	6-10 yrs	43	30%
Magister	10	7%	11-15 yrs	38	26%
			>15 yrs	39	27%
Age			Position		
20-25	5	3%	Deputy Principal	7	5%
26-30	22	15%	Homeroom teacher	106	74%
31-35	27	19%	Subject teacher	31	21%
> 35	90	63%			
Gender					
Male	48	33%			
Female	97	67%			

Source: Primary data processed, 2024

Convergent Validity Test

The convergent validity test aims to measure the extent to which the indicators used in the study can measure the construct in question consistently. In this study, convergent validity was tested using three leading indicators, namely Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE). In this study, most of the variables showed good values in the convergent validity test. However, the Autonomy indicator in ICT Utilization shows a very low outer loading value (0.072), which does not meet the validity criteria and needs to be corrected or removed from the model. Other variables, such as Digital Collective Synergy and Knowledge Sharing, showed excellent values in terms of CA, CR, and AVE, indicating that these constructs are well-scalable and reliable, where the results of the convergent validity test of this study are as shown in Table 2.

As a convergent validity analysis, the results of variable indicator analyses based on Table 2 show some interesting points for each variable. Variable X1 (ICT Utilization-ICT-U) has CA (0.887), CR (0.938), and AVE (0.784) values, which indicate good overall reliability and convergent validity. However, the Autonomy indicator has a very low outer loading value (0.072), which does not meet the validity criteria. This indicator needs to be improved or excluded from the model due to its insignificant contribution to the variable. The Digital Collective Synergy (DCS) performed very well with CA (0.986), CR (0.991), and AVE (0.974), indicating high internal consistency and strong validity.

Table 2. Outer Loading Factor, Cronbach's Alpha, Composite Reliability, & Average Variance Extracted (AVE)

Variable	Indicator	Outer Loading	CA	CR	AVE
ICT Utilization	Initiative	0.993	0.887	0.938	0.784
	Development	0.990			
	Integration	0.989			
	Participation	0.987			
	Autonomy	0.072			
Digital Collective Synergy	Digital collaboration	0.989	0.986	0.991	0.974
	Shared vision	0.979			
	Global perspective	0.992			
Knowledge Sharing	Active participation	0.993	0.995	0.996	0.989
	Openness to new knowledge	0.995			
	Constructive contribution	0.996			
Innovative Work Behavior	Idea Exploration	0.986	0.997	0.998	0.986
	Idea generation	0.996			
	Idea elaboration	0.990			
	Idea promotion	0.995			
	Idea realization	0.996			
	Idea development	0.995			

All indicators have an outer loading above 0.9, with Digital Collaboration (0.989) and Global Perspective (0.992) being significant indicators. The X3 (Knowledge Sharing-KS) variable has CA (0.995), CR (0.996), and AVE (0.989) scores, indicating excellent reliability and validity. All indicators have an outer loading above 0.99, showing substantial support for the variable, with Constructive Contribution having the highest outer loading (0.996). IWB demonstrated strong results with CA (0.997), CR (0.998), and AVE (0.986). All indicators have very high outer loadings (above 0.98), suggesting a significant contribution to the variable. The Generating Ideas and Realizing Ideas indicators had the highest outer loading (0.996), highlighting their importance in IWB.

Discriminating Validity Test

The results of the discriminant validity test using the Fornell-Larcker criterion showed that most constructs had good discriminant validity, where the value of the square root of AVE was more significant than the correlation between constructs. However, ICT Utilization shows poor discriminant validity because its square root value of AVE is smaller than some correlations between constructs, specifically with Digital Collective Synergy (0.986), where the discriminant validity test is as shown in Table 3.

Table 3 Fornell-Larcker Criterion Discriminant Validity Test Results

	IWB	KS	ICT-U	DCS
IWB	0.993			
Knowledge Sharing	0.979	0.995		
ICT Utilization	0.972	0.978	0.886	
Digital Collective Synergy	0.973	0.977	0.986	0.987

Table 3 shows the results of the discriminant validity test with the Fornell-Larcker criterion: Most constructs have good discriminant validity, where the AVE square root value is greater than the inter-construct correlation. IWB, Knowledge Sharing, and Digital Collective Synergy meet the criteria for discriminant validity. At the same time, ICT Utilization shows poor discriminant validity because its AVE square root value (0.886) is smaller than several inter-construct correlations, especially with Digital Collective Synergy (0.986). This indicates the need for further investigation of the ICT Utilization construct. From this, it can be concluded that the research instrument is valid, so the data obtained can be relied on for further analysis. This analysis tests the cause-and-effect relationship between the variables in the model, as shown in Figure 1.

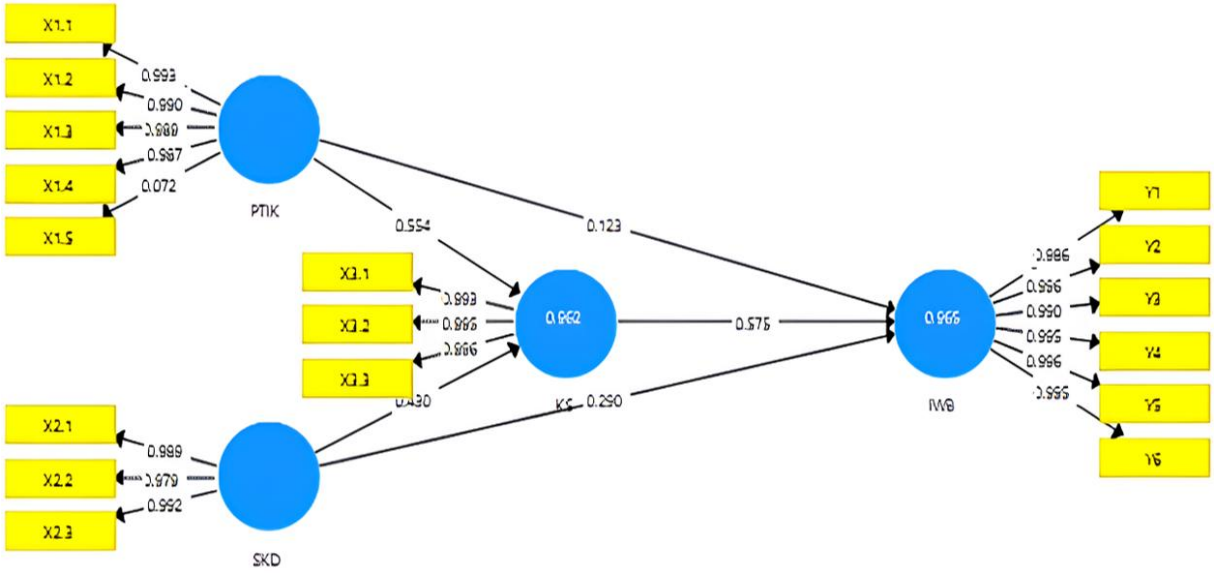

Figure 1. The Coefficient Diagram

The structural model in this study was utilized to identify and measure the relationships between the research variables. The bootstrapping technique, employing SmartPLS 3.0 software, was used to test the statistical significance of these relationships. The criteria for assessing significance included the T-statistic value, P-value, and the direction of the relationship.

Hypothesis Testing

Hypothesis testing was carried out to test the cause-and-effect relationship between the variables that have been proposed in the research model. The purpose of this test is to identify whether the independent variable exerts a significant influence on the dependent variable, as well as to confirm whether the relationship proposed in the research hypothesis corresponds to the data obtained. The results of this hypothesis test will provide a clear picture of the validity and strength of the relationship between the variables in this study. The results of the hypothesis test from the study are shown in Table 4.

Table 4. Hypothesis Test Results (*Bootstrapping Path Coefficients*)

Variables	β (*Path Coefficient*)	(STDEV)	T Statistics	P *Value*
ICT Utilization → IWB	0.123	0.219	2.632	0.009
Digital Collective Synergy → IWB	0.290	0.174	0.709	0.478
Knowledge Sharing → IWB	0.979	0.183	3.035	0.003
ICT Utilization → Knowledge Sharing	0.994	0.234	1.238	0.216
Digital Collective Synergy → Knowledge Sharing	0.430	0.177	2.429	0.016

Table 4 shows that ICT Utilization positively affects IWB, meaning more IT use leads to higher IWB. Digital Collective Synergy did not significantly influence IWB. However, Knowledge Sharing greatly boosts IWB, showing that more knowledge sharing increases IWB. Overall, these findings emphasize the role of ICT Utilization and Knowledge Sharing in promoting IWB. Besides the three direct effects mentioned, two other relationships were tested: ICT Utilization and Digital Collective Synergy on Knowledge Sharing. Results indicated that ICT Utilization does not significantly affect Knowledge Sharing (β=0.994, Pvalue=0.216), while Digital Collective Synergy positively affects Knowledge Sharing (β=0.430, Pvalue=0.016). Overall, the analysis reveals that Knowledge Sharing is the most dominant factor influencing IWB, followed by ICT Utilization, whereas Digital Collective Synergy does not significantly contribute to this model.

Indirect Effects Analysis

Indirect effects analysis was carried out to understand how independent variables affect dependent variables through the role of mediators. This analysis aimed to identify indirect influence pathways, which showed how relationships between variables could be mediated by other variables, as described in the research model. The results of this analysis provide deeper insight into the mechanisms underlying the relationships between the variables tested. The analysis of the indirect effects of this study is shown in Table.

Table 5. Bootstrapping-Total Indirect Effects

No	Inter-variable Relationship Model	β (*Path Coefficient*)	(STDEV)	T-Statistic	P *Value*
1	*ICT* → IWB	0,973	0.146	2.182	0.030
2	Digital Collective Synergy → *IWB*	0,421	0.123	2.011	0.045

Table 5 shows the results of bootstrapping analysis for the indirect effects between variables in the research model. The first results showed that ICT Utilization exerted a significant indirect influence on Innovative Work Behaviour (IWB) with a path coefficient of β = 0.973, T-statistic value = 2.182, and P-Value = 0.030, which is smaller than 0.05, showing a significant influence. The second result showed that Digital Collective Synergy also had an indirect influence on IWB with a path coefficient of β = 0.421, a T-statistic value = 2.011, and a P-Value = 0.045, which also showed significance at the level of 5%. These two results indicate that ICT and Digital Collective Synergy contribute to improving IWB through the mechanism of the role of mediators.

Model Goodness of Fit

Evaluation of the fit of the model that has been built to measure how well the model describes the empirical data obtained. The model fit evaluation aims to ensure that the difference between the covariance matrix estimated by the model and the sample covariance matrix is minimal, indicating that the model used is reliable for further analysis.

Table 6. Model Goodness of Fit

	Estimated Model
SRMR	0,021
NFI	0,946

Based on Table 6, it can be concluded that with a minimal SRMR value of 0.021 (well below the threshold of 0.08), the developed model is an excellent match with the empirical data. The difference between the covariance matrix estimated by the model and the sample covariance matrix is minimal. Likewise, the NFI value is relatively high at 0.946 (above the threshold of 0.90), indicating that the empirical model developed is much better at explaining the data than the null model (a model that has no relationship between variables.

Analisis R^2 dan Q^2

Variance analysis (R2) is used to assess the impact of independent variables on the dependent variable's variability. Table 7 presents these results.

Table 7. R2 and Q2 values

	R Square	Q Square
IWB	0.965	0,109
KS	0.962	0,161

Based on Table 7, it can be concluded that the IWB variable has an R2 value of 0.965 (very high), which indicates that the model created is able to explain 96.5% of the variance in the latent variable IWB. This means that the exogenous latent variables related to IWB make a substantial contribution to explaining the variation in IWB. The same goes for the knowledge-sharing variable, with a high R2 value of 0.962 or 96.2% influenced by other variables in the model, with the remaining 3.8% being influenced by other variables outside the model. Table 7 displays Q2 values, indicating the predictive power of independent variables on the dependent variable. The IWB variable has a low Q2 of 0.109, showing limited predictive ability. The knowledge-sharing variable's Q2 is 0.161, suggesting room for improvement.

The PLS prediction analysis compares the performance of the PLS-SEM model with the simple linear regression model using RMSE and MAE metrics to assess prediction accuracy, as shown in Table 8.

Table 8. Comparison of PLS and LM values for PLS Predict Model

Indicators	PLS		LM	
	RMSE	MAE	RMSE	MAE
Y1	3.598	0.902	3.264	0.865
Y2	3.692	0.908	3.606	0.839
Y3	3.635	0.973	3.612	0.926
Y4	3.788	0.940	3.637	0.872
Y5	3.960	0.997	3.789	0.898
Y6	3.817	0.932	3.386	0.836
X3.1	2.268	0.785	2.626	0.833
X3.2	2.747	0.752	3.012	0.767
X3.3	2.270	0.718	2.059	0.710

Table 8 shows that most indicators of the PLS model's endogenous variables have lower RMSE or MAE values than the LM model, indicating medium predictive power for the PLS model. Table 8 shows that the LM model generally has a lower RMSE and MAE than the PLS model, indicating more accurate predictions.

Discussion

The primary aim of this study was to examine the role of ICT utilization, digital collective synergy, and knowledge sharing in enhancing innovative work behavior (IWB) among permanent teachers in Islamic elementary schools (SDIs) in Bogor City. As the educational sector continues to evolve in the digital age, understanding the factors that contribute to innovation in teaching is crucial. The results of this study offer several important insights into how these variables interact to influence teachers' innovative behaviors.

One of the key findings of this study is that ICT utilization has a significant positive effect on IWB, with a path coefficient of 0.123 and a P-value of 0.009, suggesting that increased use of ICT tools leads to more innovative behavior among teachers. This finding is consistent with previous research by Tang (2021), which highlights the importance of ICT in promoting innovation in educational settings. Digital technologies, such as online platforms and digital collaboration tools, empower teachers to enhance their teaching practices and create new solutions to challenges within the classroom.

The second significant finding pertains to the role of Knowledge Sharing, which was found to have a much stronger and more consistent influence on IWB. With a path coefficient of 0.979 and a P-value of 0.003, knowledge sharing was identified as the most dominant factor influencing IWB in this study. This aligns with the research that knowledge exchange between colleagues fosters a collaborative work environment, which is conducive to innovation (Alshwayat et al., 2021; Colakoglu et al., 2022; Shehzad et al., 2023). Teachers who actively share knowledge with their peers are more likely to develop new ideas and approaches to teaching, contributing to a culture of innovation within the school. This finding supports the idea that professional collaboration is integral to innovation in education.

However, the study found that Digital Collective Synergy did not significantly influence IWB, as evidenced by the path coefficient of 0.290 and the P-value of 0.478. This result contrasts with expectations, as it was hypothesized that collaboration facilitated by digital platforms would have a more direct impact on IWB. One possible explanation for this discrepancy is that while digital collective synergy encourages collaboration, it may not be sufficient on its own to drive innovation. Teachers may collaborate using digital tools, but without a strong culture of knowledge sharing or a clear shared vision, collaboration may not lead to concrete innovations. This finding is at odds with studies that emphasize the importance of digital collaboration in enhancing innovation (Ben Ghrbeia & Alzubi, 2024), suggesting that other contextual factors may play a more significant role in mediating the relationship between digital synergy and innovation.

Another important result from this study is the analysis of indirect effects, which revealed that both ICT utilization and digital collective synergy have significant indirect effects on IWB through the mediating role of knowledge sharing. ICT utilization had a strong indirect effect on IWB ($\beta = 0.973$, P-value = 0.030), while digital collective synergy also had a significant indirect effect ($\beta = 0.421$, P-value = 0.045). These results highlight the importance of mediating variables such as knowledge sharing, which facilitates the translation of digital technologies and collaborative efforts into meaningful innovations in the classroom.

The results of the model goodness of fit analysis, with an SRMR value of 0.021 (well below the threshold of 0.08) and an NFI value of 0.946, suggest that the model used in this study fits the data very well, indicating that the relationships among the variables are reliably represented. This strong fit supports the robustness of the study's conclusions and the validity of the structural model employed.

In terms of practical application, the findings suggest that educational institutions should focus on enhancing ICT infrastructure and promoting knowledge sharing among teachers to foster innovative work behaviors. Schools should encourage collaborative practices, provide platforms for knowledge exchange, and ensure that teachers are well-equipped with the tools necessary to incorporate ICT into their teaching. Moreover, while digital collective synergy alone may not directly enhance innovation, fostering a supportive environment that encourages collaboration and knowledge sharing will ultimately lead to more innovative and effective teaching practices.

CONCLUSION

This study highlights the significant impact of Information and Communication Technology (ICT) and knowledge sharing on innovative work behaviour (IWB) among teachers. The findings suggest that technology integration and active knowledge-sharing cultures can foster innovation in education. Although digital collective synergy does not directly influence IWB, knowledge sharing is a crucial mediator, enhancing teacher collaboration via digital

platforms. These insights underscore the importance of incorporating both technological tools and collaboration in professional development for educators. Limitations include the study's narrow scope, focusing on a single city and school type, which may limit generalizability. Further research should broaden the sample, consider demographic variables, and employ diverse methods to gain a more comprehensive understanding, offering more substantial support for targeted educational policies.

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