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A Study on Technology Integration Practices in Arts Instructors: Exploring the Mediating role of Value and Ability Beliefs

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ABSTRACT

Teachers are the crux of every developing mind of newly blooming pupils in the education institutes and it is a universal factor in the learning process of every nature or aspect of study. Nowadays, the use of innovative technologies has become an essential practice in learning and teaching systems of every subject including art studies which indicates the constant incorporation of technology in instructional communication and reflects an advancement in the teaching process. Quantitative research design was implemented to assess the cause-and-effect relationship among variables. Primary data was collected through the survey strategy and a close-ended questions comprised questionnaire was designed. The researcher disbursed 350 questionnaires and finalized 331 questionnaires for the data analysis. The study encountered significant results for all synthesized associations except for the mediating role of ability beliefs. The present result hold numerous theoretical and practical implications. This study extends the growing body of literature regarding technology integration practices through the professional development, ICT knowledge and technical assistance. However, the study also provides practical implications as beneficial insights can be provided through which professional development can be fostered through technology integration practices. Research limitations and future indications have also been explained to increase the generalizability of this research.

Keywords: *Art teachers, Information communication technology, ICT, Knowledge, Technology integration, and Teaching process.*

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INTRODUCTION

The adaptation of new technology in education has come out as a key paradigms shift in current pedagogical practices (Manubag et al., 2023). Technology in the current society is not just a supplement to education but rather it contributes to the teaching and learning process (Burbules et al., 2020; Haleem et al., 2022). Through the incorporation of technology in learning and teaching process, students get an opportunity to learn and be taught in innovative ways that can suit them individually (Dabamona & Yunus, 2022). Technology is an effective medium that opens up great opportunities for presenting the entire spectrum of information and material and helps both teachers and students to overcome the obstacles of traditional classrooms. It offers promotional model of learning through web conferencing, fosters critical skills of reasoning in context and problem solving' skills in context through simulations and promotes assessment and feedback model of learning required for its success (Rajaram & Rajaram, 2021; Tang, 2024). The effectiveness of technology in education is underscored due to its ability to prepare the students for the society that is rapidly becoming technological, thereby providing the students with the vocation that is relevant in the twenty first century education. Given that arts learning advocates embracing of new technological tools for use in the learners' creative processes this shift is especially applicable to arts education (Ma et al., 2021).

Today world has become a global village, everyone has access to information with just one click. Technology has made its place in every field of life now-a-days, globalization helped it to transcend across borders (Akram et al., 2021). It is an undeniable fact that technology have a hold on every field of life as it is serving as an instrument to make things easier. Field of education has also been impacted greatly with the presence of technology, as it became easier and simpler for institutions to provide access to unlimited information through technological means. The whole concept of information distribution and role of teachers in it has been changed completely because of new technological advancements. There is an increased demand for incorporating high-level technologies in education to encourage educators to learn and find new ways of teaching enhancement (Ovcharenko et al., 2020). The computer revolution has had a profound effect on the classroom. However, the focus was on student access to knowledge outside the classroom and increased student engagement, not on specific academic accomplishment (Lawrence & Tar, 2018; Lemon & Garvis, 2016). By examination of the interplay between ICT knowledge, professional development, technical assistance availability and beliefs of instructor, the research aims to provide with valuable insights into

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professional and personal strategies that will ensure the successful integration of technology among the instructors of college arts.

Therefore, the main aim of this study is to investigate the factors that influences the practices of technology integration among art teachers. For this purpose, a specific focus has been paid towards the role of professional development, technical assistance availability and ICT knowledge. For this purpose, the mediating effects of value beliefs and ability beliefs have been assessed.

LITERATURE REVIEW

Underpinning Theory

The Unified Theory of acceptance and use of technology (UTAUT) (Williams et al., 2015) and the technology acceptance model (TAM) (Davis, 1989) offers valuable frameworks for understanding the factors which influences the practices of technology integration among the art teachers. For instance, the professional development can enhance performance expectancy as it facilitates the teachers to recognize the benefits of technology for their teaching. TAM also complements the main idea of this study as it focuses on perceived usefulness and perceived ease of use. Professional development can increase the perceived usefulness as it facilitates the teachers to see how teachers can improve the effectiveness of teaching. Similarly, technical assistance and ICT knowledge contributes towards perceived ease of use by reducing the efforts required to utilize the technology effectively.

The Technology Acceptability Model (TAM) is introduced as a succinct and practical theoretical framework for examining how a new technology or service's perceived utility and perceived ease of use impact its acceptability. Similarly, UTAUT paradigm are also undertaken to assess technological adoption. AI has recently led to the release of new products on the market. Systems, services, and gadgets are available for clients to use. Artificial Intelligence is being applied in education through automated catboats, recommenders, and predictive analytics. These technologies, such as recommenders, catboats, and predictive analytics, have also been assessed using the UTAUT paradigm. (Gong et al., 2021; Raffaghelli et al., 2022).

Professional development of art teachers and technology integration practices

The professional development of teachers has become increasingly important in order to satisfy the needs of this development. They are expected to acquire new abilities and information. Both schools and kids benefit from instructors' growth as professionals (Ekinci, 2019).

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Professional development starts before to employment and continues for the term of the position. Its objective is to inform teachers on trends in variation and innovative teaching methods. Additionally, it attempted to impart the skills, information, and mindset needed to help students become proficient educators. Teachers can use it to gain in-depth understanding of a certain subject. It contributes to their educational competencies as well. Professional development has become increasingly important worldwide in recent years, especially in Europe where there have been modifications to the basic qualifications required of teachers. (Sands, 2018). At the moment, students are the main subject of research on digital literacy integration. Research centred on teachers emphasizes the difference between teaching and using digital literacy. Moreover, scant literature evaluates the efficacy of professional development approaches in furnishing educators with assistance in digital literacy. In order to increase teachers' Digital Learning Identity, this mixed-methods experimental study develops a professional development model for virtual coaching. According to survey findings, coaching is one cutting-edge strategy for professional development, as teacher's express concerns about keeping up with evolving technological advancements (Zimmer & Matthews, 2022).

H1: *Professional development of art teachers significantly influences technology integration practices*

Technical assistance availability on technology integration practices

According to Nagy (2018) incorporating technology into the classroom provides pupils with more exposure to language in a relevant situation. The significance of technology integration in education is well known. Teachers may now choose their favorite multimedia and tools for more engaging classroom instruction. Lessons with audio and visual components encourage more pupils to participate in class. Students can utilize computers to pass assessments. Furthermore, students can access their progress (scores) through the internet.

Teachers can utilize websites to assign requirements and samples to pupils. According to Raddats (2019), information and communication technologies (ICTs) can encourage instructors and students to engage in peer dialogue, research, analysis and thinking, examining, and aiding. Learners should also have the chance to practice real-life skills through authentic social interactions. The use of information and communication technologies is one of the most successful innovations in higher education (ICTs). Sarkis (2020) studied the effect of podcasts on Spanish speaking abilities. Vongkulluksn (2018) used a digital media to enable cooperative and individual learning for French learners in their face-to-face discussion workshops.

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H2: *Technical assistance availability significantly influences the technology integration practices.*

ICT Knowledge and technology integration practices

ICT knowledge has a combined impact of information, communication and technology, involving the skills regarding applying and understanding a significant range of software, computer programs and other applications (Buabeng-Andoh, 2019). A study conducted regarding the relationship between ICT knowledge and technology integration practices revealed that there is a significant role of ICT knowledge in the successful implementation of the technology integration practices (Coleman et al., 2016). This involves utilization of the technology tools in a general content area for the application of technology and computer skills for the purpose of problem solving. Another study proposes that information, communication and technology related knowledge can not only result in significantly effective implementation of the technology integration practices but will also result in significant level of modification, augmentation and redefinition of the information technology related factors in an organization (Georgiou et al., 2020). Along with the technical skills, the right knowledge and information also plays a very significant role in the integration of various technical practices that can result in better professional development and significant technical assistance availability (Gil-Flores et al., 2017; Gilkes, 2020).

H3: *ICT Knowledge significantly influences the technology integration practices.*

Mediation of Value Beliefs

Teachers' self-perceptions as to their own worth and ability to effectively incorporate technology into the classroom are important second-order barriers that influence the amount and quality of technology usage (Cheng et al., 2020). Research has shown that teachers are more likely to incorporate technology into their lessons when they see its value in the classroom and have confidence in their own abilities to do so (Atman Uslu & Usluel, 2019). Teachers' attitudes about their own value and competence have been defined and operationalized variously in the field, despite several attempts to explore the relationship between these beliefs and the incorporation of technology in the classroom, according to (Scherer et al., 2019), there was a school of thought that held that teachers' value beliefs were solely related to how they saw the utility of technology in the classroom. In contrast, Cheng et al. (2020) used the word "value beliefs" to describe educators' views on the significance of incorporating technology into the classroom as a means to improve students' learning, it centered on how enthusiastic

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educators were about incorporating technology into their lessons. Given the diversity of methods used to study them, it's reasonable to assume that value beliefs are multi-faceted and intricate. But earlier research Atman Uslu and Usluel (2019) often just used the word "beliefs" to describe value beliefs in general, without identifying the particular aspect of value beliefs that were studied.

H4: *Value beliefs significantly mediates between Professional Development of Art Teachers and Technology Integration Practices.*

H5: *Value beliefs significantly mediates between Technical Assistance Availability and Technology Integration Practices.*

H6: *Value beliefs significantly mediates between ICT Knowledge and Technology Integration Practices.*

Mediation of Ability Beliefs

In the very recent literature, a study investigated the correlation between the teachers' professional capital and their technology-based enhanced teaching innovation (Liu & Zhang, 2024). The study the Chinese teachers as the population and using the SEM approach, the study identified that the teacher's professional capital and their technology-integrated teaching innovation have a strong significant association. Moreover, their constructivist beliefs about their ability also act as a significant catalyst and cats an additional incremental effect on technology integration and technology-integrated teaching proficiency (Liu & Zhang, 2024; Siddiqua et al., 2023). These recent studies presented a strong foundation to claim that ability beliefs as teachers' self-efficacy, beliefs and values are significant predictors that stimulate the professional development and better technology usage. Researchers and empirical scholars have paid significant attention to increasing the promotion and awareness of the effectiveness of technical assistance in developing a friendly bond between teachers and technology. Such as, research investigated the nexus between teachers' ability beliefs, values beliefs, expectancy beliefs and technology integration and using SEM and CFA results, the study concluded that teachers' ability beliefs are the strongest predictor of teacher expectancy and value beliefs and all these factors combined are enough determinants that stimulate an efficient technology integration in the classrooms (Cheng et al., 2020). Similarly, another research conducted by Chand et al. (2020) illuminated a holistic strategy by assessing the students' and teachers' perceptions regarding the ability or technology beliefs and a difference in the significance of technology-integrated projects and traditional classroom learning process. Using the

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perceptions of in-service teachers, the study highlighted that teachers who have student-centered beliefs pursue technology practices despite the technological, administrative and assessment barriers. Moreover, teachers' self-beliefs and attitudes toward technology are the biggest success factors for technology integration, however, their level of knowledge and skills hinder effective technology interaction (Ertmer et al., 2012). Based on the above discussion, following hypothesis can be formulated:

H7: *Ability Beliefs significantly mediates the relationship between Professional Development of Art Teachers and Technology Integration Practices.*

H8: *Ability Beliefs significantly mediates between Technical Assistance Availability and Technology Integration Practices.*

H9: *Ability Beliefs significantly mediates between ICT Knowledge and Technology Integration Practices.*

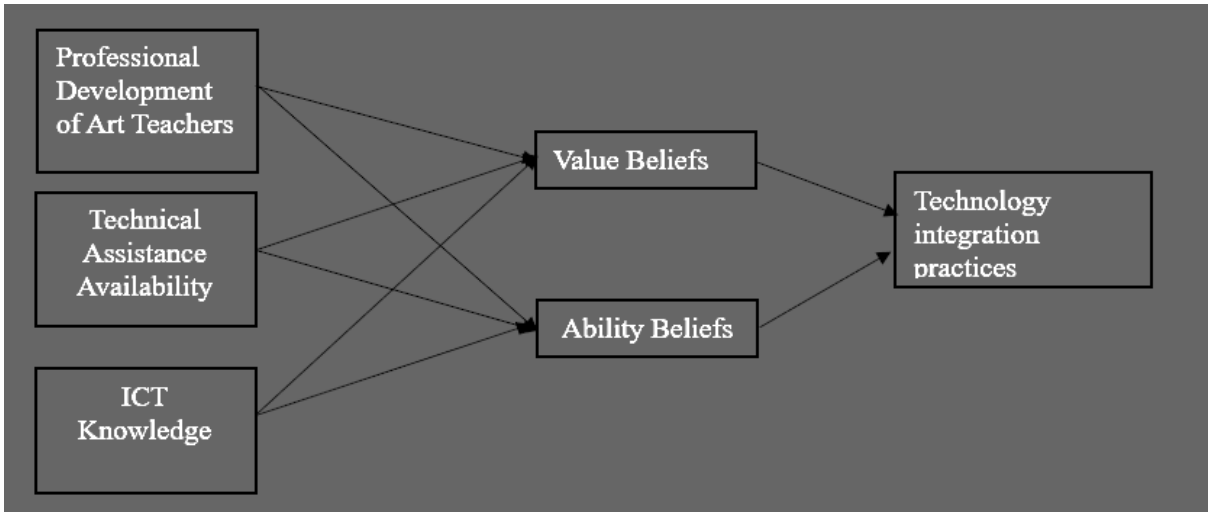

Figure 2.1. Conceptual Framework

METHODS

The methodological choice of this study highly relies on its aim. As the study aims to assess "Instilling Technology Integration Practices in College Arts Instructors through Professional Development, ICT Knowledge and Technical Assistance: Mediating Role of Value and Ability Beliefs". Therefore, the investigation has been conducted in accordance with a positivism philosophical approach. Thus, the researcher has conducted the investigation using a quantitative approach. Positivism emphasizes scientific observation and objective measurement, so we can determine how much professional growth and technical support

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contribute to technology adoption. The positivist paradigm uses systematic surveys and statistical analysis to evaluate ideas and prove causality. Furthermore, a study's approach is crucial to addressing the research issue and defining the research problem. Deductive reasoning involves drawing conclusions from assumed premises. This reasoning differs from inductive reasoning, it follows logical reasoning (Gong et al., 2023; Pickles, 2020). This research approach begins with a hypothesis and then makes more subtle discoveries to confirm or disprove the notion. Top-down techniques are used to choose from several options i.e., deductive reasoning (figure 3.1). This is because it aligns with the philosophical choice and methodological design of research.

To assess the cause-and-effect relationship among variables, the quantitative research design has been implemented. Through Quantitative research methods the researcher has tested hypotheses and the association between professional growth and improvement in technology integration. Due to its positivist foundation, quantitative design has been considered suitable. Furthermore, the researcher has targeted college arts instructors in China as a sample of specific population of interest. Since the research aims at obtaining data from a target population of twenty-two districts in Two southern state, the researcher uses purposive sampling as a method of sampling that is geared by the researcher with the required expertise in pinpointing the most suitable respondents for the study. More specifically, colleges from China are chosen as the sampling frame, and arts teachers in those colleges sampled as the sampling unit. Using the measure n = N*X / (X + N – 1) the researcher estimated the sample size was to be 350 respondents. However, after screening of inadequately answered or incomplete survey forms, the researcher finalized 331 for data analysis. This purposive sampling approach helps the researcher in identifying the arts teachers that are apt to lend their opinions regarding the current and prospective integration practices of technology in the classroom, the existing and envisaged ICT access and understanding as well as the students' value and ability beliefs thereby increasing the validity and reliability of the research study. The data is collected through a self-administered questionnaire-based survey administered to Chinese college art instructors. The questionnaire has been divided into sections, each of which addresses one of the 5 facets of the study, namely, the participant information, teaching experience, usage of technology, and perception of integrating technology in teaching. The survey also encompassed the pilot-tested in order to iron out the confusions involving face validity and inter-observer reliability, and to participate a purposive sample of Chinese college art instructors.

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The measures for Technology Integration Practices are adopted from the study (Bowman et al., 2020), involving a sample item, "How often do you ask students to use technology to compare multiple sources of information?". For Professional Development of Art Teachers measures are taken from the study of (Kopcha, 2012). Furthermore, for Technical Assistance Availability the study of (Wachira & Keengwe, 2011) is utilized for the measure adoption. The study of (Ifinedo et al., 2020) is adopted for the measures for the variable ICT Knowledge. The measures for the variables Value Beliefs and Ability Beliefs have been adopted from the study (Anderson & Maninger, 2007). Data has been analysed through SPSS, Microsoft Excel and Amos. The tests will involve descriptive statistics, rotated component matrix, confirmatory factor analysis, structural equation modelling and convergent and discriminant validity.

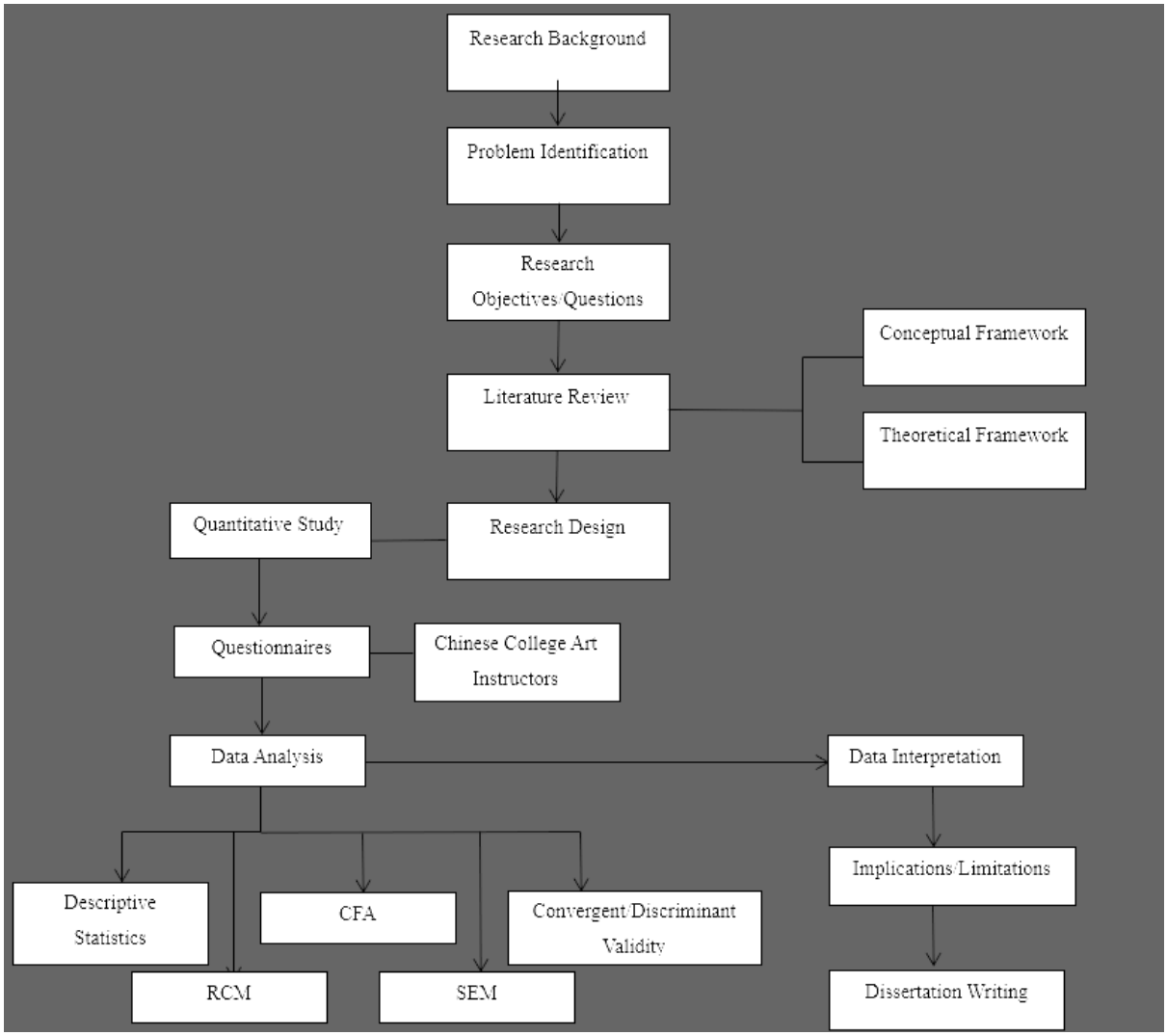

Figure 3.1. Research Flowchart

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RESULTS

Common Method Variance

Since the quantitative data for the present study has been gathered from a single source (the survey-based questionnaires), therefore there may be concerns regarding the common method variance (CMV). In table 4.1, the first six components explain a cumulative variance of 83.664%. From the component 7 to component 24, each component explains rather smaller portion of the variance, and the cumulative variance reaches 100%. The column of the "extraction sums of squared loadings" presents the similar findings as those in the columns of the initial eigenvalues and the percentage of variance explained because no rotation has been applied here.

Table 4.1. *Common Method Variance*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.425	26.772	26.772	6.425	26.772	26.772	5.107	21.281	21.281
2	4.799	19.996	46.768	4.799	19.996	46.768	4.451	18.548	39.829
3	2.969	12.373	59.141	2.969	12.373	59.141	2.977	12.405	52.234
4	2.466	10.273	69.414	2.466	10.273	69.414	2.632	10.965	63.200
5	1.930	8.042	77.457	1.930	8.042	77.457	2.616	10.902	74.101
6	1.490	6.207	83.664	1.490	6.207	83.664	2.295	9.562	83.664
7	.555	2.311	85.974						
8	.472	1.965	87.940						
9	.397	1.655	89.595						
10	.342	1.424	91.019						
11	.288	1.202	92.221						
12	.280	1.166	93.387						
13	.260	1.084	94.471						
14	.238	.993	95.463						
15	.212	.884	96.347						
16	.208	.866	97.213						

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17	.138	.577	97.789
18	.121	.504	98.293
19	.102	.424	98.717
20	.093	.389	99.106
21	.090	.374	99.480
22	.079	.330	99.810
23	.035	.146	99.955
24	.011	.045	100.000

Extraction Method: Principal Component Analysis.

Demographics of Respondents

Results showed varying demographic attributes of respondents. For this purpose, the gender distribution was resulted a total of 208 subjects or 62.8 percent which consisted of male participants, as well as 123 participants or 37.2 percent were female. This implies that the poll had more male respondents. The biggest proportion was the one of 25 to 35 years old people, which comprised of 42.6% (141 participants) of the total study population. The second largest was the 35 to 45 years age group, which comprised of 23.9% of the respondents (or 79 participants). Some of the respondents were below 25 years, contributing to 17.2% of the total respondents, while the remaining 54 participants were over 45 years. Based on the above age distribution, it is possible to conclude that there is a variety of experiences among the respondents. Graduates comprised of 33. 5%, those with another Master's degree were 64 in number. The educational diversity observed in the results is indicative of a well-educated respondent base. A significant majority, 71.6% (237 participants) had 5-9 years of experience. This was followed by those with 10-19 years of experience which comprised of 13.3% of the total study population (i.e., 44 participants). Participants with less than 2 years of work experience were 34 in number, while the remaining 4.8% were those who had over 19 years of experience. These different levels of experience suggest that participants had diverse professional backgrounds.

Descriptive Summary

For TAA (Mean: 3.7885, Std. Deviation: 1.03162), the value of skewness is -0.217 (with a standard error of 0.134). Therefore, the distribution of TAA is slightly left-skewed, but it is relatively close to being symmetrical. For PD, (Mean: 4.2558, Std. Deviation: 0.92206), the value of skewness is -1.358 (with a standard error of 0.134). This shows that the distribution

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of PD is left-skewed, indicating that the majority of values are higher and there are fewer lower values. For ICTK (Mean: 3.5720, Std. Deviation: 1.39175), the skewness is equal to -0.487 (with a standard error of 0.134). This indicates that the distribution of ICTK is somewhat left-skewed, indicating frequent higher values and fewer lower values. In case of AB (Mean: 3.9557, Std. Deviation: 1.40611), the skewness is equal to -0.942 (with a standard error of 0.134). Thus, the distribution of AB is left-skewed, indicating frequent higher values and fewer lower values. Finally, for TIP (Mean: 4.6052, Std. Deviation: 0.70395), the value of skewness is -1.985 (with a standard error of 0.134). Thus, the distribution of TIP is extremely "left-skewed", demonstrating that most of the values are grouped at the "higher end of the scale", with fewer lower values. All variables have a mean between 3.5720 and 4.6052, suggesting that on a scale from 1 to 5, respondents generally rated these variables relatively high. All variables have mean scores above the midpoint (2.5), with TIP having the highest mean (4.6052) and ICTK having the lowest (3.5720).

Table 4.2. *Descriptive Statistics of Variables*

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
VB	331	1.00	5.00	4.1848	.82154	-1.552	.134
TAA	331	1.00	5.00	3.7885	1.03162	-.217	.134
PD	331	1.00	5.00	4.2558	.92206	-1.358	.134
ICTK	331	1.00	5.00	3.5720	1.39175	-.487	.134
AB	331	1.00	5.00	3.9557	1.40611	-.942	.134
TIP	331	1.00	5.00	4.6052	.70395	-1.985	.134

Note: ICTK: ICT Knowledge; VB: Value Beliefs; AB: Ability beliefs; PD: Professional development; TIN: Technology integration practices; TAA; Technical assistance availability.

Measurement Model Assessment

The factor analysis was performed and the researcher encountered quite surprising results with all values reflecting good indicator reliability statistics, all values exceeding the minimum standard, and no concerning issues which were discussed earlier. Thus, encompassing the standard of indicator reliability and signalling the fulfilment of the first assumption or requirement of the measurement model assessment. The main derived results of the indicator reliability have been reported in the table titled as "Validity and Reliability Assessment".

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Internal Consistency Reliability

The study used the master validity technique in the software Amos 24 to estimate the reliability of the constructs. The analysis output reported that the variables gained quite high reliability and encompassed the internal consistency reliability. In the range of 0.857 to 0.991, all variables showed a strong grasp that the indicators of each variable possess a strong nexus with each other. Like, the construct ICT knowledge gained a reliability statistic of 0.964 which is clear evidence of the good relationship in its indicators. Next, the variables value beliefs, ability beliefs, professional development and technical assistance availability gained the reliability statistics as 0.926, 0.991, 0.934 and 0.857 respectively. Lastly, the dependent variable of the study i.e., the technology integration practices also crossed the high range level and attained a reliability statistic of 0.923. Thus, all values of the internal consistency approved the data quality and verified its suitability to be used in further testing. Moreover, the internal consistency and indicator reliability loadings collectively fulfilled the assumption of construct reliability in the designed reflective model of the study.

Convergent Validity

This study used the facility of Amos software and its additional advanced plugins of master validity to compute the AVE values for the convergent validity assessment of the targeted variables in the research model. The analysis decoded that all variables have met the assumptions of the convergent validity by obtaining AVE values greater than 0.5 and fall far higher than the minimum standard. For example, the variable ability beliefs showed an AVE value of 0.973, followed by 0.825 for professional development, 0.817 for ICT knowledge, 0.801 for technology integration practices, 0.673 for technical assistance availability and 0.676 for value beliefs.

Table 4.3. *Validity and Reliability Assessment*

Constructs	Items	Loadings	CR	AVE
Technology Integration Practices (TIP)	TIP1	.935	0.923	0.801
	TIP2	.885		
	TIP3	.892		
Value Beliefs (VB)	VB1	.885	0.926	0.676
	VB2	.844		
	VB3	.853		
	VB4	.749		
	VB5	.850		
	VB6	.830		
Ability Beliefs (AB)	AB1	.971	0.991	0.973

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	AB2	.982		
	AB3	.978		
Technical Assistance Availability (TAA)	TAA1	.837	0.857	0.673
	TAA2	.821		
	TAA3	.862		
Professional Development (PD)	PD1	.906	0.934	0.825
	PD2	.924		
	PD3	.897		
ICT Knowledge (ICTK)	ICTK1	.925	0.964	0.817
	ICTK2	.881		
	ICTK3	.890		
	ICTK4	.936		
	ICTK5	.939		
	ICTK6	.900		

Note: CR: Composite Reliability; AVE: Average Variance Extracted.

Discriminant Validity

The researcher performed the HTMT analysis using the software AMOS and derived the results of the HTMT ratio analysis. After the results, the study got a holistic satisfaction as all the variables didn't cross the settled limits other than technology integration practices correlation with ICT knowledge, and all variables didn't cross the level of medium correlation, thus, both discriminant validity estimators ensured that the data has significant distinctive nature and there is no reservation in terms of multi-collinearity.

Table 4.4. *Discriminant Validity through F&L Criterion*

Construct	ICTK	VB	AB	PD	TIN	TAA
ICTK	**0.904**					
VB	0.233***	**0.822**				
AB	0.181**	0.191**	**0.986**			
PD	0.074	0.275***	-0.085	**0.908**		
TIN	-0.020	0.273***	0.025	0.273***	**0.895**	
TAA	-0.013	0.273***	0.102†	0.377***	0.352***	**0.821**

Note: ICTK: ICT Knowledge; VB: Value Beliefs; AB: Ability beliefs; PD: Professional development; TIN: Technology integration practices; TAA; Technical assistance availability.

Table 4.5. *Discriminant Validity through HTMT Ratio analysis*

Construct	ICTK	VB	AB	PD	TIN	TAA
ICTK						

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VB	0.222					
AB	0.185	0.190				
PD	0.069	0.274	0.050			
TIN	0.075	0.240	0.025	0.274		
TAA	0.022	0.283	0.128	0.383	0.343	

Model Fitness

The table result with the interpretation for all model fit indicators has reported the terms excellent and acceptable which has certified the significance of the designed model of the study. Conclusively, all measurement model assessment parameters with their unique and diverse statistical assumptions have confirmed that the empirical constructs, their outer indicators, their interconnections with each other and the main constructs, all are reliable, valid and significant. Additionally, the model fit measures have supplemented the afore-stated concept, and based on these results, the study moved forward to the hypotheses testing.

Table 4.6. *Model Fit Measures*

Measure	Estimate	Threshold	Interpretation
CMIN/DF	2.602	Between 1 and 3	Excellent
CFI	0.956	>0.95	Excellent
SRMR	0.043	<0.08	Excellent
RMSEA	0.070	<0.06	Acceptable

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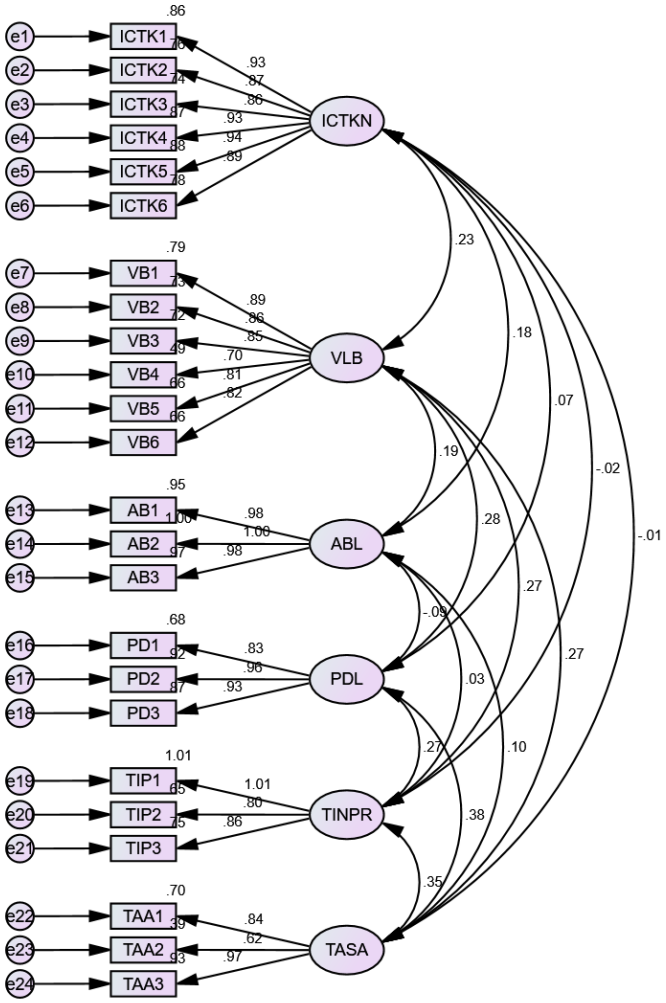

Figure 4.1. Confirmatory factor analysis graphical output

Structural Model Assessment

The model has three direct straight relationships between ICT knowledge, professional development, technical assistance availability and the dependent variable i.e., Technology integration practices. In this regard, the SEM results revealed supportive results and disclosed significant results. Such as, the analysis reported that ICT knowledge has a significant relationship with technology integration practices (B= -.106 p=.025<0.05), thus, it led to the acceptance of this association. Similarly, the analysis results highlighted that professional development has a significant supportive influence on the art teachers' technology integration practices (B= -.149 p=.023<0.05), thus, it caused the acceptance of this particular association as well. Lastly, the SEM results showed that technical assistance availability has gained a significant supportive role in the technology integration practices of the art teachers (B= -.195

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p=.002<0.05), therefore, this association was also supported. Collectively, the SEM supported all direct effects and it caused the acceptance of the H1, H2 and H3 of the study.

Table 4.7. *SEM Results (Direct Effects)*

Estimated Relationships			Beta value	Lower	Upper	P
TIP	<---	ICTK	-.106	-.178	-.026	.025
TIP	<---	PD	.149	.034	.259	.023
TIP	<---	TAA	.195	.106	.273	.002
TIP	<---	AB	-.052	-.129	.034	.343
TIP	<---	VB	.166	.039	.308	.032

Note: ICTK: ICT Knowledge; VB: Value Beliefs; AB: Ability beliefs; PD: Professional development; TIN: Technology integration practices; TAA; Technical assistance availability.

The analysis highlighted that value beliefs act as a significant mediating variable between the influences of ICT knowledge, professional development, technical assistance availability and technology integration practices of art teachers with a significance level of <0.05, thus, the H4, H5 and H6 were accepted. However, the variable ability beliefs gained an insignificant negative indirect role between the professional development, ICT knowledge, technical assistance availability and technology integration practices of art teachers. Due to these results, the H7, H8 and H9 of the study were rejected. Conclusively, the results highlighted that the assessed art teachers have more belief in their pre-built values for the technology and they prefer their back-end developed instinct to stimulate and insight them to go for the technology integration rather than their current level of abilities for teaching through innovative ICT technology.

Table 4.8. *SEM Results (Indirect Effects)*

Estimated Relationships	Beta value	Lower	Upper	P-Value
TAA --> VB --> TIP	0.029*	0.005	0.048	0.019
TAA --> AB --> TIP	-0.007	-0.016	0.002	0.223
ICTK --> VB --> TIP	0.033*	0.005	0.038	0.021
ICTK --> AB --> TIP	-0.010	-0.013	0.003	0.256
PD --> VB --> TIP	0.030*	0.005	0.065	0.022
PD --> AB --> TIP	0.005	-0.001	0.015	0.191

Note: ICTK: ICT Knowledge; VB: Value Beliefs; AB: Ability beliefs; PD: Professional development; TIN: Technology integration practices; TAA; Technical assistance availability.

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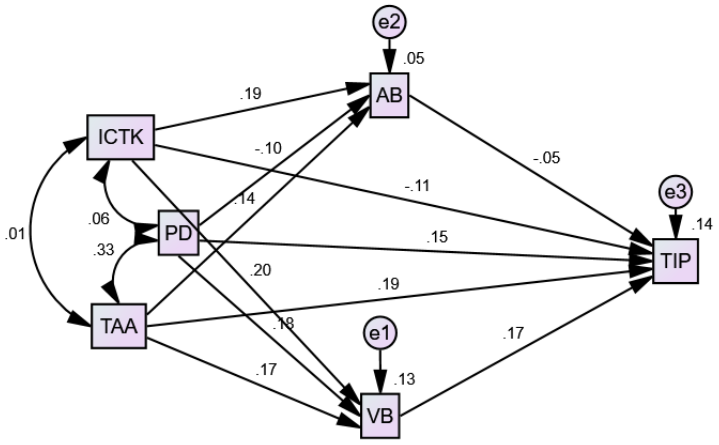

Figure 4.2. Structural Equational Model (Standardized results)

DISCUSSION

Based on the research question, the associated hypothesis seeks to determine the association between professional development of art teachers and the technology integration practices. After the implementation of statistical techniques, results depicted that the professional development of teachers significantly influences the technology integration practices. There are numerous studies which supports the associated inter-connectedness between the variables. According to the research by Bowman et al. (2022) the association between exposure to professional development and the quality of technology integration. Their research highlighted that the teacher's value mediates the influence of PD on the integration of technology. It means that professional development is considered to be more effective when it not only enhances the technology-related skills of teachers (Seufert et al., 2021) but also positively influences their values regarding the usage of technology.

The results of the study support the hypothesized connection, showing a positive and statistically significant relationship between technical assistance accessibility and technology incorporation behaviours. This suggests that the probability of embracing technical change by teachers will increase as technical support is easily accessible, promoting better educational performance. This is in line with the findings of earlier studies where technical support has been identified as central to the process of technology usage and implementation within institutions of learning. Research has found that when teachers are provided with proper technical support, they had higher levels of confidence while using technology and this would translate to innovation and increased use of technology in their teaching and learning processes, thereby engaging students more(Gomez et al., 2022).

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According to research by Shatri (2020), the technical support plays an important and key role in the use of technology since without it, teachers can be greatly disadvantaged since they lack proper guidance on how to incorporate the technology into their teaching. Their research highlighted that whenever the technical support is easily accessible, the teachers are more inclined to embrace adoption of the new technologies in teaching, since they know that in case of anything they will be able to seek assistance. These findings suggest that the teacher's ICT knowledge is instrumental in determining their technological proficiency and with the enhancement of the teachers' ICT knowledge come improvements in the technology integration process in classroom. This is in line with the earlier research that has revealed ICT knowledge as a significant factor in determining the level of technology implementation in teaching activities and affirms that more attention and focus should be provided on continuing professional development and training for the teachers in ICT skills (Hafıfah & Sulıstyo, 2020). According to the research by Bardakci and Kocadağ Ünver (2020) who investigated both of these variables critically, one cannot overemphasize the importance of ICT knowledge regarding integration of technologies. He highlighted that This practice is the cornerstone for delivering technology integration which empowers teachers to tap into their potential of improving educational practices through use of technology. Another study depicted that ICT knowledge is the power that opens the doors to innovation, creativity and collaboration within the classroom environment and grants teachers an opportunity to create meaningful technical learning processes to fuel the students' passion (Reynolds, 2021).

Professional development and value beliefs are aimed at providing education with essential skills and knowledge for an effective teaching process with a focus on technology. At the same time, it is the value beliefs of teachers that determine the success of PD programs in enhancing technology integration. In PD sessions, what is learned is utilized when art teachers view technology as a useful tool in the classroom. (Desimone & Garet, 2015) noted that PD programs that focus on reasoned use of technology and peer cooperation for technology application create favourable value beliefs, thus increasing the possibilities for technology application.

Technical assistance is one of the most important forms of assistance since it helps teachers address various challenges that arise in the process of implementing technology into learning processes. TA can potentially influence teacher's value beliefs by addressing technical issues and perceived threats that newly introduced technologies pose. (Hew & Brush, 2007) argue that biweekly, dependable TA assists teachers in acquiring favourable value perceptions about implementing and integrating technology to lessen its antecedent perceptions of threat.

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Therefore, the teachers who have been provided with a sufficient amount of TA are also more inclined to focus on the use of technology in teaching.

ICT Knowledge and Value Beliefs: Teacher's awareness and usage of technological tools, referred to as ICT knowledge, is another influential determinant of technology use. Specifically, enhanced knowledge of ICT is found to be positively related to teachers' self-perceived ICT proficiency. This confidence manifests in higher value beliefs of technology in the process of learning. (Sang et al., 2010) established his working hypothesis based on the belief that the more ICT proficient a teacher is the more they will consider the advantages of technology and the more willing they are to implement it in teaching practices. The mediating role of value beliefs helps to explain how ICT knowledge could influence the integration of technology in teaching and learning. This mediation means that the total effects of ICT knowledge in technology integration are, to a considerable extent, shaped by teacher's value beliefs. When teachers hold a belief that IT is useful, they experience higher levels of motivation to use the knowledge and skills obtained from PD and are more likely to seek and incorporate TA.

Research Implications

The study has also contributed a significant role of professional development in enhancing the proportion of technology integration practices of art teachers. The main findings of the study have disclosed that art teachers act on the strong pillars of professional development and training and use the main insights of their professional training to use the innovative technology for developing the future workers of the society. Moreover, the study has also shared that the art teachers have a quite supportive environment from their respective institute's management. Technology integration is a different phenomenon and the art teachers have certain assistance and guidance to cope with any difficulty they face in terms of technology integration. Other than these highlights, the study has also enlightened the mediating role of ability beliefs and value beliefs for strengthening the teachers' individual level factors with their outcast performance in terms of technology integration. However, the study gained supportive results for only value beliefs, and the ability beliefs was rejected. With these findings, the study has illuminated the art teachers' perception that they have affirmed beliefs and pre-developed instincts for technology which insight or trigger them to use technology in their teaching process.

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Along with the theoretical implications, the study has also implied some critical knowledge facts that are vital for the managers, higher authorities, and the teachers of different subjects. First, the study has implied the fact that art teachers have a reliable and reasonable understanding of technology and its importance so education institutes must facilitate their teaching staff with the best and most useful technological devices and equipment for an enhanced teaching and learning process. Second, the study has unfolded the fact that the art teachers have a potential knowledge of technology, and they have received a potential professional development process that acts as a starting fuel to integrate technology into their service. Moreover, the study has encountered the unsupportive effect of ability beliefs for the technology skills and this rejection has illustrated an alarming signal from the teachers for the educational institutes' management. The results of the study have raised a promotional voice from the teachers saying that irrespective of the ICT knowledge, an efficient professional development phase, and additional support from the management for technology integration practices, the teachers are still working under the borderline of confidence for technology usage and they have been encompassed with a low level of ability beliefs for technology.

Limitations and Future Research Indications

The study's methodological foundation of positivism and the use of deduction may cause significant messages of contextual details regarding technology integration(Chidiebere, 2020). While data collection was based on quantitative indices, it failed to incorporate the rich qualitative information that the instructors had to offer regarding the integration of technology in their teaching (Tang, 2021). The measurement error could be a problem since standardized instruments are not developed to deal with issues specific to art education and are not fully customizable to individual learners' needs and contexts (Chang et al., 2021). Since the study employs correlation and regression analysis this cannot guarantee causal effects between variables, mimicking this same cautionary argument, the study employs Structural Equation Modelling which presumes linearity of the relationship between the variables (Benitez et al., 2020). The study employs positivism approach and, therefore, may not consider power and social relations influence in determining practice for technology integration, possibly excluding critical viewpoints (Geels, 2022).

It becomes clear that while a number of researches exist in the field of technology integration in higher education, more research is still needed to uncover factors that underpin technology adoption and integration in Colleges of Arts. Research on technology integration across

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disciplines has accumulated, but the applications of technology to arts education in specific cultural, pedagogical, and technical environments remain under researched (Muenster, 2022). Furthermore, given the dynamism and expansion of digital technologies and the growing possibility of positive effects on art instruction (Qian, 2022), it is crucial to conduct continuous studies of the variables that promote or constrain technology in arts learning environments. Future studies can also explore how technology brings benefits to the processes of course delivery, student engagement, and knowledge acquisition and how it can positively impact the students' creative skills and job readiness in arts-related specializations, as well as the shortcomings and undesirable effects of technology implementation in arts disciplines (Nkomo et al., 2021). It would be beneficial for future research to investigate the generalizability of the study to other College of Arts educators and other contexts of higher learning like, College of Humanities or College of Social Sciences, the expansion of technology integration (Li et al., 2021).

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References

Akram, N., Batool, S. H., Hussain, T., Safdar, M., & Hussain, S. (2021). Evolving visual arts' faculty pedagogical skills through technology integration in higher education. *Library Philosophy and Practice*, 1A-32.

Anderson, S. E., & Maninger, R. M. (2007). Preservice teachers' abilities, beliefs, and intentions regarding technology integration. *Journal of Educational Computing Research*, *37*(2), 151-172.

Atman Uslu, N., & Usluel, Y. K. (2019). Predicting technology integration based on a conceptual framework for ICT use in education. *Technology, Pedagogy and Education*, *28*(5), 517-531.

Bowman, M. A., Vongkulluksn, V. W., Jiang, Z., & Xie, K. (2020). Teachers' exposure to professional development and the quality of their instructional technology use: The mediating role of teachers' value and ability beliefs. *Journal of Research on Technology in Education*, 1-17.

Buabeng-Andoh, C. (2019). Factors That Influence Teachers' Pedagogical Use of ICT in Secondary Schools: A Case of Ghana. *Contemporary educational technology*, *10*(3), 272-288.

Burbules, N. C., Fan, G., & Repp, P. (2020). Five trends of education and technology in a sustainable future. *Geography and sustainability*, *1*(2), 93-97.

Chand, V. S., Deshmukh, K. S., & Shukla, A. (2020). Why does technology integration fail? Teacher beliefs and content developer assumptions in an Indian initiative. *Educational technology research and development*, *68*(5), 2753-2774.

Cheng, S.-L., Lu, L., Xie, K., & Vongkulluksn, V. W. (2020). Understanding teacher technology integration from expectancy-value perspectives. *Teaching and Teacher Education*, *91*, 103062.

Coleman, L. O., Gibson, P., Cotten, S. R., Howell-Moroney, M., & Stringer, K. (2016). Integrating computing across the curriculum: The impact of internal barriers and training intensity on computer integration in the elementary school classroom. *Journal of Educational Computing Research*, *54*(2), 275-294.

Dabamona, M., & Yunus, A. (2022). The use of youtube for learning english: exploring technology-based approach. *INTERFERENCE Journal of Language, Literature, and Linguistics*, *3*(1), 68-89.

Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, *205*, 219.

Ekinci, E., & Acar, F. E. . (2019). Primary School Teachers' Opinions on Professional Development (Professional Development Model Proposal). . *Journal of Education and Training Studies, 7(4), 111-122*.

Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, *59*(2), 423-435.

DOI: 10.48165/sajssh.2024.5504

Georgiou, D., Mok, S. Y., Fischer, F., Vermunt, J. D., & Seidel, T. (2020). Evidence-Based Practice in Teacher Education: The Mediating Role of Self-Efficacy Beliefs and Practical Knowledge. Frontiers in Education,

Gil-Flores, J., Rodríguez-Santero, J., & Torres-Gordillo, J.-J. (2017). Factors that explain the use of ICT in secondary-education classrooms: The role of teacher characteristics and school infrastructure. *Computers in Human Behavior*, *68*, 441-449.

Gilkes, A. L. (2020). *Teachers' knowledge and self-efficacy beliefs as factors affecting technology integration practices* Walden University].

Gong, J., Firdaus, A., Aksar, I. A., Alivi, M. A., & Xu, J. (2023). Intertextuality and ideology: Social actor's representation in handling of COVID-19 from China daily. *Journalism*, *0*(0), 14648849231157243. https://doi.org/10.1177/14648849231157243

Gong, J., Zanuddin, H., Hou, W., & Xu, J. (2021). Media attention, dependency, self-efficacy, and prosocial behaviours during the outbreak of COVID-19: A constructive journalism perspective. *Global Media and China*, *7*(1), 81-98. https://doi.org/10.1177/20594364211021331

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, *3*, 275-285.

Ifinedo, E., Rikala, J., & Hämäläinen, T. (2020). Factors affecting Nigerian teacher educators' technology integration: Considering characteristics, knowledge constructs, ICT practices and beliefs. *Computers & education*, *146*, 103760.

Kopcha, T. J. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. *Computers & education*, *59*(4), 1109-1121.

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, *55*(1), 79-105.

Lemon, N., & Garvis, S. (2016). Pre-service teacher self-efficacy in digital technology. *Teachers and Teaching*, *22*(3), 387-408.

Liu, X., & Zhang, L. (2024). Exploring the relationship between teachers' professional capital and technology-enhanced teaching innovation: The mediating role of constructivist belief. *Teaching and Teacher Education*, *139*, 104434.

Ma, Z., Guan, J., & Li, R. (2021). Research on innovative teaching mode of art education in the age of convergence of media. *International Journal of Emerging Technologies in Learning (iJET)*, *16*(2), 272-284.

Manubag, M., Kilag, O. K., Peñalosa, B., Timtim, J. M., Padilla, J. B., & Abendan, C. F. (2023). Empowering Skills Development: Exploring the Role of Technology Management in Technical Vocational Education Enhancement. *Excellencia: International Multi-disciplinary Journal of Education (2994-9521)*, *1*(5), 195-208.

Nagy, J., Oláh, J., Erdei, E., Máté, D., & Popp, J. . (2018). The role and impact of Industry 4.0 and the internet of things on the business strategy of the value chain—the case of Hungary. *Sustainability, 10(10), 3491. .*

DOI: 10.48165/sajssh.2024.5504

Ovcharenko, N., Samoilenko, O., Moskva, O., & Chebotarenko, O. (2020). Innovative technologies in vocal training: Technological culture formation of future musical art teachers. *Journal of History Culture and Art Research*, *9*(3), 115-126.

Pickles, A. J. (2020). Transfers: A deductive approach to gifts, gambles, and economy at large. *Current Anthropology*, *61*(1), 11-29.

Raddats, C., Kowalkowski, C., Benedettini, O., Burton, J., & Gebauer, H. . (2019). servitization: A contemporary thematic review of four major research streams. . *Industrial marketing management, 83, 207-223.*

Raffaghelli, J. E., Rodríguez, M. E., Guerrero-Roldán, A.-E., & Bañeres, D. (2022). Applying the UTAUT model to explain the students' acceptance of an early warning system in Higher Education. *Computers & Education*, *182*, 104468.

Rajaram, K., & Rajaram, K. (2021). Learning interventions: collaborative learning, critical thinking and assessing participation real-time. *Evidence-Based Teaching for the 21st Century Classroom and Beyond: Innovation-Driven Learning Strategies*, 77-120.

Sands, P., Yadav, A., & Good, J. . (2018). Computational thinking in K-12: In-service teacher perceptions of computational thinking. . *In Computational thinking in the STEM disciplines (pp. 151-164): Springer.*

Sarkis, J., Cohen, M. J., Dewick, P., & Schröder, P. . (2020). A brave new world: Lessons from the COVID-19 pandemic for transitioning to sustainable supply and production. . *Resources, Conservation, and Recycling, 159, 104894*.

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & education*, *128*, 13-35.

Siddiqua, A., Gong, J., & Aksar, I. A. (2023). Twitter trolling of Pakistani female journalists: A patriarchal society glance. *Media, Culture & Society*, *45*(6), 1303-1314. https://doi.org/10.1177/01634437231168306

Tang, F. (2024). Understanding the role of digital immersive technology in educating the students of english language: does it promote critical thinking and self-directed learning for achieving sustainability in education with the help of teamwork? *BMC psychology*, *12*(1), 144.

Vongkulluksn, V. W., Xie, K., & Bowman, M. A. . (2018). The role of value on teachers' internalization of external barriers and externalization of personal beliefs for classroom technology integration. *Computers & Education, 118, 70-81.* .

Wachira, P., & Keengwe, J. (2011). Technology integration barriers: Urban school mathematics teachers perspectives. *Journal of science education and technology*, *20*(1), 17-25.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *Journal of Enterprise Information Management*, *28*(3), 443-488.

Zimmer, W. K., & Matthews, S. D. (2022). A virtual coaching model of professional development to increase teachers' digital learning competencies. *Teaching and Teacher Education*, *109*, 103544.

DOI: 10.48165/sajssh.2024.5504