

Competence and attitude as predictors of teachers' readiness for digitized instruction

Competência e atitude como preditores da prontidão dos professores para a instrução digitalizada

La competencia y la actitud como predictores de la preparación de los profesores para la enseñanza digitalizada

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ABSTRACT

This study was undertaken to determine the influence of secondary school teachers' digital competence and attitude towards the readiness for digitized instruction. This study was conducted in schools where digitized instruction is implemented in the Division of Digos City from January to March of 2022. This study utilized a quantitative-correlational design and was participated by 227 teachers. Data collection was done through adapted survey questionnaires and utilized descriptive, correlational, and multiple linear regression analysis for data interpretation. Results show a very high level of teachers' digital competence and a generally positive attitude towards digitized instruction. Teachers' readiness toward digitized instruction is also found to be very high. Finally, teachers' digital competence and attitude were found to be significant predictors of digitized instruction readiness among teachers. Thus it is necessary for teachers to improve their digitalization and technological competency as well as cultivate a favorable attitude toward information and communications technology to promote the enthusiasm for technology-led teaching.

Keywords: Digitized instruction, digital competence, attitude, readiness.

RESUMO

Este estudo foi realizado para determinar a influência da competência digital dos professores do ensino médio e sua atitude em relação à prontidão para a instrução digitalizada. Este estudo foi realizado em escolas onde o ensino digitalizado é implementado na Divisão da Cidade de Digos de janeiro a março de 2022. Este estudo utilizou o desenho quantitativo-correlacional e teve a participação de 227 professores. A coleta de dados foi feita através de um questionário de pesquisa adaptado e utilizou análise descritiva, correlacional e de regressão linear múltipla para a interpretação dos dados. Os resultados mostram um nível muito alto de competência digital dos professores e uma atitude geralmente positiva em relação à instrução digitalizada. A prontidão dos professores em relação à instrução digitalizada também é considerada muito elevada. Finalmente, a competência e atitude digital dos professores foi considerada como preditor significativo da prontidão de instrução digitalizada entre os professores. Assim, é necessário que os professores melhorem sua digitalização pessoal e competência tecnológica, assim como cultivem uma atitude favorável em relação à tecnologia da informação e da comunicação, a fim de promover o entusiasmo do ensino conduzido pela tecnologia.

Palavras-chave: Instrução digitalizada, competência digital, atitude, prontidão.

RESUMEN

Este estudio se llevó a cabo para determinar la influencia de la competencia digital de los profesores de secundaria y su actitud hacia la preparación para la instrucción digitalizada. Este estudio se llevó a cabo en las escuelas donde se implementa la instrucción digitalizada en la División de la ciudad de Digos de enero a marzo de 2022. Este estudio utilizó un diseño cuantitativo-correlacional y contó con la participación de 227 profesores. La recopilación de datos se realizó a través de un cuestionario de encuesta adaptado y se utilizó un análisis descriptivo, correlacional y de regresión lineal múltiple para la interpretación de los datos. Los resultados muestran un nivel muy alto de competencia digital de los profesores y una actitud generalmente positiva hacia la enseñanza digitalizada. La disposición de los profesores hacia la enseñanza digitalizada también es muy alta. Por último, la competencia digital y la actitud de los profesores resultaron ser predictores significativos de la disposición a la enseñanza digitalizada entre los profesores. Por lo tanto, es necesario que los profesores mejoren su competencia personal en materia de digitalización y tecnología, así como que cultiven una actitud favorable hacia las tecnologías de la información y la comunicación para promover el entusiasmo por la enseñanza basada en la tecnología.

Palavras-chave: Instrucción digitalizada, competencia digital, actitud, preparación.

1. INTRODUCTION

Alternative teaching and learning strategies were put into place by the Philippine Department of Education to circumvent the detrimental effects of the CoVid-19 Pandemic on students' learning. Various instructional delivery modalities were lined-up for schools to adopt for continued teaching and learning process. Modular distance learning in the form of printed materials was ubiquitously adopted by Philippine schools for instructional delivery during the first year of the pandemic.

Due to high cost and environmental concerns, there is an increasing shift toward the adoption of digitized instruction among teachers and schools. However, Straumsheim et al. (2015) pointed out a widened gap in attitudes towards digitized instruction among educators. The success of digital modality depends upon the attitude of teachers towards such educational strategy to a large extent (Wasserman & Migdal 2019).

As Tria (2020) recommended that the opportunity and challenges of the delivery of digital instruction should be grasped and taken with the utmost concern. Several studies on online and digital teaching readiness of schools, faculty, and students have been conducted. However, most of these published studies are on Higher Education Institutions (Toquero, 2020; Baticulon et al., 2020; Mallillin et al., 2020), and none pertains to competence, attitude, and readiness for digital modality among teachers in public secondary schools in the country.

In the local context, the Division of Digos City is in its pioneering years in adopting digitized instruction. This aims to digitize the modules with the provision of android tablets to learners who have no gadgets to be used. The emerging challenges encountered by the public-school teachers urge the researcher to investigate the possible factors affecting their performance in implementing the said innovation. In this context, the researcher intended to explore and shed light on future discussions about such matters.

Problem Statement

This research aimed to establish the significant relationship between teachers' digital competence and attitude toward teachers' readiness to implement the digital modality during the time of the CoViD-19 Pandemic.

Specifically, this research aimed to achieve the following objectives:

1. To determine the level of teachers' digital competence in terms of:
 - 1.1. Information processing;
 - 1.2. Communication;
 - 1.3. Content creation;
 - 1.4. Safety; and
 - 1.5. Problem-solving.
2. To determine the level of teachers' perceived attitude towards digital modality in terms of:
 - 2.1. Appreciation;
 - 2.2. Responsiveness;
 - 2.3. Proficiency; and
 - 2.4. Knowledge of technological reforms.
3. To determine the level of teachers' perceived readiness towards digital modality in terms of:
 - 3.1. Technology access;
 - 3.2. Technology
 - 3.3. Time management; and
 - 3.4. Motivation.
4. To establish the significant relationship between teachers' level of digital competence and teachers' perceived level of attitude to teachers' perceived level of readiness towards digital modality.

5. To determine which domains of teachers' level of digital competence and teachers' perceived level of attitude significantly influence teachers' perceived level of readiness towards digital modality.

2 THEORETICAL FOUNDATION

This study is anchored on Technological Pedagogical Content Knowledge. Koehler and Mishra (2009) posit that a teacher depends on three domains of knowledge for the effective integration of ICT into teaching and learning. These domains are content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK).

3 METHODS

This section presents the study's design and locale, respondents, the data gathering procedure, and the instruments.

3.1 Design and Locale

The quantitative, non-experimental design of research using a correlational technique was used in this study. According to Price et al. (2015), a correlational technique is a non-experimental design, where the researcher examines the relationship between two or more variables in a natural setting without manipulation or control. In this research, the correlational study was utilized in determining the relationship between teachers' digital competence and attitude to teachers' readiness toward digital modality. Further, this research was conducted in selected public junior high schools in the Division of Digos City. The schools were selected based on their implementation of digital modality during the CoViD-19 Pandemic.

3.2. Respondents

For this research, the respondents were the public junior high school teachers in the Schools Division of Digos City, where digital modality is currently implemented. Specifically, the Teachers I-III excluding the Master Teachers and Department Heads. They were the ones from whom data on teachers' digital competence, attitude, and readiness towards digital modality will be gathered.

3.3. Data Gathering Procedure

With sufficient approval from the various offices of concern, school heads were contacted appropriately with a communication letter explaining the research aims, instruments, and methodologies. After the school leaders had authorized and established a date for the survey, participants were given a chance to complete informed consent forms. Following that, survey questions were sent to research participants through a mix of Google Forms and printed survey materials, whatever way the participants choose, on the day designated by the school principal for their specific school. For individuals who chose printed questionnaires, the researcher ensured that health procedures such as the use of face masks and face shields, as well as social distancing, were followed throughout the distribution, response, and collection of the questionnaire. Photo documentation was made throughout the study's conduct. Once the required number of respondents had been attained, the data file were collected or downloaded, tallied, and submitted to the data analyst for meaningful interpretation.

3.4. Instruments

Teachers were administered three survey questionnaires; Level of Teachers' Digital Competence, Level of Teachers' Perceived Attitude Scale Towards Digital Modality, and Level of Teachers' Perceived Digitized Teaching Readiness Scale. All of these questionnaires are designed as a 5-point Likert-type scale where the teacher-respondents rated each item in reflection on their perception, practices, or feeling about the question. They rated each item from 1-5 which corresponds to descriptions of "strongly disagree" to "strongly agree".

The Level of Teachers' Digital Competence Questionnaire was developed by Al-Khateeb, (2017). This questionnaire measures teachers' digital competence through five dimensions Information Processing, Communication, Content Creation, Safety, and Problem Solving. The Level of Teachers' Perceived Attitude Scale Towards Digital Modality was adopted from the Attitude Scale Towards Online Teaching and Learning of Sangwan et al. (2020), which was modified to suit the objectives of this research. This questionnaire has four dimensions: Appreciation For Digital Modality, Responsiveness toward Modality, Proficiency in Digital Modality, and Knowledge of Technological Reforms. Finally, Lastly, the Level of Teachers' Perceived Digitized Teaching Readiness Scale was adapted from Tuntirojawanong (2013) and has five domains: Technology access, Technology skills, Time management; and, Motivation.

4 RESULTS AND DISCUSSION

This section presents the significant finding identified from the responses of research respondents through quantitative data analysis using descriptive, correlational, and regression statistics.

4.1 Level of Teachers' Digital Competence

The first objective of this study was to determine the level of teachers' digital competence among teachers in selected schools in the Division of Digos City. The level of teachers' digital competence in terms of information processing, communication, content creation, safety, and problem-solving is shown in Table 1.

Table 1. *Level of teacher's digital competence*

Indicators	Mean	SD	Description
Information processing	4.45	0.47	Very High
Communication	4.43	0.52	Very High
Content creation	4.17	0.63	High
Safety	4.35	0.53	Very High
Problem-solving	4.15	0.61	High
Overall	4.31	0.49	Very High

As shown in Table 1, the level of teachers' digital competence gets an overall mean of 4.31 or very high. Data means that teachers' digital competence or their capacity to read and comprehend how to interact with media to generate digital representation in addition to receiving knowledge largely through digital methods was always manifested. Further, this implies that when teachers are utilizing digital technology for instructional purposes specifically during this time of the pandemic they exhibit the capacity to identify, locate, retrieve, store, organize, and analyze digital material, as well as determine its relevance and purpose. This further means that teachers are very well able to communicate in digital settings, create and edit new content, secure their own and their students' online information, and can recognize digital needs and resources leading to the use of appropriate digital tools.

This result meaningfully echoed Benali et al. (2018) who stated that in terms of digital competence a significant number of teachers were rather advanced. Many of the teachers were

generally very confident in using digital technologies for instruction in the classroom or remotely, at home. Further, Saubern et al. (2019) stated that teachers are very confident in their knowledge, skills, and abilities to support students' learning needs through ICT or digital technology. Teachers claimed to have created activities using digital technology that actively allow learners to construct their knowledge in collaboration with peers and others, analyze and synthesize their knowledge, develop a deep understanding of a topic of interest, and plan and manage learning tasks.

In particular, among the five indicators of teachers' digital competence, information processing is determined to be the dominating indicator. Based on the data result, the information processing gets a mean of 4.45 or very high, which was always manifested. This further implies that teachers display very well the abilities to identify, locate, retrieve, store, organize, and analyze digital content and determine its relevance and purpose. This further implies that teachers can efficiently access credible online content through search engines. Additionally, this data revealed that teachers can collect, preserve, and re-access digital materials, arrange them in folders and verify the legitimacy and trustworthiness of such Internet-based information for classroom use. Garba et al. (2015) pointed out that accessing the internet is now common practice for educators, and they do so using a wide range of computing devices. This is primarily for computing students' assessment records and gaining access to information that can assist them in planning and preparing lessons.

The second highest indicator is communication with a mean score of 4.43 or very high which means that it was always manifested. This implies that teachers are proficient in terms of communication in the digital setting. This also means that teachers are adept at sharing resources using online sharing tools, connecting and collaborating with others through the use of digital technologies such as various social networking sites and other online sharing platforms. Data further entails that teachers engage and participate in communities and networks and demonstrate an understanding of other cultures are all aspects of online communication. As a precis, data showed that teachers can very well utilize a variety of online communication and collaboration platforms, such as video conferencing, data sharing, voice messaging, and chats particularly for pedagogical and instructional purposes.

Jones (2015) stipulated that the use of social media technology is no longer limited to recreational purposes only. Rather, over the course of the last few years, these technologies have also become platforms for connecting and engaging with learners. In fact, Chawinga (2017) confirmed that social media and other digital communication networks are catalysts for the much-hyped learner-centered approach to education if they are deployed appropriately, as it was discovered that students shared and discussed course materials, posted their course reflections, and interacted with each other and their teachers around the clock using these technologies.

The lowest indicator of teachers' digital competence, albeit still High, is problem-solving with a mean of 4.15 which means that this indicator was manifested by teachers most of the time. This means that teachers oftentimes are capable to understand digital requirements and resources for instruction. They also are skilled in making educated decisions about which digital tools are best suited for a specific instructional purpose or need. Data further shows that teachers, most times, can solve conceptual difficulties through digital means, as well as being able to address technical challenges and update one's own and others' digital competencies.

This finding echoed the findings of Alpuerto (2022) that even if teachers lack initial or prior expertise on the usage of certain ICT materials, they investigate the materials until they can use them in the classroom. In addition, teachers practice navigating the digital content before their actual classroom instruction. Further, Baskin and Williams (2016) further stated that teachers can sufficiently acquire the most basic but significant skill-set for proper utilization of information technology, to improve student learning, through self-education and exploration.

4.2 Level of Teachers' Perceived Attitude towards Digitized Instruction

The second objective of this study was to determine the level of teachers' perceived attitude toward digitization among teachers in selected schools in the Division of Digos

City. The level of teachers' level of teachers' perceived attitude towards digitized instruction in terms of appreciation, responsiveness, proficiency, and knowledge of technological reforms is shown in Table 2.

Table 2. *Level of teachers' perceived attitude towards digital modality*

	Mean	SD	Description
Appreciation	4.34	0.53	Very High
Responsiveness	3.71	0.71	High
Proficiency	3.89	0.64	High
Knowledge of Technological Reforms	4.04	0.69	High
Overall	4.00	0.47	High

As shown in Table 2, the level of teachers' perceived attitude toward digital technology gets an overall mean of 4.00 or high. This means that teachers were shown to possess a generally positive attitude toward the pedagogical use of ICT. Additionally, teachers are found to be favorable to the use of information and communications technology in schools. Teachers also are found to understand the importance of information and communications technology in improving the teaching and learning process and are found to be optimistic about the future integration of technology into classroom instruction. Data further showed that teachers are willing to adapt teaching methods, particularly through digital instruction, to cater to the needs of different students by maintaining positive interactions among students and with communities that might provide support for the successful learning of students.

This resonates with the results of Semerci and Aydin (2018) that teachers have an extremely favorable attitude toward the use of ICT in their classrooms. It has been discovered that the degree of positivity towards pedagogical usage in the classroom does not change according to gender, age, years of teaching experience, years of experience with information and communications technology (ICT), ICT abilities, or ICT training.

Particularly, among the four indicators in the perceived attitude towards digitized instruction, respondents perceived that appreciation dominated over the other three indicators, namely: responsiveness, proficiency, and knowledge of technological reforms. Based on the data result, appreciation gets a mean of 4.34 or very high which means that it was always manifested. This result suggests that generally perceived digital competence is an important twenty-first-century skill that every teacher should possess. This also means that digital education is perceived by teachers as a system that would provide great opportunities for teachers to create and deliver lessons effectively and that this instructional modality allows students and teachers to collaborate for effective instructional delivery. It was also greatly perceived by the respondents that it is a necessity for teachers to be digitally updated to stay relevant.

Goktas, et al. (2019) stated that the majority of teacher-educators had favorable attitudes about the integration of information and communication technology (ICT) in their lessons. Lau and Sim (2018) further added that the majority of classroom teachers are supportive of the use of ICT in schools and recognize the value of ICT in increasing teaching and learning.

The second highest indicator is knowledge of technological reforms with a mean score of 4.04 or high which means that it was oftentimes manifested. This result suggests that respondents perceived that they have sufficient knowledge about various online learning tools necessary to prepare learning materials and content for digitized modular instruction. Results also suggest that respondents keep themselves updated with technological innovations in the field of teaching such as Google Suite and open educational resources (OERs).

This result substantiates the findings of Onyema (2020) that the vast majority of respondents are in agreement that the use of emerging technologies in the teaching and learning process gives inspiration and modernity to the educational system, increases inclusion, and facilitates the accomplishment of teaching and learning goals. Thus, teachers at all educational levels need to keep their knowledge and abilities up to date, especially concerning the most effective ways to incorporate new technology into the teaching and learning process.

Moreover, the lowest indicator of perceived attitude towards digitized instruction among respondents, although still high, is responsiveness towards digitized instruction with a mean of 3.71. This means that responsiveness towards digitized instruction is manifested oftentimes among respondents. This result also suggests that respondents believed digitized modular instruction is more interesting for students than just plain classroom teaching and that such instructional methodology can elicit active participation among learners. Respondents further believed that although digitized modular learning cannot replace conventional in-person classroom instruction, such modality is a very good platform for teachers and students alike by providing instructional flexibility among learners and that digitized learning modality can provide teachers efficient ways to track students' progress.

This result was corroborated by Syahid et al. (2019), who claimed that digital teaching as the source of learning promotes and enhances students' learning in a setting that matches their social, emotional, and intellectual potential. In addition, digitized curriculum management is anticipated to be more focused and organized than traditional management. It is expected that digital education would assist student behaviors that produce meaningful learning. Teachers should choose digitized learning material and sources using technology devices to assist the teaching and learning process.

4.3 Level of Teachers' Perceived Readiness towards Digitized Instruction

The third objective of this study was to determine the level of teachers' perceived readiness toward digital modality among teachers in selected schools in the Division of Digos City. The level of teachers' level of teachers' perceived readiness towards digital modality in terms of technology access, technology skills, time management, and motivation is shown in Table 3.

Table 3. *Level of teachers' perceived readiness towards digital modality*

	Mean	SD	Description
Technology Access	4.28	0.60	Very High
Technology Skills	4.37	0.57	Very High
Time Management	4.24	0.61	Very High
Motivation	4.22	0.59	Very High
Overall	4.28	0.53	Very High

As shown in Table 3, the level of teachers' perceived readiness toward digital modality gets an overall mean of 4.28 or very high. This means that teachers' perceived readiness toward digital modality is manifested at all times. This result suggests that the respondents are ready to take full-on digital learning modality because, as they perceived, the availability of technology infrastructure within their schools and their respective homes are sufficient enough for such modality. It is also important to note that such results suggest that respondents generally perceived their skills in information technology, as well as their skills in time management, are adequate to take on such a shift in curriculum and instructional delivery. Moreover, the result means that teachers believed that such innovation in instructional delivery modality would motivate students to uplift their quality of learning.

This result agrees with Baharuldin et al. (2019) who reported that the degree of teacher preparedness for integrating ICT into education was high despite difficulties such as lack of time to utilize ICT in school, excessive workload, and limitation of knowledge and skills to fully utilize ICT in the classroom.

Moreover, among the four indicators in the perceived readiness towards digital modality, it was shown that technology skills dominated over the other three indicators, namely: technology access, time management, and motivation. Based on the data result, technology skills get a mean of 4.37 or very high which means that it was always manifested. This suggests that teachers are confident in their skill in information communication technology to foster the adoption of digitized learning modality. As such, respondents believed that they are adequately capable to locate, save and retrieve digitized learning materials as well as navigating various websites locating, downloading, and installing applications for instructional purposes. They also believed that they have the appropriate and sufficient knowledge of troubleshooting problems that they might encounter.

This result was supported by A Bayucca (2020) that teachers exhibited a competent level of expertise in fundamental computer and technology abilities. Pardede (2020) further added that teachers display a high level of proficiency in using ICT or digital technology in their learning and teaching activities.

The second highest indicator is technology access with a mean score of 4.28 or very high which means that it was always manifested. This result goes to show that respondents perceived available information and communication technology resources in their schools and homes are sufficient enough to adopt digitized modular learning. Meaning, that computers or other electronic gadgets such as smartphones or tablets with internet connection and appropriate educational applications are available for them and their students to use for digitized learning modality. Further, with such results, respondents perceived that their virus protection is sufficient to keep them safe and their students online.

During the COVID-19 pandemic, formal schooling will be severely constrained because of the lack of proper access to technology and network services (Chin, et al., 2022). Nevertheless, Rodrigo and Mercedes (2021) reported that despite government and private sector efforts, hardware dissemination in many schools, especially in rural areas of the Philippines, has not reached critical mass, and the lowest strata of society have an extremely limited Internet connection. Fortunately, especially in urban schools, network and technological connectivity are readily accessible and favorable (Filomeno & Rivera, 2021).

On the other hand, the indicator with the lowest mean albeit still high is motivation with a mean of 4.22 which means that it was manifested at all times. This result showed that teachers perceived digital learning modality as necessary to help students be motivated in their academic endeavors. Respondents further believed that they foster enough skills to keep students motivated despite distractions online.

In accordance, Saravanakumar (2018) claimed that the improvement of information technology is crucial to the quality of education. ICTs such as digitalization technology help improve the quality of education by increasing access to education, motivating students to study, facilitating the acquisition of fundamental skills, and transforming the learning environment. Using information and communication technology as a curriculum/subject transformation tool, a learner-centered environment is created.

4.4 Correlation among Digital Competence, Attitude and Readiness for Digitized Instruction

One important purpose of this study was to determine whether or not the teachers' level of digital competence and perceived level of attitude towards digitized learning modality has a significant relationship to teachers' perceived readiness for the same learning modality. The results of the computations are shown in Table 4.

As shown in Table 4, the Pearson Product Moment Correlation was used to determine if teachers' level of digital competence and perceived level of attitude towards digitized learning modality has a significant relationship towards teachers' perceived level of readiness for digitized learning modality. The hypotheses were tested at a 0.05 level of significance.

Table 4. *Correlation Analysis between teachers' level of digital competence and teachers' perceived level of attitude to teachers' perceived level of readiness towards digital modality.*

	Level of teachers' perceived readiness towards digital modality				
	Tech Acc	Tech	TMgt	Mot	Overall
Digital Competence of Teachers	.693** (.001)	.681** (.001)	.604** (.001)	.602** (.001)	.726** (.001)
Teacher's perceived Level of Attitude	.650** (.001)	.506** (.001)	.568** (.001)	.587** (.001)	.652** (.001)

** $p < 0.01$

Moreover, teachers' level of digital competence was correlated to teachers' level of perceived readiness towards digital modality with an overall r-value of .726 and a p-value of 0.001 which is lower than the 0.05 level of significance; thus, rejecting the null hypothesis (Ho). Results indicated that there is a significant relationship between the overall teachers' level of digital competence and teachers' level of perceived readiness towards digital modality in determined public secondary schools in the Division of Digos City. Teachers' level of digital competence was also correlated to the individual indicators of the level of perceived readiness towards digital modality namely: Technology access ($r=.693$), Technology skills ($r=.681$), Time management ($r=.604$), and Motivation ($r=.602$). All p-values are equal to 0.001 which is less than the level of significance of 0.05. This implies that there is a significant relationship between the independent variable, in this case, the teachers' level of digital competence, and all the indicators of the dependent variable.

The overall values of the overall r-value (.726) and a p-value (0.001) mean that teachers' level of digital competence has a significant, positive, and moderately high relationship with teachers' perceived level of readiness for digitized learning modality. Further, it implies that as teachers demonstrate strong and sufficient competence in technologies needed for producing and delivering digitized learning materials, the more likely the teachers become ready to adopt digitized learning modality.

According to Petko et al. (2018), the effectiveness of instructional technology integration relies heavily on teachers' beliefs and abilities. In fact, Tarhini et al. (2015) noted that teachers with inadequate abilities in pedagogically using digital technology are the least likely to use ICT successfully. Additionally, acceptance and use of technology models emphasize perceived usefulness and perceived ease of use as essential criteria in determining teachers' readiness and acceptance of digital technology in the classroom.

Teachers' perceived level of attitude was also correlated to teachers' level of perceived readiness towards digital modality and gained an overall r-value of .652 and a p-value of 0.001 which is lower than the 0.05 level of significance; thus, rejecting the null hypothesis (Ho). This result indicates that there is a significant relationship between the overall teachers' level perceived attitude towards digital learning modality and teachers' level of perceived readiness towards the same modality in determined public secondary schools in the Division of Digos City. Teachers' level of perceived attitude was further correlated to the individual indicators of the level of perceived readiness towards digital modality namely: Technology access ($r=.650$), Technology skills ($r=.506$), Time management ($r=.568$), and Motivation ($r=.587$). All p-values are

still equal to 0.001 which is less than the level of significance of 0.05. This implies that there is a significant relationship between the independent variable, in this case, the teachers' level of attitude towards digital learning modality, and all the indicators of the dependent variable.

The overall values of the overall r-value (.652) and a p-value (0.001) mean that teachers' perceived level of attitude has a significant, positive, and moderately high relationship with the teachers' perceived level of readiness for digitized modular learning. Further, it implies that as the teachers demonstrate a more positive attitude towards digitized learning modality, the more likely they become keen to adopt digitized learning in their schools.

This finding corroborated Zamir and Thomas (2019) whose research demonstrated a statistically significant influence on school teachers' views, attitudes, and motivation towards teachers' preparation for the incorporation of ICT in their classroom instruction. In addition, it was suggested that teachers with a basic understanding of ICT should be encouraged to embrace positive attitudes towards the use of technology to fulfill their professional obligations.

4.5 Influence of Digital Competence and Attitude on Teachers' Readiness for Digitized Instruction

Data shown in Table 5 are the regression coefficients to test the significant influence of teachers' level of digital competence and teachers' perceived level of attitude to teachers' perceived level of readiness towards digital modality. Using the regression analysis, the data revealed that the two abovementioned independent variables have a significant influence on the dependent variable since the computed F value of 170.788 and p-value of less than 0.01.

Table 5. *Influence of digital competence and attitude to teachers' readiness for digitized instruction.*

Independent Variable (Indicators)	Dependent Variable			
	B	B	t	p-value
Digital Competence of Teachers	.524	.557	10.067**	.001
Teacher's perceived Level of Attitude	.343	.385	6.588**	.001
r ²	0.604			** p<0.01
				* p<0.05
Adjusted r ²	0.600			
F	170.788			
p-value	< 0.01			

Data implies that teachers' level of digital competence and teachers' perceived level of attitude are significant factors in teachers' readiness toward digitized learning modality since the multiple linear regression computation gained $p < 0.01$. The R² value of 0.604 implies that 60.4 percent of the variance of teachers' readiness towards digitized learning modality was influenced by both the teachers' level of digital competence and teachers' perceived level of attitude towards such modality while the remaining 39.6 percent was attributed to other factors. The overall results of teachers' level of digital competence and teachers' perceived level of attitude predict teachers' readiness toward digitized learning modality. Hence, it signifies the rejection of null hypotheses.

Further, as can be seen in Table 5, teachers' level of digital competence had significant positive regression weights ($\beta = .524$; p-value=.001). These values mean that in every one unit increase in the predictor variable which in this case is the teachers' level of digital competence, there will be an increase of .542 units to the outcome variable, teachers' readiness towards digitized learning modality. This data indicates that teachers with high levels of digital competence are expected to have higher perceived readiness towards digitized learning modality.

Lastly, teachers' perceived attitudes also had significant positive regression weights ($\beta = .343$; $p\text{-value}=.001$). These values mean that in every one unit increase in the predictor variable which is the teachers' perceived attitudes, there will be a .343 unit increase to the outcome variable, teachers' readiness towards digitized learning modality. This data indicates that teachers with higher perceived attitudes towards digital learning modalities are also expected to be eager to adopt such learning modalities for use.

This result was supported by Baturay and Toker (2019), who found that teachers' competence and attitude toward computers and related technology, such as digitized technology, are significant factors influencing teachers' technology acceptance and eventual integration practice in the teaching and learning process. In such a sense, it is necessary for teachers to improve their digitalization and technological competency as well as cultivate a favorable attitude toward information and communications technology to promote the enthusiasm for technology-led teaching in the school system.

5 CONCLUSION

Based on the summary presented, it was found that the level of participants' level of digital competence in terms of information processing, communication, content creation, and problem-solving is very high. Meanwhile, the level of teachers' attitude towards digital modality in terms of appreciation, responsiveness, proficiency, and knowledge of technological reforms was also found to be high. Further, the level of teachers' readiness towards digital modality measured in terms of technology access, technology skills, time management, and motivation was very high. Moreover, the overall teachers' level of digital competence and the overall perceived level of attitude is significantly correlated to the overall teachers' readiness toward digital modality. Finally, the overall teachers' level of digital competence and the overall perceived level of attitude significantly influence the teachers' readiness toward digital modality. Also, 60.4 percent of the variance of the teachers' readiness towards digital modality was influenced by the overall teachers' level of digital competence and the overall perceived level of attitude while the remaining 39.6 percent was attributed to other factors.

It is then recommended that the Department of Education prioritize programs and training for teachers to hone their digital competencies and to hone teachers' positive attitudes towards the use of digital technology for more effective implementation of digitized instruction during the new normal. In particular, in-service training focuses on developing teachers competence in information processing, using digital technology for communication, securing oneself on the internet and solving problems related to pedagogical use of digital technology. School heads are strongly advised to initiate school-based in-service training for improving teachers' digital skills and attitudes toward digitized instruction. These activities should focus on training teachers on available digital tools and on how to effectively use such tools for effective use in their instructional practice. Teachers are also encouraged to participate in relevant school activities such as during Learning Action Cell (LAC) sessions which focus on improving their skills in digital technology, providing significant avenues to look for effective tools, and fostering positive attitudes towards such instructional innovation. They must be oriented with the available tools and new techniques to effectively address students' learning needs in particular during this time of the pandemic. Finally, future researchers may use the literature on teachers' digital literacy, perceived attitude, and readiness towards digitized instruction to buoy up and influence them to benchmark the study and guide them in their research work, particularly on determining what other factors could potentially further improve teachers' readiness to adopt such instructional innovation.

REFERENCES

- A Bayucca, S. (2020). Teachers' Information and Communication Technology Skills Assessment: Basis for a Comprehensive ICT Training Program. Teachers' Information and Communication Technology Skills Assessment: Basis for a Comprehensive ICT Training Program (October 11, 2020).

- Al Khateeb, A. A. M. (2017). Measuring Digital Competence and ICT Literacy: An Exploratory Study of In-Service English Language Teachers in the Context of Saudi Arabia. *International Education Studies*, 10(12), 38-51.
- Alpuerto, R. J. (2022). Science teachers' experiences on ICT integration: challenges, coping mechanisms, and opportunities. *Sapienza: International Journal of Interdisciplinary Studies*, 3(2), 136–145. <https://doi.org/10.51798/sijis.v3i2.254479-497>.
- Baharuldin, Z., Jamaluddin, S., Shahril, M., Shaharom, N., Mohammed, S., & Zaid, R. (2019). The role of teacher readiness as a mediator in the development of ICT competency in Pahang Primary School. *Journal of Educational Research and Indigenous Studies*, 2(2), 15.
- Baskin, C., & Williams, M. (2006). ICT integration in schools: Where are we now and what comes next?. *Australasian Journal of Educational Technology*, 22(4).
- Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., & Reyes, J. C. B. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical science educator*, 31(2), 615-626.
- Baturay, M. H., & Toker, S. (2019). The comparison of trust in virtual and face-to-face collaborative learning teams. *Turkish Online Journal of Distance Education*, 20(3), 153-164.
- Benali, M., Kaddouri, M., & Azzimani, T. (2018). Digital competence of Moroccan teachers of English. *International Journal of Education and Development using ICT*, 14(2).
- Chawinga, W. D. (2017). Taking social media to a university classroom: teaching and learning using Twitter and blogs. *International Journal of Educational Technology in Higher Education*, 14(1), 1-19.
- Chin, J. M. C., Ching, G. S., del Castillo, F., Wen, T. H., Huang, Y. C., del Castillo, C. D., ... & Trajera, S. M. (2022). Perspectives on the Barriers to and Needs of Teachers' Professional Development in the Philippines during COVID19. *Sustainability*, 14(1), 470.
- Filomeno, B., & Rivera, D. D. (2021). An exploration of the educational situations in the Philippines from the lenses of the basic education teachers during the year of Covid-19 pandemics.
- Garba, S. A., Byabazaire, Y., & Busthami, A. H. (2015). Toward the Use of 21 st Century Teaching-Learning Approaches: The Trend of Development in Malaysian Schools within the Context of Asia Pacific. *International Journal of Emerging Technologies in Learning*, 10(4).
- Goktas, Y., Yildirim, S., & Yildirim, Z. (2009). Main barriers and possible enablers of ICTs integration into pre-service teacher education programs. *Journal of Educational Technology & Society*, 12(1), 193-204.
- Jones, A. (2011). How Twitter saved my literature class: a case study with discussion. In *Teaching arts and science with the new social media* (Vol. 3, pp. 91-105). Emerald Group Publishing Limited.
- Lau, B. T., & Sim, C. H. (2008). Exploring the extent of ICT adoption among secondary school teachers in Malaysia. *International Journal of Computing and ICT research*, 2(2), 19-36.
- Mallillin, L. L. D., Mendoza, L. C., Mallillin, J. B., Felix, R. C., & Lipayon, I. C. (2020). Implementation and readiness of online learning pedagogy: a transition to COVID 19 pandemic. *European Journal of Open Education and E-learning Studies*, 5(2).
- Onyema, E. M. (2020). Integration of emerging technologies in teaching and learning process in Nigeria: the challenges. *Central Asian Journal of Mathematical Theory and Computer Sciences*, 1(1), 35-39.
- Pardede, P. (2020). Secondary school EFL teachers' perception of ICT use in learning and teaching: A case study in Greater Jakarta. *Journal of English Teaching*, 6(2), 144-157.
- Petko, D., Prasse, D., & Cantieni, A. (2018). The Interplay of School Readiness and Teacher Readiness for Educational Technology Integration: A Structural Equation Model. *Computers in the Schools*, 35(1), 1–18. doi:10.1080/07380569.2018.1428007
- Price, P., Jhangiani, R., & Chiang, I. (2015). *Research methods of psychology – 2nd Canadian edition*. Victoria, B.C.: BCcampus. Retrieved from <https://opentextbc.ca/researchmethods/>
- Rodrigo, M., & Mercedes, T. (2021, July). Impediments to AIS Adoption in the Philippines. In *International Conference on Human Computer Interaction* (pp. 412-421). Springer, Cham.
- Sangwan, A., Sangwan, A., & Punia, P. (2021). Development and validation of an attitude scale towards online teaching and learning for higher education teachers. *TechTrend: For Leaders in Education & Training*, 65(2), 187–195. <https://doi.org/10.1007/s11528-020-00561-w>
- Saravanakumar, A. R. (2018). Role of ICT on enhancing quality of education. *International Journal of Innovative Science and Research Technology*, 3(12), 717-719.
- Saubern, R., Urbach, D., Koehler, M., & Phillips, M. (2020). Describing increasing proficiency in teachers' knowledge of the effective use of digital technology. *Computers & Education*, 147, 103784.
- Semerci, A., & Aydin, M. K. (2018). Examining High School Teachers' Attitudes towards ICT Use in Education. *International journal of progressive education*, 14(2), 93-105.
- Straumsheim, C., Jaschik, S., & Lederman, D. (2015). *Faculty attitudes on technology*. Inside, Washington, DC.
- Syahid, A. A., Sunarya, D. T., Sudin, A., Sunaengsih, C., & Karlina, D. A. (2019, October). ICT competences of primary school teachers. In *Journal of Physics: Conference Series* (Vol. 1318, No. 1, p. 012148). IOP Publishing.
- Tarhini, A., Arachchilage, N. A. G., & Abbasi, M. S. (2015). A critical review of theories and models of technology adoption and acceptance in information system research. *International Journal of Technology Diffusion (IJTD)*, 6(4), 58-77.
- Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4).
- Tria, J. Z. (2020). The COVID-19 pandemic through the lens of education in the Philippines: The new normal. *International Journal of Pedagogical Development and Lifelong Learning*, 1(1), 2-4.
- Tuntirojanawong, S. (2013). Students' readiness for e-learning: A case study of Sukhothai Thammathirat Open University, Thailand. *Journal of Learning in Higher Education*, 9(1), 59-66.
- Wasserman, E., & Migdal, R. (2019). Professional Development: Teachers' Attitudes in Online and Traditional Training Courses. *Online Learning*, 23(1), 132-143.
- Zamir, S., & Thomas, M. (2019). The effects of university teachers' perception, attitude and motivation on their readiness for the integration of ICT in classroom teaching. *Journal of Education and Educational Development*, 6(2), 308-326.