



TPACK, Instructional Competence, and Teachers' Attitude toward Internet Use: A Structural Equation Model in Readiness to Teach Online in Filipino

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Authors' contributions

This work was carried out in collaboration between both authors. Author DPB designed the study, conducted the gathering of data, wrote the protocol. Author MYL guided the author DPB in writing the entire study all throughout. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: To investigate the best-fit model for teachers' readiness in online teaching using Structural Equation Modeling (SEM) to analyze the relationship between TPACK, instructional competence, and teachers' attitudes toward internet use.

Study Design: Quantitative Causal Analysis.

Place and Duration of Study: Region XII, Philippines, during the second semester 2022.

Methodology: The stratified random sampling technique was utilized using Raosoft Application to select the 674 college teachers from various colleges and universities in Region XII. An expert-validated and pilot-tested survey questionnaire was used to collect the data. Moreover, statistical tools used for the study were mean, which described the levels of the variables; Standard Deviation (SD), which measured the dispersion of a frequency distribution; Multiple Regression, which identified significant predictors of readiness to teach online; and Pearson Product Moment

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correlation Coefficient, which determined the relationship of the variables. The Structural Equation Model (SEM) was also used to analyze multiple variables and their relationships.

Results: The level of TPACK among teachers was very high, but compared to other exogenous variables, it was the lowest, which indicates that teachers are not fully proficient. Moreover, teachers' instructional competence level was very high, which implies that the variables were often observed among teachers. It also showed a significant relationship between the TPACK, instructional competence, and Attitude toward internet use toward readiness to teach online. The Attitude toward internet use and instructional competence influenced teachers' readiness to teach online, while TPACK did not influence teachers' willingness to teach online. Model 5 had consistent indices among the five investigated models and indicated the best fit for the data. The goodness of fit result was highly acceptable, as all the indices met the specified standards against the obtained fit value of the model.

Conclusion: Teachers' levels of Technological Pedagogical Content Knowledge (TPACK) are low, suggesting they still need to be fully adept at using technology in the classroom. To improve readiness for online teaching, it is essential to consider teachers' attitudes toward internet use and TPACK integration into professional development programs. Model 5 offered the greatest fit for the data, suggesting authorities should take instructors' TPACK into account for training and knowledge updates in integrating technology into 21st-century teaching.

Keywords: TPACK; instructional competence; teachers' attitude toward internet use; readiness to teach online; SEM; Philippines.

1. INTRODUCTION

Education is one of the industries most affected by COVID-19 and has exerted efforts in preparing online teaching and learning methods to ensure that education continues despite the pandemic. Some have yet to encounter difficulties in implementing modern education. What is more serious is that most higher education institutions quickly shifted to emergency remote or online teaching even after the semester had begun. However, many instructors were not prepared to teach online because they lacked the basic technology or specialized services required for online teaching, and only a few teachers were willing to teach online [1,2].

It is essential to understand the readiness of teachers to teach online, especially during the pandemic, as it makes a significant difference in the overall performance of online courses and programs, exploring and implementing various modern teaching methods apart from traditional ones. Many teachers need to learn about online teaching or how to support online learning because it is not included in many teacher training programs. Consider that the teaching and learning process is not confined to the classroom alone but can happen anywhere [3-5].

Generally, this study aimed at determining the best-fit model for teachers' readiness in online

teaching using Structural Equation Modeling (SEM). In particular, this study sought to determine the level of TPACK of the teachers, level of instructional competence, level of Attitude towards internet use, level of readiness to teach online in Filipino, and the significant relationship between the three exogenous and endogenous variables.

For teachers, it is essential to assess TPACK (Technological Pedagogical Content Knowledge) in professional development to be prepared for the rapid expansion of online teaching in higher education. Therefore, it is necessary to strengthen teachers' ability to use technology in teaching. Recognizing teachers' instructional competence and attitudes toward internet use in the importance and understanding of teaching plays a significant role in applying online teaching's objectives, activities, and challenges. Consequently, there are some institutions, teachers, and students who are not ready to adapt to the new situation, so it is essential to assess the extent of teachers' readiness to teach in this new era [6-8].

The common framework is not based on ideas originating from a single theory of study but on a combination of various aspects from multiple theories. The connection between TPACK and readiness for the new wave is anchored in the propositions of different authors. It can analyze how teachers should be prepared to teach online as it addresses the three main components

needed to ensure high-quality teaching. It is also proven in studies that TPACK is essential in examining how the TPACK model is integrated into professional development programs for teachers and prepared for teaching towards the rapid expansion of online education [9-11,6].

The connectivism theory was used as a means to enhance understanding of technology use in teaching through the application of the TPACK model. It has been established that technology influences all theoretical perspectives by providing methods and unique teaching approaches [12].

The Cultural Historical Activity Theory (CHAT) explains how technology can mediate Teaching for transformative learning. Intelligent use of technology in Teaching requires the development of a complex and aligned form of knowledge that links technology to teaching methods and content. Furthermore, Bandura's self-efficacy theory was also used in the study, mentioning that TPACK can be used to investigate readiness for online teaching [13,14].

For instructional competence, the preparation and development of online teachers need to focus on fostering critical teaching skills that align with Mezirow's transformative learning theory and their students. Teachers should rely on something other than accepting suggested competencies and roles. However, they should critically reflect on them to adapt to the new teaching environment with their assumptions towards online Teaching and learning [15,16].

The experience of teachers in online Teaching is based on a process of online teaching competencies and applied to novice online instructors to discover the effects of online teaching competencies and challenges in transitioning from traditional to online teaching. It can also assist trainers in designing targeted training programs. There is a need to develop online instruments for teaching competencies from the lens of activity theory and examine the online teaching competencies of instructors. Linked to instructional competence is the Community of Inquiry Model (COI) based on social presence theory to identify and categorize critical competencies for successful online

Teaching from the perspectives of experienced individuals such as teachers, designers, administrators, support staff, and managers. These competencies can be addressed in the professional development of teachers to prepare them and enable their success in online teaching [17-19].

The Technology Acceptance Model (TAM) by Davis is highlighted in the study, a theoretical framework used to identify how new technologies can be adopted in different situations and contexts that affect human behavior. TAM adapts the reasonable action theory to the information system and user behavior. It can be linked to the study in that using TAM can improve course design to promote students' understanding and usefulness of online education, as well as enhance positive attitudes towards training in online education [20-23].

The researchers were motivated to conduct this study to assist in the current situation, preparing teachers for online teaching in Filipino, and to achieve the goal of quality education despite the pandemic and enhance the outcomes of academic programs. However, a local study has yet to be conducted to determine whether there is a relationship between the exogenous and endogenous variables. Therefore, this study aims to measure the importance of teachers' readiness to teach online, especially in the era of technology and globalization.

Hence, this study investigated the most appropriate model for teachers' readiness to teach online in Filipino. The objectives of this study were also to address the following questions: first, to determine the level of TPACK among teachers; second, to identify the level of teaching competence; third, to ascertain the level of Attitude toward internet use; fourth, to ascertain the level of readiness to teach online; fifth, to determine the significant relationship between the three exogenous variables and endogenous variable; sixth, to assess the singular and combined influence of the exogenous variables on the readiness to teach online; lastly, to determine what model best fits willingness to teach online.

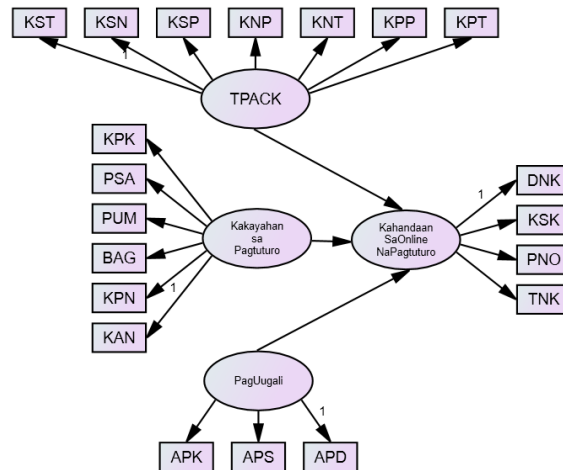


Fig. 1. The conceptual model depicting the direct relationships between the latent exogenous variables

Legend:

KST-Technology Knowledge

KSN-Content Knowledge

KSP-Pedagogical Knowledge

KNP-Pedagogical Content Knowledge

KNT-Technological Content Knowledge

KPP-Technological Pedagogical Knowledge

KPT-Technological Pedagogical Knowledge

KPT-Technological Pedagogical Content Knowledge

KAN- Content Competence

KPN- Competence in Transmitting the Content to the Learner

BAG-Teachers' Lesson Log/Plan

PUM-Students' Engagement

PSA-Classroom Management

KPK-Learning Environment

APD-Affective Aspects

APS-Behavior Aspects

APK-Cognitive Aspects

DNK-Course Design

KSK-Course Communication

PNO-Time Management

2. METHODOLOGY

2.1 Respondents

The respondents in the study were college teachers selected from the universities in Region XII: 145 from General Santos City, 194 from Tacurong City, 222 from Kabacan, North Cotabato, and 113 from Koronadal City, South Cotabato. The sample size from each university was determined based on the size of their population to obtain a total of 674 respondents. They were selected using the stratified random sampling technique using Raosoft Application. It may be considered a limitation of this study. Hence, the findings of this [24] may only be true to the respondents and may only be applied to some of the population of teachers with teaching experiences of up to five years in Region XII.

These respondents were college teachers during the academic year 2022-2023, but they needed teaching experience for up to five years. Their participation was with the permission of the school administrators. However, college teachers with no teaching experience of up to five years outside the research sites were excluded. Teachers who wanted to participate in the research but needed consent from their superiors

were also not allowed to participate. Moreover, teachers who did not attend the orientation for this study were also not permitted to participate.

2.2 Research Instrument

The researcher utilized a survey questionnaire as the instrument for the study. The researcher also employed various methods to ensure the validity of the created instrument. The researcher consulted with advisors and a panel of experts and sought their feedback to validate the questionnaire used in the study. The mean score obtained from the six validators was 4.19, indicating that the questions were well-crafted and valid. A preliminary survey or pilot testing was conducted among college teachers. Each item was presented to a statistician to assess the validity of each item in the research, and "Cronbach's alpha procedure" was used to determine the validity of the items. Likert-type scales were also used to calculate and present Cronbach's alpha coefficient for the internal consistency reliability of the scale. Therefore, TPACK has a Cronbach's alpha of 0.963; Teaching Competence has 0.959, Attitudes towards Internet Use has 0.928, and Preparedness for Online Teaching has 0.954, indicating excellent reliability.

The following scale was used to accurately measure the level of TPACK, Instructional Competence, Teachers' attitudes toward Internet Use, and Readiness to Teach Online in Filipino colleges. It provides descriptive categories and interpretations of the assessment based on the mean difference. The Mean Difference of 4.20-5.00 with a Descriptive Level of Very High with the Interpretation of the assessment is consistently demonstrated at a very high level. It indicates exceptional proficiency and expertise in the respective category. The Mean Difference of 3.40-4.19 with a Descriptive Level of High with the Interpretation of the assessment is frequently demonstrated at a high level. It indicates good competence and proficiency in the respective category. The mean difference of 2.50-3.39 with a Descriptive Level of Moderate and the Interpretation of the assessment is occasionally demonstrated at a moderate level. It indicates a general knowledge and proficiency in the respective category. The mean difference of 1.80-2.59 with the Descriptive Level of Low with the Interpretation of the assessment is rarely demonstrated at a low level. It indicates a need for more knowledge and proficiency in the respective category. A mean difference of 1.00-1.79 with the descriptive level of Very Low and the Interpretation of the assessment is never demonstrated at a very low level. It indicates a significant need for more knowledge and proficiency in the respective category.

3. RESULTS AND DISCUSSION

3.1 Level of TPACK

Presented in Table 1 is the overall standard deviation for TPACK was 0.66 while the total mean was 4.23 with a descriptive level of Very High, meaning that TPACK is often evident by the college teachers in Region XII. Based on the results, teachers use TPACK to effectively integrate technology into their teaching skills.

From the study, it is evident that teachers have a positive attitude towards using TPACK because they recognize that technology serves as a tool that opens up opportunities to enhance knowledge and learning experiences for their students [25-27].

Based on the indicators, it is evident that TPACK obtained the highest level among all. It can be supported by studies that show higher proficiency in Technological Pedagogical Content Knowledge, as it involves the synthesis and various forms of technology integration that enable teachers to design syllabi, and lesson

plans, use instructional materials, and consider technology in Teaching and learning as a source of study and literature. Furthermore, teachers with a high level of Technological Pedagogical Content Knowledge demonstrate a higher level of technology integration in their lesson planning than those with lower levels of Technological Pedagogical Content Knowledge [28,29].

On the other hand, "Content Knowledge" and "Pedagogical Knowledge" obtained the lowest levels among all indicators, with a mean of 4.19 and a high descriptive level. It suggests that "Content Knowledge" and "Pedagogical Knowledge" are connected, emphasizing that teachers must create learning environments where students can acquire knowledge. With sufficient content knowledge, learning outcomes will be expanded, highlighting the importance for teachers to have a deep understanding of the subject matter and the ability to apply teaching strategies to capture students' attention and facilitate learning. However, other studies suggest that teachers need adequate training to implement new teaching methods, utilize innovative teaching skills, and utilize various sources of knowledge, including Content Knowledge, to enhance instructional delivery in classrooms for quality teaching [30-33].

3.2 Level of Instructional Competence of Teachers

Table 2 shows the overall mean score is 4.41 with a standard deviation of 0.46, described as very high, which means that the instructors' instructional competence is very evident. Teachers must reflect on their instructional competence to create a positive classroom environment and identify the strategies to provide the appropriate instruction required by the students. It is because teachers' primary role is to ensure students academic success.

The study has proven that it is necessary to encourage teachers to improve and focus on teaching in schools because it positively impacts students' lives. Therefore, it is essential to develop teaching practices to ensure quality education. Globalization has set professional standards for teachers, and the competencies involved have placed greater emphasis on developing teachers' skills [34-36].

3.3 Level of Attitude Toward Internet Use

Presented in Table 3 is the level of teachers' attitudes toward internet use. The overall mean

rating is 4.38 with a standard deviation of 0.46, described as very high, which means that the Attitude of teachers using the internet is always evident. Based on the study's outcome, using the Internet in Teaching and learning yields significant positive results when combined with modern technology aligned with a 21st-century education.

Based on the study's findings, using the internet in teaching and learning yields significantly positive results when coupled with modern technology that aligns with 21st-century education. For teachers to effectively utilize technology within the classroom, it is crucial to have a stable internet connection, modern infrastructure, technical support, sufficient time, a flexible curriculum, a combination of traditional and contemporary approaches, and practical training. These factors enable teachers to develop a positive attitude towards utilizing the

internet with any technology effectively [37-39].

3.4 Level of Readiness to Teach Online in Filipino

Table 4 reveals the level of readiness of teachers to teach online in Region XII. The results are supported by previous studies indicating the positive impact of implementing online teaching and emphasizing that more experience in online instruction leads to better preparedness for online education. Possessing professional skills in utilizing technology greatly enhances readiness for online teaching. Technological proficiency and basic computer skills, as well as internet usage such as website searching, play a crucial role as they contribute to specific levels of content comprehension, engagement, activity integration, and creative application in teaching and learning [40-45].

Table 1. Level of TPACK (Technological Pedagogical Content Knowledge)

Indicators	SD	Mean	Descriptive Level
Technology Knowledge	0.76	4.21	Very High
Content Knowledge	1.09	4.19	High
Pedagogical Knowledge	0.76	4.19	High
Pedagogical Content Knowledge	0.76	4.25	Very High
Technological Content Knowledge	0.76	4.20	Very High
Technological Pedagogical Knowledge	0.80	4.24	Very High
Technological Pedagogical Content Knowledge	0.72	4.30	Very High
Total	0.66	4.23	Very High

Table 2. Level of instructional competence

Indicators	SD	Mean	Descriptive Level
Content Competence	0.78	4.23	Very High
Competence in Transmitting the Content to the Learner	0.61	4.31	Very High
Teachers' Lesson Log/Plan	0.61	4.44	Very High
Students' Engagement	0.51	4.50	Very High
Classroom Management	0.55	4.49	Very High
Learning Environment	0.52	4.51	Very High
Total	0.46	4.41	Very High

Table 3. Level of teachers' attitude toward internet use

Indicators	SD	Mean	Descriptive Level
Affective Aspects	0.55	4.36	Very High
Behavior Aspects	0.49	4.41	Very High
Cognitive Aspects	0.56	4.36	Very High
Total	0.46	4.38	Very High

Table 4. Level of readiness to teach online

Indicators	SD	Mean	Descriptive Level
Course Design	0.52	4.33	Very High
Course Communication	0.46	4.36	Very High
Time Management	0.47	4.40	Very High
Technical Competence	0.45	4.44	Very High
Total	0.40	4.38	Very High

3.5 Significant relationship between the three exogenous variables and the endogenous variable

Table 5 is divided into tables 5a, 5b, and 5c. A significant relationship exists between TPACK with a correlation coefficient of $r = 0.471$, instructional competence with $r = 0.602$, and Attitude toward internet use with a correlation coefficient of $r = 0.790$, thus rejecting the null hypothesis. It suggests that teachers' readiness to teach online in Filipino is related to and can be explained by effective teaching methods.

Table 5a also affects the use of technology and teachers' preparedness in the classroom because their confidence also influences their students. If teachers have confidence in integrating content knowledge and technology, they are also prepared for online teaching to facilitate the learning process of their students [46,47].

The results of Table 5b aligned with previous studies that have shown a significant relationship between Instructional Competence and Readiness to Teach Online. This finding also supports the transformative learning theory. It helps teachers process their learning as they adapt to the new teaching environment with their assumptions towards online teaching and learning. Therefore, encouraging teachers to engage in critical reflection enhances their teaching ability as they actively participate in the changes happening in teaching their students [48-52].

Furthermore, Table 5c agreed with the significant relationship between Attitude toward Internet Use and Readiness for Online Teaching. The overall Attitude of teachers towards internet use plays a meaningful role when combined with practical technology training to make it effective in Online Teaching. The sudden shift to online Teaching has revealed significant correlations with teachers' attitudes, both advantages and disadvantages, regarding preparedness for online classes, such as the need for reliable

internet connection, technical support, time, flexible curriculum, and methods. The reasonable action theory used in this study also supports the result that a teacher's intentional Attitude towards using the internet improves their Teaching to adapt and be prepared for online education [53-56].

3.6 The singular and combined influence of the exogenous variables on the readiness to teach online

Table 6 presents the results of the regression analysis system describing significant predictors of Teacher Readiness to Teach Online in Filipino across observed variables in the research. The analysis reveals that the standard coefficient of Teacher Attitude towards Internet Use has the highest Beta value at .681. It indicates that Teacher Readiness for Online Teaching in Filipino is greatly influenced by Teacher Attitude toward Internet Use.

This finding aligns with previous studies that demonstrate the significance of attitudes toward internet use as a crucial predictor of readiness to teach online among teachers. Along with changes in the education system, teachers' willingness to teach online, including the current demand for behavior, planning strategies to improve professionalism, and enhancing knowledge, skills, and abilities in utilizing the internet or technology for language instruction, are essential. Therefore, teachers and students exhibit a positive attitude towards using the internet for language teaching through online platforms. However, this significantly challenges their emotional, social, and cognitive aspects as teacher-student pairs. Consequently, instructors must be capable of designing and delivering instruction according to their needs. Similarly, Instructional Competence has a Beta value of .142, indicating a significant predictor of teachers' teaching competence. This result is in line with the studies conducted by [57-64], which support and align with these findings.

The Attitude toward internet use and instructional competence influence teachers' readiness for Online Teaching. In contrast, TPACK does not affect the enthusiasm for online education among instructors in Region XII. The study revealed that teachers have low TPACK scores due to institutional factors that influence the adoption of TPACK among educators. It is supported by the TPACK theory, which is essential to explore professional development programs and prepare teachers for teaching, primarily online. On the other hand, Siemens' connectivism theory is necessary to enhance the understanding and application of technology in content and Teaching methods [65].

3.7 Model Best Fits Readiness to Teach Online

The best-fit model was identified based on the criterion that all indices must consistently fall within acceptable ranges. P-value should be greater than 0.05, and Chi-square/degrees of freedom (CMIN/DF) is $0 < \text{value} < 2$. Further, the goodness of fit index (GFI), comparative fit index (CFI), normed fit index, and tucker-Lewis Index should be greater than 0.95. The root-mean-square error (RMSEA) must be less than 0.05, and its corresponding P-close value must be greater than 0.05.

Based on the summary in Table 7, the first to fourth models can be considered inappropriate since they did not achieve the expected standards. Meanwhile, the fifth model exhibits the most appropriate as it has reached the expected standards.

It can mean that there is a best-fit model for teachers' readiness to teach online in Filipino in

Region XII. The model demonstrates the importance of TPACK and Attitude toward internet use as predictors of teachers' willingness to teach online.

It means the teachers' Attitude toward internet use enhances their readiness for online teaching. Through this, they develop positive attitudes in designing, delivering, and using various teaching materials according to the needs of their students. It means that a teacher with attitudes aligned with the development of 21st-century teaching skills is a factor in successfully integrating technology in language teaching and searching for required information in class. Meanwhile, instructional competence should have been included in the most appropriate model. It was supported that teachers' online teaching competence is not expected, sudden, and has a high potential for anxiety and changes in their teaching abilities. It can be explained in the context that teachers were forced to continue teaching and adapt to sudden changes to ensure the continuity of their student's education [66].

This result is also aligned with the transformative learning theory, which helps teachers in their ability to process their learning as they reflect and adapt to the new teaching environment, with their assumptions towards online teaching and learning.

Fig. 2. shows the Interrelationship Between TPACK with five indicators, Teachers' Attitude toward the internet with three indicators, and their Direct Casual Relationship towards Readiness to Teach Online.

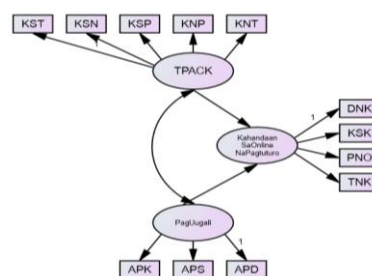


Fig. 2. Best fit model in readiness to teach online in Filipino

Legend:

KST-Technology Knowledge
KSN-Content Knowledge
KSP-Pedagogical Knowledge
KNP-Pedagogical Content Knowledge
KNT-Technological Content Knowledge
KPP-Technological Pedagogical Knowledge
KPT-Technological Pedagogical Content Knowledge

APD-Affective Aspects
APS-Behavior Aspects
APK-Cognitive Aspects
DNK-Course Design
KSK-Course Communication
PNO-Time Management

Table 5a. Significant relationship between TPACK and the endogenous variable

TRACK	Readiness to Teach Online				
	DNK	KSK	PNO	TNK	Overall
KST	.419** .000	.375** .000	.377** .000	.347** .000	.447** .000
KSN	.428** .000	.411** .000	.374** .000	.343** .000	.458** .000
KSP	.430** .000	.420** .000	.377** .000	.339** .000	.461** .000
KNP	.397** .000	.371** .000	.307** .000	.292** .000	.404** .000
KNT	.372** .000	.356** .000	.326** .000	.310** .000	.401** .000
KPP	.351** .000	.291** .000	.296** .000	.254** .000	.352** .000
KPT	.315** .000	.336** .000	.297** .000	.227** .000	.346** .000
Overall	.444** .000	.420** .000	.386** .000	.349** .000	.471** .000

Table 5b. Significant relationship between instructional competence and the readiness to teach online

Instructional Competence	Readiness to Teach Online				
	DNK	KSK	PNO	TNK	Overall
KAN	.328** .000	.318** .000	.335** .000	.282** .000	.371** .000
KPN	.377** .000	.364** .000	.328** .000	.329** .000	.411** .000
BAG	.443** .000	.362** .000	.329** .000	.381** .000	.447** .000
PUM	.497** .000	.422** .000	.390** .000	.458** .000	.520** .000
PSA	.506** .000	.424** .000	.375** .000	.408** .000	.505** .000
PSA	.501** .000	.463** .000	.476** .000	.476** .000	.564** .000
Overall	.566** .000	.504** .000	.480** .000	.496** .000	.602** .000

Table 5c. Significant relationship between attitude toward internet use and readiness to teach online

Attitude Toward Internet Use	Readiness to Teach Online				
	DNK	KSK	PNO	TNK	Overall
APD	.613** .000	.553** .000	.530** .000	.574** .000	.668** .000
APS	.622** .000	.545** .000	.512** .000	.549** .000	.657** .000
APK	.707** .000	.574** .000	.577** .000	.550** .000	.711** .000
Overall	.754** .000	.648** .000	.628** .000	.648** .000	.790** .000

Table 6. Singular and combined influence of the exogenous variables on the readiness to teach online

Readiness to Teach Online				
Exogenous Variables	B	β	t	Sig.
Constant	1.116		11.027	.000
TRACK	.025	.042	1.092	.275
Instructional Competence	.125	.142	3.268	.001
Attitude Toward Internet Use	.596	.681	22.939	.000
R	.802			
R ²	.643			
ΔR	.642			
F	402.526			
p	.000			

Table 7. Model best fits readiness to teach online

Model	P-value (>0.05)	CMIN / DF (0<value<2)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	.000	14.224	.783	.800	.788	.772	.140	.000
2	.000	8.724	.821	.884	.872	.867	.107	.000
3	.000	7.727	.815	.899	.886	.884	.100	.000
4	.000	2.999	.956	.980	.971	.976	.054	.177
5	.063	1.333	.985	.997	.990	.996	.022	1.000

Legend: CMIN/DF – Chi-Square/Degrees of Freedom

GFI – Good Fit Index

RMSEA – Root Mean Square of Error Approximation

NFI – Normed Fit Index

TLI – Tucker Lewis Index

CFI – Comparative Fit Index

4. CONCLUSION

Teachers' levels of Technological Pedagogical Content Knowledge (TPACK) are relatively low compared to other variables, suggesting that they still need to be fully adept at employing technology in the classroom. The study proposes regular classroom inspections to gauge performance and provide teachers with ongoing reinforcement and training on technology integration. However, instructors have a high level of instructional competence, indicating they have the abilities needed for subject delivery, lesson planning, and classroom management. Training in effective teaching techniques and content understanding is advised to improve instructional competency further.

Effective teaching strategies can be used to account for the significant association between TPACK, Instructional Competence, Attitude Towards Internet Use, and Readiness to Teach Online that was discovered by the study. Attitude toward Internet Use and Instructional

Competence impact teachers' preparation to teach online in college, even though TPACK has no direct effect. For teachers to be ready for online Teaching, TPACK integration into professional development programs is essential. For improving technical knowledge and applying content and instructional techniques, Siemens's connectivism theory is incredibly crucial.

Model 5 offered the greatest fit for the data based on consistent indices, suggesting that authorities should consider instructors' TPACK for training and knowledge updates in integrating technology into 21st-century teaching. To improve readiness for online teaching, it is also essential to assess teachers' attitudes toward internet use. In the Philippines, it is advised to conduct additional research in public schools emphasizing instructional proficiency, training, and integrating flexible or online education into the educational system. This synopsis emphasizes the importance of ongoing professional development and

training for successful technology integration into teaching strategies.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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