*Original Research Article*

Culturally Responsive Teaching Competence, Digital Cohmpetence, and Language Learning Motivation: A Structural Equation Model of Teaching Competence of Pre-service Teachers

.

ABSTRACT

|  |
| --- |
| **Aims:** To investigate the most suitable model for teaching competencies among pre-service teachers, utilizing structural equation modelling (SEM) as the foundation design for analyzing the relationship between culturally responsive teaching competence, digital competence, language learning motivation and teaching competence.**Study design:** A descriptive-causal design was employed for this study.**Place and Duration of Study:** The study was conducted at the public and private tertiary institutions offering education programs within Region 10 or Northern Mindanao during the school year 2023-2024.**Methodology:** The 400 pre-service teachers’ respondents were chosen through stratified sampling. The data collected from an adapted survey questionnaire were analyzed using measures such as mean, Pearson product-moment correlation, coefficient, linear regression and structural equation modelling. **Results:** The overall findings revealed that the respondents' culturally responsive teaching competence, digital competence, and language learning motivation were all very high. Among these variables, pre-service teachers’ digital competence had the greatest influence on their teaching competence. This is evident from the high correlation between digital competence and teaching competence, which was stronger than that of culturally responsive teaching competence and language learning motivation. Among the three models developed, Model 3 had the most consistent indices, indicating the best fit to the data.**Conclusion:** This study proves that pre-service teachers possess a high level of culturally responsive teaching competence, digital competence, motivation for language learning, and teaching competence, which are essential for their teaching readiness. The findings highlight the significant role of digital competence in enhancing teaching effectiveness and suggest that well-equipped pre-service teachers can effectively address diverse student needs. Moreover, the study underscores the importance of these competencies in ensuring quality education and preparing future educators for the evolving demands of the teaching profession. |

*Keywords: culturally responsive teaching, digital competence, language learning motivation, teaching competence, pre-service teachers, Philippines*

*SDG #4- Quality Education*

1. INTRODUCTION

Teaching competence is a crucial factor in becoming an effective teacher. It encompasses a deep understanding of the subject matter, proficiency in pedagogy, skills in assessing learning, and the ability to manage the classroom. Developing this competence among pre-service teachers is a fundamental step in their preparation for actual teaching. However, despite continuous efforts to enhance the training of pre-service teachers, building their teaching competence to meet the demands of modern education remains a challenge.

In the current era of rapid changes in education, pre-service teachers face significant challenges in their preparation as professional educators (Ocampo, 2021). Many pre-service teachers struggle to keep up with new teaching modalities. Furthermore, Padagas (2019) mentioned the need for pre-service teachers to strengthen their skills in pedagogy, student performance assessment, and classroom management as preparation for their actual work. It has been observed that they find it difficult to apply the theories they have learned to practical applications in a work-based learning environment.

Teaching competencies are the skills and knowledge that help a teacher become effective in their teaching. To enhance student learning, teachers must possess various teaching competencies to address the diverse learning styles of their students (Hermoso J and Brobo, 2023). Teaching competence, as an endogenous variable in this study, is essential because it serves as the primary measure of pre-service teachers' effectiveness in delivering meaningful education.

The study by Napanoy et.al (2021) identified challenges among pre-service teachers related to lesson planning, classroom management, and the use of technology in their demonstration teaching. Additionally, Ramirez (2020) noted that many pre-service teachers struggle with a lack of self-confidence due to feelings of unpreparedness or uncertainty about their ability to teach effectively. They also face limitations in pedagogical knowledge, as their understanding of teaching methods, strategies, and best practices is often insufficient. Furthermore, classroom management remains a significant difficulty, with many pre-service teachers struggling to maintain discipline or create a positive academic environment.

The ability to implement culturally responsive teaching (CRT) is a crucial aspect of pre-service teachers' preparation for effective instruction. To ensure effective CRT, pre-service teachers must have sufficient exposure and immersion in diverse teaching contexts. CRT should be demonstrated in lesson planning and delivery, the selection and development of instructional materials, as well as in assessing and facilitating student learning (Caingcoy et.al., 2022; Rhodes 2017). However, many pre-service teachers lack this essential competence, which is vital in promoting inclusive and meaningful classroom experiences (Caingcoy et.al 2022). This ability is a key component of culturally and linguistically responsive teaching, as students need to feel comfortable and respected to actively engage and learn effectively (Rhodes 2017). Muniz (2019) emphasized the importance of investing in strengthening teachers’ capacity to adapt to and address cultural aspects of teaching in today’s educational landscape.

Alongside this, the lack of digital competence is another challenge faced by pre-service teachers. According to Alnasib (2023), many pre-service teachers have insufficient digital skills, which do not align with the standards of a competent 21st-century educator. Many struggle to integrate technology into their teaching demonstrations, hindering their ability to provide innovative and effective learning experiences.

Currently, teachers are expected to integrate digital technologies to enhance the quality of their teaching and learning activities and to serve as role models in using modern tools for students. Although many pre-service teachers were born into a digitally rich environment, this does not necessarily mean they are fully prepared to use technology for teaching (Çebi and Reisoğlu (2020)). Furthermore, a study by Çebi and Reisoğlu (2020) in Turkey found that many pre-service teachers have low levels of digital competence, which is a crucial skill in modern education. Their study highlights that the lack of proficiency in using digital tools hinders effective teaching, especially in contexts requiring hybrid or online learning modalities.

On the other hand, language learning motivation is a fundamental aspect of pre-service teachers' preparation for their role as educators. According to Harahap and Fithriani (2023), pre-service teachers' attitudes and motivation toward learning English significantly impact their success in language acquisition. Their study shows that when teachers have clear goals and understand the relevance of language in their daily lives, they become more enthusiastic learners, which drives them to become effective language educators in the future. Furthermore, Franca and Napil (2022) emphasized in their study that effective learning strategies, writing, and reading skills have a positive correlation with language learning motivation. Pre-service teachers with better study habits and more active reading engagement tend to have higher motivation for language learning, which serves as a strong foundation for their future teaching careers. These studies highlight that motivation is a crucial factor in successful language learning. A high level of motivation, combined with effective learning strategies, not only aids in language proficiency development but also prepares pre-service teachers for effectively teaching language to their future students.

Thus, the current research is highly significant for pre-service teachers in the modern era. It is essential for pre-service teachers to develop a strong understanding of theory and apply it in their classrooms once they become educators (Ramirez 2021). Therefore, it is necessary to thoroughly assess pre-service teachers and their teaching competencies to enhance their training and preparation for their roles as educators (Padagas 2019). Furthermore, this aims to improve the quality of education. By examining culturally responsive teaching competence, digital skills, and motivation for language learning, key aspects of their teaching readiness that require attention can be identified. The study’s findings will contribute to the development of more effective training programs to ensure that teachers have the necessary skills to integrate technology and adapt to the diverse needs of students in a globalized world.

Thus, the researcher aims to determine the relationship between the exogenous variables—culturally responsive teaching competence, digital competence, and motivation for language learning—and the endogenous variable, teaching competence, through analysis using the structural equation modeling (SEM) approach.

This study is based on the TPACK (Technological Pedagogical Content Knowledge) framework, a theoretical model developed by Mishra and Koehler in 2006, which aims to explain the types of knowledge teachers need to effectively integrate technology into their teaching. It consists of three core components: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). Having sufficient knowledge in each of these areas is essential to achieving successful technology integration in the classroom. According to Mishra and Koehler (2006), “TPACK is the basis of effective teaching with technology,” (102) highlighting that understanding the interaction between these three forms of knowledge is key to creating meaningful learning experiences for students.

The TPACK framework states that the teaching competence of pre-service teachers is built upon the simultaneous learning and integration of technology, pedagogy, and content. Teachers with deep knowledge of their subject matter and strong pedagogical strategies are more capable of utilizing technology to make their teaching more interactive and meaningful (Besa & Limpot (2023). Furthermore, this framework emphasizes the importance of teachers' continuous development in using technology in their pedagogical practices. Given the rapid evolution of the technological landscape, it is crucial to ensure that teachers are not only proficient in using technology but also capable of adapting it to various teaching contexts to meet students' needs.

Research by Clamucha and Napil (2024) highlights the significant role of TPACK in enhancing 21st-century teaching skills. Their study found that the effective use of TPACK positively impacts teachers' ability to implement meaningful learning assessments.

Additionally, TPACK serves as a crucial guide in strengthening pre-service teachers' preparedness in addressing the challenges of modern education. By examining their pedagogical and digital competence, this study can better assess how these factors influence effective teaching and student motivation in language learning. This is important because the appropriate use of technology directly affects teaching quality and student engagement in the classroom. In this way, this research contributes significantly to improving educational programs aimed at enhancing the integration of technology in teaching and learning.

Likewise, this study utilized Raymond Wlodkowski’s *Motivational Framework for Culturally Responsive Teaching* as its theoretical foundation, as it provides a clear guide for enhancing student motivation through culturally responsive teaching. This framework emphasizes that effective learning relies on four key conditions: Establishing Inclusion – ensuring that students feel they are part of a safe and supportive learning environment.; Developing Attitude – creating positive connections between teachers and students to maintain interest in learning.; Enhancing Meaning – making lessons personally relevant to students to deepen their learning and Engendering Competence – providing opportunities for students to demonstrate their learning and experience success (Wlodkowski 2016). This theory is relevant to the study as it highlights the relationship between culture and student motivation, a crucial factor in effective teaching. In the context of pre-service teachers, understanding and integrating culturally responsive strategies into their teaching can help enhance their ability to create meaningful learning experiences. Through this framework, the study will examine how pre-service teachers' competence in culturally responsive teaching influences students' motivation and engagement, particularly in language learning. Due to the continuous changes in the education system and the growing demand for inclusive teaching, the Motivational Framework for Culturally Responsive Teaching serves as a crucial foundation for examining how teacher preparation programs can be improved. This framework highlights the connection between culture, teaching, and motivation—an essential aspect in ensuring that every student has an equal opportunity to learn and succeed academically.

The *Self-Determination Theory (SDT)* by Deci and Ryan (2020) is a motivation theory that explores the role of intrinsic and extrinsic motivation in an individual’s learning and performance. According to this theory, a person’s motivation is influenced by three fundamental needs: autonomy (the freedom to make decisions), competence (the ability to perform a task effectively), and relatedness (the feeling of connection with others). In the context of language learning, pre-service teachers may be intrinsically motivated if they genuinely value language knowledge for their future profession. On the other hand, extrinsic motivation may come from external incentives such as better job opportunities or required teaching credentials. SDT suggests that learning becomes more effective when an individual has a sense of choice, confidence in their abilities, and meaningful connections with their environment.

The *Self-Determination Theory* states that the teaching ability of pre-service teachers may depend on their motivation level in language learning. High intrinsic motivation indicates a deep interest in using language for teaching, while extrinsic motivation may drive them to meet academic and professional requirements. Furthermore, a supportive environment that fosters *autonomy* (the freedom to make decisions), *competence* (the ability to perform tasks effectively), and *relatedness* (a sense of connection with others) is essential in enhancing their motivation and confidence in teaching. When pre-service teachers feel that they have control over their learning, sufficient competence, and a meaningful connection with their students, they become more effective in developing language skills and communication culture in the classroom.

Meanwhile, the model shown below illustrates the relationship between each exogenous variable and the endogenous variable. In the diagram, the structural relationship model of the teaching competence of pre-service teachers can be observed.

**Figure 1. The model showing the relationship between the endogenous variable Culturally Responsive Teaching Competence, Digital Competence, Language Learning Motivation, and Teaching Competence of Pre-service Teachers.**

Legend:

PNI - Establishing Inclusion KGM – Desire to become global citizen

PNS – Developing Attitudes KMP - Desire to communicate and affiliate with foreigners

PNK – Enhancing Meanings KKP – Desire for self-satisfaction

PNA – Engendering Competence SAK – Self-Efficacy

KID – Information and Data Literacy KBK- Desire to be Integrated with other Cultures

KAK – Communication and Collaboration SAK – Self-Efficacy

PON – Digital Content Creation PEK – Pedagogical Skills

SOK – Safety KMS- Classroom Management Skills

PSS – Problem-solving KMP – Student Performance Assessment Skills

KPE – Desire for Career and Economic Enhancement

Figure 1 presents the relationship between the exogenous variables: **Culturally Responsive Teaching Competence, Digital Competence, and Language Learning Motivation** towards the endogenous variable, **Teaching Competence of Pre-service Teachers.**

On the other hand, the teaching competence of pre-service teachers encompasses the following indicators: **pedagogical competence, classroom management skills, and student performance assessment skills** (Padagas 2019). Meanwhile, **culturally responsive teaching competence** includes the indicators of **establishing inclusion, developing attitudes, enhancing meaning, engendering competence** (Caingcoy et al., 2022). Digital competence includes the following indicators: **information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving** (Çebi & Reisoğlu, 2020). Meanwhile, **language learning motivation** comprises the following indicators: **desire for career and economic advancement, desire to become a global citizen, desire to communicate and affiliate with foreigners, desire for self-satisfaction, self-efficacy, and desire to be integrated with other cultures** (Gonzales & Lopez, 2019).

This study aims to investigate and develop a structural equation model for assessing the teaching competence of pre-service teachers. It is also seeking to determine the level of culturally responsive teaching competence of pre-service teachers based on establishing inclusion, developing attitudes, enhancing meaning, and engendering of competence. It is also necessary to assess the level of digital competence of pre-service teachers in terms of information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving.

This study also aims to measure the level of language learning motivation of pre-service teachers based on desire for career and economic enhancement, desire to become a global citizen, desire to communicate and affiliate with foreigners, desire for self-satisfaction, self-efficacy, and desire to be integrated with other cultures. It is also expected to determine the level of teaching competence of pre-service teachers in terms of pedagogical skills, classroom management skills, and the student performance assessment skills.

Moreover, this study will also assess the significant relationships between culturally responsive teaching competence, digital competence, language learning motivation, and teaching competence. It will also discover combined and individual influence of culturally responsive teaching competence, digital competence, and language learning motivation on teaching competence. Finally, the study aims to identify the best-fit for the teaching competence of pre-service teachers.

Furthermore, this study has significant global implications. Its findings can contribute to the development of international teaching standards, serving as a guide for the more effective preparation of pre-service teachers in a globalized educational landscape. At the national and societal levels, this research provides valuable insights into the importance of pre-service teachers' teaching competence. By thoroughly examining their skills and readiness, we gain a deeper understanding of their professional growth and their future role as advocates of quality education. Moreover, these findings can serve as a basis for improving curricula and training programs in teacher education institutions. In the context of language teaching, it is essential to understand how teaching competencies impact the development of students' language skills. The research results may not only have local applications but also contribute to the international discourse in education. In this way, this study can become a critical component of the broader effort to enhance the preparation and skills of teachers across different parts of the world.

2. material and methods

**2.1 Research Respondents**

This research utilized a stratified random sampling technique. Employing the Raosoft Calculator, to select 400 pre-service teachers from participants from public tertiary institutions and private institutions offering education programs within Region X or Northern Mindanao. The sampling frame consisted of 1,876 pre-service teachers, all whom were fourth-year students enrolled in education programs, currently undergoing hands-on training as pre-service teachers, equipping them with the necessary skills and experience to transition into the teaching profession.

**2.2. Research Instruments**

This research utilized downloaded questionnaires from web sources. The instrument used to assess the teaching competence of pre-service teachers was adapted from Pre-service Teachers’ Competencies in a Work-based Learning Environment by Padagas (2019). It consists of 46 items divided into three factors: pedagogical skills with 19 items, classroom management skills with 19 items, and student performance assessment skills with 8 items.

To measure the level of culturally responsive teaching competence among pre-service teachers, a modified questionnaire from the study Assessing Practice Teachers’ Culturally Responsive Teaching: The Role of Gender and Degree Programs in Competence Development by Caingcoy et al. (2022) was used. This questionnaire is divided into four dimensions: establishing inclusion with 7 items, developing attitudes with 3 items, enhancing meaning with 3 items, and engendering competence with 4 items, making a total of 17 items.

The level of digital competence of pre-service teachers was assessed using a questionnaire from the study Digital Competence: A Study from the Perspective of Pre-service Teachers in Turkey by Çebi, A. & Reisoğlu (2020). This instrument is divided into five components: information and data literacy with 7 items, communication and collaboration with 4 items, digital content creation with 4 items, safety with 11 items, and problem-solving with 5 items, totaling 31 items.

To determine the level of language learning motivation among pre-service teachers, the Foreign Language Learning Motivation Questionnaire by Gonzales and Lopez (2019) was used. This questionnaire contains a total of 40 items divided into six components: desire for career and economic enhancement with 8 items, desire to become global citizenship with 8 items, desire to communicate and affiliate with foreigners with 6 items, desire for self-satisfaction with 6 items, self-efficacy with 6 items, and desire to be integrated with other cultures with 6 items.

Moreover, the questionnaires used for the four variables underwent a validation process. First, they were presented to the adviser for comments and suggestions. Second, the questionnaires were validated by six internal and external experts in the field of research, receiving an overall rating of 4.5, described as excellent evaluation. Revisions were made based on the experts' suggestions. Validation was conducted through pilot testing to determine the Cronbach Apha of each item. The variable on **culturally responsive teaching competence** obtained a **Cronbach’s Alpha of .796**, indicating an **acceptable** level of internal consistency. The **digital competence** variable achieved a **Cronbach’s Alpha of .911**, described as **excellent** in internal consistency. The **language learning motivation** variable received a **Cronbach’s Alpha of .936**, also classified as **excellent** in internal consistency. Lastly, the **teaching competence** variable attained a **Cronbach’s Alpha of .967**, which is considered **outstanding** in internal consistency.

This study utilized a 5-point Likert Scale to analyze and interpret the data collected for the four research variables. The response levels were defined as follows: 5 - Strongly Demonstrated, 4 - Demonstrated, 3 - Uncertain, 2 - Not Demonstrated, and 1 - Strongly Not Demonstrated. To determine the level of culturally responsive teaching competence, digital competence, language learning motivation, and teaching competence of pre-service teachers, the following scale was used: A mean range of **4.20 – 5.00** corresponds to the **highest** descriptive level, indicating that the specified item was **demonstrated at all times**. A mean range of **3.40 – 4.19** represents a **high** level, meaning the item was **frequently demonstrated**. A mean range of **2.50 – 3.39** corresponds to a **moderate** level, indicating that the item was **sometimes demonstrated**. A mean range of **1.80 – 2.59** signifies a **low** level, meaning the item was **rarely demonstrated**. Meanwhile, a mean range of **1.00 – 1.79** represents the **lowest** level, indicating that the item was **never demonstrated**.

**2.3 Research Design and Methodology**

This research will be conducted using descriptive and causal design. The descriptive design is employed to describe the condition of the situation existing during the time of the research, aiming to explore the causes of specific issues (Johnson & Christensen 2024). This descriptive study was analyzed using quantitative data related to the identified problem. The quantitative aspect is an appropriate method for collecting data designed for the target participants to answer specific questions (Creswell & Creswell 2017). The data collection process will be based on the use of questionnaires.

The focus of this research is to develop and utilize models of teaching competencies among pre-service teachers, as well as theories and hypotheses related to the problem. This nature will be demonstrated through the use of empirical data on interval scales derived from participants' responses. It will also employ a structural equation model, as it involves gathering various types of quantitative data related to culturally responsive teaching competence, digital competence, language learning motivation, and the teaching competencies of pre-service teachers.

In connection with this, a Structural Equation Modeling (SEM) approach was used to determine the most appropriate model for the teaching competence of pre-service teachers. The researcher believes that this design is suitable for the current study because Structural Equation Modeling is used to describe the relationships among different types of models to examine the connection between studied variables (Schumacker and Lomax 2004). Therefore, this model is suitable for determining the relationship between the study on culturally responsive teaching competence, digital competence, language learning motivation, and teaching competence. The study also used a descriptive correlational design because it clarifies which of the two or more variables are related

Therefore, by using **Structural Equation Modeling** in this study, the integrity and complexity of the research will be strengthened as the analysis will proceed through the steps of model identification, data collection, model estimation, model evaluation, and possible model modification. This research focuses on adapting the data to identify the models for culturally responsive teaching competence, digital competence, language learning motivation, and teaching competence of pre-service teachers. Thus, a **causal design** was used to describe the relationships between the observed and latent variables of the research.

Meanwhile, the statistics used for the analysis and interpretation of the collected data were as follows: The mean was used to determine the level of cultural responsiveness in teaching, digital competence, language learning motivation, and teaching competence of pre-service teachers; Pearson Product Moment Correlation was used to determine the significance of the relationship between cultural responsiveness in teaching, digital competence, language learning motivation, and teaching competence of pre-service teachers; Multiple Regression was used to identify significant predictors of teaching competence, and the Structural Equation Modeling (SEM) was used to determine the most appropriate model for the study.

Goodness of Fit Statistics was also used for the alternative model through the Analysis of Moment Structure (AMOS) to identify the most appropriate model. All of the presented methods align with the requirements for measuring each level in determining the most suitable model.

Nonetheless, the ethical considerations set by the University of Mindanao Ethics Review Committee (UMERC) were strictly followed by the researcher. This included adhering to all the guidelines for conducting the study, such as obtaining the necessary certification from UMERC before data collection. All requirements were completed and organized properly, including the revision of the approved survey questionnaires. The researcher also acknowledged the policy on plagiarism, provided orientation to the participants about the study's objectives, ensured the protection and confidentiality of the information provided, and, above all, guaranteed the voluntary participation of the participants without any coercion. Following the fulfillment of these requirements, the researcher obtained a certificate from UMERC with the protocol number UMERC-2024-241. This certification allowed the researcher to proceed with the actual data collection.

3. results and discussion

**3.1 Culturally Responsive Teaching Competence of Pre-service Teachers**

**Table 1** presents the level of **Culturally Responsive Teaching Competence** among pre-service teachers based on the following indicators: **establishing of inclusion, developing attitudes, enhancing meaning, and engendering competence**. The overall **mean score is 4.33** with a **standard deviation of 0.44**, which is described as **Very High** at the descriptive level, indicating that culturally responsive teaching competence was demonstrated at all times. Among the indicators, **developing attitudes** recorded the highest **mean of 4.48** and **standard deviation of 0.51**, also classified as **Very High**. Meanwhile, the enhancing **meaning** indicator had the lowest **mean of 4.15** and **standard deviation of 0.66**, categorized as **High**.

**Table 1. Level of Culturally Responsive Teaching**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Indicators SD Mean Descriptive Level**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Establishing Inclusion 0.49 4.29 Very High

Developing Attitudes 0.51 4.48 Very High

Enhancing Meaning 0.66 4.15 High

Engendering Competence 0.52 4.39 Very High

 Overall0.44 4.33 Very High

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The results indicate that the level of **Culturally Responsive Teaching Competence** among pre-service teachers is **very high**, meaning that this competence is demonstrated at all times. Pre-service teachers possess the necessary skills and knowledge to address the **cultural needs of students**, a crucial aspect in fostering an **inclusive and equitable** education. Their **high level of cultural responsiveness** suggests their ability to create **inclusive learning environments**.

 According to **Özüdogru (2018)**, pre-service teachers have shown readiness for the **actual application of Culturally Responsive Teaching (CRT) in the classroom**. The **high mean for developing attitudes** reflects their **positive perspective on cultural diversity**, which contributes to increased student engagement and active participation (**Samuel, 2018**). On the other hand, the **lower mean for enhancing meaning** suggests **limitations in deepening cultural concepts**, aligning with the findings of **Caingcoy et al. (2022)**, who emphasize the need for **exposure and immersion** to enhance pre-service teachers' CRT competence. Therefore, **continuous training and practical experience** must be prioritized to **further strengthen** the cultural responsiveness of pre-service teachers.

**3.2. Digital Competence of Pre-service Teachers**

Table 2 shows the level of digital competence of pre-service teachers in different indicators: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving. Based on the results, all indicators have a descriptive level of Highest, with an overall mean of 4.49 and a standard deviation of 0.41. This means that in all cases the pre-service teachers demonstrated a very high level of digital competence that is essential for the effective use of technology in education. Based on the analysis of the indicators, communication and collaboration has the highest mean of 4.55 and a standard deviation of 0.47. This is followed by two indicators with the same mean score but different standard deviations. The information and data literacy indicator have a mean of 4.53 and a standard deviation of 0.45 and the safety indicator has a mean of 4.53 and a standard deviation of 0.46. The problem-solving indicator has the lowest mean of 4.39 and a standard deviation of 0.53 and is described as the highest at the descriptive level.

**Table 2. Level of Digital Competence of Pre-service Teachers**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Indicators SD Mean Descriptive Level

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Information and Data Literacy 0.45 4.53 Very High

Communication and Collaboration 0.47 4.55 Very High

Digital Content Creation 0.48 4.46 Very High

Safety 0.46 4. 53 Very High

Problem-solving 0.53 4. 39 Very High

 Overall 0.41 4.49 Very High \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

It is clearly shown in Table 2 that all indicators are described as the highest at the descriptive level. This means that pre-service teachers demonstrate readiness to use technology in their future teaching and training which is an important aspect of modern education. This is consistent with what Gölt et.al., (2024) stated that pre-service teachers generally see themselves as having a high level of digital competence. They are confident in their ability to effectively use digital tools and resources in their teaching methods. Furthermore, pre-service teachers demonstrated exceptional digital competence in teaching, particularly in attitude towards technology, technology operation, technology ethics, and data literacy. These teachers have a deep understanding of digital tools and ethical use in education as well as the ability to effectively integrate data literacy into their teaching methods (Chu, Juan, et.al (2023)

On the other hand, Communication and Collaboration emerged as the leading indicator, suggesting that pre-service teachers possess strong digital skills for interaction and teamwork. The high level of Communication and Collaboration supports the studies of Alnasib (2023) and Štemberger & Konrad (2021), which state that digital technology is effectively used by teachers to enhance communication and collaboration in educational settings. Thus, preparing teachers for the modern classroom requires their readiness to create an interactive and collaborative learning environment, which fosters active student participation and productive teamwork among colleagues.

Meanwhile, the lower mean score in Problem-Solving aligns with the findings of Liza & Andriyanti (2020), which indicate that using technology to solve complex problems requires a higher level of critical thinking and technical skills. Because of this, it is crucial for pre-service teachers to develop their digital competence further to enhance their ability to integrate technology into their teaching strategies. Adequate digital competence not only supports their personal growth but also contributes to a higher quality of education for their students (Marais, 2023; Alnasib, 2023).

**3.3 Language Learning Motivation of Pre-service Teachers**

Table 3 presents the level of language learning motivation among pre-service teachers based on various indicators. The overall mean score is 4.32, with a standard deviation of 0.47, which is described as Very Hight at the descriptive level. This indicates that pre-service teachers consistently demonstrate strong motivation for language learning. The results suggest that pre-service teachers have a high level of interest, determination, and clear objectives in learning a language, which can be key to their effectiveness in teaching in the future. Although all indicators were categorized as Highest, the desire to become a global citizen ranked the highest, with a mean of 4.45 and standard deviation of 0.50. This was followed by the desire for career and economic enhancement, with a mean of 4.38 and standard deviation of 0.55. Meanwhile, the desire to be integrated with other cultures had the lowest mean score of 4.23 and standard deviation of 0.64, yet it still remains at the Very High level in the descriptive classification.

T**able 3. Level of Language Learning Motivation**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Indicators SD Mean Descriptive Level

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Desire for Career and Economic Enhancement 0.55 4.38 Very High

Desire to become global citizen 0.50 4.45 Very High

Desire to communicate and affiliate with foreigners 0.56 4.37 Very High

Desire for self-satisfaction 0.60 4.26 Very High

Self-efficacy 0.60 4.24 Very High

Desire to be integrated with other cultures 0.64 4.23 Very High

 Overall 0.47 4.32 Very High \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Table 3 clearly presents the level of language learning motivation among pre-service teachers, categorized at the Highest descriptive level. This indicates that participants demonstrated strong motivation across all indicators, suggesting that language learning is not merely an academic goal but a crucial step toward global success. According to Zadorozhna and Datskiv (2022), pre-service teachers exhibit high instrumental motivation, where the desire to learn a language is driven by practical benefits, such as better job opportunities. This aligns with Deci and Ryan's Self-Determination Theory, which states that high motivation stems from three fundamental needs: autonomy (the freedom to learn according to one’s interests), competence (the acquisition of skills and confidence in one’s abilities), and relatedness (engagement in a learning community). This theory explains how language learning becomes more effective when both intrinsic and extrinsic motivational factors are fulfilled.

Leading the levels of motivation is the desire to become a global citizen, highlighting the strong aspiration of pre-service teachers to engage with and adapt to diverse cultures. This is followed by the desire for career and economic advancement, indicating their determination to enhance their skills and secure better professional opportunities. Overall, the findings reveal that pre-service teachers exhibit the highest level of motivation in language learning. This suggests that their strong motivation—linked to instrumental motivation and self-determination theory—can have a positive impact on their future performance as educators.

**3.4 Teaching Competence of Pre-service Teachers**

Table 4 shows the level of Teaching Competence of pre-service teachers, with an overall mean of 4.55 and a standard deviation of 0.45, described as the Very High descriptive level. Each indicator is rated at the highest descriptive level, although their mean scores and standard deviations vary. Leading among these is the indicator for Student Performance Assessment Competence, which has the highest mean of 4.59 and a corresponding standard deviation of 0.49. The two indicators with the lowest mean scores are Pedagogical Competence, with a mean of 4.54 and a standard deviation of 0.47, and Classroom Management Competence, with a mean of 4.53 and a standard deviation of 0.47; both are still described at the Very High descriptive level.

**Table 4. Level of Teaching Competence of Pre-service Teachers**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Indicators SD Mean Descriptive Level

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pedagogical Skills 0.47 4.54 Very High

Classroom Management Skills 0.47 4.53 Very High

Student performance Assessment Skills 0.49 4.59 Very High

 Overall 0.45 4.55 Very High

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

It can be observed that the level of Teaching Competence among pre-service teachers has received an overall description as the highest on the descriptive level. This implies that the indicators for pedagogical competence, classroom management competence, and student performance assessment competence are frequently observed on various occasions. According to Hermoso and Brobo (2023), teaching competencies are essential for enhancing student learning. Having sufficient skills in pedagogy, classroom management, and student performance assessment is critical to meeting the needs of every student with different learning styles.

On the other hand, the indicator level is topped by the student performance assessment skills, meaning that pre-service teachers demonstrate great proficiency in identifying and evaluating student learning outcomes. This is followed by pedagogical skills, meaning that pre-service teachers demonstrate strong knowledge in selecting appropriate teaching methods and strategies. Although classroom management skills, it is still at the descriptive level of "highest," meaning that pre-service teachers demonstrate competence in creating a harmonious and productive learning environment.

According to Hermoso and Brobo (2023), teaching competencies are essential for enhancing student learning. Their study shows that having sufficient skills in pedagogy, classroom management, and student performance assessment is critical in meeting the needs of every student with different learning styles. Furthermore, according to Padagas (2019), classroom management skills is one of the primary factors that enhances a teacher’s effectiveness. His study emphasized that a teacher who is proficient in classroom management is able to maintain an orderly environment that facilitates the learning process. These findings indicate that excellence in various aspects of teaching competencies, including classroom management, is vital for providing quality education.

Pre-service teachers were found to exhibit the highest level of teaching competence, instilling confidence that they are well-prepared for their future roles as professional educators. This provides a positive indication of the quality of their training and their potential to become effective teachers. It implies that teacher training programs are focused on developing the practical skills and knowledge needed to succeed in the classroom.

**3.5 Significant Relationship Between Culturally Responsive Teaching Competence and Teaching Competence of Pre-service Teachers**

Table 5 shows that there is a significant relationship between Cultural Responsiveness in Teaching and the Teaching Competence of pre-service teachers, with an overall r-value of 0.567 and a p-value of 0.000, indicating a positive and significant relationship at the 0.05 significance level. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted—meaning that as the culturally responsive teaching competence of pre-service teachers increases, so does their teaching competence.

**Table 5 Significant Relationship Between Culturally Responsive Teaching Competence and Teaching Competence of Pre-service Teachers**

|  |  |
| --- | --- |
| Culturally Responsive Teaching Competence |  Teaching Competence |
| PEK | KMS | KPM | Overall |
| PNI | .441\*\*.000 | .450\*\*.000 | .403\*\*.000 | .463\*\*.000 |
| PNS | .497\*\*.000 | .541\*\*.000 | .503\*\*.000 | .552\*\*.000 |
| PNK  | .318\*\*.000 | .322\*\*.000 | .279\*\*.000 | .329\*\*.000 |
| PNA | .477\*\*.000 | .505\*\*.000 | .479\*\*.000 | .523\*\*.000 |
| Overall | .527\*\*.000 | .553\*\*.000 | .505\*\*.000 | .567\*\*.000 |

Legend:

PNI - Establishing Inclusion PEK – Pedagogical Skills

PNS – Developing Attitudes KMS- Classroom Management Skills

PNK – Enhancing Meanings KMP – Student Performance Assessment Skills

PNA – Engendering Competence

The establishing inclusion has a significant relationship with teaching competence of pre-service teachers: classroom management skills with an r-value of .450 and a P-value of .000 (significant); pedagogical skills with an r-value of .441 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .403 and a P-value of .000 (significant).

The overall result of developing attitude had a highly significant relationship with the teaching competence of pre-service teachers with an r-value of .552 and a P-value of .000 (significant). In addition, developing attitudes had a significant relationship with classroom management skills with an r-value of .541 and a P-value of .000 (significant); student performance assessment skills with an r-value of .503 and a P-value of .000 (significant); and pedagogical skills with an r-value of .4.97 and a P-value of .000 (significant).

Enhancing has the lowest correlation but is still significant with an r-value of .329 and a P-value of .000 (significant). Indicators have significant correlations with pre-service teachers' teaching competence such as student performance assessment skills with an r-value of .322 and a P-value of .000 (significant) and pedagogical skills with an r-value of .318 and a P-value of .000 (significant).

The overall result of engendering competence has a significant relationship with the teaching competence of pre-service teachers with an r-value of .523 and an r-value of .000 (significant). Similarly, engendering of competence has a significant relationship with classroom management skills with an r-value of .505 and a P-value of .000 (significant); student performance assessment skills with an r-value of .479 and a P-value of .000 (significant); and pedagogical skills with an r-value of .477 and a P-value of .000 (significant).

Overall, there is a strong and significant relationship between cultural responsiveness in teaching and all indicators of pre-service teacher teaching competence. This suggests that pre-service teachers with high cultural responsiveness are more effective in integrating different cultures into their classrooms, resulting in better management and assessment of student performance. In addition, the data show that developing attitudes has a strong relationship with all indicators of teaching competence, including pedagogical competence, and classroom management competence. According to Gay (2018), developing positive attitudes towards students’ culture is essential for creating an inclusive learning environment. The relationship between enhancing meaning and teaching competence also shows an important connection, especially with pedagogical competence and classroom management. Using cultural aspects in teaching enhances meaning and makes learning more meaningful for students. (Ladson-Billings, 1995).

**3.5 The Significant Relationship Between Digital Competence and Teaching Competence of Pre-service Teachers**

Table 6 shows the relationship between the exogenous variable Digital Competence and the endogenous variable Teaching Competence of Pre-service teachers with an overall r-value of .720 and a p-value of .000 (significant) which is less than the set 0.5 level of significance set in this study. Therefore, the hypothesis is rejected and the alternative hypothesis is accepted which shows a significant relationship between digital competence and teaching competence. The data shows that as the level of digital competence of pre-service teachers increases, their teaching competence also increases.

In further analysis, the overall score of information and data proficiency was significantly correlated with pre-service teachers' teaching competence with an r-value of .646 and a P-value of .000 (significant). Similarly, information and data literacy was significantly correlated with pedagogical skills with an r-value of .650 and a P-value of .000 (significant); classroom management skills with an r-value of .599 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .557 and a P-value of .000 (significant).

Also, communication and collaboration have a significant relationship with pre-service teachers' teaching competence in pedagogical skills with an r-value of .580 and a P-value of .000 (significant); classroom management skills with an r-value of .573 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .535 and a P-value of .000 (significant).

Also, digital content creation has a significant relationship with the teaching competence of pre-service teachers with an overall r-value of .573 and a P-value of .000 (significant). The indicators have a significant relationship with the teaching competence of pre-service teachers such as pedagogical skills with an r-value of .575 and a P-value of .000 (significant); classroom management skills with an r-value of .546 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .481 and a P-value of .000 (significant).

On the other hand, the overall result for safety has a highly significant relationship with the teaching competence of pre-service teachers with an r-value of .706 and a P-value of .000 (significant). The indicators that have a significant relationship with the teaching competence of pre-service teachers are pedagogical skills with an r-value of .700 and a P-value of .000 (significant); classroom management skills with an r-value of .662 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .611 and a P-value of .000 (significant).

Additionally, problem-solving has a significant relationship with the teaching competence of pre-service teachers with an overall r-value of .567 and a P-value of .000 (significant). Similarly, indicators of teaching competence have a significant relationship such as classroom management skills with an r-value of .558 and a P-value of .000 (significant); pedagogical skills with an r-value of .554 and a P-value of .000 (significant).

Overall, digital competence has a strong and significant relationship with all indicators of pre-service teacher teaching competence. This shows that high levels of digital competence are associated with better teaching. According to Göltl et.al. (2024), digital competence is a critical element in modern education that improves teaching practices and facilitates more active student participation. Furthermore, the study by Cabezas-Gonsalez et.al. (2021) also shows that digital competence has a positive impact on the teaching effectiveness of pre-service teachers, demonstrating a direct relationship of this skill to effective teaching.

**Table 6 The Significant Relationship Between Digital Competence and Teaching Competence of Pre-service Teachers**

|  |  |
| --- | --- |
| Digital Competence | Teaching Competence |
| PEK | KMS | KPM | Overall |
| KID | .650\*\*.000 | .599\*\*.000 | .557\*\*.000 | .646\*\*.000 |
| KAK | .580\*\*.000 | .573\*\*.000 | .535\*\*.000 | .604\*\*.000 |
| PON | .575\*\*.000 | .546\*\*.000 | .481\*\*.000 | .573\*\*.000 |
| SOK | .700\*\*.000 | .662\*\*.000 | .611\*\*.000 | .706\*\*.000 |
| PSS | .554\*\*.000 | .558\*\*.000 | .473\*\*.000 | .567\*\*.000 |
| Overall | .710\*\*.000 | .684\*\*.000 | .617\*\*.000 | .720\*\*.000 |

Legend:

KID – Information and Data Literacy PSS – Problem-solving

KAK – Communication and Collaboration PEK – Pedagogical Skills

PON – Digital Content Creation KMS- Classroom Management Skills

SOK – Safety KMP – Student Performance Assessment Skills

**3.6 The significant relationship between language learning motivation and teaching competence of pre-service teachers**

Table 7 shows the relationship between the exogenous variable language learning motivation and the endogenous variable Teaching Competence of Pre-service teachers with an overall r-value of .720 and a p-value of .000 (significant) which is less than the set 0.5 level of significance set in this study. Therefore, the hypothesis is rejected and the alternative hypothesis is accepted which shows a significant relationship between language learning motivation and teaching competence. The data shows that as the level of digital competence of pre-service teachers increases, their teaching competence also increases.

**Table 7 The significant correlation between language learning motivation and teaching competence among pre-service teachers**

|  |  |
| --- | --- |
| Language Learning Motivation | Teaching Competence |
| PEK | KMS | KPM. | Overall |
| KPE | .470\*\*.000 | .467\*\*.000 | .429\*\*.000 | .489\*\*.000 |
| KGM | .608\*\*.000 | .551\*\*.000 | .492\*\*.000 | .591\*\*.000 |
| KMP | .523\*\*.000 | .502\*\*.000 | .462\*\*.000 | .532\*\*.000 |
| KKP | .460\*\*.000 | .485\*\*.000 | .398\*\*.000 | .480\*\*.000 |
| SAK | .468\*\*.000 | .497\*\*.000 | .419\*\*.000 | .495\*\*.000 |
| KBK | .490\*\*.000 | .457\*\*.000 | .385\*\*.000 | .476\*\*.000 |
| Overall | .611\*\*.000 | .600\*\*.000 | .522\*\*.000 | .620\*\*.000 |

Legend:

KGM – Desire to become global citizen KPE – Desire for Career and Economic Enhancement

KMP - Desire to communicate and affiliate with foreigners SAK – Self-Efficacy

KKP – Desire for self-satisfaction PEK – Pedagogical Skills

SAK – Self-Efficacy KMS- Classroom Management Skills

KBK- Desire to be Integrated with other Cultures KMP – Student Performance Assessment Skills

The overall outcome of desire for career and economic enhancement had a moderate to strong significant relationship with pre-service teachers' teaching competence with an r-value of .489 and a P-value of .000 (significant). Desire for career and economic development enhancement had a significant relationship with pedagogical skills with an r-value of .470 and a P-value of .000 (significant); classroom management skills with an r-value of .467 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .4.29 and a P-value of .000 (significant).

Based on the overall results, the desire to be a global citizen has a significant relationship with the teaching skills of pre-service teachers. Furthermore, the desire to be a global citizen has a significant relationship with the following indicators of teaching competence: pedagogical skills with an r-value of .470 and a P-value of .000 (significant); classroom management skills with an r-value of .467 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .4.29 and a P-value of .000 (significant).

Furthermore, the desire to communicate and affiliate with foreigners has a significant relationship with the teaching competence of pre-service teachers. Furthermore, the desire to communicate and affiliate with foreigners has a significant relationship with the following indicators of teaching competence: pedagogical skills with an r-value of .523 and a P-value of .000 (significant); classroom management skills with an r-value of .502 and a P-value of .000 (significant); and student performance assessment skills with an r-value of ..462 and a P-value of .000 (significant).

The overall result of the desire for self-satisfaction was significantly correlated with the teaching competence of pre-service teachers with an r-value of .480 and a P-value of .000 (significant). Furthermore, the desire for self-satisfaction was significantly correlated with the following indicators of teaching competence: classroom management skills with an r-value of .485 and a P-value of .000 (significant); pedagogical skills with an r-value of .460 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .398 and a P-value of .000 (significant).

The overall self-efficacy score was significantly correlated with the teaching competence of pre-service teachers with an r-value of .495 and a P-value of .000 (significant). In addition, self-efficacy was significantly correlated with the following indicators of teaching competence: classroom management skills with an r-value of .497 and a P-value of .000 (significant); pedagogical skills with an r-value of .468 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .419 and a P-value of .000 (significant).

Finally, the overall result of desire to be integrated with other cultures was significantly correlated with pre-service teachers’ teaching competence with an r-value of .476 and a P-value of .000 (significant). Furthermore, desire to be integrated with other cultures was significantly correlated with the following indicators of pedagogical skills with an r-value of .490 and a P-value of .000 (significant); teaching ability: classroom management skills with an r-value of .457 and a P-value of .000 (significant); and student performance assessment skills with an r-value of .385 and a P-value of .000 (significant).

In general, there is a strong and significant relationship between language learning motivation and all indicators of pre-service teachers’ teaching competence. This shows that high language learning motivation is associated with high levels of teaching competence. Therefore, it is important to pay attention to strengthening pre-service teachers’ language learning motivation to further develop their teaching skills. As stated by Hennebry-Leung and Xiao(2023) who stated that the role of language learning motivation is crucial for students’ achievement and effective teaching. Because, teachers with high motivation are more effective in their teaching and can provide higher quality education.

**3.7. Significant Influence of Culturally Responsive Teaching Competence, Digital Competence, and Language Learning Motivation on the Teaching Competence of Pre-service Teachers.**

Table 8 shows the significant influence of cultural responsiveness in teaching, digital competence, and motivation for language learning on the teaching ability of pre-service teachers from three public tertiary and three private educational institutions in Region 10.

The study shows that the exogenous variables culturally responsive teaching competence, digital competence, and motivation for language learning have unstandardized coefficients of .069, .577, and .210 and a constant of .794.

From a thorough analysis of the data, the following important details can be seen in the study results. Pre-service teachers’ culturally responsive teaching competence has an unstandardized coefficient of .069 and a standardized coefficient of .068, t-value of 1.477, and a p-value of .049, indicating a significant influence. Digital competence has an unstandardized coefficient of .567 and a standardized coefficient of .522, t-value of 14.478, and a p-value of .000, indicating a high level of significant influence. Similarly, language learning motivation has an unstandardized coefficient of .210 and a standardized coefficient of .223, t-value of 6.484, and a p-value of .000, also indicating a significant influence on pre-service teachers’ teaching competence.

It can also be seen from the data analysis that of the three exogenous variables, digital competence has the highest standard coefficient beta of .522, which means that it has the strongest significant influence on teaching ability compared to language learning motivation with a beta of .210 and culturally responsive teaching competence with a beta of .068.

In addition, the R-value of .743 and R2 of .553 mean that .553 percent of the variance in teaching ability is explained by the predictor variables of culturally responsive teaching competence, digital competence, and motivation for language learning. Therefore, 44.7 percent of the variance can be attributed to factors other than the three aforementioned variables.

Overall, the findings that digital competence has the strongest influence on pre-service teachers’ teaching competence support the TPACK Framework, demonstrating that effectively integrating technology with pedagogy and content knowledge is essential for preparing future teachers (Mishra and Koehler, 2006).

**Table 8. Significant Influence of Culturally Responsive Teaching Competence, Digital Competence, and Language Learning Motivation on the Teaching Competence of Pre-service Teachers.**

|  |
| --- |
| Teaching Competence of Pre-Service Teachers |
| Exogenous Variables | *B* | β | *t* | *Sig.* |
| Constant |  | .794 |  | 6.477 | .000 |
| Culturally Responsive Teaching Competence |  | .069 | .068 | 1.975 | .049 |
| Digital Competence |  | .567 | .522 | 14.478 | .000 |
| Language Learning Motivation |  | .210 | .223 | 6.484 | .000 |
| R | .743 |  |  |  |  |
| R2 | .553 |  |  |  |  |
| ∆R | .551 |  |  |  |  |
| F | 323.972 |  |  |  |  |
| ρ | .000 |  |  |  |  |

**3.8 Summary of Goodness of Fit Measures of Three Structural Models**

This section examines the relationship between the variables in the study. Table 9 presents a summary of the three models developed in the study. With the research objective of identifying the most appropriate model representing the variables as predictors of pre-service teacher teaching ability, there is a need to modify the proposed model framework in Figure 1 to meet the need for goodness of fit measures.

In determining the best-fit model, the fit indices must meet the required criteria. The chi-square/degrees of freedom (CMIN/DF) must be less than 5 with a p-value higher than 0.05. The root mean square error of approximation (RMSEA) must be less than 0.05, and its P-close must be higher than 0.05. In addition, the normed fit index (NFI), Tucker-Lewis index (TLI), comparative fit index (CFI), and goodness of fit index (GFI) must be higher than 0.95 for the model to be considered suitable.

Hypothesized Structural Model 1 A shows a direct relationship between the exogenous variables culturally responsiveness in teaching, digital competence, and motivation for language learning and its causal relationship with the endogenous variable, the teaching competence of the pre-service teacher. All indices did not reach the acceptable number recorded in the criteria; CMIN/DF < 2, GFI, CFI, NFI, TLI 0. >95, RMSEA <0.05 with P- Close >0.05. Therefore, it was found that the model was not suitable because all indices did not reach the criteria.

Hypothesized Structural Model 2 shows the direct relationship between the exogenous variable’s cultural responsiveness in teaching, digital competence, and motivation for language learning and its causal relationship with the endogenous variable, the teaching competence of the pre-service teacher. The fit indices did not reach the acceptable number recorded in the criteria; CMIN/DF < 2, GFI, CFI, NFI, TLI 0. >95, RMSEA <0.05 with P- Close >0.05. The model was found to be unsuitable because all fit indices did not reach the criteria.

**Table 9. *Summary of Goodness Of Fit Measures of The Three Generated Models***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | 13.777 | .801 | .838 | .828 | .812 | .127 | .000 |
| 2 | .000 | 5.513 | .904 | .944 | .933 | .934 | .076 | .000 |
| 3 | .121 | 1.656 | .990 | .996 | .991 | .993 | .029 | .991 |

Legend:

CMIN/DF – Chi Square/Degrees of Freedom NFI –Normed Fit Index
GFI – Goodness of Fit Index TLI -Tucker-Lewis Index

RMSEA – Root Mean Square of Error Approximation CFI – Comparative Fit Index

The analysis of Model 3 as shown using goodness of fit indices. Its Chi-Square divided by degrees of freedom (CMIN/DF) was 1.656; the Normed Fit Index (NFI) was .991; the Tucker-Lewis Index (TLI) was .993; the Comparative Fit Index (CFI) was .996; the Goodness of Fit Index (GFI) was .990; the Root Means Square of Error Approximation (RMSEA) was .029; and the P of Close Fit (P-close) was .991. The goodness of fit results show that all indices are highly acceptable because they meet the stated criteria against the obtained model fit value. These indices met the requirements of goodness of fit measures. Furthermore, it indicates that this is the best and most suitable model for evaluating the teaching ability of pre-service teachers.

**3.8 Best Fit Model for Teaching Competence of Pre-service Teachers**

Figure 2 shows the analysis of the relationships between the variables of cultural responsiveness in teaching, digital competence, language learning motivation and teaching competence of pre-service teachers. The values ​​written in the rectangle are indicators of each variable. The single-headed arrows shown represent the direct relationship between each variable while the double-headed arrows indicate their relationship. From the three alternative models tested, the best and most appropriate model of teaching competence of pre-service teachers was achieved.

In examining the relationship between the exogenous variables of culturally responsive teaching competence, digital competence, and language learning motivation on the endogenous variable of teaching competence of pre-service teachers, three alternative models were developed. Each model has a framework that consists of two submodels: a measurement model and a structural model. The measurement model represents the measure loadings of each factor on their latent construct while the structural model interprets the relationship between the latent variables.

**Figure 2. Best Fit Model on Teaching Competence of Pre-Service Teachers**

Legend:

PNI - Establishing Inclusion KGM – Desire to become global citizen

PNS – Developing Attitudes KMP - Desire to communicate and affiliate with foreigners

PNK – Enhancing Meanings KKP – Desire for self-satisfaction

PNA – Engendering Competence SAK – Self-Efficacy

KID – Information and Data Literacy KBK- Desire to be Integrated with other Cultures

KAK – Communication and Collaboration SAK Self-Efficacy

PON – Digital Content Creation PEK – Pedagogical Skills

SOK – Safety KMS- Classroom Management Skills

PSS – Problem-solving KMP – Student Performance Assessment Skills

KPE – Desire for Career and Economic Enhancement

Meanwhile, Model 3 yielded results that align with the standards for selecting the most appropriate model for pre-service teacher teaching competence. In the process of selecting the most suitable model, it was found that, out of the four indicators of culturally responsive teaching competence, the indicators of establishing inclusions (PNI) and enhancing meaning (PNK) remained significant predictors of pre-service teacher teaching competence. These indicators are crucial in improving the learning experience and promoting a more inclusive educational environment, making lessons more meaningful for their students, thus enhancing the teaching competence of pre-service teachers.

On the other hand, two out of the five indicators of the exogenous variable Digital Competence—Information and Data Literacy (KID), Communication and Collaboration (KAK), and Safety (SOK)—remained significant predictors of pre-service teacher teaching competence. For language learning motivation, with six indicators, three of these remained significant predictors of pre-service teacher teaching competence: Desire for career and economic enhancement (KPE), Desire for self- satisfaction (KKP), and Desire to Be integrated witd Different Cultures (KBK). Based on the results, it can be inferred that pre-service teacher teaching competence is more significantly measured in Pedagogical Competence (PEK) and Competence in Assessing Student Performance (KPM).

Teaching competence is an important factor in developing effective pre-service teachers, reflecting their ability to explain concepts, use appropriate teaching strategies, and assess student performance. It is not only based on subject knowledge but also on the ability to implement pedagogical methods that respond to the needs of students. A high level of teaching competence demonstrates a teacher's readiness to create a meaningful learning environment, promote inclusive education, and use modern technology to improve teaching and learning.

4. Conclusion

Based on the results of the study, it emerged that pre-service teachers had the highest level of teaching competence, as reflected in their excellent pedagogical skills, classroom management skills, and student performance evaluation. Their high level of culturally responsive teaching competence, digital competence, and motivation for language learning were important factors in strengthening their teaching readiness. This shows that pre-service teachers have a strong foundation to effectively meet the needs of their students, aiming to improve the quality of education in the future.

Based on the results of the study, pre-service teachers’ digital competence has a greater influence on their teaching competence than other variables. This is evident from the high correlation between digital competence and teaching competence, which is higher than that of culturally responsive teaching competence and language learning motivation. The data show that the skills in using technology, communication, and digital content play an important role in improving the pedagogical skills, classroom management skills and student performance assessment skills of pre-service teachers. Due to the increasing use of technology in education, digital competence is becoming critical in delivering effective teaching. However, it is important to note that although digital competence has a higher correlation, the three variables are interrelated and are both important in shaping an effective teacher.

Of the three models examined, Model 3 has indices that are consistently consistent and show that it is the one that best fits the data. The goodness of fit result of Model 3 is highly acceptable because all its indices pass the set criteria compared to its obtained model fit value. Therefore, it is identified as the best model. Model 3, which promotes the integration of culturally sensitive and digital skills, has proven to be an effective model that will provide higher teaching competence of pre-service teachers.

The study shows that the teaching competence of pre-service teachers supports the Technological Pedagogical Content Knowledge (TPACK) framework. The significant relationship between culturally responsive teaching competence, digital competence, and language learning motivation on their teaching competence demonstrates the importance of the integration of technology, pedagogy, and content for effective teaching. The results show that pre-service teachers with high levels of digital competence are more effective in implementing instructional technology, while cultural responsiveness helps create an inclusive and sensitive learning environment. Meanwhile, language learning motivation serves as a factor that drives the continuous development of their knowledge and skills. Therefore, the study confirms the importance of the TPACK framework as a basis for improving teacher preparation, recognizing the interconnection of technology, pedagogical strategies, and content to improve the quality of education.

In general, it is recommended that further studies be conducted that focus on factors not mentioned in this study but that contribute to teachers’ professional competence. It is important to focus on factors such as cultural responsiveness, digital competence, and motivation for language learning, as these play an important role in developing effective teachers. The aforementioned factors can serve as a basis for future studies to further understand the educational competence of pre-service teachers. Furthermore, the results of such studies can serve as a guide in developing prospectuses for educational courses, to ensure that the curriculum is aligned with the competencies required for success in the teaching profession. By focusing on these aspects, future research can provide valuable knowledge that can help improve the preparation and effectiveness of emerging teachers.

Disclaimer

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during writing or editing of this manuscript.

Consent and ethical approval

The researcher followed and complied with all the criteria in conducting the study following the assessment protocol and standardized criteria. Voluntary Participation, Privacy and confidentiality, Conflict of Interest (COI), Permission from Organization/Location, and Technology Issues were fully followed as stipulated by the University of Mindanao Ethics Review Committee Certification was issued to the UMERC researcher with the number UMERC-2024-241

References

1. Alnasib, Badiah NM. "Digital competencies: Are pre-service teachers qualified for digital education?" *International Journal of Education in Mathematics, Science and Technology* 11.1 (2023): 96-114.
2. Besa, Dayanara P., and Marilou Y. Limpot. 2023. “TPACK, Instructional Competence, and Teachers’ Attitude Toward Internet Use: A Structural Equation Model in Readiness to TeachOnline in Filipino”. *Asian Journal of Education and Social Studies* 46 (2):40-53. <https://doi.org/10.9734/ajess/2023/v46i21001>
3. Cabero-Almenara, Julio, et al. "Digital Teaching Competence According to the DigCompEdu Framework. Comparative Study in Different Latin American Universities." *Journal of New Approaches in Educational Research* 12.2 (2023): 276-291.
4. Cabezas-González, Marcos, Sonia Casillas-Martín, and Francisco José García-Peñalvo. "The digital competence of pre-service educators: The influence of personal variables." *Sustainability* 13.4 (2021): 2318.
5. Caingcoy, Manuel, and Iris April L. Ramirez Iris April L Ramirez. "Assessing Practice Teachers’ Culturally Responsive Teaching: The Role of Gender and Degree Programs in Competence Development." *Caingcoy, ME, Lorenzo, VIM, Ramirez, IAL, Libertad, CD, Pabiona Jr., RG, & Mier, RMC (2022). Assessing Practice Teachers’ Culturally Responsive Teaching: The Role of Gender and Degree Programs in Competence Development. IAFOR Journal of Cultural Studies* 7.1 (2022): 21-35.
6. Çebi, Ayça, and İlknur Reisoğlu. "Digital competence: A study from the perspective of pre-service teachers in Turkey." *Journal of New Approaches in Educational Research (NAER Journal)* 9.2 (2020): 294-308.
7. Cheng, Y., Zhang, Y., & Wang, J. (2022). Exploring classroom-based assessment for young EFL learners: Teachers’ beliefs and practices. Frontiers in Psychology, 13, Article 1051728.  <https://doi.org/10.3389/fpsyg.2022.1051728>
8. Chu, Juan, et al. "Exploring factors influencing pre-service teacher’s digital teaching competence and the mediating effects of data literacy: empirical evidence from China." *Humanities and Social Sciences Communications* 10.1 (2023): 1-11.
9. Clamucha, Irish A., and Melissa C. Napil. "TPACK and 21 st Century Skills in Teaching: The Mediating Role of Implementing Authentic Assessment." *International Journal of Research and Innovation in Social Science* 8.7 (2024): 1966-1983.
10. Creswell, John W., and J. David Creswell. *Research design: Qualitative, quantitative, and mixed methods approach*. Sage publications, 2017.
11. Dörnyei, Zoltán. "Motivation and motivating in the foreign language classroom." *The modern language journal* 78.3 (1994): 273-284.
12. Franca, Jovelyn L., and Melissa C. Napil. 2022. “Study Skills, Writing Strategies and Reading Habits: A Causal Model in Motivation in Learning a Language”. *Asian Journal of Education and Social Studies* 34 (3):40-59. <https://doi.org/10.9734/ajess/2022/v34i3733>.
13. Fraenkel, Jack R., Norman Wallen, and Helen H. Hyun. "Research Methods." *How to design and Evaluate research in Education* (1993).
14. Gardner, Robert C. "Social psychology and second language learning: The role of attitudes and motivation." *(No Title)* (1985).
15. Gay, Geneva. *Culturally responsive teaching: Theory, research, and practice*. teacher college press, 2018.
16. Göltl, Katrin, et al. "Pre-Service Teachers’ Perceptions of Their Digital Competencies and Ways to Acquire Those through Their Studies and Self-Organized Learning." *Education Sciences* 14.9 (2024): 951.
17. Gonzales, Richard, and Marcos Y. Lopez. "Foreign language learning motivation questionnaire: further examination of a six-factor model." *Unpublished manuscript]. Graduate School, University of Santo Tomas, Manila, Philippines. Retrieved April* 15 (2016): 2019.
18. Harahap, Nur Khofifah, and Rahmah Fithriani. "Indonesian Pre-Service EFL Teachers’ Attitudes and Motivation Toward English Language Learning." *Jurnal Onoma: Pendidikan, Bahasa, dan Sastra* 9.1 (2023): 674-689.
19. Hennebry-Leung, Mairin, and Hu Amy Xiao. "Examining the role of the learner and the teacher in language learning motivation." *Language Teaching Research* 27.1 (2023): 30-56.
20. Hermoso, Joselito R., and Martina A. Brobo. "Influence of Teaching Competencies to Performance: Basis for Professional Development." *Asian Journal of Education and Social Studies* 44.4 (2023): 33-46
21. Howard, Christy, Mikkaka Overstreet, and Anne Swenson Ticknor. "Engaging Preservice Teachers with Culturally Responsive Pedagogy: Three Model Lessons for Teacher Educators." *Journal of Language and Literacy Education* 14.2 (2018): n2.
22. Ladson-Billings, Gloria. "Toward a theory of culturally relevant pedagogy." *American educational research journal* 32.3 (1995): 465-491.
23. Liza, Khaira, and Erna Andriyanti. "Digital literacy scale of English pre-service teachers and their perceived readiness toward the application of digital technologies." *Journal of Education and Learning (EduLearn)* 14.1 (2020): 74-79.
24. Marais, Elma. "The development of digital competencies in pre-service teachers." *Research in Social Sciences and Technology* 8.3 (2023): 134-154.
25. Mishra, P., and M. J. Koehler. “Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge.” Teachers College Record, vol. 108, no. 6, 2006, pp. 102-108.
26. Muñiz, Jenny. "Culturally Responsive Teaching: A 50-State Survey of Teaching Standards." *New America* (2019).
27. Napanoy, Jay B., Glen C. Gayagay, and Jennifer Ruth C. Tuazon. "Difficulties encountered by pre-service teachers: basis of a pre-service training program." *Universal Journal of Educational Research* 9.2 (2021): 342-349.
28. Ocampo, Darrel M. "21st Pedagogical Competence of Pre-Service Teachers in the New Normal Modalities." *Online Submission* 11.1 (2021): 74-79.
29. Özüdogru, Fatma. "The Readiness of Prospective Teachers for Culturally Responsive Teaching." *Acta Didactica Napocensia* 11 (2018): 1-12.
30. Padagas, Reynold C. "Pre-Service Teachers' Competencies in a Work-Based Learning Environment." *African Educational Research Journal* 7.3 (2019): 130-142.
31. Ramirez, Iris April L. "Pre-service teachers’ perceived level of teaching skills." *Journal of Education in Black Sea Region* 6.1 (2020): 97-109.
32. Ramirez, Iris April L. "Secondary Pre-Service Science Teachers' Competence: Theory to Practice." *International Online Journal of Education and Teaching* 8.2 (2021): 662-675.
33. Rhodes, Christy M. "A validation study of the Culturally Responsive Teaching urvey." *Universal Journal of Educational Research* 5.1 (2017): 45-53.
34. Roblyer, M.D., and Aaron H. Doering. Integrating Educational Technology into Teaching. 6th ed., Pearson, 2014, pp. 45-68, 112-130.
35. Rockinson-Szapkiw, A. J. "Selecting and justifying your research design." *Retrieved@ amandaszapkiw. com* (2012).
36. Samuels, Amy J. "Exploring Culturally Responsive Pedagogy: Teachers' Perspectives on Fostering Equitable and Inclusive Classrooms." *Srate Journal* 27.1 (2018): 22-30.
37. Schmidt, Denise A., et al. "Technological pedagogical content knowledge (TPACK) the development and validation of an assessment instrument for preservice teachers." *Journal of research on Technology in Education* 42.2 (2009): 123-149.
38. Schumacker, Randall E., and Richard G. Lomax. *A beginner's guide to structural equation modeling*. psychology press, 2004.
39. Štemberger, Tina, and Sonja Čotar Konrad. "Attitudes towards using digital technologies in education as an important factor in developing digital competence: The case of Slovenian student teachers." *International Journal of Emerging Technologies in Learning (iJET)* 16.14 (2021): 83-98.
40. Wlodkowski, Raymond J. "Accelerated learning in colleges and universities." *New directions for adult and continuing education* 2003.97 (2003): 5-16.
41. Zadorozhna, Iryna, and Olha Datskiv. "Motivation of pre-service English teachers to learn English as a foreign language in challenging circumstances." *Advanced Education* (2022): 86-99.