

# Technological, Pedagogical and Content Knowledge, Efficacy to Teach, and Professional Disposition: Influence on Pre-Service Teachers' Performance in a Community College

Jennifer A. Cruz<sup>1</sup>, Revina O. Mendoza<sup>2</sup>

<sup>1,2</sup>Lourdes College Inc., Cagayan de Oro City

## Abstract

Equipping pre-service teachers in preschool with the necessary skills is crucial, as early childhood education forms the foundation for children's holistic development. However, despite its importance, there is a lack of comprehensive research that examines the interplay between pre-service preschool teachers' TPACK, self-efficacy, and professional dispositions, and how these factors affect their performance during practicum experiences. This study, grounded in Bandura's Social Cognitive Theory (1986), aimed to investigate the influence of TPACK, teaching efficacy, and professional dispositions on the teaching performance of pre-service teachers. The participants were 142 early childhood pre-service teachers enrolled in their practice teaching or internship courses during the academic year 2025–2026 at a community college in Bukidnon, along with 128 cooperating teachers. The study employed a descriptive-correlational design, analyzed using descriptive and inferential statistics. The findings revealed that cooperating teachers generally rated the pre-service teachers highly in terms of their technological, pedagogical, and content knowledge. The pre-service teachers themselves rated their self-efficacy and professional dispositions as high. In terms of teaching performance, including lesson planning, instructional delivery, classroom management, and assessment skills, the pre-service teachers were also rated highly. Moreover, TPACK, teaching efficacy, and professional disposition significantly influenced their teaching performance. This suggests that the combination of knowledge, confidence, and professional attitudes directly contributes to effective teaching. The study highlighted the importance of interlinked competencies in shaping effective teaching behaviors among pre-service teachers. Future research could explore additional factors, such as school environment, leadership support, or emotional resilience, that may influence teaching performance.

**Keywords:** TPACK, efficacy in teaching, professional disposition, pre-service teachers, cooperating teachers, teaching performance

## Introduction

Equipping pre-service teachers in preschool with the necessary skills is important, considering that early childhood education builds the foundation for children's holistic development. These pre-service teachers must respond to young children's unique developmental, behavioral, and learning needs. Hence, adequate preparation allows them to apply developmentally appropriate practices with confidence, enabling a more

meaningful transition from theoretical knowledge to actual classroom experience.

Moreover, well-prepared pre-service teachers are better able to adapt to the dynamic nature of pre-school environments, collaborate with cooperating teachers, and reflect on their experiences with greater insight. By entering pre-school exposure with adequate competencies, they gain confidence, reduce anxiety, and develop a deeper appreciation of early childhood education. Ultimately, equipping pre-service teachers with the right skills ensures that their pre-school exposure becomes a transformative learning experience—one that strengthens their readiness to teach young children and supports their development as competent and compassionate future educators.

Behind the success of each learner, teachers' knowledge, skills and attitude play a crucial role in shaping the quality of the teaching classroom environment. It is believed that for future educators' teaching performance depends on their Technological Pedagogical Content Knowledge (TPACK), classroom management skills, and self-efficacy.

The TPACK framework is a model which explains how teachers effectively combine technology, pedagogy, and subject knowledge into their instructional practice. In the field of early childhood education, this model assists pre-service teachers on how to integrate the use of technology that is suitable and appropriate for the age and needs of learners through play and exploration. In spite of that, many pre-service teachers have difficulty employing the TPACK model due to limited training and classroom practice (Lachner et al., 2021). This shows that there is a need to strengthen TPACK, as this is important for preparing teachers for today's digital classrooms.

Another important factor that is assumed to influence pre-service teachers' teaching performance is their efficacy to teach, which refers to their confidence in their own ability to teach well. Burić and Moè (2020) opined that teachers with a high level of self-efficacy are more confident, flexible, and motivated to use creative strategies in their teaching. For pre-service teachers, a high level of self-efficacy not only boosts their teaching confidence but also helps them manage diverse learners and adapt to modern teaching approaches.

Another crucial factor in teacher preparation is the professional dispositions of pre-service teachers, which encompass their attitudes, values, and behaviors toward teaching and learning. These dispositions, such as commitment to equity, responsibility, and ethical practice, play a critical role in shaping the teacher-student relationship and fostering a positive classroom environment. Professional dispositions shape teacher identity, ethical decision-making, and professional accountability. Recent research has explored facets of professional dispositions in early teacher preparation: studies have documented how emotional responses, professional accountability, and action-taking dispositions influence readiness for assessment tasks and professional responsibility (Larenas et al., 2025)

Despite these known factors, there is limited research that simultaneously examines pre-service preschool teachers' TPACK, self-efficacy, and professional dispositions, and how these factors influence their performance during preschool practicum experiences. Many studies treat these constructs in isolation or focus primarily on general teacher education populations rather than on preschool contexts where pedagogical decisions, behavior management skills, developmentally appropriate practice, and professional orientation interact intensely during early childhood field experiences. There is limited integrated research that concurrently examines how TPACK, self-efficacy, and professional dispositions interact and influence pre-service preschool teachers' abilities to perform in real preschool teaching settings, particularly in tasks such as establishing routines, adapting curriculum to developmental needs, designing appropriate lessons, and providing constructive assessment (Joshi, 2023; Taufik, et al., 2025).

Examining these connections, this helped improve teacher education programs to ensure that future educators are fully equipped and well prepared to provide quality education to early childhood learners. As noted by the researcher, much of it involves classroom management, where many pre-service teachers fail when establishing routines, addressing misbehavior, and maintaining order in large, diverse classes. Additionally, transitioning from theoretical coursework to real classroom practice often generates anxiety and a lack of confidence that impacts delivery and interaction with learners. Some of them have difficulty preparing clear, engaging, and developmentally appropriate lesson plans aligned with the MELCs or curriculum standards. They were observed struggling in designing valid assessments, checking for understanding, and providing constructive feedback, especially when handling multiple types of learners. Furthermore, this study is aligned to the United Nations Sustainable Development Goal (SDG) 4, which is Quality Education, specifically this goal targets on preparing more qualified teachers by providing them with the necessary training and support (United Nations, 2015). By studying early childhood pre-service teachers' level of Technological Pedagogical Content Knowledge (TPACK), and self-efficacy, this research aims to prepare how future teachers can be better trained in teaching.

### **Methodology**

This section discusses the methods used in this study. It presents the research methods used in the study and illustrates the needed information to approach the research problem.

### **Research Design**

This study employed a descriptive-correlational design. This design enabled the comparison, differentiation, and identification of relationships among existing variables that were not manipulated in the study (Best and Khan, 2005). A descriptive-correlational research design is employed in this study because it allowed for a systematic examination of the relationships among Technological Pedagogical Content Knowledge (TPACK), teaching efficacy, professional disposition, and the teaching performance of pre-service teachers without manipulating any variables.

### **Participants and Sampling Procedure**

The participants of this study were one hundred forty-two (142) early childhood pre-service teachers who were enrolled in their practice teaching or internship courses during the academic year 2025–2026 in a community college in Bukidnon. They were chosen because they were already in the final stage of their teacher training and were applying what they have learned in real classroom situations. This made them the best participants to provide information about their readiness to teach. Meanwhile, one hundred twenty-eight (128) cooperating teachers rated the PST's teaching performance.

### **Research Instrument/s**

The survey questionnaires that were used in the study was adapted from various research instruments. The first part of the questionnaire measured participants' knowledge in terms of: technology, pedagogy and master of content, the researcher adapted the questionnaire of Hardisky (2018). The second part looked into the pre-service teachers' self-efficacy and professional dispositions, which the researcher utilized the instrument of West et. al. (2018). The last part measured the pre-service teachers' teaching performance used by the college. This instrument was adapted from the Pre-Service Teacher's Actual Teaching Checklist of Borabo (2022).

### **Validity and Reliability of the Research Instruments**

The instruments underwent validity and reliability testing. To ensure validity, the instruments were subjected to content validation from an external validator who was an expert in early childhood education and the panel members. Their comments and suggestions were used to make necessary changes so the instruments fit the local context.

After validation, the instruments were pilot tested to 30 pre-service teachers who were not part of the actual study. This test helped identify items that need improvement and confirmed that participants can easily understand and answer the questions. To check reliability, the Cronbach Alpha Coefficient were employed to ensure the reliability of the instrument. As Field (2018) explains, a Cronbach's alpha score of 0.70 or higher shows that the tool is reliable.

The items under the pre-service teachers' assessment of their TPACK yielded a Cronbach alpha of 0.935 for Technological Knowledge; 0.922 for Pedagogical Knowledge, and 0.924 for Content Mastery. While, self-efficacy yielded a Cronbach alpha of 0.928; 0.933 for Professional Disposition. Lastly, the items under the pre-service teachers' teaching performance yielded a Cronbach alpha of 0.892 for Lesson Planning, 0.939 for Instructional Delivery, 0.911 for Classroom Management, and 0.941 for Assessment Skills.

### **Scoring Procedure**

This study utilized the following scoring procedures to facilitate the analysis and interpretation of data. The participants were asked to indicate their response to each item on the column that corresponds to the 5-point Likert-type scale, which was indicated below, considering 5 as the highest and 1 as the lowest.

### **Data Gathering Procedures and Ethical Considerations**

Before collecting data, the researcher sought the approval from the Lourdes College Research Ethics Committee to ensure compliance with ethical standards and safeguarding participant rights. After receiving the approval, the researcher obtained permission from the Dean of Education to administer the study. Once approved, the researcher personally distributed the survey questionnaire to the participants. The survey questionnaire included a letter of explanation and an informed consent form. These documents were used to ensure that the participants had a thorough understanding of what the study was about, their involvement was voluntary, and no compensation would be given for their time. Additionally, the documents stressed the need for accurate and truthful responses to maintain data integrity.

The Belmont Principles were rigorously utilized when collecting the study data. Ethical considerations such as respect for persons were met through processes of obtaining informed consent from all participants, by explaining the study's purpose clearly to them and allowing withdrawal at any moment without penalty, and by ensuring confidentiality/anonymity with regards to their responses. Beneficence was followed by ensuring no aspect of the study may be harmful to the participant, and minimizing risk while potentially having positive findings that could benefit participants or other members of society. Justice was assured by the fair selection of participants, free from bias, and to ensure equitable distribution of the burdens and benefits of research across the study population.

It was emphasized that their participation was optional, that they can withdraw anytime their participation, and confidentiality were maintained throughout the research process. The researcher upheld all participants' data with confidentiality and anonymity as stipulated in the Data Privacy Act of 2012 or RA

10173. All data collected were treated with care and used exclusively for research purposes. No identifiable information was revealed or published.

After the completion of the study, all collected data were handled in accordance with ethical research standards to ensure the confidentiality and protection of participants. The accomplished survey questionnaires were securely kept by the researcher during the period of data analysis. Hard copies of the questionnaires were stored in a locked cabinet accessible only to the researcher. After the final completion and submission of the research, the physical questionnaires were shredded to ensure that the information cannot be retrieved.

## RESULTS and DISCUSSION

**Table 1. Summary Table of the Participants' Level of Knowledge**

Level of Knowledge	Mean	SD	Interpretation
Technology	4.23	0.55	High
Pedagogy	4.22	0.55	High
Content	4.18	0.56	High
<b>Overall</b>	<b>4.21</b>	<b>0.48</b>	<b>High</b>

Table 1 presents the summary of the participants' level of knowledge, which was generally rated as high ( $M=4.21$ ). This indicates that the pre-service teachers are equipped with a balanced and functional professional knowledge base. This not only reflects successful preparation in discrete knowledge areas (content, pedagogy, technology) but also suggests readiness to integrate these domains in practice, which is an essential requirement for effective teaching in contemporary classrooms. These findings support the study of Peñaojas and Öztürk et. al. (2023), which found that higher levels of integrated TPACK are needed for pre-service teachers to teach in real classroom contexts, indicating that when pre-service teachers possess well-developed knowledge across these domains, they are more prepared to engage in meaningful teaching practices.

Regarding the dimensions of the level of knowledge, technological knowledge had the highest mean ( $M=4.23$ ). The higher mean for technological knowledge implies that participants are more confident in their ability to select, adapt, and use educational technologies to support instruction. In contemporary classrooms, where digital tools, online platforms, and blended learning are increasingly prominent, technological competence is critical to effective lesson design and engagement. Evidently, beliefs in technology and confidence in digital skills were identified as catalysts that drive pre-service teachers to experiment with and use new technologies, making a stronger basis for professional preparation in digital educational environments (Zhang et al., 2025).

On the other hand, knowledge of mastery of content ( $M=4.18$ ) got the lowest mean. This means that although many pre-service teachers feel confident in their content knowledge, this area may need emphasis in teacher preparation programs. Strong content mastery is essential because it underpins accurate instruction and enables teachers to explain concepts clearly and address student misconceptions effectively. The TPACK framework emphasize that without a solid grounding in content knowledge, even well-developed technological or pedagogical skills cannot fully translate into high-quality teaching (Özden et al., 2024).

**Table 2**

***Frequency Distribution and Descriptive Statistics of the Participants' Efficacy to Teach***

Range	Description	Interpretation	Frequency	Percentage
4.51 – 5.00	Always	Very High	54	38.03
3.51 – 4.50	Often	High	69	48.59
2.51 – 3.50	Sometimes	Moderate	19	13.38
1.51 – 2.50	Rarely	Low	0	0.00
1.00 – 1.50	Never	Very Low	0	0.00
<b>Total</b>			<b>142</b>	<b>100</b>
<b>Mean</b>			<b>4.21</b>	
<b>SD</b>			<b>0.55</b>	
<b>Interpretation</b>			<b>High</b>	

No.	Self-Efficacy	Mean	SD	Description
1	I approach the teaching profession with adequate preparation.	4.23	0.66	Often
2	I demonstrate strong overall teacher professionalism at all times inside the school context.	4.22	0.72	Often
3	I engage all students to participate inclusively in communications and collaborations.	4.19	0.69	Often
4	I display genuine empathy, warmth and compassion for students	4.27	0.73	Often
5	I am confident in my ability to manage the classroom effectively.	4.08	0.67	Often
6	I appreciate students' individual differences	4.37	0.71	Often
7	I am confident in my ability to address classroom problems when they arise.	4.08	0.72	Often

Table 2 presents the frequency distribution and descriptive statistics of pre-service teachers' efficacy in teaching. Findings reveal that the participants generally have a “high” level of *teaching efficacy*, as indicated by an overall mean of 4.21. This implies that pre-service teachers generally perceive themselves as confident in their ability to perform teaching tasks and manage classroom activities, reflecting a positive belief in their own teaching competence. Moreover, this means that pre-service teachers believe in their own capability to teach effectively and handle the responsibilities of the classroom. In other words, they generally see themselves as able to plan lessons, deliver instruction, engage students, and maintain order during class. They trust that they can carry out teaching tasks successfully even when challenges arise. For example, they feel capable of explaining lessons clearly, adjusting strategies when students do not understand, and managing student behavior. It affirms that the pre-service teachers exhibit assertive and effective teaching upon feeling competent in their own respective roles, thus indicating a strong internal trust they have for their professional capability (Sonsupap, 2025). Almost half of the participants (48.59%) reported their efficacy in teaching as high, suggesting that they -

feel confident in their ability to organize and execute instructional tasks, manage classroom activities, and support student learning effectively. High teaching efficacy reflects a positive self-perception of capability as future educators and this implies that these pre-service teachers believe they possess the skills, knowledge, and resilience needed to cope with the complex and sometimes varied nature of the demands of teaching profession. Lee (2023) found that pre-service teachers with higher levels of self-efficacy were more likely to apply differentiated instruction, engage in formative assessment more effectively, and participate in reflective practice. They conclude that self-efficacy is a key factor in how well teachers adapt their instructional behaviors, which significantly effects student learning outcomes.

**Table 3**  
*Frequency Distribution and Descriptive Statistics of Teachers’ Professional Disposition*

Range	Description	Interpretation	Frequency	Percentage
4.51 – 5.00	Always	Very High	62	43.66
3.51 – 4.50	Often	High	68	47.89
2.51 – 3.50	Sometimes	Moderate	12	8.45
1.51 – 2.50	Rarely	Low	0	0.00
1.00 – 1.50	Never	Very Low	0	0.00
	<b>Total</b>		<b>142</b>	<b>100</b>
	<b>Mean</b>		<b>4.30</b>	
	<b>SD</b>		<b>0.53</b>	
	<b>Interpretation</b>		<b>High</b>	

No.	Professional Disposition <i>The Pre-Service Teacher...</i>	Mean	SD	Description
1	treats everyone fairly and equitably.	4.44	0.61	Often
2	shows enthusiasm and positive engagement while teaching.	4.38	0.63	Often
3	understands their role and responsibilities in the school context.	4.32	0.67	Often
4	demonstrates a commitment to students’ learning.	4.34	0.63	Often
5	seeks support and advice from others.	4.24	0.70	Often
6	incorporates professional learning and feedback into practice.	4.30	0.67	Often
7	shows a willingness to facilitate extra-curricular activities	4.18	0.82	Often
8	shows a commitment to teaching.	4.30	0.71	Often
9	engages in reflective practices of pedagogy.	4.23	0.68	Often

Table 3 presents the frequency distribution and descriptive statistics of the pre-service teachers’ professional disposition as assessed by their cooperating teachers. Findings reveal that the cooperating teachers consistently observe positive professional dispositions among pre-service teachers during their field experiences, as indicated by an overall mean of 4.30. This means they generally exhibit attitudes, values, and behaviors that are aligned with the expectations of the teaching profession. These dispositions are not merely abstract, however, but instead form the basis of their everyday practice, shaping their

interactions with students, other teachers, and the wider school community. Pre-service teachers' professional dispositions that incorporate beliefs, values, and attitudes consistent with what is expected of a professional have been shown as a basis for effectiveness in teaching (Portela Pruaño et. al. ,2025). Almost half of the pre-service teachers were rated having high (47.89%) professional disposition, indicating that pre-service teachers strongly value qualities such as professionalism, ethical standards, and a commitment to improving as educators. This reflects their readiness and commitment to upholding professional standards in the classroom. Daniel and Sapo (2020) discuss how professional disposition, which reflects a teacher's sense of duty and ethical behavior that has an effect not just on their practice in classroom but also their image presented for their students and colleagues.

**Table 4**

***Summary Table of the Cooperating Teachers' Assessment of the Pre-Service Teachers' Teaching Performance***

<b>Teaching Performance</b>	<b>Mean</b>	<b>SD</b>	<b>Interpretation</b>
Lesson Planning	4.28	0.54	High
Instructional Delivery	4.27	0.52	High
Classroom Management	4.31	0.50	High
Assessment Skills	4.31	0.54	High
<b>Overall</b>	<b>4.29</b>	<b>0.44</b>	<b>High</b>

Table 4 presents the summary of the cooperating teachers' assessment of the pre-service teachers' performance across the four dimensions. The cooperating teachers' assessment of the pre-service teachers' overall teaching performance yielded an overall mean of 4.29, interpreted as high. This implies that pre-service teachers are generally competent across the four key teaching domains—lesson planning, instructional delivery, classroom management, and assessment. It further means that cooperating teachers perceive pre-service teachers as well-prepared, capable, and reliable in performing teaching tasks, including designing lessons, delivering instruction effectively, managing classrooms, and evaluating student learning. The high rating reflects that pre-service teachers demonstrate the knowledge, skills, and professional dispositions necessary to support student learning. Soriano (2022) affirms that mentors regard pre-service teachers as well prepared and effective in undertaking essential teaching tasks, involving the knowledge, skills, and professional dispositions required for implementing in a real classroom context support of student learning.

As to the specific dimensions of teaching performance, the highest variables are classroom management and assessment skills ( $M=4.31$ ), rated as “high”. This means that pre-service teachers are most confident in these areas. These skills are crucial for creating a productive classroom environment and monitoring student progress. Classroom management ensures that lessons flow smoothly without disruptions, and assessment skills allow teachers to evaluate student learning and adjust instruction accordingly. Both skills are vital for creating an environment conducive to learning and ensuring that students achieve desired learning outcomes. Emmer and Sabornie (2021) emphasize that classroom management is a key predictor of teaching effectiveness, as teachers who manage classrooms well create environments where students can focus on learning. Research by Black and Wiliam (2020) also highlights the importance of assessment skills, noting that formative assessments provide essential feedback that guides both teaching and learning.

On the contrary, the dimension with the lowest mean is instructional delivery ( $M=4.27$ ). This finding may reflect challenges in mastering these components, especially in dynamic classroom settings where teachers must be flexible and responsive to student needs. This suggests that pre-service teachers feel somewhat less confident in their ability to deliver instruction effectively compared to other areas, such as classroom management and assessment. Hattie (2020) stresses that effective teachers are skilled at adapting their instruction to meet the needs of all students, thereby improving student achievement. Tomlinson (2022) further supports the idea that instructional delivery, particularly differentiated instruction, is crucial for meeting the diverse needs of students.

**Table 5**  
**Canonical Correlation Analysis Between Teachers' TPACK and Teaching Performance**

Variable	Cross loading	R <sub>c</sub>	R <sub>c</sub> <sup>2</sup>	F(12, 176)	p
Teachers' TPACK		0.55	0.30	4.752*	<.001
Technological Knowledge	-0.44				
Pedagogical Knowledge	-0.29				
Mastery of Content	-0.50				
Teaching Performance					
Lesson Planning	-0.43				
Instructional Delivery	-0.51				
Classroom Management	-0.45				
Assessment Skills	-0.46				
<i>*Significant at 0.05 two-tailed alpha level.</i>					

Table 5 presents the canonical correlation analysis between Teachers' TPACK and Teaching Performance. The result revealed a significant canonical correlation between Teachers' TPACK and Teaching Performance,  $F(12, 176) = 4.752$ ,  $p < .001$ ,  $R_c = 0.55$ ,  $R_c^2 = 0.30$ . Therefore, the first null hypothesis stating that the participants' knowledge in technology, pedagogy and content mastery is not significantly associated with their teaching performance can be rejected. The finding implies that pre-service teachers who possess higher levels of technological, pedagogical, and content knowledge tend to report higher levels of teaching performance. Their competence in these areas is linked to their confidence or ability in lesson planning, instructional delivery, classroom management, and assessment. This indicates that about 30 percent of the variability in Teaching Performance is explained by Teachers' TPACK.

These findings have significant implications for teacher preparation programs. Teacher education should emphasize the development of TPACK to ensure teachers are proficient in integrating technology with content and pedagogy, thereby enhancing their classroom performance. Moreover, it is crucial that teacher training incorporate practical experiences that enable pre-service teachers to apply TPACK in real classroom settings. Additionally, programs should consider other professional and contextual factors, such as classroom resources, institutional support, and student demographics, that also shape teaching effectiveness. The results align with existing research on the relationship between TPACK and teaching performance. Studies by Angeli and Valanides (2021) support the notion that teachers with strong TPACK are more likely to use technology effectively, adapt their teaching strategies, and assess student learning

in ways that enhance student outcomes. Similarly, Koehler, Mishra, and Cain (2020) emphasize that a teacher’s ability to combine technology, pedagogy, and content knowledge is crucial for creating engaging and effective lessons. Chai and Ng (2022) further argue that mastery of content and technology integration are significant predictors of teaching success, particularly in the digital age.

**Table 6**  
*Canonical Correlation Analysis Between Efficacy to Teach and Teaching Performance*

Variable	Cross loading	R <sub>c</sub>	R <sub>c</sub> <sup>2</sup>	F(4, 137)	P
Efficacy to Teach	0.55	0.55	0.42	14.441*	<.001
Teaching Performance					
Lesson Planning	0.43				
Instructional Delivery	0.48				
Classroom Management	0.41				
Assessment Skills	0.50				
<i>*Significant at 0.05 two-tailed alpha level.</i>					

Table 6 presents the canonical correlation analysis between Efficacy to Teach and Teaching Performance. The result revealed a significant canonical correlation between Efficacy to Teach and Teaching Performance,  $F(4, 137) = 14.441, p < .001, R_c = 0.55, R_c^2 = 0.42$ . Therefore, the second null hypothesis stating that the participants’ efficacy to teach is not significantly associated with their teaching performance can be rejected. This means that the degree to which pre-service teachers believe in their ability to effectively perform teaching tasks is meaningfully connected to how well they actually perform in the classroom. This further indicates that about 42 percent of the variability in Teaching Performance is explained by Efficacy to Teach. The result indicates that teachers’ sense of teaching efficacy is strongly associated with their classroom performance.

The result emphasizes that a teacher's sense of efficacy plays a pivotal role in determining how well they can implement effective instructional practices. Teachers with higher efficacy tend to engage in more thoughtful lesson planning, employ varied instructional strategies, and manage their classrooms more effectively, leading to better learning outcomes. However, the shared variance in the analysis also suggests that other professional competencies and contextual factors, such as the school environment, student demographics, and available resources, may also influence teaching performance. These additional factors likely account for the remaining variability in teaching performance, beyond self-efficacy alone.

Research supports these findings, demonstrating the importance of teacher efficacy in classroom effectiveness. Tschannen-Moran and Hoy (2020) found that teachers with high self-efficacy are more likely to implement innovative teaching strategies, manage classroom dynamics well, and engage in continuous professional development. Henson (2021) similarly noted that efficacy to teach strongly correlates with teaching effectiveness, particularly in areas such as classroom management and assessment practices. In a study by Skaalvik and Skaalvik (2022), it was revealed that teachers’ confidence in their teaching abilities positively influenced their engagement in reflective practices and adaptive teaching methods, further supporting the notion that teacher efficacy is a significant predictor of teaching success.

**Table 7**

***Canonical Correlation Analysis Between Professional Disposition and Teaching Performance***

Variable	Cross loading	R <sub>c</sub>	R <sub>c</sub> <sup>2</sup>	F(4, 137)	p
Professional Disposition	0.72	0.72	0.52	36.883*	<.001
Teaching Performance					
Lesson Planning	0.69				
Instructional Delivery	0.54				
Classroom Management	0.44				
Assessment Skills	0.61				
<i>*Significant at 0.05 two-tailed alpha level.</i>					

Table 7 presents the canonical correlation analysis between Professional Disposition and Teaching Performance. The result revealed a significant canonical correlation between Professional Disposition and Teaching Performance,  $F(4, 137) = 36.883$ ,  $p < .001$ ,  $R_c = 0.72$ ,  $R_c^2 = 0.52$ . Therefore, the third null hypothesis stating that the participants’ professional disposition is not significantly associated with their teaching performance can be rejected. This implies that pre-service teachers who demonstrate strong professional dispositions tend to perform better in all aspects of teaching, including lesson planning, instructional delivery, classroom management, and assessment. Their positive professional behaviors likely enhance interactions with students and cooperating teachers, classroom organization, and the implementation of teaching strategies, all of which contribute to higher teaching performance.

The findings suggest that professional disposition plays a crucial role in enhancing various aspects of teaching performance. Teachers who exhibit strong professional attitudes such as responsibility, ethical behavior, and a commitment to student success tend to be more effective in lesson planning, assessment, instructional delivery, and classroom management. However, the shared variance in the canonical correlation analysis suggests that other factors, such as specific professional competencies or the teaching context, may also influence teaching performance.

These findings are supported by recent studies on the relationship between professional disposition and teaching effectiveness. Tschannen-Moran and Hoy (2020) emphasize that teachers’ professional attitudes, including their beliefs in their own abilities and commitment to their students, are directly linked to their teaching success. In a similar vein, Skaalvik and Skaalvik (2022) found that teachers who exhibit a strong professional disposition tend to engage more fully in their work, leading to better classroom outcomes. Additionally, Wang et al. (2021) highlighted that teachers’ ethical behavior and sense of responsibility positively influence their teaching practices, particularly in lesson preparation and classroom management.

**Table 8**

***Regression Analysis of Teachers’ TPACK, Efficacy to Teach, and Professional Disposition on Teaching Performance***

Predictor	Unstandardized Coefficients		$\beta$	95% CI		t	p
	B	SE		Lower	Upper		
Constant	1.16	0.27		0.63	1.69	4.34	<.001

Teachers' TPACK	0.15*	0.06	0.156	0.02	0.27	2.29	0.023
Efficacy to Teach	0.18**	0.06	0.222	0.07	0.29	3.18	0.002
Professional Dispositions	0.41**	0.06	0.496	0.30	0.53	7.02	<.001
Model Summary							
R = 0.729    R <sup>2</sup> = 0.531    Adjusted R <sup>2</sup> = 0.521    F(3,138) = 52.0*    p<.001							
<i>Note. B = unstandardized beta coefficient, SE = standard error, β = standardized beta coefficient, 95% CI = 95% confidence interval, t = t statistic, p = probability value. *Significant at 0.05 two-tailed alpha level. ** significant at 0.01 level</i>							

Model Equation:  $P = 0.15T + 0.18E + 0.41D + 1.16$

Legend: P = Teaching Performance, T = Teacher' TPACK, E = Efficacy to Teach, D = Professional Dispositions

Table 8 presents the multiple regression analysis predicting Teaching Performance from Teachers' TPACK, Efficacy to Teach, and Professional Disposition. The overall model was statistically significant,  $F(3, 138) = 52.0, p < .001$ , with  $R = 0.729, R^2 = 0.531$ , and Adjusted  $R^2 = 0.521$ . Therefore, the fourth null hypothesis stating that participants' knowledge in technology, pedagogy and content mastery, efficacy to teach, and professional disposition do not significantly influence their teaching performance is rejected. This suggests that teaching performance is influenced by a combination of knowledge, confidence, and professional attitudes, highlighting the importance of integrated teacher preparation that develops all these domains concurrently.

This result indicates that 52.1% of the variance in Teaching Performance is explained by the three predictors. The remaining 47.9% of the variance may be attributed to other factors not included in the study, such as emotional intelligence, motivation, classroom experience, communication skills, adaptability, and resilience, as well as external or contextual factors (Monleon, et. al., 2024). The model demonstrates that the combined contribution of technological pedagogical knowledge, teaching efficacy, and professional disposition explains a substantial portion of variations in teaching performance. This discovery suggests the need for a broader perspective in both teaching development and assessment, recognizing that the ability to teach is influenced by a blend of individual traits, abilities, and environmental factors not captured in this study.

Many studies show that TPACK, self-efficacy, and the teacher's professional disposition are collaborative components in contributing to improved teaching performance. When TPACK is stronger, effectiveness in teaching is also shown to be successful when the three components (technology, content and pedagogy) are integrated meaningfully (Castillo, Manaig, and Yazon 2024).

Another critical component is teacher self-efficacy, or the trust in one's teaching competencies, which plays a major role in educational quality and student outcomes. Similarly, in the systematic review and analysis conducted by Ma et. al. (2025), they found a significant correlation between teachers with high self-efficacy and improved student academic performance. In addition, professional disposition significantly influences teachers' student responsiveness, classroom management, and knowledge delivery; all of which are indicators of effective teaching (Männikkö and Husu, 2020).

When taken singly, Teachers' TPACK also significantly predicted Teaching Performance ( $t = 2.29$ ,  $p = 0.023$ ,  $\beta = 0.156$ ). Therefore, the fifth null hypothesis is rejected. The unstandardized beta coefficient of 0.15 for teachers' TPACK indicates that for every one-unit increase in TPACK, teaching performance is predicted to increase by 0.15 units, holding other variables constant. This suggests that stronger knowledge in technology, pedagogy, and content positively contributes to teaching performance.

Several studies conducted confirm that a deeper understanding of technology, pedagogy and content significantly enhances teaching performance. Studies also indicate that highly integrated TPACK results in high competency in lesson planning and delivery among teachers (Zhou et al., 2019). More specifically, TPACK allowed pre-service teachers to integrate technology, subject content, and pedagogy seamlessly. The direct relationship between teachers' TPACK and the enhancement of student engagement, alternative learning facilitation, and instructional quality has been studied in different educational environments, such as science education (Backfisch et al., 2024) or mathematics instruction (Mustafa et al., 2024). Educators realize that a more successful outcome in engaging dynamic learning occurs when they are properly prepared with the comprehensive knowledge of merging technology, pedagogy, and content.

## Conclusion

The study highlights the importance of interlinked competencies in influencing effective teaching behaviors among pre-service teachers. It emphasizes that teaching effectiveness is driven by not just knowledge and skills but also the internal beliefs and professional norms that underpin instructional practice. When combined with self-efficacy and professional disposition, the interplay of technological, pedagogical and content knowledge depicts a holistic model of teacher preparedness that cannot be fulfilled by discrete competencies alone.

Anchored on Social Cognitive Theory, the findings of the study confirm that learning and behavior are shaped through the dynamic interaction of personal, behavioral, and environmental influences. The study demonstrates that with appropriate knowledge and professional attitudes, and in line with their strong beliefs in their capabilities, effective teaching practices can be transformed into principles by pre-service teachers, as evidenced from the study undertaken. This reflects Bandura's theory in that self-efficacy is critical in motivating individuals to act, persist through challenges, and ultimately succeed at complex tasks.

These findings carry significant implications. It is critical to develop and implement curricula that emphasize an interconnected approach using a school-based curriculum framework, along with having high self-efficacy and professional values developed in pre-service teachers. The quality and duration of practice teaching and mentoring experiences may be enhanced so that preservice teachers have the chance to develop their beliefs in supportive environments before having that confidence shattered in challenging classroom (real-world) situations.

Moreover, the importance of reflective practices and continuous feedback mechanisms in teacher education programs cannot be overstated, as it aids personal and professional development. With the teaching profession changing its face, future educators should be appropriately equipped to meet the challenge of responding adequately through a balance of both technical competency and positive professional disposition.

In general, this study emphasizes the need for a balanced and integrative approach to teacher preparation that ensures teachers are knowledgeable, confident, values-oriented educators who are confident in their

ability to provide high quality instruction across diverse contexts under constantly changing learning conditions.

### Recommendations

1. Administrators of the Teacher Education Program to strengthen the integration between various domains (TPACK), self-efficacy and professional disposition in designing the Teacher Education program; provide ongoing faculty development, by investing in teaching and learning technologies, and enabling pre-service teachers to experience real-life, genuine contacts with technology-rich classrooms; and sustain partnerships with cooperating schools would help assure for meaningful, and well-supported teaching internships.
2. Pre-Service Teachers to actively engage in reflective practice and continuous self-improvement to further enhance their teaching competencies; and seek more opportunities to integrate technology effectively in their lessons, build confidence in their instructional abilities, and uphold professional values in all aspects of their training.
3. Cooperating Teachers to provide consistent mentorship, constructive feedback, and modeling of effective teaching practices to the pre-service teachers; and collaborate closely with teacher education institutions to align expectations and ensure that pre-service teachers are guided in integrating theory into practice.
4. Future researchers may explore other variables that could influence teaching performance, such as school environment, leadership support, or emotional resilience.

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