



Revitalizing Pre-service Teacher Pedagogical Competence and Approaches in Teaching Mathematical Comprehension

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Abstract

This study assessed the preservice teacher's pedagogical competence and approach to teaching mathematical comprehension to the fourth-year learners was evaluated in this study. The research estimates the preservice teacher's level of pedagogical competence in terms of communication, adaptability, collaboration, inclusivity, and compassion and the level of pedagogical approaches in terms of constructivist, collaborative, integrative, reflective, and inquiry-based as well as improving the preservice teacher's knowledge input Enhancement training program as an invention. The study employed a descriptive-correlational research design to test the viability of the preservice teacher pedagogical competence and approaches in teaching mathematical competence that the fourth-year learners will utilize for their improvement in teaching mathematics findings revealed that the preservice teachers showed high competence as exposure to input enhancement training programs had a positive effect on teaching mathematics. The significant relationship between the preservice teacher's pedagogical competence and approaches is moderately positively correlated in teaching mathematical comprehension. Additionally, the findings of this study will benefit the preservice teachers to enhance their knowledge in teaching mathematics by providing them with attending the Proposed Enhancement Program entitled Reimagining the Current Pedagogical Trends in Teaching Mathematical Word Problems to the fourth-year learners.

Keywords: *competence, approaches, mathematical comprehension*

Introduction

Pre-service teachers are individuals enrolled in a teacher education program to work as a teacher. Student teachers engaged in a teacher preparation program and working toward teacher certification are referred to as pre-service teachers or teacher candidates. Pre-service teachers



perform supervised field-based teaching experiences under the supervision and guidance of university faculty in partnership with university academics and K-12 collaborating teachers. As pre-service teachers, those must have pedagogical content information that plays a crucial part within the educating and learning handle since it involves the teacher's competencies in conveying the conceptual approach, social understanding, and adaptive thinking of the subject matter. (Kathirveloo et al., 2014)

Pre-service teaching could be a period of guided, directed education. The college understudy is gradually presented into the educating part for a specific lesson by a mentor or cooperating educator. As the encounter advances, the participating educator works with and empowers the pre-service teacher to accept more prominent obligations in classroom administration and instruction. The pre-service educator starts as an observer and wraps up the educator's involvement as a competent proficient. The pre-service teaching involvement is outlined to supply a controlled learning circumstance in which the planned instructor can put into practice the standards and methods learned.

This implies that field experiences can facilitate pre-service mathematics teachers in developing their conceptual understanding of mathematics teaching. Concurred that learning to teach must be perceived as an interaction between conceptions and their enactment, suggests that teaching mathematics without practicum experience may be futile. Van den Bos and Brouwer, (2014). Additionally, Hine & Thai (2019) stated that this would provide pre-service teachers with the appropriate pedagogical skills to teach mathematics effectively. To understand potential mathematics teachers' self-perceptions, researchers conducted a study preparedness to teach mathematics according to students' perceptions argued that effective mathematics teaching implies a significant level of mathematics subject matter expertise and mathematical pedagogical understanding in mathematics teachers.

According to Juhler (2016). Preservice teachers (PSTs) are reported to have been trained to encounter tremendous challenges to serve the learning needs of their target classes in their work-based learning environment (WBLE), as competencies are highly tied to years of teaching experience. According to the study, there are gaps in subject-matter knowledge, pedagogical skill, and real-world practice in schools, and that subject-matter is related to each other in such a way that preservice teachers who lack proficiency in any aspect may affect the development of their pedagogical skills, which is why they can't apply their skills in the real world or actual teaching. To develop-based practitioners who can serve all learners, teacher education programs must prepare teacher candidates to explore a variety of educational situations. (Johnston and Collum, 2018).

The objective of this study is to encourage pre-service teachers to improve their teaching methods so that their future students would learn more in a more straightforward but more effective manner. This study also seeks to discover other issues pre-service teachers have that may significantly affect their teaching ability. Therefore researchers believe that if it is not dealt with correctly, it will impact the comprehension and learning of pre-service teachers' learners.

The researchers believe that prospective teachers needed additional training to improve their subject matter and pedagogical understanding to teach mathematics knowledge. Additionally, if pre-service teachers are better equipped, learners will be able to acquire more since they will improve their comprehension and performance in mathematics.



RESEARCH QUESTION

This study aims to examine the Pre-service Teacher Pedagogical Competence in Teaching Mathematical Comprehension which serves as basis for proposed Enhancement Training Program.

Specifically, it will seek answers to the following questions:

1. What is level of Pedagogical Competence of Pre-service Teachers' in Teaching Mathematical Comprehension in terms of:
 - 1.1 Communication
 - 1.2 Adaptability
 - 1.3 Collaboration
 - 1.4 Inclusivity, and
 - 1.5 Compassion
2. What is the extent pedagogical approach of Pre-service Teachers' in Teaching Mathematical Comprehension in terms of?
 - 2.1 Constructivist,
 - 2.2 Collaborative,
 - 2.3 Integrative,
 - 2.4 Reflective and
 - 2.5 Inquiry Based Learning
3. Is there a significant relationship between the pre-service teacher pedagogical competence and approaches in teaching mathematical comprehension?
4. What are the challenges encountered by the pre-service teachers in Teaching Mathematical Comprehension?
5. What proposed Enhancement Training Program may be developed based on the findings of the study?

METHODOLOGY

The descriptive research design was employed since the present study attempts to assess the pedagogical competencies and approaches of pre-service teachers in the conduct of descriptive type of research in different schools and colleges in the City of San Jose del Monte Bulacan, which serves as the basis for revitalizing pre-service teachers pedagogical competencies and approaches towards teaching mathematical comprehension that can be used by the school teachers and next pre-service teachers. In addition, the researcher used descriptive-correlational research to



accomplish the purpose of the study. Almeida et al. (2016) stated that Descriptive Correlational Research is a test for determining the relationship between two variables. Correctional research is carried out to determine what effect one may have on the other and how this affects the relationship. The goal is to use two or more variables to understand better the condition of events that we encounter and predict future requirements, and correlation does not always imply causation.

A researcher-made questionnaire was the primary tool used in this study in gathering the data needed. The mentioned questionnaire consists of three parts.

Part I focus on the pedagogical competence of pre-service teachers in teaching mathematical comprehension in terms of communication, adaptability, collaboration, inclusivity, and compassion. Part II: it concerns the extent the pedagogical approach of pre-service teachers' in teaching mathematical comprehension in terms of constructivist, collaborative, integrative, reflective, and inquiry-based learning. Part III determines the challenges encountered by the pre-service teachers in teaching mathematical comprehension consisting of ten (10) challenges ranked from 1 to 10 where 1 is the least challenging and 10 is the most difficult.

Research instruments have been considered acceptable if validated to ensure the study's outcome due to the relationship between the independent and dependent variables. At this point, the researcher chose to have the researcher-created Likert scale questionnaire validated.

The researcher used a relevant research instrument to develop the Likert scale questionnaire during its development and validation. After gathering all the information, the researcher will prepare the questionnaire and present it to the thesis adviser for feedback and suggestions. The comments and suggestions will be considered appropriately when creating the second draft of the questionnaire, which will be presented to master teachers for their suggestions and comments on improving the instrument. The revised questionnaire will then be sent to the thesis adviser for additional guidance and corrections. The final draft of the questionnaire will be distributed to selected teachers and school heads/master teachers from two schools to assess the reliability and validity of the researcher-created Likert scale questionnaire.

The researcher will be in charge of the distributional and retrieval of questionnaires. The completed questionnaires will be sorted, and the responses will be presented in tabular form and tallied using Excel. The computed data will be interpreted and analyzed by the researcher to examine.

Mean and Standard Deviation. Mean and Standard Deviation were used to determine the level of pedagogical competencies and approaches in related variables of the respondents and will answer problems no. 1 and 2.

Pearson – Product Moment Correlation Coefficient. This will be used to indicate the significant relationship between the level of teachers' competencies and approaches in teaching mathematical comprehension. This answers problem no. 3.

Ranking and Ordinal. This will be used to rank the challenges encountered by the pre-service teachers in Teaching Mathematical Comprehension and answer problem no. 4.

RESULTS & DISCUSSIONS



The data acquired in this investigation was rigorously evaluated and interpreted to ensure transparency and correctness.

Table 1.1 Pre-service teacher' level of pedagogical competencies in teaching mathematical comprehension in terms of Communication.

Indicators	\bar{x}_w	Verbal Interpretation
1. I can able to communicate with my learners effectively.	2.70	Highly Competence
2. I will use simple words so that my learners can quickly understand.	2.53	Highly Competence
3. I will share the knowledge that I have by communicating with my learners.	2.55	Highly Competence
4. I can enhance the learner's ability and knowledge by having good communication.	2.61	Highly Competence
5. I will let them show and share what they learn through communication.	2.63	Highly Competence
Overall weighted mean	2.60	Highly Competence

The tabulated data revealed the level of pedagogical approaches used by preservice teachers in teaching mathematical comprehension in terms of communication. Based on the overall computed weighted mean of 2.60, data revealed that preservice teachers demonstrated high competence.

The indicators showed that preservice teachers were highly competent in communicating with learners effectively ($\bar{x}_w = 2.7$), letting the learners show and share what they learn through communication ($\bar{x}_w = 2.63$), enhancing the learner's ability and knowledge by having good communication. ($\bar{x}_w = 2.61$), sharing the knowledge that I have by communicating with the learners ($\bar{x}_w = 2.55$) and using simple words so that learners can quickly understand ($\bar{x}_w = 2.53$).

In line with this study by Khan et al. (2017), teachers' good communication competence is fundamental for students' academic success and professional success. More instructions are given to students orally in the classroom by the teacher. Students may struggle to learn and advance academically if their teacher has poor communication skills. Furthermore, Moss (2017) stated that communication is essential because it encourages participation, builds relationships with the students, and establishes credibility in the classroom. It is critical to remember that communication involves both receiving and sending; in other words, a good communicator is also a good listener.



http://www.innoscet.org/	\bar{x}_w	Verbal Interpretation
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Table 1.2 Pre-service teacher' level of pedagogical competencies in teaching mathematical comprehension in terms of Adaptability.

Indicators	\bar{x}_w	Verbal Interpretation
1. I can quickly adapt to my surroundings	2.62	Highly Competence
2. I can adapt to the behavior of those I encounter.	2.53	Highly Competence
3. I can adjust and adapt different learning strategies to accelerate my learning.	2.59	Highly Competence
4. I can adapt to the changes going on around me, particularly in teaching.	2.56	Highly Competence
5. I can adjust to modern teaching, even though I was not used to it.	2.62	Highly Competence
Overall weighted mean	2.58	Highly Competence

The tabulated data revealed the pedagogical approaches used by pre-service teachers in teaching mathematical comprehension in terms of Adaptability. Data showed that pre-service teachers achieved high competence based on a weighted average of 2.58.

As shown in the indicators, pre-service teachers were highly competent in quickly adapting to their surroundings, adjusting to modern teaching, even though they are not used to it ($\bar{x}_w = 2.62$), adjusting and adapting different learning strategies to accelerate their learning. ($\bar{x}_w = 2.59$), adapting to the changes going on around them, particularly in teaching ($\bar{x}_w = 2.56$), and adapting to the behavior of those they encounter ($\bar{x}_w = 2.53$).

According to AITSL, (2016); House of Commons, (2018) Improving adaptability during pre-service teacher education programs is critical. It may be a way to prepare future educators for the constantly changing demands of the classroom – which are as significant reasons newly qualified teachers leave the profession. Additionally, Collie and Martin (2017) reported higher satisfaction and work engagement levels when teachers were more adaptable. Furthermore, teacher adaptability was associated with the learner's number of achievements through the boost it provided to teaching wellbeing.

Table 1.3 Pre-service teacher' level of pedagogical competencies in teaching mathematical comprehension in terms of Collaboration.



1. I can collaborate with other people.	2.71	Highly Competence
2. I can collaborate with learners regarding the lessons.	2.55	Highly Competence
3. I will talk to my learners about the lesson they did not understand. 4.	2.62	Highly Competence
5. I need to collaborate with my learners to know their abilities and what I teach.	2.54	Highly Competence
6. I can approach the learners who is already discouraged.	2.57	Highly Competence
Overall weighted mean	2.60	Highly Competence

The table above revealed the pedagogical approaches used by pre-service teachers in teaching mathematical comprehension in terms of Collaboration. Data revealed that pre-service teachers achieved high competence based on an overall computed weighted mean of 2.60.

As shown in the indicators, pre-service teachers were highly competent in collaborating with other people ($\bar{x}_w = 2.71$), talking to their learners about the lesson they did not understand. ($\bar{x}_w = 2.62$), approaching the learners who are already discouraged. ($\bar{x}_w = 2.57$), collaborating with their learners regarding the lessons. ($\bar{x}_w = 2.55$), and collaborating with their learners to know their abilities and what they teach ($\bar{x}_w = 2.54$)

This study aligns with Henderson (2021) that teachers must have a sense of commitment to something more significant than the classroom. This feeling of connection can positively impact the school environment, which has the potential to impact student learning ultimately. If done correctly, teacher collaboration contributes to school improvement and student success. Moreover, Gates (2018) stated that collaboration increases learners' confidence and self-esteem while developing higher-level thinking skills. Learners know how to cooperate with types of learners while also developing their leadership, social, and interpersonal skills. Teacher collaboration improves student achievement and allows the educators to venture into new competencies.

Table 1.4 Pre-service teacher' level of pedagogical competencies in teaching mathematical comprehension in terms of Inclusivity.

Indicators	\bar{x}_w	Verbal Interpretation
1. I will not let anyone of my learners be left behind in their studies.	2.49	Highly Competence



2. I will make sure that no obstacles to learning exist for the learners, regardless of their demographic characteristics.	2.69	Highly Competence
3. I intend to study all teaching and learning methods with the learners.	2.59	Highly Competence
4. I plan to include engaging activities in our discussion to motivate the learners further.	2.69	Highly Competence
5. I try to integrate innovative learning methods into my classes.	2.50	Highly Competence
Overall weighted mean	2.59	Highly Competence

The table mentioned above shows the pedagogical approaches used by pre-service teachers in teaching mathematical comprehension in terms of Inclusivity. Data revealed that pre-service teachers achieved high competence based on a weighted average of 2.59.

The indicators showed the pre-service teachers were highly competent in making sure that no obstacles to learning exist for their learners, regardless of their demographic characteristics ($\bar{x}_w = 2.71$), talking to their learners about the lesson they did not understand, engaging in activities in our discussion to motivate the learners further ($\bar{x}_w = 2.69$), intending to study all teaching and learning methods with their learners ($\bar{x}_w = 2.59$), integrating innovative learning methods into their classes ($\bar{x}_w = 2.50$), and not letting anyone off the learners be left behind in their studies ($\bar{x}_w = 2.49$).

This study supports (Ucl 2020) inclusive teaching is crucial because it respects learners' diversity, enables all learners to participate in learning and reach their full potential, and ensures that different students' learning needs and wants are satisfied, regardless of their backgrounds, ways of knowing, or abilities. Hence, A.N. (2021) added that inclusive teaching creates a learning environment where students of all backgrounds, styles, and skills can succeed. Inclusive teaching strategies help create a welcoming learning environment where all learners feel valued. Inclusivity denotes a classroom environment where all students believe their contributions and perspectives are valued and respected equally.

Table 1.5 Pre-service teacher' level of pedagogical competencies in teaching mathematical comprehension in terms of Compassion.

Indicators	\bar{x}_w	Verbal Interpretation
1. I can wait to see what my learners learns.	2.62	Highly Competence
2. I will not make my learner feel embarrassed if they make a mistake.	2.61	Highly Competence
3. I can put myself in the learners' shoes to make them understand.	2.65	Highly Competence



4. I will interact with the learners to ease their fear of me.	2.53	Highly Competence
5. I can show compassion to my learners who put forth effort in their studies.	2.63	Highly Competence
Overall weighted mean	2.61	Highly Competence

The table above reveals the pedagogical approaches used by pre-service teachers in teaching mathematical comprehension in terms of compassion. Data showed that pre-service teachers demonstrated high competence, with a weighted mean of 2.61.

The indicators revealed that the pre-service teachers were highly competent in putting themselves in their learner's shoes to make them understand ($\bar{x}_w = 2.65$), showing compassion to their learners who put forth effort in their studies ($\bar{x}_w = 2.63$), waiting to see what their learners learn ($\bar{x}_w = 2.62$), not making their learners feel embarrassed if they make a mistake ($\bar{x}_w = 2.61$), and interacting with their students to ease their fear of them ($\bar{x}_w = 2.49$)

According to the research of Hirsh, R. A., and Baronak, K. (2020), they must focus on giving pre-service teachers opportunities to strive, succeed, and develop a growth mindset in better preparing them with compassion and empathy. In addition, compassion for teaching enhances students' well-being and the learning environment. Teachers prepare their learners for long-term success in all aspects of life by teaching with kindness, empathy, and compassion (Kaufman, P., & Schipper, J. 2018).

Table 2.1 Preservice teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Constructivist.

Indicators	\bar{x}_w	Verbal Interpretation
1. I will encourage my learners to learn to the best of their abilities.	2.60	Highly Competence
2. I assist my learners in learning based on their own experiences and discoveries.	2.55	Highly Competence
3. I will always teach to expand the learners' knowledge.	2.7	Highly Competence
4. I will always help the learners learn what they need to know.	2.7	Highly Competence
5. I will broaden my learners' comprehension not to limit their learning.	2.7	Highly Competence
Overall weighted mean	2.65	Highly Competence



As gleaned in the tabulated data showed the pre-service teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Constructivist. The data revealed that pre-service teachers exhibited highly competence based on the overall computed weighted mean of 2.65.

As regards to the indicators showed that pre-service teachers were highly competent in teaching the learners' to expand their knowledge, learn what they need to know, and broaden comprehension, not limit their learning ($\bar{x}_w = 2.7$), encouraging the learners' to learn to the best of their abilities ($\bar{x}_w = 2.60$), and assisting the learners' learning based on their own experiences and discoveries ($\bar{x}_w = 2.55$).

In line with WGU's (2020) studies, constructivism is a practical learning theory that educators use to help students learn. Constructivism is essential to understand as an educator because it influences how all the students learn. Teachers and instructors who understand constructivist learning theory recognize that their students bring their own unique experiences to the classroom every day. Additionally, Olusegun S. (2015) explains that the constructivism learning theory explains the role that experiences—or connections with the surrounding environment—play in learners' education. According to the constructivism learning theory, people generate knowledge and construct meaning based on personal experiences.

Table 2.2 Preservice teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Collaborative.

Indicators	\bar{x}_w	Verbal Interpretation
1. In collaborating with the learners, I can know their capacity in learning the math subject.	2.62	Highly Competence
2. I can observe and help those learners in need by collaborating with them.	2.55	Highly Competence
3. I can identify their strengths and weak points in learning the subject through collaboration.	2.61	Highly Competence
4. Learners can enhance and practice their knowledge by collaborating with others.	2.65	Highly Competence
5. I can practice the skills and knowledge through collaboration or sharing it with the learners.	2.50	Highly Competence
Overall weighted mean	2.59	Highly Competence

The tabulated data revealed the pre-service teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Integrative. Based on the overall computed weighted mean of 2.59, data showed that pre-service teachers demonstrated high competence.



According to the indicators, pre-service teachers were highly competent in learners can enhance and practice their knowledge by collaborating with others ($\bar{x}_w = 2.65$), collaborating with the learners, knowing the learners' capacity in learning the math subject ($\bar{x}_w = 2.62$), identifying the learners' strengths and weaknesses in learning the subject through collaboration ($\bar{x}_w = 2.61$), observing and assisting those learners in need by collaborating with them ($\bar{x}_w = 2.55$), and practicing the subject ($\bar{x}_w = 2.55$).

As cited in Colás-Bravo's (2018) study, collaborative learning promotes sustainable consciousness and critical thinking, essential for sustainable development. Collaborative approaches to learning consistently have a positive impact on learning. Teachers who employ collaborative learning strategies frequently consider themselves professional experts of intellectual experiences for learners—as instructors of a more emergent learning process—rather than expert transmitters of knowledge to learners.

Table 2.3 Preservice teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Integrative.

Indicators	\bar{x}_w	Verbal Interpretation
1. I will create a way in which learners develop the knowledge they have.	2.64	Highly Competence
2. I will do my lecture where each learner will have extra knowledge.	2.65	Highly Competence
3. I will do an activity task where each learner will gain new knowledge with their classmates.	2.68	Highly Competence
4. I will assist the learners in improving their knowledge, Using a variety of teaching methods.	2.62	Highly Competence
5. I will create objects where their critical thinking skills can be developed.	2.63	Highly Competence
Overall weighted mean	2.64	Highly Competence

The tabulated data revealed the pre-service teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Integrative. Based on the overall computed weighted mean of 2.64, data revealed that pre-service teachers demonstrated high competence.

According to the indicators, pre-service teachers were highly competent in learners can enhance and practice their knowledge by integrating with others ($\bar{x}_w = 2.64$), activities tasks where each learner will gain new knowledge with their classmates ($\bar{x}_w = 2.68$), lecturing where each learner will have extra knowledge ($\bar{x}_w = 2.65$), creating a way in which learners can develop



the knowledge they have ($\bar{x}_w = 2.64$), creating objects where their critical thinking skills can be developed ($\bar{x}_w = 2.64$), creating objects where their critical thinking skills.

This study is in line with the study of Robbins et al. (2020), a teacher uses integrative teaching approaches and activities that effectively address a wide range of subjects in lessons. In addition, Khan et al. (2015) stated that developing an integrative approach is advantageous for any educational institution in the short- and long-term.

Table 2.4 Preservice teachers' level of pedagogical approaches in teaching mathematical comprehension in terms of Reflective.

Indicators	\bar{x}_w	Verbal Interpretation
1. I will create new teaching methods to reflect on the learners.	2.60	Highly Competence
2. I will not include my personal problem when I am already teaching.	2.67	Highly Competence
3. I will not pour out my personal anger while I am teaching.	2.65	Highly Competence
4. I'm not going to irritate the learner with the personal emotions I'm feeling.	2.66	Highly Competence
5. I will do my teaching job and take personal problems lightly.	2.68	Highly Competence
Overall weighted mean	2.65	Highly Competence

The tabulated data revealed the level of pedagogical approaches pre-service teachers use in teaching mathematical comprehension in terms of Reflective. Data revealed that pre-service teachers demonstrated high competence based on the overall weighted mean of 2.65.

As per indicators, pre-service teachers were highly competent in teaching jobs and taking personal problems lightly. ($\bar{x}_w = 2.68$), not including their problem when already teaching ($\bar{x}_w = 2.67$), going to irritate learners with their emotions ($\bar{x}_w = 2.66$), and not pouring out my anger while teaching ($\bar{x}_w = 2.65$), creating new teaching methods to reflect on my learners ($\bar{x}_w = 2.60$).

Halpern (2014) cited that Reflective teachers think critically and employ higher-order thinking skills in the classroom. They would talk with others and analyze problems they encountered in class to help them analyze situations. Moreover, Minott (2021) explains that giving pre-service teachers opportunities to use their reflective abilities could also help them achieve the goal of being effective teachers.



Table 2.5 Preservice teachers’ level of pedagogical approaches in teaching mathematical comprehension in terms of Inquiry-based learning.

Indicators	\bar{x}_w	Verbal Interpretation
1. I will not ask questions that are not appropriate to the lesson.	2.59	Highly Competence
2. I will not ask questions that will hurt my learner.	2.59	Highly Competence
3. I will ask learners questions based on what they know.	2.59	Highly Competence
4. I will create questions that each learner can answer.	2.62	Highly Competence
5. I don't necessarily know or ask about each learner's personal problem.	2.65	Highly Competence
Overall weighted mean	2.61	Highly Competence

The tabulated data revealed the pedagogical approaches used by pre-service teachers in teaching mathematical comprehension in terms of inquiry-based learning. Based on the overall computed weighted mean of 2.61, data revealed that pre-service teachers demonstrated high competence.

As the table shows, pre-service teachers were highly competent in knowing or asking about each learner's problem. ($\bar{x}_w = 2.65$), creating questions that each learner can answer ($\bar{x}_w = 2.62$), asking questions that will hurt learners, asking questions that will hurt my learner, and asking learners questions based on what they know ($\bar{x}_w = 2.59$).

This study is supported by Jiang and McComas (2015), who stated that the highest learners' success is achieved when the questions are asked, and the teacher designs inquiry. Additionally, it has been discovered that guided inquiry-based learning improves learners' conceptual understanding (Bunterm et al., 2014; Fang, et al., 2016; Stender, Schwichow, Zimmerman & Hartig, 2018).

Table 3 Test of the significant relationship between the pre-service teacher pedagogical competence and approaches in teaching mathematical comprehension

X	Y	Computed Pearson r	Critical value r	Relationship	Decision	Interpretation
Teacher pedagogical competence in	Teacher Pedagogical Approaches in	.50	.20	Moderate positive	Ho is rejected	Significant



teaching mathematical comprehension	teaching mathematical comprehension			relationship		
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The tabulated data show that the computed Pearson r of .50 is greater than the critical value r of .20, rejecting the null hypothesis. As a result, the relationships between the two variables are moderate positive relationship. More so, there is a significant relationship between the pre-service teacher’s pedagogical competence and approaches to teaching mathematical comprehension.

According to Lozano et al. (2017), there is a relation between pedagogical approaches and competencies. Some competencies, such as systems thinking, integration, collaboration, compassion and perception, responsibility and ethics, personal involvement, interpersonal relations, and cooperation, may be sufficiently supported by pedagogical approaches.

Test IV Challenges encountered by the pre-service teachers in Teaching Mathematical Comprehension

Indicators	Average	Rank	Percent
I find it challenging to approach the cooperating teacher to observe me properly.	6.33	1	100.00%
I can't keep up with the ones that need to be passed.	5.99	2	88.80%
Teachers aren't doing an excellent job of teaching.	5.87	3	77.70%
I get nervous every time I teach.	5.48	4	66.60%
Insufficient preparation for teaching.	5.73	5	55.50%
I don't know enough about teaching style.	5.72	6	44.40%
Ineffective time management.	5.29	7	33.30%
They are many duties and responsibilities at home.	4.89	8	22.20%
I still don't have the knowledge to teach.	4.68	9	11.10%
Lack of resources.	4.66	10	0.00%



The tabulated data revealed the challenges encountered by the pre-service teachers in Teaching Mathematical Comprehension. As per indicators, pre-service teachers’ most challenging problems encountered to the least challenging were finding it challenging to approach the cooperating teacher to observe them properly (100.00%), can't be keeping up with the ones that need to be passed (88.80%), Teachers aren't doing an excellent job of teaching (77.70%), getting nervous every time the preservice teacher teaches (66.60%), Insufficient preparation for teaching (55.50%), didn't know enough about teaching style (44.40%), Ineffective time management (33.30%), There are many duties and responsibilities at home (22.20%), still didn't have the knowledge to teach (11.10%), and Lack of resources (0.00%).

In line with the study of Tadas (2019), teacher performance is influenced by various factors ranging from systemic to personal. Creating a positive school environment and reconstructing some systemic educational processes may impact classroom teachers' job performance. Furthermore, Altunova and Kalman (2020) found out that teachers' competencies and approaches to teaching and the systemic features of education have been reported to influence teacher performance. Personal characteristics were not highlighted as a significant factor. Only a few issues, such as resources, and other school-related, were unique to classroom teachers' performance—the majority of the problems concerned teacher performance at all levels of education.

4. Proposed Enhancement Program

Reimagining the Current Pedagogical Trends in Teaching Mathematical Word Problems

Program Components

Objectives: The following are the objectives of the program:

1. To revisit the current pedagogical trends in teaching mathematical word problem for the teacher from the different aspects.
2. To enhance and develop the competencies and approaches of teachers in relation to the domains of the PPST-RPMS and IPCRF evaluation tools;
3. To discover more about mathematical word problems used in educating and dealing with millennials or twenty-first-century learners.
4. To fully understand the importance of developing a child-friendly school environment through teacher activities in creating SLKs.
5. To revitalize teacher morale and motivate them to pursue post-graduate degrees to expand their knowledge and abilities.

Time	Day 1	Day 2	Day 3
8:00 – 8:30	Opening Program	IPCRF	Positive Discipline



			in Teaching
8:30 - 10:00	<p>TOPIC:</p> <p>Revisiting the Concepts of Competencies and Approaching Teachers</p>	<p>The Concepts of Teaching Competence and Teacher Performance: Reassessment</p> <p>A</p>	<p>Creating Child-School Friendly Community</p>
10:00 - 10:30	Snack	Snack	Snack
10:30 - 12:00	<p>TOPIC:</p> <p>PPST – RPMS Implementation</p>	<p>TEACHER PROFESSIONAL AND PERSONAL DEVELOPMENT</p>	<p>Workshop on Competency Based Self-Learning Kit (SLK) Development in Mathematics word problem</p>
12:00-1:00	Lunch Break	Lunch Break	Lunch Break
1:00-3:00	<p>Competency Based Self-Learning Kit Development Mathematics Word Problem</p>	<p>Teachers' Morale Improvement</p>	<p>Presentation of Competency Based Self-Learning Kit (SLK)</p>
3:00 - 3:30	Snack	Snack	Snack
3:30 - 5:00	<p>Skills development of both teachers and learners</p>	<p>Presentation of Competency Based Self-Learning Kit (SLK)</p>	<p>Closing Program</p>

CONCLUSIONS

Based on the summary of the investigations, the researcher has concluded that:

1. The pre-service teacher's pedagogical competencies and approaches to teaching mathematical comprehension were highly competent. This study discovered that



revitalizing pre-service teachers' pedagogical competence and approaches positively impacted their teaching, as evidenced by the all-over computed weighted mean resulting in highly competent.

2. The pre-service teachers' weighted mean exhibits a highly competent level of pedagogical competencies in terms of Communication, Adaptability, Collaboration, Inclusivity, and Compassion, indicating that it has a significant impact on teaching mathematical comprehension.
3. The pre-service teachers' weighted mean exhibits a highly competent level of pedagogical approaches in terms of Constructivist, Collaborative, Integrative, Reflective, and Inquiry Based Learning, indicating that it has a significant effect on teaching mathematical comprehension.
4. The preservice teachers' were highly competent in revitalizing pedagogical competence and approaches to teaching mathematical comprehension.

RECOMMENDATIONS

Based on the salient findings and the conclusions arrived at, the researcher has offered the following recommendations:

1. Further study is needed to find how teachers can use the Reimagining the Current Pedagogical Trends in Teaching Mathematical Word Problems as an enhancement program for the pre-service teachers in teaching word problems and mathematical comprehension and how teachers can use the enhancement program to create more effective teaching for learners' development in word problem-solving.
2. Utilizing the Reimagining the Current Pedagogical Trends in Teaching Mathematical Word Problems improves the learners' mathematical skills for further research with the larger population.
3. Additional research on the same topic may conduct to obtain more comprehensive results that benefit pre-service teachers and learners.

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