CHALLENGES AMONG MATHEMATICS TEACHERS IN TEACHING AND LEARNING TO THE STUDENTS' READINESS AND ENGAGEMENT

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ABSTRACT

Various changes and adjustment have been made on the Philippine educational system since the pandemic era began. It started with the transition of face-to-face classes into blended learning modality and now that the situation of the society is getting back to normal, classes has been transforming again to in person classes. In connection with this, teachers and students currently adjusting again with the limited activities and programs for the implementation of in person classes after the most crucial situation brought by the pandemic.

The mere intention of this descriptive study was to determine the challenges among mathematics teachers in teaching and learning to the students' readiness and engagement**.**
This study was designed for 70 Junior and/or Senior High school Mathematics teachers under the Division of Laguna, who were selected via purposive sampling technique.

Descriptive method was used to determine challenges among mathematics teachers in teaching and learning. The researcher used the quantitative/descriptive survey method of research. In order to analyze and interpret the data gathered, weighted mean, standard deviation, pearson r correlation and regression analysis were utilized in the study.

The study shows that the relationship between the challenges in teaching and learning and the student's readiness has significant. Thus, the researcher, therefore, concludes that the null hypothesis 1 stating that there is no significant relationship between the challenges in teaching and learning and the student's readiness is partially rejected.

The study also shows that the relationship between the challenges in teaching and learning and the student's engagement has significant. Thus, the researcher, therefore, concludes that the null hypothesis 2 stating that there is no significant relationship between the challenges in teaching and learning and the student's engagement is partially rejected.

Based on the drawn conclusions, It is suggested to the school may provide a seminar conference where they can fully understand the factors that can affect their academic readiness and academic engagement that could lead to their higher level of performance. Furthermore, school administrations as well as government may provide needed support to address these gaps and look for alternatives if the current set-up is deemed to be ineffective. It is also recommended that the teachers may attend to different seminars workshop where they can improve their teaching techniques, they are encouraged to take their masters and doctorate degree for their professional and individual growth. And it is recommended that teachers may teach to the student the challenges during the progressive in-person classes in teaching and learning. And school administrations may support to further improving their skills and knowledge. For future researchers, the findings of the study could help to the one that has the same idea and goals to serve as their reference.

Keywords:

Challenges among Mathematics teachers, Students' Readiness, Students' Engagement

INTRODUCTION

Various changes and adjustment have been made on the Philippine educational system since the pandemic era began. It started with the transition of face-to-face classes into blended learning modality and now that the situation of the society is getting back to normal, classes has been transforming again to in person classes. In connection with this, teachers and students currently adjusting again with the limited activities and programs for the implementation of in person classes after the most crucial situation brought by the pandemic.

Moreover, mathematics teachers also experienced challenges on the blended modality. As an effect of the COVID-19 Pandemic, the change in learning methods from face-to-face into learning through the network certainly raises various teachers, particularly mathematics teachers. One of the major problems is the limitations in achieving learning that demands mathematical thinking, and constraints in giving feedback to students. (Fakhrunisa and Prabawanto, 2020). However, students became used to their routines of online distance learning and/or modular distance learning. Their adjustments became the major factor that can affect the effectivity of progressive in person classes for the academic year 2022-2023.

Furthermore, modifying teaching strategies and instructional materials are also very important for the in-person classes. Study aims to identify the relationship between lecturers' teaching style and students' academic engagement. The results show that lecturers' teaching style significantly affect the students' academic engagement. (Shaari, et.al., 2018). As the classes continuously getting back to normal, students' readiness and academic engagement should be develop through addressing the challenges of the teachers.

Researcher seen this opportunity to determine the perceived challenges among mathematics teachers amidst the progressive in person classes in teaching and learning and its relationship to students' readiness and engagement.

This also sought to determine the challenges among mathematics teachers in teaching and learners' readiness and engagement.

Specifically sought to answer the following questions.

1. What is the level of challenges among mathematics teachers in teaching and learning with regards to;
   - 1.1 Student's Conditioning;
   - 1.2 New Teaching Strategies;
   - 1.3 Instructional Materials;
   - 1.4 Teaching Pedagogy;
   - 1.5 Learning Modality;
   - 1.6 Supervision;
   - 1.7 Safe Environment?
2. What is the level of students' readiness in terms of;
   - 2.1 Physical;
   - 2.2 Social;
   - 2.3 Emotional;
   - 2.4 Knowledge?
3. What is the level of students' engagement in terms of;
   - 3.1 Attentive Listening;

3.2 Class Participation;
3.3 Collaborative Skills;
3.4 Self-learning and Evaluation?

4. Is there any significant relationship between the challenges among mathematics teachers in teaching and learning and the students' readiness?
5. Is there any significant relationship between the challenges among mathematics teachers in teaching and learning and the students' engagement?

REVIEW OF RELATED LITERATURE

Identifying the contributors to student's readiness for school is crucial to promoting positive academic experiences. The importance of this is highlighted by the fact that students who are not ready to do well in school are more likely to evidence later school adjustment problems, including school dropout and delinquency (Alexander, et al. 2016). Although a large proportion of children transition from preschool into kindergarten successfully, a significant number are not ready to meet the demands of formal schooling.

According to Kitil, M. J., (2017), good teachers care deeply about their students and know how to communicate that caring, recognize that a caring, responsive classroom community is essential to their students' success and well-being. Teachers understand that children and youth are much more than empty vessels to be filled with information, that learning is a process of growth, development, and inspiration. They also know learning is a social process. It involves interaction not just with the content of the curriculum but with others in the learning community. Good teachers understand and nurture the skills, talents, and potential of all their students.

Students with higher levels of engagement inside and outside the classroom not only learn more than students with lower levels of engagement they are also more successful in the long run both academically and professionally (Finn & Zimmer, 2014).

Class participation is a common requirement of many university courses. Teachers may include class participation in their courses as an important teaching strategy because students actively involved in small group discussions are more likely to understand course material than if it were presented to them while they were simply sitting in a classroom (Ramsden, 2013).

Perhaps the most obvious strategy to an educator is to develop interesting lessons. Incorporating interesting lessons that grab the students' attention motivates them to focus on the intended message. Jalongo (2015) suggests beginning lessons with attention grabbing activities that require the students to listen actively in order to succeed.

Both the supervision and evaluative processes work in tandem as principals use multiple data sources to evaluate teacher effectiveness (Range, Scherz, Holt, & Young, 2015). In the end, the primary role of evaluation is "to provide evidence to support recommendations for retention or nonretention" (Pratt, 2016) and to ensure teachers are held to rigorous, common standards.

Professors can create safe and welcoming environments by validating students' contributions and opinions, remaining attentive to students' reactions and emotions, establishing a norm of cooperation, facilitating positive peer interactions, mediating conflicts when they occur, and remaining open and available (Taylor 2018).

METHODOLOGY

The research design used in this study was descriptive method, it was used to determine challenges among mathematics teachers in teaching and learning to the students' readiness and engagement**.**

Purposive sampling technique was applied from a population of JHS and SHS mathematics teachers under the Division of Laguna, Seventy (70) selected Mathematics teachers are used to be the respondents in this study.

The instrument used in the study was a survey questionnaire-checklist. The questionnaire is a research-made instrument devised to identify the challenges among mathematics teachers in teaching and learning to the students' readiness and engagement. The responses will be tabulated as basis for statistical treatment of the data.

In order to analyze and interpret the data gathered, weighted mean, standard deviation, pearson r correlation and regression analysis will be utilized in the study.

RESULT AND DISCUSSION

Table 1. Level of challenges among mathematics teachers in teaching and learning with regards to Student's Conditioning

The teacher is having a hard time…	***Mean***	***SD***	***Remarks***
…allowing the students to learn in their own phases.	3.99	0.92	Agree
…providing different activities that can stimulate student's motivation.	3.91	0.86	Agree
…giving positive feedback and compliments for positive student learning outcomes.	2.76	1.17	Moderately Agree
…creating a positive learning environment which do not give pressure on the students.	3.26	1.00	Moderately Agree
…allowing the students to take their time in doing learning activities and performance tasks.	3.94	1.05	Agree
Weighted Mean	*3.57*		
SD	*0.72*		
Verbal Interpretation	*High*		

As shown in table 1, teachers *Agree* that they experience having a hard time in allowing the students to learn in their own phases (M=3.99, SD=0.92), allowing the students to take their time in doing learning activities and performance task (M=3.94, SD=1.05). Likewise, teachers *Moderately Agree* that they experience hard time giving positive feedback and compliments for positive student learning outcome (M=2.76, SD=1.17).

The weighted mean of 3.57 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Student's Conditioning is *High.* This means that teachers need to exert more effort in thinking of a way to make the students more motivated and providing constructive criticism and praise for effective students learning outcome.

Table 2. Level of challenges among mathematics teachers in teaching and learning with regards to New Teaching Strategies

The teacher is having a hard time…	***Mean***	***SD***	***Remarks***
…developing new teaching strategies that can catch the attention of the students.	4.00	1.01	Agree
…engaging the students into meaningful learning.	3.86	1.12	Agree
…integrating new ways of teaching and new ways of activity execution.	4.01	1.10	Agree
…catching the attention of the students and allowing them to enjoy activities, following the safety protocol.	3.96	1.11	Agree
…allowing the students to participate in the class discussion and letting them collaborate with their classmates.	3.66	1.08	Agree
Weighted Mean ***SD*** ***Verbal Interpretation***	*3.90* *0.88* *High*		

As shown in table 2, teachers *Agree* that they experience having a hard time integrating new ways of teaching and new ways of activity execution (M=4.01, SD=1.10), developing new teaching strategies that can catch the attention of the students (M=4.00, SD=1.01), and time allowing the students to participate in the class discussion and letting them collaborate with their classmates (M=3.66, SD=1.08).

The weighted mean of 3.90 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to New Teaching Strategy is *High.* Furthermore, modifying teaching strategies and instructional materials are also very important for the in-person classes.

Table 3. Level of challenges among mathematics teachers in teaching and learning with regards to Instructional Materials

The teacher is having a hard time on the…	***Mean***	***SD***	***Remarks***
…application of materials that are all related to the lesson.	3.91	1.07	Agree
…utilization of differentiated instructional materials.	3.31	1.00	Moderately Agree
…usage of aligned materials with the learning targets of the lesson.	3.73	1.10	Agree
…employment of instructional materials that catch the attention of the students and cultivate their motivation to learn.	3.91	1.13	Agree
…utilization of appropriate design and context that are all connected to the lesson.	3.73	1.10	Agree
Weighted Mean ***SD*** ***Verbal Interpretation***	*3.72* *0.88* *High*		

As reflected in the table 3, teachers *Agree* that they experience having a hard time on the application of materials that are all related to the lesson and employment of instructional materials that

catch the attention of the students and cultivate their motivation to learn (M=3.91, SD=1.07, 1.13), the usage of aligned materials with the learning targets of the lesson and utilization of appropriate design and context that are all connected to the lesson (M=3.73, SD=1.10). Furthermore, teachers *Moderately Agree* that they are having a hard time on the utilization of differentiated instructional materials

The weighted mean of 3.72 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Instructional Materials is *High.* This means that teachers need to exert more effort in integrating educational tools that capture students' interest and foster their desire to learn.

Table 4. **Level of challenges among mathematics teachers in teaching and learning with regards to Teaching Pedagogy**

The teacher is having a hard time…	***Mean***	***SD***	***Remarks***
...establishing a positive teacher presence in the classroom	3.00	1.26	Moderately Agree
...providing ongoing feedback during the discussion.	3.67	1.18	Agree
...creating interaction with the students and letting them participate in the discussion.	3.61	1.17	Agree
...supplementing lectures with hands-on activities.	3.13	1.23	Moderately Agree
...recognizing students' accomplishments and responding appropriately to their concerns.	3.57	1.27	Agree
Weighted Mean ***SD*** ***Verbal Interpretation***	*3.40* *0.94* *High*		

As seen in Table 4, teachers *Agree* that they experience having a hard time in providing ongoing feedback during the discussion (M=3.67, SD=1.18), recognizing students' accomplishments and responding appropriately to their concerns (M=3.57, SD=1.27) On the other hand, teachers *Moderately Agree* that they experience hard time establishing a positive teacher presence in the classroom (M=3.00, SD=1.25).

The weighted mean of 3.40 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Teaching Pedagogy is *High.* This means that teachers need more knowledge in understanding the theory and practice of teaching and learning as it was one of the factors that can affect students' academic achievement.

Level of challenges among mathematics teachers in teaching and learning with regards to Learning Modality

It is seen in table 5 that Teachers *Agree* that they experience having a hard time utilizing a flexible learning modality that is applicable for all the learners (M=3.76, SD=1.03), providing materials for both synchronous and asynchronous classes (M=3.63, SD=1.13), and integrating technological tools and/or website on teaching (M=3.41, SD=1.00).

Table 5. Level of challenges among mathematics teachers in teaching and learning with regards to Learning Modality

The teacher is having a hard time…	***MEAN***	***SD***	***REMARKS***
…utilizing of appropriate modality for the students.	3.60	1.20	Agree
…providing relevant materials and educational tools for the learners.	3.51	1.07	Agree
…integrating technological tools and/or website on teaching.	3.41	1.00	Agree
…utilizing a flexible learning modality that is applicable for all the learners.	3.76	1.03	Agree
…providing materials for both synchronous and asynchronous classes.	3.63	1.13	Agree
Weighted Mean **SD** **Verbal Interpretation**	3.58 0.82 High		

The weighted mean of 3.58 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Learning Modality is *High.* This means that teachers need to utilize a flexible learning modality that is appropriate for all the learners. Identifying the primary learning style of a child can play a big role in child development. A child who can learn through their primary modality absorbs information in the most beneficial manner that will allow them to learn and retain the information they've been presented with. This also sets the child up to feel confident in their abilities. As such, it is important for children to learn according to their specific learning modalities.

Table 6. Level of challenges among mathematics teachers in teaching and learning with regards to Supervision

The teacher is having a hard time…	***MEAN***	***SD***	***REMARKS***
…creating an organized plan to learn.	2.71	1.28	Moderately Agree
…establishing rules and regulations together with the students.	2.44	1.11	Disagree
…finding opportunities to advance and improve the supervision of the students.	3.54	1.14	Agree
…providing safety protocols according to the new normal policies.	2.63	1.13	Moderately Agree
…supervising the students in their daily activities and actions.	2.93	1.23	Moderately Agree
Weighted Mean ***SD*** ***Verbal Interpretation***	*2.85* *0.89* *Moderately High*		

As reflected in the table 6, teachers *Agree* that they experience having a hard time finding opportunities to advance and improve the supervision of the students (M=3.54, SD=1.14), also, teachers *Moderately Agree* that they are having a hard time supervising the students in their daily activities and actions (M=2.93, SD=1.23) On the other hand, teachers *Disagree* that they experience having a hard time establishing rules and regulations together with the students (M=2.44, SD=1.11).

The weighted mean of 2.85 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Supervision is *Moderately High.* This means that roles of school

leaders as they undertake supervision and evaluation duties is the identification of incompetent or ineffective teachers. Little is known about how incompetent teachers are identified, what procedures are in place to remediate or dismiss them, and how school leaders' views differ based on their roles as principals or superintendents.

Table 7. Level of challenges among mathematics teachers in teaching and learning with regards to Safe environment

The teacher is having a hard time…	***MEAN***	***SD***	***REMARKS***
…providing a conducive and healthy learning environment.	2.49	1.05	Disagree
…displaying necessary things.	2.74	1.14	Moderately Agree
…securing the safety and protection of the learners.	3.30	1.03	Moderately Agree
…providing a water sink and water faucet for washing hands.	3.41	0.99	Agree
…designing classrooms following the new guidelines for limited face-to-face classes.	2.89	1.14	Moderately Agree
Weighted Mean	*2.97*		
SD	*0.76*		
Verbal Interpretation	*Moderately High*		

As shown in table 7, teachers *Agree* that they experience having a hard time providing a water sink and water faucet for washing hands (M=3.41, SD=0.99). Also, teachers *Moderately Agree* that they are having a hard time securing the safety and protection of the learners" with a mean score (M=3.30, SD=1.03). On the other hand, teachers *Disagree* that they experience having a hard time providing a conducive and healthy learning environment" (M=2.49, SD=1.05).

The weighted mean of 2.97 indicate that the level of challenges among mathematics teachers in teaching and learning with regards to Safe environment is *Moderately High.* This means that it is really an important thing to secure the safety and protection of the learners to ensure quality education.

Table 8. Level of students' readiness in terms of Physical

STATEMENTS	***MEAN***	***SD***	***REMARKS***
Physically fit and capable of attending class every day.	3.73	1.02	Agree
Do physical activities and other health related campaigns.	2.91	0.86	Moderately Agree
Have a complete set of school materials needed for the study.	2.53	1.10	Disagree
Use a complete uniform and proper dress code whenever you go to school.	2.53	1.10	Disagree
Uses appropriate attire for safety protocols.	2.31	1.29	Disagree
Weighted Mean	*2.80*		
SD	*0.82*		
Verbal Interpretation	*Moderately High*		

As seen in table 8, teachers *Agree* that generally, their students are physically fit and capable of attending class every day (M=3.73, SD=1.02), the teachers *Moderately Agree* that their students do physical activities and other health related campaigns (M=2.91, SD=0.86) are they experience having a

hard time in allowing the students to learn in their own phases (M=3.99, SD=0.92), allowing the students to take their time in doing learning activities and performance task (M=3.94, SD=1.05). Likewise, teachers *Disagree* that their students Use appropriate attire for safety protocols (M=2.31, SD=1.29).

The weighted mean of 2.80 indicate that the level of students' readiness in terms of Physical is *Moderately High.* This means that for the students to achieve the highest level of academic success, they're must be physically fit and ready.

Table 9. Level of students' readiness in terms of Social

STATEMENTS	MEAN	SD	REMARKS
Secure relationships with other people around.	2.79	1.08	Moderately Agree
Show empathy and sense other people's emotions.	2.77	1.16	Moderately Agree
Willingness to participate in school activities.	2.57	1.06	Disagree
Cultivate friendship among peers and classmates.	2.89	1.21	Moderately Agree
Express personal needs and communicate effectively with other people.	2.90	1.08	Moderately Agree
Weighted Mean **SD** ***Verbal Interpretation***	2.78 0.91 Moderately High		

As shown in table 9, teachers *Moderately Agree* that generally, their students express personal needs and communicate effectively with other people (M=2.90, SD=1.08), cultivate friendship among peers and classmates (M=2.89, SD=1.21) also, teachers *Moderately Agree* too that their students have willingness to participate in school activities (M=2.57, SD=1.06).

The weighted mean of 2.78 indicate that the level of students' readiness in terms of Social is *Moderately High.* This means that one of the factors for the students to unlocked their full potential as a learner is that they secure relationship with other people around them, they need to learn to socialize and cultivate friendship among their classmates and also their teachers.

Table 10. Level of students' readiness in terms of Emotional

STATEMENTS	***MEAN***	***SD***	***REMARKS***
Manage one's own feelings effectively.	3.11	1.07	Moderately Agree
Reflect on one's own feelings and emotions.	2.71	1.08	Moderately Agree
Do not feel anxiety over the different situations.	2.57	1.19	Disagree
Consider the feelings of others.	3.16	1.12	Moderately Agree
Control negative emotions and build positive relationships.	2.73	1.13	Moderately Agree
Weighted Mean ***SD*** ***Verbal Interpretation***	*2.86* *0.87* *Moderately High*		

As shown in table 10, teachers *Moderately Agree* that generally, their students consider the feelings of others (M=3.16, SD=1.12), manage one's own feelings effectively (M=3.11, SD=1.07). On the other hand, teachers *Disagree* that their students do not feel anxiety over the different situations.

The weighted mean of 2.86 indicate that the level of students' readiness in terms of Emotional is *Moderately High.* This means that for the students to achieve the highest level of academic success, they're must know how to handle one's own feelings emotions well and can consider the feelings of others.

Table 11. Level of students' readiness in terms of Knowledge

STATEMENTS	MEAN	SD	REMARKS
Have their own learning style and study habits.	3.11	1.00	Moderately Agree
Know their learning capabilities.	2.51	1.09	Disagree
Relate their past knowledge on their present learning.	2.36	1.06	Disagree
Do advance reading for future lessons.	2.43	1.16	Disagree
Show active participation in classroom activities, discussion and programs.	2.41	1.15	Disagree
Weighted Mean **SD** ***Verbal Interpretation***	2.57 0.84 To a Low Extent		

As seen in table 11, teachers *Moderately Agree* that generally, their students have their own learning style and study habits (M=3.11, SD=1.00). Likewise, teachers *Disagree* that their students know their learning capabilities (M=2.51, SD=1.09). Also, teachers *Disagree* that their students relate their past knowledge on their present learning (M=2.36, SD=1.06).

The weighted mean of 2.57 indicate that the level of students' readiness in terms of Knowledge is *Low.* This means that doing an advance reading and relating their past knowledge on their present learning may help the students to improve their literacy about a particular subject and will prepared them to their future occupation.

Table 12. Level of students' engagement in terms of Attentive Listening

STATEMENTS	MEAN	SD	REMARKS
Listen attentively to the teacher.	2.34	1.23	Disagree
Understand what other people are saying.	2.60	1.10	Disagree
Respond and reflect on what other people said.	2.46	1.16	Disagree
Pay attention on non-verbal signs and body language used by the teachers.	2.34	1.08	Disagree
Able to summarize, share and give feedback on what is being said by the teacher and/or classmate.	2.43	1.12	Disagree
Weighted Mean **SD** ***Verbal Interpretation***	2.43 0.96 Low		

As reflected in table 12, teachers *Disagree* that generally, their students understand what other people are saying (M=2.60, SD=1.10), respond and reflect on what other people said" (M=2.46, SD=1.16), and listen attentively to the teacher and Pay attention on non-verbal signs and body language used by the teachers (M=2.34, SD=1.23, 1.08).

The weighted mean of 2.43 indicate that the level of students' engagement in terms of Attentive listening is *Low.* This means that it is necessary for the teachers to give importance to their students' attentive listening skill for them to become more responsive and reflect on what other people said.

Table 13. Level of students' engagement in terms of Class Participation

STATEMENTS	MEAN	SD	REMARKS
Participate in class activities.	2.80	1.10	Moderately Agree
Share knowledge with the class.	2.49	1.21	Disagree
Do brainstorming with other classmates and/or peers.	2.89	1.19	Moderately Agree
Willing to show their work in front of their classmates.	2.44	1.10	Disagree
Show interests and engage in different classroom activities.	2.19	1.18	Disagree
Weighted Mean **SD** ***Verbal Interpretation***	2.56 0.94 Low		

As shown in table 13, teachers *Moderately Agree* that generally, their students do brainstorming with other classmates and/or peers (M=2.89, SD=1.19), participate in class activities (M=2.80, SD=1.10). SD=1.10), respond and reflect on what other people said" (M=2.46, SD=1.16). On the other hand, teachers also *Disagree* that their students show interests and engage in different classroom activities." (M=2.19, SD=1.18).

The weighted mean of 2.56 indicate that the level of students' engagement in terms of Class Participation is *Low.* This means that teacher can improve student participation by devoting time and thought to shaping the environment and planning each class session. The goal of increasing participation is to create an environment in which all students have an opportunity to fully take part in the course and improve their learning. Starting on the first day of class, teacher should arrange the room in a way that encourages active engagement and assign to the students some of the responsibility for increasing participation.

Table 14. Level of students' engagement in terms of Collaborative Skills

STATEMENTS	MEAN	SD	REMARKS
Go outside of one's comfort zone and try to explore other things.	2.47	1.15	Disagree
Communicate clearly with other people.	2.43	1.08	Disagree
Establish team goals and achieve them one by one.	2.44	1.16	Disagree
Establish leadership and positively influence other classmates.	2.33	1.15	Disagree
Consider one's position in your classroom and show respect to a person of authority.	2.66	1.26	Moderately Agree
Weighted Mean **SD** ***Verbal Interpretation***	2.47 0.94 Low		

As reflected in table 14, teachers *Moderately Agree* that generally, their students consider one's position in your classroom and show respect to a person of authority (M=2.66, SD=1.26). Teachers *Disagree* that their students go outside of one's comfort zone and try to explore other things (M=2.47, SD=1.15). On the other hand, teachers also Disagree that their students establish leadership and positively influence other classmates (M=2.33, SD=1.15).

The weighted mean of 2.47 indicate that the level of students' engagement in terms of Collaborative Skills is *Low.* This means that accordingly, professors can use their syllabi and reinforcement throughout the semester to emphasize the necessity of students' participation, mutual

respect, and tolerance for differences. To promote cohesion, students can introduce themselves to their classmates in an initial discussion assignment and post pictures of themselves. If the class involves threaded discussion, instructors can develop mutual trust among students by arranging small, stable groups and appointing facilitators to enhance peer interaction. Frequent communication among students serves as the foundation of a supportive class community. Such dialogue is critical to the success of transformative pedagogy because it facilitates students' collaboration and promotes their tolerance of ambiguity and differences.

Table 15. Level of students' engagement in terms of Self-learning and Evaluation

STATEMENTS	MEAN	SD	REMARKS
Identify one's own learning goals.	2.43	1.12	Disagree
Monitor one's own learning progress.	2.40	1.17	Disagree
Cultivate intrinsic motivation and develop weaknesses into strength.	2.46	1.10	Disagree
Set one's own learning habits and do it regularly.	2.40	1.12	Disagree
Keep track of one's own accomplishments and achievements.	2.44	1.12	Disagree
Weighted Mean **SD** ***Verbal Interpretation***	2.43 0.95 Low		

As shown in table 15, teachers *Disagree* that generally, their students cultivate intrinsic motivation and develop weaknesses into strength (M=2.46, SD=1.10), keep track of one's own accomplishments and achievements (M=2.44, SD=1.12), and monitor one's own learning progress and set one's own learning habits and do it regularly (M=2.40, SD=1.17, 1.12)

The weighted mean of 2.43 indicate that the level of students' engagement in terms of Self-learning and Evaluation is *Low.* This means that shift the focus from assessing own knowledge to assessing own learning and the importance of assessment, learning and self-evaluation all being linked to objectives. Assessing class participation encourages students to develop their oral communication skills and to demonstrate other skills such as interacting and cooperating with their peers and with their tutor.

Significant relationship between the challenges among mathematics teachers in teaching and learning and the students' readiness

It is interesting to note the significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of student's conditioning and students' readiness. In Social (r=-0.314), emotional (r=-0.298) and knowledge (r=-0.249) the correlation is weak. It entails that the three mentioned variables are inversely proportional with student's conditioning. This means that as the teacher become more challenged in conditioning their students, the level of students' readiness in terms of social, emotional and knowledge becomes low. Thus, if the teacher is able to resolve the issue with the student's conditioning, the learners will be more prepared in terms of their social, emotional and knowledge skills. However, physical (r=-0.079) was observed to have no significant correlation with the students' conditioning.

Table 16. Significant relationship between the challenges among mathematics teachers in teaching and learning and the students' readiness

Challenges	Students Readiness	r value	Degree of Correlation	Analysis
Student's Conditioning	*Physical*	-0.079	Very Weak relationship	Not Significant
	Social	-0.314	Weak relationship	Significant
	Emotional	-0.298	Weak relationship	Significant
	Knowledge	-0.249	Weak relationship	Significant
New teaching strategies	*Physical*	-0.169	Very Weak relationship	Not Significant
	Social	-0.366	Weak relationship	Significant
	Emotional	-0.268	Weak relationship	Significant
	Knowledge	-0.409	Moderate relationship	Significant
Instructional Materials	*Physical*	-0.226	Weak relationship	Significant
	Social	-0.412	Moderate relationship	Significant
	Emotional	-0.343	Weak relationship	Significant
	Knowledge	-0.409	Moderate relationship	Significant
Teaching Pedagogy	*Physical*	-0.224	Weak relationship	Significant
	Social	-0.331	Weak relationship	Significant
	Emotional	-0.256	Weak relationship	Significant
	Knowledge	-0.290	Weak relationship	Significant
Learning Modality	*Physical*	-0.274	Weak relationship	Significant
	Social	-0.463	Moderate relationship	Significant
	Emotional	-0.457	Moderate relationship	Significant
	Knowledge	-0.459	Moderate relationship	Significant
Supervision	*Physical*	-0.056	Very Weak relationship	Not Significant
	Social	-0.162	Very Weak relationship	Not Significant
	Emotional	-0.180	Very Weak relationship	Not Significant
	Knowledge	-0.035	Very Weak relationship	Not Significant
Safe Environment	*Physical*	-0.051	Very Weak relationship	Not Significant
	Social	-0.264	Weak relationship	Significant
	Emotional	-0.278	Weak relationship	Significant
	Knowledge	-0.116	Very Weak relationship	Not Significant

Scale	Strength
±0.80 – 1.00	Very Strong
±0.60 – 0.79	Strong
±0.40 – 0.59	Moderate
±0.20 – 0.39	Weak
±0.00 – 0.19	Very Weak

In addition, there is a significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of new teaching strategies and students' readiness. In knowledge (r=-0.409), social (r=-0.366), and emotional (r=-0.268) the correlation is weak to moderately weak. It entails that the three mentioned variables are inversely proportional with new teaching strategies. This means that as the teacher faces greater difficulties in developing new teaching strategies, the level of students' readiness in terms of knowledge, social and emotional becomes low. Thus, if the teacher overcome the problem with the new teaching strategies, the learners will be more ready intellectually, socially and emotionally. However, physical (r=-0.169) was observed to have no significant correlation with the new teaching strategy.

Likewise, there is also a significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of instructional materials, teaching pedagogy, learning modality and the students' readiness. It entails that the three mentioned variables are inversely proportional with the students' readiness. This means that as the teachers become more challenged in utilizing their instructional material, improving their teaching pedagogy and providing flexible learning modality, the

level of students' readiness in terms of physical, social, emotional and knowledge becomes low. Thus, if the teacher is able to resolve those issues, the learners will be more prepared in terms of their physical, social, emotional and knowledge skills.

However, there is no significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of supervision and the students' readiness. This means that supervision of the teacher does not significantly affect the students' readiness.

In addition, there is a significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of safe environment and students' readiness. In emotional (r=-0.278) and social (r=-0.264), the correlation is weak. It entails that the two mentioned variables are inversely proportional with safe environment. This means that as the teacher faces greater difficulties in ensuring the safety of the school environment, the level of students' readiness in terms of emotional and social becomes low. Thus, if the teacher overcome this problem, the learners will be more ready emotionally and socially. However, knowledge (r=-0.116) and physical (r=-0.0.51) were observed to have no significant correlation with the safe environment.

Significant relationship between the challenges among mathematics teachers in teaching and learning and the students' engagement

It is interesting to note the significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of student's conditioning, new teaching strategies, instructional materials, teaching pedagogy, learning modality and the students' engagement. It entails that the five mentioned variables are inversely proportional with students' engagement. This means that as the teacher become more challenged in conditioning their students, developing new teaching strategies, utilizing their instructional material, improving their teaching pedagogy and providing flexible learning modality, the level of students' engagement in terms of attentive listening, class participation, collaborative skills and self-learning and evaluation becomes low. Thus, if the teacher is able to resolve those issues the students will be more engaged in learning.

Moreover, there is a significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of supervision and students' engagement. In class participation (r=-0.202), the correlation is moderately weak. It entails that the mentioned variable is inversely proportional with supervision. This means that as the teacher become faces greater difficulties in supervising their students, the level of students' engagement in terms of class participation becomes low. Thus, if the teacher overcome this problem, the learners will be more engaged in class participation. However, attentive listening (r=-0.079), collaborative skills (r=-0.079) and self-learning and evaluation (r=-0.079) were observed to have no significant correlation with the teacher's supervision.

Table 17. Significant relationship between the challenges among mathematics teachers in teaching and learning and the students' engagement

Challenges	Students' Engagement	r value	Degree of Correlation	Analysis
Student's Conditioning	*Attentive Listening*	-0.269	Weak relationship	Significant
	Class Participation	-0.373	Weak relationship	Significant
	Collaborative skills	-0.342	Weak relationship	Significant
	Self-learning and evaluation	-0.262	Weak relationship	Significant
New teaching strategies	*Attentive Listening*	-0.506	Moderate relationship	Significant
	Class Participation	-0.603	Moderate relationship	Significant
	Collaborative skills	-0.527	Moderate relationship	Significant
	Self-learning and evaluation	-0.444	Moderate relationship	Significant
Instructional Materials	*Attentive Listening*	-0.493	Moderate relationship	Significant
	Class Participation	-0.595	Moderate relationship	Significant
	Collaborative skills	-0.522	Moderate relationship	Significant
	Self-learning and evaluation	-0.424	Moderate relationship	Significant
Teaching Pedagogy	*Attentive Listening*	-0.316	Weak relationship	Significant
	Class Participation	-0.480	Moderate relationship	Significant
	Collaborative skills	-0.387	Weak relationship	Significant
	Self-learning and evaluation	-0.251	Weak relationship	Significant
Learning Modality	*Attentive Listening*	-0.527	Moderate relationship	Significant
	Class Participation	-0.561	Moderate relationship	Significant
	Collaborative skills	-0.561	Moderate relationship	Significant
	Self-learning and evaluation	-0.456	Moderate relationship	Significant
Supervision	*Attentive Listening*	-0.151	Very weak relationship	Not Significant
	Class Participation	-0.202	Moderate relationship	Significant
	Collaborative skills	-0.135	Very weak relationship	Not Significant
	Self-learning and evaluation	-0.011	Very weak relationship	Not Significant
Safe Environment	*Attentive Listening*	-0.133	Very weak relationship	Not Significant
	Class Participation	-0.149	Very weak relationship	Not Significant
	Collaborative skills	-0.080	Very weak relationship	Not Significant
	Self-learning and evaluation	-0.191	Very weak relationship	Not Significant

Scale	Strength
±0.80 – 1.00	Very Strong
±0.60 – 0.79	Strong
±0.40 – 0.59	Moderate
±0.20 – 0.39	Weak
±0.00 – 0.19	Very Weak

However, there is no significant correlation exist between challenges among mathematics teachers in teaching and learning in terms of safe environment and student' engagement. This means that the safety of school environment does not significantly affect the students' engagement in terms of attentive listening, class participation collaborative skills and self-learning and evaluation.

Conclusion

On the basis of the foregoing findings, the following conclusion was drawn.

The study shows that the relationship between the challenges in teaching and learning and the student's readiness has significant. Thus, the researcher, therefore, concludes that the null hypothesis 1 stating that there is no significant relationship between the challenges in teaching and learning and the student's readiness is partially rejected.

The study also shows that the relationship between the challenges in teaching and learning and the student's engagement has significant. Thus, the researcher, therefore, concludes that the null hypothesis 2 stating that there is no significant relationship between the challenges in teaching and learning and the student's engagement is partially rejected.

Recommendations

Based on the drawn conclusions resulted to the following recommendations:

1. It is suggested to the school may provide a seminar conference where they can fully understand the factors that can affect their academic readiness and academic engagement that could lead to their higher level of performance.
2. School administrations as well as government may provide needed support to address these gaps and look for alternatives if the current set-up is deemed to be ineffective.
3. It is recommended that the teachers may attend to different seminars workshop where they can improve their teaching techniques.
4. The teachers also encouraged to take their masters and doctorate degree for their professional and individual growth.
5. It is recommended that the teachers may teach to the student the challenges during the progressive in-person classes in teaching and learning. And school administrations may support to further improving their skills and knowledge.
6. For future researchers, the findings of the study could help to the one that has the same idea and goals to serve as their reference.

ACKNOWLEDGEMENTS

This completion of this paper would not be possible without the help and counsel of the following persons to whom the researcher extends her heartful gratitude and admiration.

First and foremost, to ALMIGHTY GOD for supporting and guiding her spiritually to sustain her strength and knowledge in making this study attainable;

DR. BENJAMIN O. ARJONA, her thesis adviser, for his incomparable suggestion assistance, for giving his precious time and effort, for giving valuable suggestions, ideas, comments, untiring professional guidance, and in-depth analysis of the study;

Her loving mother, MARIA SALOME B. PALMA for the love, inspiration, guidance and support both financially and morally, this would not have been possible without their support, unconditional love, financial support and not giving up on her;

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