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Research Paper

Enhancing Readiness and Mathematics Performance in Face-to-Face Learning Among Grade 7 Students: A Descriptive-Correlational Study

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Abstract

This study aimed to determine the relationship between the level of readiness and mathematics performance in face-to-face learning among Grade 7 learners at Balibago Integrated High School. This study employed a descriptive-correlational design to determine the correlation between the two variables under consideration. A stratified proportionate random sampling technique was used to determine the sample from the population of learners, and the number of samples was established using the Cochran formula. The study utilized a researcher-made questionnaire to measure the learners' readiness level and mathematics performance and was verified by a pool of experts in the field. The questionnaire on readiness focused on measuring students' cognitive, social, physical, and emotional aspects. The gathered data were evaluated using frequency count and percentage, mean, standard deviation, Pearson r, and hierarchical multiple regression. Based on the findings, it showed that learners' levels of cognitive, social, and physical readiness were high but only moderate emotionally. Nonetheless, students' mathematics performance was poor because the computed mean fell within a low range. Thus, findings revealed that there was a strong and positive correlation between students' readiness and mathematics performance, with a p-value of .007, which rejected the hypothesis. However, the findings revealed that there was no substantial moderating influence on the profile of learners' mathematics performance about their readiness with a p-value greater than .01. In light of this, a learner's level of preparedness in terms of cognitive, social, emotional, and physical factors may have an impact on how well they perform mathematically.

Keywords *Mathematics Performance, Cognitive Readiness, Social Readiness, Emotional Readiness, Physical Readiness, Face-to-Face Learning*

INTRODUCTION

Mathematics is one of the subjects students have struggled with, as demonstrated by their performance on the teacher's test. It was also evident in the 2018 Programme for International Student Assessment (PISA), where the Philippines was one of the lowest-performing countries of all.

According to the Department of Education (DOE, 2014), the promotion rate, repetition rate, dropout rate, and survival rate of grade 6–8 students in Nepal were 90.1, 4.6, 5.3, and 74.6, respectively. These statistics demonstrate Nepal's low educational achievement in both community and institutional schools. As a result, students' poor academic achievement reflects the poor quality of education in Nepal.

On the other hand, the DepEd-National Report of the Philippines (2019) revealed that the Philippines came second-to-last among participating countries in the 2018 Programme for International Student Assessment (PISA). This worrying research found that Filipino pupils scored 353 points in mathematics literacy, much lower than the OECD average of 489 points. According to

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statistics, barely one in every five Filipino pupils, or around 19.7 percent, reached the minimum competency level (Level 2) in mathematics literacy. Moreover, according to the 2015 Review Report on the Philippine Education for All

on the National Achievement Test, while Filipino learners' NAT mean percent score (MPS) has grown during the eight years (2005-2013), it has not yet attained the aim of 75 percent MPS. The elementary level NAT accounts for 6.12% of the target, whereas the secondary level NAT accounts for 23.59% of the target.

Out of 6562 students at Balibago Integrated High School, Division of Santa Rosa City, Philippines, 21.38 percent had a math grade lower than 75 in the first quarter, 17.24 percent in the second quarter, 6.52 percent in the third quarter, and 1.28 percent in the fourth quarter last academic year. This can be a result of poor readiness and motivation in attending online classes and some external factors.

The COVID-19 pandemic has had a significant impact on the educational system. This resulted in a shift in how lessons were delivered, from in-person teaching to online learning, causing challenges for both students and teachers worldwide, not just in the Philippines. Due to the emergence of the COVID-19 pandemic, the students' styles and ways of learning may be different from traditional face-to-face learning, which affects their mathematics performance. The above claims were contradicted by the studies of Capinding (2022) and Vergara (2021), which showed that both pupils performed well in mathematics during the COVID-19 pandemic. Online learning videos and modules are accessible to students at any time and place. From these contradicted assertions, it is important to know the level of students' mathematics performance during the COVID-19 pandemic.

On the other hand, most international activities have been put on hold due to the sudden emergence of a new coronavirus, including travel education (Chung et al., 2020). Governments have even been forced to temporarily close schools around the world to stem the disease's spread. In 185 nations, schools and institutions were shut down, impacting 89.4% of all learners (Kumari & Jayasinghe, 2020). This crisis may have long-term effects on education, including disruptions of cognitive learning processes, poor motivation, higher dropout rates, increased joblessness, and a trend toward postponing academic sessions (Kumari & Jayasinghe, 2020; Oleyami, Adamu & Oleyami, 2020).

At the time of the COVID-19 pandemic, online learning's effectiveness and convenience do not correspond to reality. Due to the COVID-19 virus, numerous issues have appeared since the advent of online learning. According to reports, 95.2% of students in Padang City, Indonesia felt the pressure of online learning (Fitriani, 2021). Because they do not interact with their peers and teachers in person, students get bored, and this results in a decrease in their motivation and concentration. Some students also suffer from mental health problems brought on by changes in the educational system.

Teachers suffered from the drawbacks of online education. Most teachers, especially the traditional ones, are not familiar with or skilled at teaching online. Even though online classes offer learning flexibility, many students and teachers prefer traditional face-to-face discussions. In-person teaching improves interaction and performance between students and teachers.

Fortunately, due to the decline of COVID-19 cases in the Philippines, on July 14, 2022, Vice President, and Education Secretary Sara Z. Duterte made a point of emphasizing that on November 2, across all public and private institutions, face-to-face instruction would be introduced to lessen learning loss. The Department of Health and the Inter-Agency Task Force (IATF) gave its approval, along with the new president, Ferdinand Marcos Jr.

To have an effective learning experience, it is crucial to assess the student's readiness. It affects how well students perform academically, how resilient they are, and how satisfied they are with their education. The ability of a student to pick up new information and start making behavioral

changes that produce successful and effective learning outcomes is typically measured as "readiness to learn" (Chorrojprasert, 2020). Learning is successful when it is motivated by the process of obtaining and disseminating knowledge (Razzaque & Hamdan, 2019) from one person to another. The degree of a student's academic achievement in learning activities can be said to depend on their readiness to learn.

For pupils to perform better academically during the learning process, they must be physically, socially, academically, and emotionally prepared to study. There are still children who have not received their vaccinations, and they are vulnerable to illnesses. Some of the students are struggling with their mental health because of the pandemic. Son et al. (2020) demonstrated that the COVID-19 epidemic has raised stress and anxiety among college students in the US. Students are more anxious, unhappy, worn out, and distressed as compared to before the pandemic (Elharake et al., 2022).

In light of the above studies, there is still a lack of research on the association between mathematics performance and preparedness for face-to-face classes. This present study aimed to determine the readiness level and mathematics performance of Grade 7 students for face-to-face classes during the COVID-19 pandemic. The findings of this study could be the basis for the teachers and school leaders to implement interventions and activities to increase the performance and readiness of the students.

LITERATURE REVIEW

Theoretical Framework

This study is based on Vygotsky's Sociocultural Theory of Cognitive Development, which believes that social interaction, including cooperative and collaborative discourse with someone more competent in the activity at hand, is a key component of how children learn. Vygotsky, who firmly believed that community plays a vital part in the process of producing meaning, emphasized in his ideas the important function of social interaction in the formation of cognition (Vygotsky, 1978). The teacher must design tasks that include both what children can do on their own and what they can learn with the help and guidance of other people for the curriculum to be developmentally appropriate (Karpov & Haywood, 1998). This theory is related to the research because face-to-face interaction between students and teachers makes learning more meaningful.

On the other hand, learning happens when each learner engages in practical activities at school. This made sense in light of David Kolb's Experiential Learning Theory, which places a strong emphasis on the value of experience and how it affects learning (Kolb, 1984). According to Kolb (1984), this sort of learning involves the transformation of experience into knowledge; knowledge is produced as a result of the combination of grasping and experiencing. Alkan (2016) investigated the effects of experiential learning on student teachers' chemistry achievement and scientific process skills. According to Alkan (2016), the experiential learning stages or process can help students become aware of their professional identities, question their actions, and recognize the significance of their suspicions. He concluded that experiential learning could improve learners' academic achievement and learning outcomes because it encourages them to go through a process of experiencing, reflecting, thinking about, and acting on their own experiences.

Assessing students' readiness in face-to-face classes is extremely important. This research was based on Edward Thorndike's connectionism theory, specifically the law of readiness. According to this law, learning can occur only when a student is ready to learn. Students learn more effectively and with greater satisfaction when they feel prepared. When the student is ready to do some work, doing it is satisfying, and not doing it is irritating. Forcing students to learn if they are unwilling to learn will result in dissatisfaction and annoyance. Many children quickly lose interest in learning

because they are forced to learn when they are not physically or mentally prepared.

Mathematics Performance

Mathematics is a discipline that demands analytical thinking and problem-solving abilities, the capacity to recall arithmetic information and carry out basic computations, and a strong sense of numbers. Hence, students consider mathematics to be a challenging subject.

The Programme for International Student Assessment (PISA) showed evidence of this notion. where Indonesia was ranked 64th out of 65 countries, which showed that Indonesian students' performance levels in mathematics are very poor (Ajisuksmo & Saputri, 2017). Despite accurately following the initial steps, these students are having trouble applying the formulas, properties, theorems, and/or laws and are only partially resolving the difficulties. Similarly, Merjuar et al. (2017) revealed that Sibalom National High School Grade 7 students performed poorly, as evidenced by low scores in items involving measures of quantity, statistics, and some items in problem-solving involving real numbers. Correspondingly, Caube et al. (2019) discovered that Grade 7 students' overall math performance was extremely poor.

With the development of technology, lessons, instructional videos, and various study materials are now accessible to students at any time and from any location online, particularly in light of the COVID-19 epidemic. Self-Learning Modules (SLM) that are already constructed and come with thorough instructions are available in the Philippines to help students improve their consistency and numerical skills. Yet, this area continues to do poorly. Contrary to the above assertions, Capinding (2022) showed that both male and female high school learners excelled in mathematics during modular remote learning. Vergara (2021) asserts that pupils performed well in mathematics during the COVID-19 pandemic and that the majority of them had high levels of value and mastery-approach goals.

Conversely, male and female students perform differently in mathematics. The 2018 Uganda Advanced Certificate of Examinations (UACE) results demonstrate that female applicants outperformed male candidates at all levels, with a lower failure rate of 0.8% than their male counterparts, out of 99,672 students registered for the final exam (Ahimbisibwe, 2019). However, girls fail at a higher percentage than boys in lower secondary, college, and basic school exams (Mazana, Montero, & Casimir, 2020).

On the other hand, Mone (2020) found that there was no gender difference in the Turkish case, as both male and female learners improved their scores. Moreover, the Ministerio de Educación y Formación Profesional (2019) argued that discrepancies in math performance between the sexes cannot be attributed to differences in innate aptitude.

Parents play an important role in the success of a student’s mathematics performance. According to Urii and Bunijevac (2017), successful learners receive significant academic support from their devoted parents. This simply means that there is an increased chance that children will succeed academically if parents are supportive despite the conditions.

It is evident from the literature and studies stated above that the learners' mathematical performance is unsatisfactory and falls behind that of other countries in the region. One of the contributing variables projected was the inadequacy of basic knowledge in four essential mathematical operations of addition, subtraction, multiplication, and division in primary education. Additionally, they have poor comprehension abilities in various word problems. Studies have shown that students perform very well in modular distance learning, have high-level value and mastery approach goals, and are highly motivated. Males did better than females on the variable sex. Nevertheless, some studies continue to assert that female students outperformed male students.

Students' Readiness for Face-to-Face Learning

The term "student readiness" is widely used to describe a learner's capacity to acquire knowledge and to start altering behavior that results in efficient and effective learning outcomes. On the resumption of classes, some students may be unprepared for this new system, and they may want to take the modular learning modality for convenience. Others may prefer face-to-face learning because of the knowledge they can get in school.

There are several factors to consider when implementing in-person classes. Nugroho et al. (2020) asserted that before introducing offline learning, the government and society must take some action. A few of these may be the initial provision of the COVID-19 vaccine as well as the development of human resources, facilities, infrastructure, and licensing. Fitria (2022) reported that the majority of students firmly agree to participate in vaccination programs before joining and participating in in-person learning activities.

Students learning readiness can be categorized into four aspects: cognitive, social, physical, and emotional. Emotional readiness includes those fundamental, foundational emotional abilities that will support a student's success in the classroom. Knowing one's skills and limitations, learning how to fail, and attending to one's own needs are all part of being emotionally prepared. Lack of preparation is one of the most frequently cited reasons for dropping out, and while this primarily refers to a lack of academic preparation, emotional readiness is also a crucial component of academic success.

The combination of online and offline learning will unavoidably cause the students to experience various emotional responses (Feng et al., 2020). In a hybrid learning environment, studies have shown a significant correlation between students' feelings and their academic success (Ramirez-Arellano et al., 2019). Emotions are essential when it comes to student's academic interests, participation, success, and overall health (Riegel & Evans, 2021).

On the other hand, academic emotion and the teaching and learning process are closely related. Students' emotional state and pursuit of learning goals are mediated by factors like attention, self-control, and motivation (Henritius et al., 2019).

Furthermore, Borres et al. (2023) found that the student's level of readiness in terms of their emotional aspects in one of the high schools in the Division of Gingoog City, Philippines, was high. Students are generally enthusiastic about face-to-face instruction. Face-to-face teaching with the teacher is more comfortable for students than simply using a distance learning module. Also, face-to-face teaching will make it simpler for students to interact with their teachers.

According to Stanford researchers (2021), face-to-face communication makes our brains happier. This implies that students are more motivated and interested when they can interact with others. Students who take classes in person will not only feel involved, but they will also play a big part in how well the teaching-learning process works. A person's level of emotional preparedness considers both how they feel and how they react to the needs of others. Additionally, emotional readiness is a skill that should be mastered when facing a crisis. If people learn to handle their emotions properly, they can be resilient in all aspects of life (Igoe, 2020).

According to the empirical evidence presented in the report, education reform will not be successful unless children's health is given top priority. Additionally, Zerga et al. (2022) demonstrated how stunting, underweight, and insufficient iodine intake significantly impacted children's academic performance. If people are severely ill, the mind cannot work properly.

Borres et al. (2023) discovered that students' level of readiness in terms of their physical aspects was high. Students are in good enough physical condition to take face-to-face classes. Most students agree that they are in good enough health to participate in in-person learning. This is supported by the notion put forth by Paschall et al. (2020), according to which a healthy person can effectively handle their health. These students feel accountable for their health because they are already in

high school. They can take care of themselves appropriately and manage themselves well in this regard. Being accountable for your health may also entail taking the required steps to maintain and enhance it (Björk et al., 2021).

The degree of motivation and preparation of students influences how ready they are to learn. According to Satrianta et al. (2022), students at SMK Negeri 2 Kendari have a high level of preparation for in-person learning and are essentially prepared to participate. They also discovered that female learners are more prepared to study than male learners.

The literature and studies listed above that are relevant to this topic make it clear that students with higher socioeconomic status (SES) outperformed those with lower SES in terms of academic performance. Those with high SES levels can access better resources, which helps them learn more effectively. Studies on student preparation for in-person education have found that it is at a higher level. After two years of online and modular programs, the student's enthusiasm to show up to class is one potential cause.

RESEARCH METHOD

Research Design

This study used a quantitative approach and a descriptive research design. The researcher was able to gather information outlining the characteristics of events and happenings. Likewise, the descriptive-correlational research design was also utilized to conduct statistical analysis to determine the correlation between the two variables under consideration, such as the student's readiness and their mathematics performance. This design helped the researcher identify whether the independent variable affects the dependent variable.

According to McBurney and White (2009), descriptive correlational design is a method used in studies to establish the relationship between various variables as well as to create static images of situations. Moreover, according to Creswell (2012), correlational research is a statistical test to identify the likelihood or pattern for two even (or more) variables or two sets of data to change regularly.

Respondents of the Study

The chosen Grade 7 students at Balibago Integrated High School-Extension who were enrolled in the face-to-face learning modality for the School Year 2022-2023 served as the respondents for this study. The sample size was established using Cochran with a 95% confidence level and a 5% precision level. Cochran (1963) devised an equation to estimate the sample size for the big population proportion. This holds that an approximate guess of the required sample size is made disjointedly for each item in the survey.

Table 1. Population and Sample Size of the Respondents of the Study

Population			Sample		
Male	Female	Total	Male	Female	Total
186	150	336	100	80	180

The table showed that the population was dominated by 186 male students and 150 female students. Moreover, out of 180 respondents, there were 100 male respondents and 80 female respondents.

Sampling Technique

The study used a stratified proportionate random sampling technique. The components of the target population are separated into distinct groups or strata, and within each stratum where the

components are similar in terms of characteristics of importance to the survey (Parsons, 2017). The students' characteristics and demographic profiles, such as sex and socio-economic status, were the basis for groupings. The proportion of each stratum in the target population was inversely associated with the number of elements assigned to that stratum in the sample. The number of respondents was divided by the total population of Grade 7 students. The sample size was determined by multiplying the result by the number of male and female students in each section. Following stratification, a sample was selected from each stratum, often through simple random sampling (Frey, 2018). The Grade 7 students had an equal chance of being chosen as a sample.

Research Instrument

The students' level of mathematics competence and readiness for face-to-face learning were assessed using a questionnaire created by the researcher. The questionnaire on readiness was composed of 19 items, four of which were used to assess students' cognitive readiness, five for measuring social readiness, five for measuring physical readiness, and another five for measuring students' emotional readiness in face-to-face learning. On a 5-point scale, the 19 survey questions were scored as follows: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = severely disagree. Below was the questionnaire used to assess the student's readiness level.

	5 (Strongly Agree)	**4** (Agree)	**3** (Neutral)	**2** (Disagree)	**1** (Strongly Disagree)
Cognitive Readiness (How prepared is your cognitive aspect for face-to-face learning?)					
1. I can easily follow the math lessons.					
2. I am confident that I can answer my teacher's questions during recitation.					
3. I can learn from things I see and hear, like lectures, audio recordings, videos, visuals, modules, and books.					
4. I believe I do my best to learn in class.					
Social Readiness (How prepared are you to perform the following social interaction tasks in face-to-face learning with your classmates and teachers?)					
1. I can easily make friends.					
2. I can initiate social interaction with my teachers and classmates if needed.					
3. I can courteously interact with other students and teachers.					
4. I am willing to help my classmates whenever they need me.					

5. I am open to suggestions and advice from my classmates.	
Physical Readiness (How prepared are your health and physical aspects for face-to-face learning?)	
1. I am free from any sickness.	
2. I can submit my tasks on time.	
3. I can perform mathematical computations.	
4. I can get up early and make it to my classes on time.	
5. I can actively participate in various tasks assigned to me by my teacher.	
Emotional Readiness (How prepared are your emotions for face-to-face learning?)	
1. I can clearly express my thoughts and feelings toward my classmates and teachers.	
2. I can manage my stress while performing various tasks at school.	
3. I have someone with whom I can share my problems.	
4. I'm capable of dealing with my mood swings.	
5. I can overcome my nervousness during oral recitation.	

This questionnaire on readiness was validated by experts in the field composed of master teachers. Six evaluation criteria, including clarity, overlapping responses, appropriateness of listed responses, application to praxis, relationship to the problem, and measure of constructs, were used to evaluate this questionnaire. The average score for clarity was 3.67; the average score for overlapping responses, appropriateness of listed responses, relationship to the problem, and measure of constructs was 3.33; and the average score for application to praxis was 4, for which each criterion exceeded expectations.

Furthermore, the pilot testing was done with twenty-five Grade 10 students. The Cronbach's alpha for internal consistency for each subscale was 0.807 for cognitive readiness, 0.874 for social readiness, 0.406 for physical readiness, and 0.833 for emotional readiness. The overall Cronbach's alpha for the four subscales was 0.906, which was interpreted as excellent.

On the other hand, the test to measure the students' mathematics performance consisted of 25 items answered within 1 hour and 30 minutes. The researcher provided a table of specifications to assure that the assessment was aligned with the Most Essential Learning Competencies (MELCs) required.

Research Procedure

The instruments on readiness and mathematics performance were developed, assessed for validity and reliability, approved by the research adviser, and modified before being distributed to Grade 7 students. These were administered to the respondents with the consent of the division superintendent and school head.

The instruments were distributed and answered by the students on November 11, 2022, which was the first week of the full face-to-face classes within 1 hour and 30 minutes. The statistics were then tabulated. The conclusions and recommendations were derived from the calculations and analysis of the gathered data.

Data Analysis

To find out the students' readiness level and mathematics performance in face-to-face learning, the mean was employed. Likewise, the Pearson product-moment correlation coefficient (Pearson R), which measures the association between students' preparation and mathematics performance in face-to-face learning, and the hierarchical multiple regression (HMR), which examines the moderating effect of the socio-demographic profile of Grade 7 learners on the correlation between their preparation and mathematical performance in face-to-face learning, were used.

To interpret the mean of students' responses in terms of their readiness level for face-to-face learning, the researcher utilized the Likert scale.

Table 2. Verbal Interpretation of the Students' Readiness Level in Face-to-Face Learning

Score Range	Verbal Description
3.67 – 5.00	High
2.34 – 3.66	Moderate
1.00 – 2.33	Low

The table showed that students were classified as having a low readiness level if their score ranged from 1.00 to 2.33, a moderate level if it ranged from 2.34 to 3.66, and a high level of readiness if it ranged from 3.67 to 5.00.

On the other hand, the students' mathematics performance was interpreted using the Likert scale below.

Table 3. Verbal Interpretation of the Students' Mathematics Performance Level

Score Range	Verbal Description
20.01 – 25.00	Very High
15.01 – 20.00	High
10.00 – 15.00	Moderate
5.01 – 10.00	Low
0.00 – 5.00	Very Low

As seen in the table, students' mean test scores between 0.00 and 5.00 were interpreted as very low, 5.01 and 10.00 were interpreted as low, 10.01 and 15.00 were interpreted as moderate, 15.01 and 20.00 were interpreted as high, and 20.01 and 25.00 were interpreted as very high.

FINDINGS AND DISCUSSION

Students' Demographic Profile in Terms of Sex and Socio-Economic Status

Figure 1 displays the respondents' frequency and percentage distribution by sex.

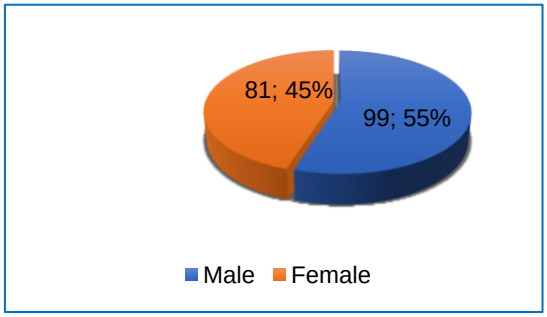

Figure 1. Distribution of the Respondents in Terms of Sex

As shown in Figure 1, the study had 81 female respondents and 99 male respondents, or 55% and 45%, respectively. This implies that respondents' responses were predominately made by male students.

Figure 2 indicates the percentage and frequency distribution of the respondents according to their parents' monthly income.

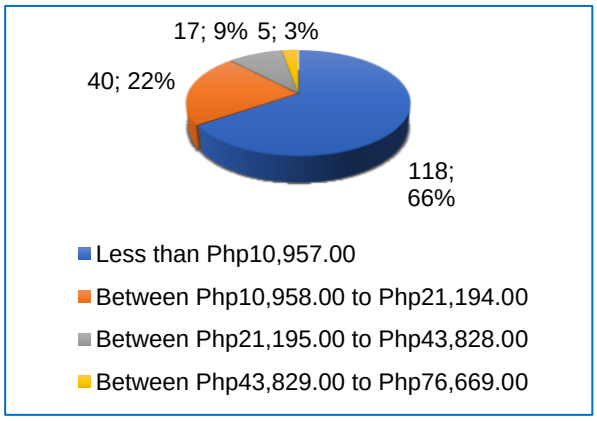

Figure 2. Distribution of the Respondents in Terms of Parents' Monthly Income

As presented in Figure 2, it revealed that most respondents' parents had incomes below Php10,957.00 (66%; n = 118). 40, or 22%, of the respondents' parents, had incomes ranging from Php 10,958 to Php 21,194 per month; 17, or 9% had incomes ranging from Php 21,195 to Php 43,828 per month; and 5, or 3% of the respondents' parents had incomes ranging from Php 43,829.00 to Php 76,669.00 per month.

This implies that a large number of Grade 7 students' Parents' monthly income was below Php 10,957.00.

Students' Level of Cognitive Readiness

Table 4. Students' Level of Cognitive Readiness

Indicative Statement	Mean	SD	Descriptive Interpretation
1. I can easily follow the math lessons.	3.81	0.84	High
2. I am confident that I can answer my teacher's questions during recitation.	3.56	0.84	Moderate
3. I can learn from things I see and hear, like lectures, audio recordings, videos, visuals, modules, and books.	3.88	0.87	High
4. I believe I do my best to learn in class.	4.37	0.79	High
Composite	**3.90**	**0.56**	**High**

Legend: 3.67 – 5.00 = High; 2.34 – 3.66 = Moderate; 1.00 – 2.33 = Low

As shown in Table 4, the statements that gained a "High" descriptive interpretation were "I can easily follow the math lessons" (mean = 3.81, SD = 0.84), "I can learn from things I see and hear, like lectures, audio recordings, or videos, visuals, modules, and books" (mean = 3.88, SD = 0.87), and "I believe I do my best to learn in class" (mean = 4.37, SD = 0.79). However, the cognitive readiness of students in the indicative statement "I am confident that I can answer my teacher's questions during recitation" (mean = 3.56, SD = 0.84), was at the moderate level. With a standard deviation of 0.56 and an overall mean of 3.90, students' level of cognitive readiness fell within the category of "High".

This result was supported by the study conducted by Satrianta et al. (2022), which showed that learners at SMK Negeri 2 Kendari were fundamentally ready to engage in limited face-to-face learning and were well-prepared for face-to-face instruction. Additionally, they ought to be prepared cognitively in terms of understanding, rationalization, planning, problem-solving, abstract thought, and learning based on experience. Children may achieve excellent grades if they are cognitively ready and mentally competent.

Students' Level of Social Readiness

Table 5. Students' Level of Social Readiness

Indicative Statement	Mean	SD	Descriptive Interpretation
1. I can easily make friends.	3.98	0.99	High
2. I can initiate social interaction with my teachers and classmates if needed.	3.80	0.76	High
3. I can courteously interact with other students and teachers.	3.76	0.85	High
4. I am willing to help my classmates whenever they need me.	4.15	0.84	High
5. I am open to suggestions and advice from my classmates.	3.87	0.99	High
Composite	**3.91**	**0.56**	**High**

Legend: 3.67 – 5.00 = High; 2.34 – 3.66 = Moderate; 1.00 – 2.33 = Low

As displayed in Table 5, the statement "I can easily make friends", got a mean of 3.98 and an SD of 0.99. However, statement 2, "I can initiate social interaction with my teachers and classmates if needed," had a mean of 3.80 and SD of 0.76. Statement 3, "I can courteously interact with other students and teachers," got a mean of 3.76 and an SD of 0.85, while statement 4, "I am willing to help my classmates whenever they need me," had a mean of 4.15 and an SD of 0.84. Lastly, statement 5, "I am open to suggestions and advice from my classmates", had a mean of 3.87 and an SD of 0.99. All of the statements had a "High" interpretation and had an overall mean and standard deviation of 3.91 and 0.56, respectively.

High levels of social preparedness are associated with excellent academic success. The result was consistent with the research of Wentzel (2017), which concluded that peer interactions and academic domains had a good, substantial association. Since some students acquire knowledge from their peers, group talks are also useful as a way to improve performance. Sometimes, students are hesitant to ask their teachers for assistance; instead, they feel more at ease asking their peers and friends.

Students' Level of Physical Readiness

Table 6. Students' Level of Physical Readiness

Indicative Statement	Mean	SD	Descriptive Interpretation
1. I am free from any sickness.	3.70	0.94	High
2. I can submit my tasks on time.	3.87	0.90	High
3. I can perform mathematical computations.	3.49	0.87	Moderate
4. I can get up early and make it to my classes on time.	4.11	0.92	High
5. I can actively participate in various tasks assigned to me by my teacher.	3.84	0.89	High
Composite	**3.80**	**0.58**	**High**

Legend: 3.67 – 5.00 = High; 2.34 – 3.66 = Moderate; 1.00 – 2.33 = Low

As presented in Table 6, the statements "I am free from any sickness" (mean of 3.70 and SD of 0.94), "I can submit my tasks on time" (mean = 3.87, SD = 0.90), "I can get up early and make it to my classes on time" (mean = 4.11, SD = 0.91), and "I can actively participate in various tasks assigned to me by my teacher" (mean = 3.84, SD = 0.89) were interpreted as "High." On the other hand, statement 3, "I can perform mathematical computations," had a mean of 3.49 and SD of 0.87, which were interpreted as "Moderate." The overall mean was 3.80 and the standard deviation was 0.58, also interpreted as "High." This merely indicates that learners are prepared physically to engage in face-to-face education.

Students must be fully vaccinated for on-site learning for them to be physically safe. This finding agrees with Nugroho et al. (2020), who stated that the government and society must make some preparations before implementing offline learning, which may include the preparation of human resources, facilities, infrastructure, licenses, and the ensuing provision of COVID-19 vaccine vaccination. This was further supported by the study of Fitria (2022), which revealed that the majority of the students readily volunteered to participate in vaccination activities before joining and enrolling in restricted in-person learning activities.

On the other hand, students can focus better in class and at school activities when they are physically healthy and free from diseases. This may suggest good mathematics performance.

Students' Level of Emotional Readiness

Table 7. Students' Level of Emotional Readiness

Indicative Statement	Mean	SD	Descriptive Interpretation
1. I can clearly express my thoughts and feelings toward my classmates and teachers.	3.57	0.85	Moderate
2. I can manage my stress while performing various tasks at school.	3.68	0.91	High
3. I have someone with whom I can share my problems.	3.48	1.21	Moderate
4. I'm capable of dealing with my mood swings.	3.58	0.96	Moderate
5. I can overcome my nervousness during oral recitation.	3.56	0.95	Moderate
Composite	**3.57**	**0.58**	**Moderate**

Legend: 3.67 – 5.00 = High; 2.34 – 3.66 = Moderate; 1.00 – 2.33 = Low

As reflected in Table 7, only the statement "I am able to manage stress while performing various tasks at school" (mean = 3.68, SD = 0.91) had a high level of emotional readiness. However, the statements that got a "Moderate" descriptive interpretation were as follows: "I can clearly express my thoughts and feelings towards my classmates and teachers" (mean = 3.57, SD = 0.85), "I have someone with whom I can share my problems" (mean = 3.48, SD = 1.21), "I'm capable of dealing with my mood swings" (mean = 3.58, SD = 0.96), and "I can overcome my nervousness during oral recitation" (mean = 3.56, SD = 0.95). The grand mean was 3.57 while the standard deviation was 0.58, interpreted as moderate.

This finding also validates the assertion of Riegel and Evans (2021), who emphasized that students' emotions are crucial when it comes to their academic interests, engagement, performance, and general well-being. Positive feelings, such as happiness, pride, and enthusiasm are the results of positive emotions and can boost performance and satisfaction. Negative feelings, on the other hand, can increase tension and anxiety, as well as lower motivation and performance.

However, the findings were disproved by Borres et al. (2023), who discovered that the student's degree of readiness in terms of their emotional characteristics in one of the high schools in the Division of Gingoog City, Philippines, was high. Instead of studying at home, students are ready to learn in school. Learning can give them happiness and a sense of fulfillment, rather than doing nothing.

According to our observations, many of the children are not yet emotionally stable; therefore, this differs from the study's findings. They're not completely prepared for face-to-face instruction because many of them struggle with anxiety and despair.

Summary of Students' Readiness Level

Table 8. Summary of Student's Level of Readiness

Student's Readiness	Mean	SD	Descriptive Interpretation
Cognitive	3.90	0.56	High
Social	3.91	0.56	High
Physical	3.80	0.58	High
Emotional	3.57	0.58	Moderate
Overall Readiness	3.79	0.46	High

Legend: 3.67 – 5.00 = High; 2.34 – 3.66 = Moderate; 1.00 – 2.33 = Low

It can be gleaned from Table 8 that overall, the results of readiness in terms of cognitive (mean = 3.90, SD = 0.56), social (mean = 3.91, SD = 0.56), and physical (mean = 3.80, SD = 0.58) were interpreted as "High". The overall mean of the readiness was 3.80 while the standard deviation was 0.57, interpreted as "High". This was corroborated by research by Borres et al. (2023), which found that pupils in one of the high schools in the Philippines' Division of Gingoog City had a high degree of readiness concerning their physical aspect. The students are in adequate physical condition to participate in in-person instruction.

Moreover, this relates also to the study of Tullis and Goldstone (2020), who found that students are more motivated when they are learning with friends. The best way for students to acquire knowledge is in a group setting, where they can work together and finish the tasks with their classmates.

Furthermore, the level of students' emotional readiness was moderate (mean = 3.57, SD = 0.58). This was in contrast to the study by Borres et al. (2023), which discovered that the students had a high level of emotional readiness. They were happy to hear the news about face-to-face classes after years of distance learning. It was also agreed upon by Stanford researchers (2021), who found that face-to-face communication makes brains happier. This implies that students are more motivated and interested when they can interact with others.

Students' Level of Mathematics Performance

Table 9. Students' Level of Mathematics Performance

Score	Descriptive Interpretation	Frequency	Percentage
0 to 5	Very Low	65	36.11
6 to 10	Low	101	56.11
11 to 15	Moderate	12	6.67
16 to 20	High	2	1.11
Total		**180**	**100.00**
Mean = 6.72 (SD = 2.93) (Low)			

As presented in Table 9, there were 65 students whose scores ranged from 0 to 5, which had a percentage of 36.11 and was interpreted as very low. 101 of the respondents got scores ranging from 6 to 10 (percentage = 56.11) and were interpreted as low. 12 students got scores ranging from 11 to 15 with a percentage of 6.67, which was interpreted as moderate. Lastly, 2 students got scores ranging from 16 to 20 (percentage = 1.11) that were interpreted as high.

With the result, the researcher developed the impression that students had low levels of

mathematical performance (mean = 6.72, SD = 2.93). This result supports the findings of research by Caube et al. (2019), which indicated that mathematics performance in the 7th grade was extremely poor. Additionally, it supports the claim made by Ajisuksmo and Saputri (2017) that Indonesian pupils have exceptionally poor performance scores in mathematics. Increasing students' mathematics performance has been a challenge for teachers and curriculum planners. Teachers may put more effort into planning and investigating the best strategies and methods. Moreover, for students to become globally competent, they must make a significant effort to learn math concepts and techniques.

Relationship Between Students' Level of Readiness and Mathematics Performance

Table 10. Test of Significant Relationship Between Students' Level of Readiness and Mathematics Performance

Level of Readiness and Mathematics Performance	r-value	p-value
Cognitive	.203**	.006
Social	.107	.153
Physical	.178*	.017
Emotional	.163*	.029
Overall Readiness	.200**	.007

***Significant at p <.01; *Significant at p < .05*

Based on the table, there was a positive and substantial correlation between students' math performance and their level of cognitive readiness (r-value = .203, p-value = .006, significant at p<.01). Similar to this, the analysis of the data showed a positive and significant association between students' level of physical preparation and their mathematics achievement (r-value = .178, p-value = .017, significant at p<.05). The results also revealed a positive and significant link between students' level of readiness in terms of their emotional readiness and their mathematical ability (r-value = .200, p-value = .007, significant at p<.01).

On the other hand, it showed that there was no substantial and positive association between their level of readiness in terms of social readiness and mathematics performance (r-value = .107, p-value = .153).

However, there was a strong and positive correlation between students' mathematics performance and their readiness in terms of cognitive, social, physical, and emotional readiness (r-value = .200, p-value = .007, significant at p<.01).

These findings were corroborated by Ramirez-Arellano et al. (2019), who found that there was a strong correlation between students' feelings and their academic success in a blended learning environment. Riegel and Evans (2021) concluded that this relationship is essential for student's academic interest, engagement, performance, and general well-being. Additionally, the results are related to the findings of Zerga et al. (2022), who demonstrated how stunting, underweight, and insufficient iodine intake significantly impacted children's academic performance. Students can think well if they are emotionally, cognitively, socially, and physically stable.

Moderating the Effect of Students' Sex on the Relationship Between Their Level of Readiness and Mathematics Performance

Table 11. Test of Moderating Effect of Students' Sex on the Relationship Between Students' Level of Readiness and Mathematics Performance

R	R Square	MSE	F	df1	df2	P
.2367	.0560	8.2413	3.4817	3.0000	176.0000	.0171

Model						
	Coefficient	se	t	p	LLCI	ULCI
Constant	-4.7598	5.3596	-.8881	.3757	-15.3371	5.8176
Readiness	3.1824	1.4027	2.2687	.0245	.4141	5.9508
Sex	4.9113	3.7185	1.3208	.1883	-2.4272	12.2499
Int_1	-1.4026	.9739	-1.4402	.1516	-3.3246	.5194

Test (s) of Highest Order Unconditional Interaction (s)					
	R Square Change	F	df1	df2	P
X*W	.0111	2.0742	1.0000	176.0000	.1516

The term integration (Int_1) shows whether sex does not moderate the relationship between the student's level of readiness and their mathematics performance. Based on the results, the p-value of .1516 was greater than 0.05 and there was zero in between the lower limit confidence interval and the higher limit confidence interval (LLCI = -3.3246, ULCI = .5194). Hence, it showed that the association between learners' level of preparation and mathematics performance was not significantly moderated by sex.

Moreover, a p-value of .1516 (significant at p<.01) revealed that the interaction did not significantly moderate the students' readiness for face-to-face learning in terms of sex. This indicates that the sex of the students has no impact on their preparation and mathematics performance in face-to-face instruction.

This finding is in line with the research of Mone (2020), which discovered that in the Turkish context, both male and female students improved their results without a discernible gender difference. This was corroborated by the Ministerio de Educación y Formación Profesional (2019), which asserts that innate disparities in ability cannot account for the differences in math performance between the sexes. This implies that if the guys' score is high, the girls' score will likewise be high. Regardless of gender, students perform similarly.

Moderating Effect of Students' Socio-Economic Status on the Relationship Between Their Level of Readiness and Mathematics Performance

Table 12. Test of Moderating Effect of Students' Socio-economic Status on the Relationship Between Students' Level of Readiness and Mathematics

Model Summary						
R	R Square	MSE	F	df1	df2	P
.2010	.0404	8.3777	2.4700	3.0000	176.0000	.0635

Model

	Coefficient	se	t	p	LLCI	ULCI
Constant	1.7569	3.8987	.4506	.6528	-5.9373	9.4510
Readiness	1.2808	1.0233	1.2517	.2124	-.7387	3.3002
SES	.0540	2.3322	.0231	.9816	-4.5487	4.6566
Int_1	.0040	.6194	.0064	.9949	-1.2185	1.2264

Test (s) of Highest Order Unconditional Interaction (s)

	R Square Change	F	df1	df2	P
X*W	.0000	.0000	1.0000	176.0000	.9949

Based on the table, there was no moderating effect on the link between students' level of preparation and their mathematical performance regarding their socioeconomic status (LLCI = -1.2185, ULCI = 1.2264, p-value = .9949, significant at p<.01). In addition, the p-value showed that the interaction did not moderate the students' readiness and socio-economic status. This demonstrated that the degree of association between the students' preparation and mathematics in face-to-face instruction is unaffected by their status in society.

This result was contrasted with Alordiah et al. (2015), who claimed that children of high-SES parents outperformed those of low-SES parents in terms of academic performance. This study's findings are different because parents from high socioeconomic backgrounds had ample access to a variety of resources and tools that might help improve their students' performance and even make reservations for tutors, which low-SES parents sometimes can't afford.

CONCLUSIONS

Based on the researcher's data collection efforts, in which these data were computed and analyzed, the study successfully met its intended objectives, which were to identify the mathematics performance and readiness level of Grade 7 students in face-to-face learning as well as determine the relationship between these two variables.

In light of the findings, the researcher concludes that, first, there is a significant relationship between Grade 7 students' readiness and mathematics performance in face-to-face learning. This indicates that students' performance in mathematics will be impacted by how well they are prepared cognitively, physically, socially, and emotionally. Their performance might improve if they are highly prepared and might decrease if they are not. This will help the administrator, along with the school guidance counselor and the head of the mathematics department to design pertinent activities and programs to improve students' readiness and performance in mathematics during face-to-face instruction. Moreover, teachers may plan an instructional intervention that incorporates ICT, such as interactive games and various mobile applications, to increase students' enthusiasm for mathematics. They might also adopt or come across techniques that could work for any learner.

Second, the researcher concludes that there is no significant moderating effect of the student's

profile in terms of sex and socioeconomic status (SES) on the relationship between their readiness and mathematics performance in face-to-face classes. This suggests that preparedness and math performance among students were unrelated to sex and socioeconomic level. When compared to students from low socioeconomic status, the readiness and math performance of students from high socioeconomic status are the same. It is proposed that additional investigation into these assertions may be done in the future.

LIMITATIONS & FURTHER RESEARCH

Just like many others, there are limitations to this study. Other researchers can utilize these limits as a springboard to create and find relevant studies that will further discover how well-prepared and effective young learners are for face-to-face instruction.

On the other hand, only 180 students in Grade 7 at Balibago Integrated High School Extension in the Division of Santa Rosa City, Philippines, were included in the data collection using survey questions created by the researcher. The school where the data were collected is only classified as a secondary public school. No data were gathered from schools at the elementary, secondary, or even comparable levels in the private schools. Finally, the study solely looked at how prepared the pupils were in terms of their cognitive, physical, social, and emotional aspects. Different aspects may be chosen by various researchers in a larger locale.

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