

The multiple intelligences of the High School Students of a college as basis for the selection of appropriate teaching strategies in mathematics

Lirpaz M. Limon

Ilagan West National High School
Naguilian Norte, City of Ilagan, Isabela, Philippines
Email: lirpaz.limon@deped.gov.ph

Abstract: Understanding students' multiple intelligences is crucial in designing effective teaching strategies that cater to diverse learning needs, particularly in Mathematics. However, there is limited research on how multiple intelligences influence the selection of instructional methods in this subject. This study investigated the multiple intelligences of high school students at Saint Ferdinand College and their implications for selecting appropriate teaching strategies in Mathematics. Utilizing a descriptive correlational research design, data were gathered from 455 randomly selected students across two campuses. The study employed the Multiple Intelligence Test based on Gardner's MI Model, a teaching-style analysis questionnaire, and students' academic records. Statistical tools such as percentage and frequency counts, weighted mean, chi-square, and ANOVA F-test were used for analysis. Findings revealed that students exhibited diverse intelligences, with musical and bodily-kinesthetic intelligences being the most prominent. The study suggests integrating auditory and physical activities into mathematics instruction to enhance student engagement and learning outcomes. It recommends teacher training on multiple intelligences, incorporating music in lessons, and conducting further research on the interplay between learning styles, teaching strategies, and academic performance.

Keywords: Multiple intelligences, Teaching Strategies, Mathematics instruction, Student engagement, Academic performance

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INTRODUCTION

The Philippine Education System underwent a vast change—from a 10-year basic educational cycle to a K-to-12 Basic Education Program, from teacher-centered to student-centered, from an individual activity to a cooperative learning activity, from a pen-and-paper form of assessment to a product or performance task. However, everything depends on a teacher's strategies and, of course, on the student's interest.

The student's interest may serve as a way to think of a suitable strategy a teacher can use so students may learn. Some students love to sing to express how they feel. Others are graceful in dancing. Yet, some are quietly listening and learning. Some love to draw what they know. Several students prefer to solve puzzles. Some read and speak a lot. It shows that there is uniqueness in how the students learn.

The teacher must give these ways on how students learn importance. He must set in his mind that he does not exist just to teach but to see to it that his students learn. Hence, a true teacher needs to find ways to make this possible. He should think of possible ways how he can be more influential because learners may demand more—a more exciting, more useful, and more challenging learning environment. Teachers are expected to be patient and intelligent. They need to be aware of the needs of their learners and how they will transpire learning. If teachers focus on how students learn they will probably think of different strategies and techniques that will surely boost learning.

There is no single strategy that will capture the interest of all students at all times. There is a strategy that may be successful with several students but not for others. These individual differences among students are an awakening factor that teachers need to use a broad range of

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teaching strategies with their students so that each student has the opportunity to learn in ways suitable to their unique means.

Learners are not all bodily-kinesthetic, linguistic type, mathematically inclined, nature smart, self-smart, visual lovers, nor sociable enough.

That is why the study on multiple intelligences is significant. Multiple is synonymous with numerous or various; intelligence is our ability to think and to learn. Thus, multiple intelligence deals with various skills and capabilities. Knowing the multiple intelligences of our learners is one way to help us effectively cater to their needs, especially in difficult subjects such as mathematics.

The performance in mathematics of Filipino students is very alarming. It is persistently been poor. This is manifested in many classroom observations and international tests like the Third International Mathematics and Science Study in 1999 and 2003. “The Philippines ranked 42nd in math among 45 countries in the 2003 Trends in International Mathematics and Science Study (TIMSS), an international assessment of math and science skills among primary and secondary school students conducted every 4 years. The Philippines has not improved its ranking since 1999 and did not participate in the 2007 and 2011 TIMSS.”(Rodriguez, 2012)

The results are the same on national standardized tests like the National Achievement Test(NAT) SY 2005-2006 wherein out of 985,754 examinees, only 149,992 or 15.21% got mastery, and 582,436 or 59.09% of the students gained below mastery in mathematics (National Achievement Test – 4th Year (2005–2006).

Moreover, mathematics has been defined as a subject which is a Mental Abuse To Humans (National Achievement Test – 4th Year (2005–2006), 2006). It is boring and difficult to understand. Students would rather scan their cell phones than open their mathematics books. They are easily irritated by numbers and symbols especially when it comes to topics that require analysis and critical thinking. Only a few can solve mathematical problems accurately without a doubt. Only a few could offer patience and initiative in finding their ways to understand the subject.

Most students have hated mathematics. However, Mathematics is a useful and indispensable subject. Its applications are present everywhere. We are not just aware. From waking up in the morning looking at the clock through amazing discoveries in medicines, arts, and technologies, knowledge in mathematics is used. The gadgets we are holding like cell phones and tablets even laptops and computers, calculators, bank transactions for ATM's, depositing and withdrawing funds, paying utility bills, and other transactions, is it not mathematics? Or, we put it this way, if you do not want to be cheated, robbed, or abused; you need the basics in mathematics. We need mathematics to survive.

One way to overcome hatred in the subject is to meet the learning needs of these students by applying an appropriate teaching strategy based on their multiple intelligences. We need to find ways to accommodate the diverse learners.

That is why, the writer has engaged in the study of multiple intelligences for she believes that it is one way to accommodate the needs of our clientele. Varied teaching and learning activities need to be provided to learners to address individual differences that we need to meet. The writer is hoping that this is one way to solve poor academic performance not only in mathematics but also in other learning areas. This study aims to look into the multiple intelligences of high school students as a basis for the selection of appropriate teaching strategies in mathematics.

Statement of the problem

The study looked into the relationship of the Multiple Intelligence of the students as a basis for the selection of appropriate teaching strategies in mathematics.

Primarily, it sought to answer the following questions:

- 1) What is the profile of the students in terms of: (a) sex, (b) age, (c) parent's educational attainment; and (d) year level?
- 2) What is the Multiple Intelligence of the students when grouped according to sex, age, parent's educational attainment, and year level?
- 3) Is there a significant relationship between sex, parent's educational attainment, and students' M.I.?
- 4) What is the academic performance of students with the following dominant Multiple Intelligence?
- 5) Is there a significant difference between the dominant multiple intelligences of the students and their average grades in mathematics?

METHODOLOGY

Research design

The study employed the descriptive correlational research method to determine the multiple intelligences of secondary students and their academic achievement in Mathematics. According to Manuel and Medici as cited by Ariola (2006), descriptive research describes what is. It involves the description, recording, analysis, and interpretation of the present nature, composition, or processes of phenomena.

Descriptive Correlational Method is a type of descriptive research method that is used to determine whether or not there is a relationship that exists between two or more quantifiable variables, and if there is, to what extent or degree the relationship is.

Respondents and locale of the study

The respondents to the study are the randomly selected 455 students from Grade 7 to fourth-year students of Saint Ferdinand College, 199 students from the Cabagan campus which was taken from 398 students enrolled in the campus, and 256 students from the City of Ilagan Campus taken from 708 high school students, for school year 2013-2014.

Research instrument

To attain the objectives of this study, the researcher made use of the following:

Questionnaires. These were used to gather the profiles and responses of the multiple intelligences of the 455 selected high school students enrolled in Saint Ferdinand College. The Multiple Intelligence Test determined the respondents' multiple intelligence based on Howard Gardner's MI Model (young people's version). The teaching strategies used by the teacher were determined based on the Teaching-style analysis questionnaire.

First and Second Grading Grades of the respondents. This was used to determine the academic performance of the respondents.

Data analyses procedure

In analyzing the data gathered for this study, the researcher employed both descriptive and inferential statistical methods to ensure comprehensive interpretation of the results. The profiles of the respondents, including variables such as sex, age, year level, and parents' educational attainment, were analyzed using frequency and percentage distribution. To assess the multiple intelligences of the students, responses from the Multiple Intelligence Test were quantified using a weighted mean, with responses categorized under a four-point Likert scale ranging from "Definitely Not True of Me" to "Very True of Me."

The academic performance of students was measured through their first and second grading period grades in mathematics, which were interpreted based on a standard five-level proficiency scale: Beginning (74 and below), Developing (75–79), Approaching Proficiency

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(80–84), Proficient (85–89), and Advanced (90 and above). To determine the relationship between students' multiple intelligences and selected demographic variables, the Chi-square test was applied. Furthermore, to examine whether there was a significant difference between the dominant multiple intelligences of the students and their academic performance in mathematics, the ANOVA F-test was employed. These statistical tools facilitated a deeper understanding of how different types of intelligences influence students' learning outcomes and how this can inform the selection of effective teaching strategies in mathematics.

FINDINGS AND DISCUSSIONS

Profile of the students

Sex

It shows that 230, or 50.5 percent, of the students were male, while 225, or 49.5 percent, were female. The data negated Abu's findings, which stated that in many schools, there were more female students than male.

Age

It is shown in the data that most of the high school students were 13 years old, with a total of 122 or 26.8 percent, followed by those who were 15 years old, totaling 119 or 26.2 percent. There were 93 or 20.4 percent who were 14 years old and 92 or 20.2 percent who were 12 years old. Only 18 students or 4.0 percent were 16 years old, while 11 or 2.4 percent were 11 years old.

Year level

It is revealed that the greatest number of students belonged to the Grade 8 level, with 122 or 26.8 percent, followed by third-year students, who had 114 or 25.1 percent. Then, there were 110 or 24.2 percent fourth-year students, while the least number were in Grade 7, with 109 or 24.0 percent

Parent's educational attainment

Mother's educational attainment

It shows that 284 or 62.4 percent of the students' mothers were college graduates; 40 or 8.8 percent had finished their master's degree, and four (4), or 0.9 percent had completed their doctorate degree. Additionally, 40, or 8.8 percent had finished their master's degree, and four (4) or 0.9 percent had earned their doctoral degree. The parents of the students were not behind in education, and most probably, they were wise in decision-making, particularly in choosing to send their children to this institution.

Furthermore, 41, or 9.0 percent were high school graduates, and 16, or 3.5 percent had not finished their secondary education. Only four (4) or 0.9 percent had not graduated from elementary school, while three (3) or 0.7 percent had completed elementary education.

This implies that the majority of the students' mothers at Saint Ferdinand College were educated or literate.

Father's educational attainment

It reveals that 271 or 59.6% of the fathers were college graduates; 78 or 17.1% were college undergraduates; 42 or 9.2% were high school graduates; 32 or 7.0% held a master's degree; 13 or 2.9% were high school undergraduates; 10 or 2.2% were elementary graduates; 6 or 1.3%

have earned a doctorate degree; and 3 or 0.7% were elementary undergraduates. The data indicate that the majority of the students' fathers are college graduates.

The multiple intelligences of the students when grouped according to profile

Sex

It can be gleaned from the data that 149 or 32.75 percent had a musical inclination, composed of 56, or 12.31 percent male, and 93, or 20.44 percent female. There were 114 or 25.05 percent who were bodily-kinesthetic, broken down into 81, or 17.80 percent male and 33, or 7.25 percent female. Among those with interpersonal intelligence, 30, or 6.59 percent were male, and 27, or 5.93 percent were female. The table also revealed that 54 or 11.87 percent had intrapersonal intelligence, with 22, or 4.84 percent male and 32, or 7.03 percent female.

Additionally, 34, or 7.47 percent demonstrated a logical-mathematical inclination, with 15, or 3.30 percent male, and 19, or 4.18 percent female. There were 25 or 5.49 percent of the respondents who were visual-spatial, including 13 or 2.86 percent male and nine or 1.98 percent female.

The findings showed sex differences in multiple intelligences. More female students exhibited musical, logical-mathematical, and intrapersonal intelligence than males. On the other hand, male students were more inclined toward linguistic, kinesthetic, visual-spatial, and interpersonal intelligence. This affirmed the study of Sharifi, which found that, in terms of intrapersonal intelligence, girls were superior to boys. Similarly, it supported Sharifi's finding that boys were superior to girls in visual-spatial intelligence. Furthermore, Furnham et al. found that males rated themselves higher in verbal, logical, and spatial intelligence.

Generally, the data revealed that most of the respondents had a musical inclination. This contradicted the inventory conducted by Salehi and Gerami, which found that most students possessed logical-mathematical intelligence. This result suggested that youngsters nowadays were more musically inclined, likely influenced by the present generation's media, including television shows featuring talent competitions such as *The Voice of the Philippines* and *Your Face Sounds Familiar*. Furthermore, students' interest in mathematics might increase if teachers adopt strategies that incorporate music or auditory learning techniques.

Age

It could be seen from the data that respondents aged eleven (11) had the following multiple intelligences: five (5) or 1.10 percent had bodily-kinesthetic intelligence, three (3) or 0.66 percent had intrapersonal intelligence, two (2) or 0.44 percent had interpersonal intelligence, and one (1) or 0.22 percent had linguistic intelligence.

The respondents aged twelve (12) showed the following inclinations: thirty-two (32) out of ninety-two (92) or 7.03 percent had musical intelligence, twenty-three (23) or 5.05 percent were bodily-kinesthetic, thirteen (13) or 2.86 percent had interpersonal intelligence, eight (8) or 1.76 percent had logical-mathematical and intrapersonal inclinations, six (6) or 1.32 percent were linguistic, and two (2) or 0.44 percent were visual-spatial.

Furthermore, respondents aged thirteen (13) had the following inclinations: thirty-nine (39), or 8.57 percent were musical, thirty-one (31) or 6.81 percent were bodily-kinesthetic, seventeen (17) or 3.74 percent were interpersonal, twelve (12) or 2.64 percent were intrapersonal, ten (10) or 2.20 percent were visual-spatial, nine (9) or 1.98 percent were logical-mathematical, and four (4) or 0.88 percent had linguistic intelligence.

The multiple intelligences of the respondents aged fourteen (14) showed the following frequency and percentage: twenty-six (26) or 5.71 percent were musical, twenty (20) or 4.40 percent were bodily-kinesthetic, thirteen (13) or 2.86 percent were intrapersonal, twelve (12)

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or 2.64 percent were interpersonal, eight (8) or 1.76 percent were linguistic and logical-mathematical, and six (6) or 1.32 percent were visual-spatial.

The multiple intelligences of the respondents aged fifteen (15) were as follows: forty-five (45) or 9.89 percent were musical, twenty-nine (29) or 6.37 percent were bodily-kinesthetic, eighteen (18) or 3.96 percent were intrapersonal, twelve (12) or 2.64 percent were interpersonal, seven (7) or 1.54 percent were visual-spatial, six (6) or 1.32 percent were logical-mathematical, and two (2) or 0.44 percent were linguistic.

The respondents aged sixteen (16) had the following intelligences: seven (7) or 1.54 percent were musical, six (6) or 1.32 percent were bodily-kinesthetic, three (3) or 0.66 percent were interpersonal, and one (1) or 0.22 percent had linguistic intelligence.

Generally, based on the above frequencies and percentages, students aged 12–16 were mostly musically inclined, followed by those with bodily-kinesthetic intelligence. However, the majority of the respondents aged eleven (11) years old were bodily-kinesthetic, which implied that they were still in the play stage, where they were more interested in activities involving physical agility, balance, and eye-body coordination. It could also be seen from the table that only a few respondents possessed linguistic, logical-mathematical, and visual-spatial intelligence—areas traditionally given importance in the classroom. These intelligences should be further developed among learners since only a few exhibited them. However, students' interests must also be taken into consideration.

Year level

The data shows that among the Grade 7 students, thirty-three (33) or 7.25 percent were musically inclined, thirty (30) or 6.59 percent had a bodily-kinesthetic inclination, sixteen (16) or 3.52 percent had interpersonal intelligence, twelve (12) or 2.64 percent had intrapersonal intelligence, nine (9) or 1.98 percent were logical-mathematical thinkers, six (6) or 1.32 percent had linguistic intelligence, and three (3) or 0.66 percent had visual-spatial intelligence. These results suggest that most Grade 7 students were musically inclined, which could be attributed to the significant influence of media and entertainment on them.

Among Grade 8 students, thirty-seven (37) or 8.13 percent were musically inclined, thirty-three (33) or 7.25 percent had bodily-kinesthetic intelligence, sixteen (16) or 3.52 percent had interpersonal intelligence, twelve (12) or 2.64 percent had intrapersonal intelligence, ten (10) or 2.20 percent had visual-spatial intelligence, eight (8) or 1.76 percent were logical-mathematical thinkers, and six (6) or 1.32 percent had linguistic intelligence. Similar to Grade 7 students, Grade 8 respondents were also influenced by media trends, particularly the rise of television programs featuring K-pop groups, singing contests, and the widespread availability of videoke machines. This finding aligns with the study of Gogebakan, which stated that eighth-grade students typically exhibit dominance in interpersonal, bodily-kinesthetic, musical, and spatial intelligences. However, in the present study, Grade 8 students showed a strong preference for musical intelligence, followed by bodily-kinesthetic and interpersonal intelligence.

The third-year students demonstrated the following multiple intelligences: thirty-five (35) or 7.69 percent were musically inclined, twenty-four (24) or 5.27 percent had bodily-kinesthetic intelligence, sixteen (16) or 3.52 percent were intrapersonal, fifteen (15) or 3.30 percent were interpersonal, ten (10) or 2.20 percent were logical-mathematical, eight (8) or 1.76 percent were linguistic, and six (6) or 1.32 percent had visual-spatial intelligence.

Among fourth-year students, out of one hundred ten (110) respondents, forty-four (44) or 9.67 percent were musically inclined, twenty-seven (27) or 5.93 percent had bodily-kinesthetic intelligence, fourteen (14) or 3.08 percent were intrapersonal, ten (10) or 2.20 percent were interpersonal, seven (7) or 1.54 percent were logical-mathematical, six (6) or 1.32 percent were visual-spatial, and two (2) or 0.44 percent had linguistic intelligence.

Overall, the results indicate that musical intelligence, or being "music-smart," was the most dominant multiple intelligence among students across all year levels, with a total of 149 respondents (32.75 percent). This finding suggests that media, particularly television programs such as *The Voice of the Philippines* and *Pilipinas Got Talent*, which highlight singing competitions and talent searches, had a significant influence on learners.

Following musical intelligence, bodily-kinesthetic intelligence was the second most common, with 114 respondents (25.05 percent). This was followed by interpersonal intelligence (57 respondents or 12.53 percent), intrapersonal intelligence (54 respondents or 11.87 percent), logical-mathematical intelligence (34 respondents or 7.47 percent), visual-spatial intelligence (25 respondents or 5.49 percent), and linguistic intelligence (22 respondents or 4.84 percent). These results imply that the types of intelligence traditionally emphasized in classrooms—such as linguistic and logical-mathematical—had the fewest number of respondents who exhibited these abilities. This highlights the need to further develop these intelligences among students while also considering their natural inclinations and interests.

Parents' educational attainment

Mothers' educational attainment of the respondents

Based on the data, the MIs of students whose mothers are elementary undergraduates are as follows: two (2), or 0.44% are bodily-kinesthetic, and one (1) or 0.22% each is linguistic and musical. Of students whose mothers are elementary graduates, two (2) or 0.44% are musical, and one (1) or 0.22% is logical-mathematical.

Among those whose mothers are high school undergraduates, four (4), or 0.88% are musical; three (3), or 0.66% each are bodily-kinesthetic and intrapersonal; two (2), or 0.44% each are logical-mathematical and interpersonal; and one (1) or 0.22% each are linguistic and visual-spatial.

For respondents whose mothers are high school graduates, fourteen (14) or 3.08% are musical; eight (8) or 1.76% are bodily-kinesthetic; seven (7) or 1.54% are intrapersonal; six (6) or 1.32% are interpersonal; three (3) or 0.66% are visual-spatial; two (2) or 0.44% are logical-mathematical; and one (1) or 0.22% is linguistic.

Among those whose mothers are college undergraduates, twenty-eight (28) or 6.15% are musical; fourteen (14) or 3.08% are bodily-kinesthetic; seven (7) or 1.54% are interpersonal; six (6) or 1.32% are intrapersonal; four (4) or 0.88% are linguistic; three (3) or 0.66% are logical-mathematical; and one (1) or 0.22% is visual-spatial.

For respondents whose mothers are college graduates, the data show: eighty-two (82) or 18.02% are musical; seventy-six (76), or 16.70% are bodily-kinesthetic; thirty-seven (37) or 8.13% are interpersonal; thirty-three (33) or 7.25% are intrapersonal; twenty-four (24) or 5.27% are logical-mathematical; nineteen (19) or 4.18% are visual-spatial; and thirteen (13) or 2.86% are linguistic.

Among those whose mothers hold master's degrees, seventeen (17) or 3.74% are musical; nine (9), or 1.98% are bodily-kinesthetic; five (5) or 1.10% are interpersonal; four (4), or 0.88% are intrapersonal; two (2) or 0.44% are linguistic; and one (1) or 0.22% is visual-spatial.

Finally, the MIs of students whose mothers are doctorate holders are: two (2), or 0.44% are bodily-kinesthetic, and one (1), or 0.22% each are musical and interpersonal.

It can be deduced from the table that the multiple intelligences of the students are not solely influenced by their mothers' educational attainment.

Father's educational attainment of the respondents

Of respondents whose fathers are elementary undergraduates, two (2) or 0.44% are bodily-kinesthetic, and one (1) or 0.22% is musically inclined. Of those whose fathers are elementary

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graduates, three (3), or 0.66% are musical and bodily-kinesthetic; two (2) or 0.44% are logical-mathematical, and one (1), or 0.22% each are interpersonal and linguistic.

Respondents whose fathers are high school undergraduates show the following MIs: four (4) or 0.88% each are musical and bodily-kinesthetic; two (2) or 0.44% are intrapersonal; and one (1) or 0.22% each is linguistic, logical-mathematical, and interpersonal.

On the other hand, respondents whose fathers are high school graduates exhibit the following: seventeen (17) or 3.74% are musical; nine (9) or 1.98% are bodily-kinesthetic; five (5), or 1.10% are intrapersonal; four (4) or 0.88% each are logical-mathematical and interpersonal; and one (1) or 0.22% is linguistic.

Of respondents whose fathers are college undergraduates, twenty-eight (28) or 6.15% are musical; twenty-one (21) or 4.62% are bodily-kinesthetic; twelve (12) or 2.64% are intrapersonal; ten (10) or 2.20% are interpersonal; four (4) or 0.88% are logical-mathematical; and three (3) or 0.66% are visual-spatial.

Respondents whose fathers are college graduates demonstrate the following MIs: eighty (80) or 17.58% are musical; sixty-six (66) or 14.51% are bodily-kinesthetic; thirty-seven (37) or 8.13% are interpersonal; thirty-three (33) or 7.25% are intrapersonal; twenty-one (21) or 4.62% are logical-mathematical; eighteen (18) or 3.96% are visual-spatial; and sixteen (16) or 3.52% are linguistic.

In addition, the MIs of students whose fathers hold a master's degree are as follows: fifteen (15) or 3.30% are musical; seven (7) or 1.54% are bodily-kinesthetic; four (4), or 0.88% are interpersonal; and two (2) or 0.44% each are linguistic, logical-mathematical, and intrapersonal.

Finally, respondents whose fathers are doctoral graduates exhibit the following MIs: two (2), or 0.44% each are bodily-kinesthetic and visual-spatial, and one (1), or 0.22% each are linguistic and musical.

Therefore, it can be concluded that most of the respondents' multiple intelligences are not significantly influenced by their fathers' educational attainment, as revealed by a frequency of 149 or 32.75%.

Significant relationship between sex, parent's educational attainment, and students' multiple intelligences

As shown in the data, the computed significance values of Pearson's Chi-square for the variables age (0.306), year level (0.783), mother's educational attainment (0.918), and father's educational attainment (0.667) are all greater than the significance level of 0.05. Hence, the null hypothesis is accepted, indicating that there is no significant relationship between the respondents' age, year level, parental educational attainment, and their multiple intelligences. These findings support those of Saricadocu, who also concluded that parental education does not significantly correlate with students' intelligence types.

However, for the profile variable sex, the computed significance value is 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected, implying that there is a significant relationship between the sex of the respondents and their multiple intelligences. This finding contradicts the study of Batulayan, who found no significant correlation between male and female participants in terms of their multiple intelligences.

In summary, the results indicate that the respondents' multiple intelligences are independent of their age, year level, mother's educational attainment, and father's educational attainment. However, their multiple intelligences appear to be dependent on their sex, suggesting that sex influences the types of multiple intelligences exhibited by the respondents.

Academic performance of the respondents

The data shows that 181 students (39.8%) demonstrated a proficient level of performance in Mathematics, while 151 students (33.2%) were at the approaching proficiency level. Additionally, 80 students (17.6%) performed at an advanced level, whereas 35 students (7.7%) were at the developing level. Lastly, 8 students (1.8%) were classified at the beginning level.

Significant difference between the multiple intelligences of students and their average grades in Mathematics

As shown in the data, the computed F significance value is less than the significance level of 0.05. Therefore, the null hypothesis is rejected, indicating that there is a significant difference between the students' multiple intelligences and their academic performance in Mathematics. This finding suggests that a student's academic performance in Mathematics is significantly influenced by their multiple intelligences. In particular, students with linguistic and logical-mathematical intelligence tend to perform better in Mathematics.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the study, it can be concluded that the multiple intelligences of the high school students at Saint Ferdinand College are diverse, with musical and bodily-kinesthetic intelligences being the most prominent across various demographic profiles, including sex, age, year level, and parents' educational attainment. While students showed a wide range of intelligences, there was a notable inclination towards musical intelligence, possibly influenced by media trends. This suggests that teaching strategies in mathematics should incorporate auditory and physical activities to cater to students' strengths. Furthermore, it emphasizes the importance of considering individual learning styles when selecting appropriate teaching approaches.

In light of the findings and conclusions of the study, several recommendations are proposed to enhance the effectiveness of mathematics instruction and address the diverse learning needs of students. Teachers are encouraged to integrate music into mathematics lessons to make learning more engaging and enjoyable, especially for students who are musically inclined. In addition, they should undergo training on multiple intelligences to better understand how to apply varied teaching strategies that cater to the different learning styles of students. Schools are also advised to organize creative activities such as jingle-making contests and songwriting, which can stimulate students' creativity and provide alternative avenues for learning.

Moreover, teachers should incorporate activities that foster creativity and further develop visual, logical, and linguistic intelligences, giving all students opportunities to strengthen their individual capacities. Since findings indicated a higher prevalence of bodily-kinesthetic intelligence among male students, schools are encouraged to implement physically engaging activities that may help boost academic performance in subjects requiring active involvement. To effectively tailor instruction, teachers should assess students' multiple intelligences at the beginning of the school year, enabling them to design lessons that align with learners' dominant strengths.

Further research is recommended in various related areas, such as exploring the relationship between emotional intelligence and IQ, examining the connection between students' learning styles and teachers' strategies, and investigating the effectiveness of modular learning approaches in mathematics. Additional studies may also consider how emotional

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intelligence, IQ, and multiple intelligences collectively impact academic performance, as well as a closer examination of the specific teaching strategies employed by educators.

REFERENCES

Beantree Learning Center announces new programs. (2011, December 6). Beantree Learning. https://www.beantreelearning.com/fs/pages/news?news_id=1

Department of Education. (2012). K to 12 toolkit: Resource guide for teacher educators, school administrators, and teachers. <https://www.gov.ph/downloads/2012/201209-K-to-12-Toolkit.pdf>

Department of Education. (2012). Mathematics K to 12 curriculum guide. <http://multilingualphilippines.com/wp-content/uploads/2012/06/MATHEMATICS-K-12-Curriculum-Guide.pdf>

Guilford, J. P. (1967). The nature of human intelligence. McGraw-Hill.

Molenda, M. (2003). Cone of experience. In A. Kovalchick & K. Dawson (Eds.), Educational technology: An encyclopedia (pp. [insert page numbers if available]). ABC-Clio.

Multiple intelligences overview [PDF]. (n.d.). http://ocedtheories.wikispaces.com/file/view/VR_MultIntelligences01_pdf.pdf

National Achievement Test – 4th Year (2005–2006) [PDF]. (2006). Friedrich Naumann Foundation. [http://www.fnf.org.ph/downloadables/National%20Achievement%20Test-4th%20Year%20\(05-06\).pdf](http://www.fnf.org.ph/downloadables/National%20Achievement%20Test-4th%20Year%20(05-06).pdf)

Rodriguez, F. (2021). A love for numbers beats the odds. Rappler. <http://www.rappler.com/move-ph/4352-a-love-for-numbers-beats-the-odds>

Salandanan, G. G. (2006). Principles of teaching 2 (p. 176). Lorimar Publishing Inc.

Sevilla, C. G., et al. (1998). General psychology (3rd ed., p. 361). Rex Book Store, Inc.

Silver, H. F., Strong, R. W., & Perini, M. J. (2000). So each may learn: Integrating learning styles and multiple intelligences. Silver Strong & Associates.

Today math meant mental abuse to humans. (2013, March). <http://aracingmind.blogspot.com/2013/03/today-math-meant-mental-abuse-to-humans.html>