Students' Learning Style Preferences and Mathematical Achievements

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ABSTRACT

This study on Learning Style Preferences and Mathematical Achievements was conducted in the selected DepEd Grade 10 students of the Municipality of Pikit, Pikit, Cotabato for the school-year 2022-2023 beyond pandemic. The study aimed to determine the different learning style preferences level in terms of visual, auditory, read/write and kinesthetic and the Mathematics achievement level of the DepEd Grade 10 students' based on Grade Point Average (GPA) during the first and second grading periods beyond COVID-19 pandemic. It also tried to find out the significant relationship between learning style preferences and Mathematics achievement and the significant influence of the learning style preferences to the Mathematics achievement of the DepEd Grade 10 students during first grading and second grading periods for school-year 2022-2023 beyond the covid-19 pandemic. Learning style preferences of the respondents was tallied and tabulated, analyzed using frequency and percentage. Mean was used to evaluate the learning style preferences of the 312 DepEd Grade 10 students in relation to their Mathematics achievement beyond the Covid-19 pandemic and the hypotheses were tested using Pearson Product Moment Coefficient Correlation and Multiple Linear Regression Analysis. Finding revealed that the DepEd Grade 10 students, majority preferred on visual, auditory, read/write; while, they moderately preferred on kinesthetic as their learning style preferences beyond Covid 19 pandemic. These students obtained only Fair in the Mathematical achievements for the first and second grading periods of school-year 2022-2023. Further findings revealed that visual and auditory learning style preferences have significant relationship with the Mathematical achievements; while, only learning style in terms of auditory has significant influence to Mathematical achievements of these Grade 10 student beyond pandemic. In fact, this study is important to help students to motivate their knowledge and understand how they improve their ways in learning style preferences and Mathematics achievement. And help the teachers to provide them with informative data concerning students improve their learning style preferences and Mathematics achievement as well as their own prefer learning modes. Also, the result of the study could be beneficial to the school in providing and extending help to those students with lack of learning style preferences and Mathematics achievement of secondary school learners beyond covid-19 pandemic.

Keyword: - *Learning Style Preferences, Mathematical Achievements, Students.*

1. INTRODUCTION

COVID-19 pandemic started in the year 2020 with the health risk and threat that affect the people decreases. As it continues to worse spread worldwide, the government has to create a way to protect its people. In this face-to-face transactions, work, and learning is prohibited. The sudden transition to distance learning and the period of its implementation affected all aspects of students' lives. They faced social, psychological, and educational challenges.

During the closures of schools and shifted to distance learning, online and modular learning was applied. Students tend to adjust to these changing approaches in learning. Some learning styles which they used to do before

the pandemic is not applicable in their modes of learning. Therefore, during online and modular learning, students find it difficult to be cognitively engaged in class without the inspiration of in-person interactions with teachers and classmates (Kim and Frick, 2011; Zembylas et al., 2008).

After 3 years of the pandemic, the government has proclaimed the face-to-face learning during the midst of 2022. This shifted from modular to limited face to face learning that slowly shift back to the pre-pandemic modes of learning.

Achievement in Mathematics is a fundamental indicator of the performance of a school system of any country (Reddy, 2005). Poor academic achievement and a negative attitude toward a subject can both be attributed to long-term mismatches between the classroom's teaching approach and the majority of students' preferred learning styles (Breckler, Teoh, and Role, 2011; Naik, 2013; Orhun, 2007).

A student's learning style varies from one style to another depending on the student's individual preferences. As a result, a variety of teaching techniques should be provided to the teacher, depending on the state of the learner. Teachers can determine each student's strengths and shortcomings by looking at their learning preferences (Adnan, Puteh, et al., 2013). According to several studies (Felder and Brent, 2005; Hall and Mosely, 2005; Stemberg, Gregorenko, and Zhang, 2008; Williamson and Watson, 2007), learning style theories can be a useful tool for teachers in assisting them in recognizing the tremendously various demands that students bring to the classroom. Indeed, teachers must play a significant role in making sure that students are shown what is pertinent and can help in their performance improvement (Adu and Duku, 2021).

Based from the informational views, this study finds out the result of learning style preferences level beyond Covid-19 pandemic on educational outcomes, or, more specifically, students' achievement in Mathematics.

2. METHODOLOGY

This study utilized descriptive-correlational research design. The data on the learning style preferences of the respondents was tallied and tabulated, analyzed using frequency and percentage. Mean was used to evaluate the learning style preferences of the 312 DepEd Grade 10 students in relation to their Mathematics achievement beyond the COVID-19 pandemic and the hypotheses were tested using Pearson Product Moment Coefficient Correlation and Multiple Linear Regression Analysis.

3. RESULTS AND DISCUSSION

As shown in Table 1 is the Mathematical achievement of DepEd Grade 10 students during the first and second grading periods for the SY 2022-2023. It can be noted that during the first quarter, they obtained a general point average of 84.39 and for the second quarter is 84.16 where both indicates fair in their performance. This only means that these students need to improve or develop more in their performances particularly on their Mathematics subject.

Kinesthetic learners, as defined by Neil Fleming's Vark learning style, are those who learn best by physically touching and doing things. Kinesthetic learners use a "trial and error" method of learning, so hands-on experience is crucial for them. A math teacher that takes a kinesthetic learning-centered teaching approach may give students a kinesthetic dictionary to use in illustrating mathematical ideas in both English and their native tongue.

However, students with a positive self-perception in a single subject are more likely to strive for success in all of their classes. They receive assignments that are connected. They perform better in the subject as a result, which is a good thing. Thus, According to Khalaila (2015), more academic accomplishment is closely correlated with a positive academic self-concept. In addition, students' Mathematical skills is also dependent on the teachers' pedagogical instruction (Dizon & Lumapenet, 2023).

Table 1. Level of achievement in Mathematics during the **first** and **second** quarter of the school-year 2022-2023

Quarter Exam	Mean	Description
First	84.39	Fair
second	84.16	Fair
Weighted Mean	**84.29**	**Fair**

Mean:

95.00	99.99	Outstanding
90.00	94.99	Very satisfactory
85.00	89.99	Satisfactory
80.00	84.99	Fair
75.00	79.99	Poor

It can be gleaned on Table 2 the correlation matrix showing the learning style preferences in terms of visual, auditory, read/write and kinesthetic and Mathematical achievement of Grade 10 students during the first and second quarter of school year 2022-2023.

Result indicates that visual learning style preference is significantly correlated with Mathematical achievement of Grade 10 students during the first and second quarter of school year 2022-2023 (r= 0.131* with a p-value of 0.020). More likely, the more the students preferred the visual learning style, the better is their performance especially on their Mathematics subject.

A teacher may support the learning of visual learners through the use of appropriate Mathematics software, which provides a dynamic visualization of concepts (Bansilal, 2015).

In like manner, auditory learning preference is significantly correlated with Mathematical achievement of Grade 10 students during the first and second quarter of school year 2022-2023 (r-0.141* with a p-value of 0.044*). This can be meant that, if these students more learning style preference is on auditory, the higher is the level of their achievement on Mathematics subject.

Summing up the overall result of having a probability value that is less than the set 0.05% level of significance, the hypothesis in this part of the study is rejected.

The (Bay Atlantic University, 2022) stated that auditory learning is a type of learning in which listening is the most efficient method of learning. A learner who prefers auditory input prefers to hear the information rather than read it in a text. While other learners retain knowledge in different ways, either through touch, visual, or reading, an auditory learner will focus on hearing or speaking to process the information.

Table 2. Correlation matrix between **learning style preferences** and students' **Mathematical achievement**

Learning Styles		Achievement
Visual	Pearson R	**0.131***
	Probability	0.020
Auditory	Pearson R	**0.141***
	Probability	0.013
Read/write	Pearson R	0.096
	Probability	0.091
Kinesthetic	Pearson R	0.053
	Probability	0.353

*Correlation is Significant at 0.05 level.
**Correlation is significant at 0.01 level.

4. CONCLUSIONS

Majority of the Grade 10 students of the study enjoyed and were motivated with their learning style preferences in terms of visual, auditory, read/write kinesthetic; however, despite of these learning preferences, these

don't help them much to show their outstanding performance in their Mathematics subject. It was found out that the respondents gained fair grades beyond COVID-19 pandemic.

Among the four learning style preferences of the study, visual and auditory learning style was found to be the significant predictor of the mathematics achievement of students. It implies that students' mathematics achievement on first and second grading General Average was greatly affected by auditory learning style.

These generally conclude that, when students preferred to learn more on visual and auditory; the students' achievements on Mathematics will become better.

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