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Research Article

Learning Styles of Students Amidst Pandemic Vis-À-Vis Academic Performance in Science 10: A Basis for Proposed Intervention Plan

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ABSTRACT

This research looked upon the learning styles of selected Grade 10 students amidst pandemic vis-à-vis academic performance in science to have a basis for proposed intervention plan to better deliver science instructions for the best teaching and learning experiences where correlations of academic performance and learning styles of the respondents were analyzed. The result shows that majority of the respondents are auditory learners. There are very few kinesthetic learners. Most of the respondents got a Satisfactory level on their academic performance during the first quarter. While there was a noticeable increase in their academic performance during the second quarter where majority of the respondents got Very Satisfactory level. Learning style of the respondents significantly affect their academic performance. This implies that learning style correlates highly to the academic performance. This means that the learning style of the students is connected to their academic performance. Being aware of this, teachers can develop lessons and activities that suits well their learners learning styles. In this way, they are helping their students in developing their skills and increasing their academic performance.

Keywords: learning styles, academic performance, visual, kinesthetic, auditory, inventory, interest

Background

Teaching science around the globe has been part of the supreme flagship of any institutions from primary to higher education. Educators and learners have recognized the importance of teaching and learning science subjects towards a more developed and progressive

society. There has been a continuous search and development of different strategies, methods and approaches on the best practices to teach science subjects, so learners will effectively acquire competencies necessary to be life-long learners.

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The necessity to produce competent graduates in their specific discipline who possessed the skills and attributes to deal with the ever-changing work environment in the 21st century is an enormous task assigned to schools (Magulod, 2017). One of the vital steps to embark on to ensure excellent and optimal learning experience among students is to consider their different learning styles.

According to research, learning approach has gotten considerable attention over the past several years. Learning approach has attracted strong advocates among learners looking for alternatives to traditional teaching methods. For many educators, there remain doubts about what learning approach is and how it differs from one advance to others. He added that the inability of schools and teachers to take account of preferences produces endemic low achievement and poor motivation. There are realistic researches suggest that learning styles can enhance academic performance in several respects. Analyses of the learning styles of non-achieving students have revealed that, as a group, such students learn in a style and with instructional strategies that differ significantly from those of students who perform well in school (Awang, 2017).

Science education aims to develop scientific literacy among learners that will prepare them to be informed and participative citizens who are able to make judgments and decisions regarding applications of scientific knowledge that may have social, health, or environmental impacts. The science curriculum recognizes the place of science and technology in everyday human affairs. It integrates science and technology in the social, economic, personal and ethical aspects of life. The science curriculum promotes a strong link between science and technology, including indigenous technology, thus preserving our country's cultural heritage (Department of Education, 2016). In addition, DepEd (2016) stipulated that teaching science should be learner-centered and inquiry-based, emphasizing the use of evidence in constructing explanations. Concepts and skills in Life Sciences, Physics, Chemistry, and Earth Sciences are presented with increasing levels of complexity from one grade level to another

in spiral progression, thus paving the way to a deeper understanding of core concepts. The integration across science topics and other disciplines will lead to a meaningful understanding of concepts and its application to real-life situations. The learners should demonstrate an understanding of science concepts and apply science inquiry skills in addressing real-world problems through scientific investigations.

Facilitating the learning process is the primary aim of teaching. Understanding the learning behavior of students is considered to be a part of this process. Therefore, the concept of learning styles has become a popular topic in recent literature, with many theories about learning styles put forward to better understand the dynamic process of learning (Licin, 2010).

Determining students' learning styles provides information about their specific preferences. Understanding learning styles can make it easier to create, modify, and develop more efficient curriculum and educational programs. It can also encourage students' participation in these programs and motivate them to gain professional knowledge. Therefore, assessing learning styles of students is valuable in order to achieve more effective learning (Brown, 2010).

According to research, student learning style is not focus on the material of learning but rather on how they learn in the process of learning. Every student had different ability and preference in the method of data collection and processing data. Some students learn more through visual form like reading. Some students may have better learning ability through verbal form through attending physical lecture conducted, while others may receive knowledge better through participation and practicing what they study (Basit, 2017).

Having said that teaching science should be learner-centered, this research will look upon the learning styles of selected grade 10 students amidst pandemic vis-à-vis academic performance in science to have a basis for proposed intervention plan to better deliver science instructions for the best teaching and learning experiences.

Methodology

The descriptive method was used in this study where correlations of variables are analyzed. Survey method on the other hand was also used. Researcher gathered data using the survey-questionnaire for learners. The researcher utilized the results to identify the significant relationship of learners' academic performance with their learning styles. The impact

of the variable to learners' performance was also determined on this study.

This study involved thirty-eight (38) Grade 10 SPFL students at Olongapo City National High School in the Division of Olongapo City as respondents. There is a total of fifteen (15) male and twenty-three (23) female respondents.

Table 1. Distribution of Students – Respondents according to Gender

Respondents	MALE	FEMALE	TOTAL
10 SPFL	15	23	38

The source of data in this study were the survey questionnaire which consists of two parts.

Part I: The learning styles of the student-respondent through Google Forms. This survey was adapted from The Mississippi Bend Area

Education Agency (2021), "Learning Inventory Survey".

Part II: This portion analyzed the academic performance of the learners in their Science 10 during the First and Second Quarter.

Learning Style of the Respondents

Table 1. Distribution of the Respondents According to Learning Style

Learning Style	f	%
Auditory	20	53.00
Visual	14	37.00
Kinesthetic	4	11.00
Total	38	100.00

Table 1 shows the distribution of the respondents according to their learning styles. It can be seen that there are twenty (20) or fifty-three percent (53%) of the respondents who are under the learning style of auditory. There are fourteen (14) or thirty-seven percent (37%) of the respondents who are visual learners. While there are only four (4) or eleven percent (11%) of the respondent who are Kinesthetic or tactile learners. Students' learning style according to Magulod (2018) should be

understood. It is important for the learners to recognize their learning styles because they can optimize their learning experiences with the aid of different learning techniques that better fits their learning style. For instance, a visual learner can take advantage of written lecture and spoken words in learning Science or an auditory learner may use podcasts, and songs in understanding Science concepts. Product and performance-based activities may be suitable for kinesthetic learners.

Academic Performance of the Respondent

First Quarter

Table 2. 1st Quarter – Academic Performance

1 st Quarter Academic Performance	f	%
Outstanding (90 – 100)	2	5.00
Very Satisfactory (85 – 89)	28	74.00
Satisfactory (80 – 84)	8	21.00
Total	38	100.00

Table 2 presents the performance of the respondents during the first quarter. It shows that majority of the respondents got an average grade of 85-89 in their science subject, with a frequency of twenty-six (28) or seventy-four percent (74%). They have a descriptive rating of Very Satisfactory. There are eight (8) or twenty-one percent (21%) of the respondents who got an average grade of 80-84 or Satisfactory in their science for the first quarter. Only two (2) or five percent (5%) of the respondents got an average grade of 90-100 or Outstanding in science.

Second Quarter

Table 3 shows the performance of the respondents during the second quarter. It illustrates that majority of the respondents got an average grade of 91-95 with a frequency of twenty-one (21) or fifty-five percent (55%). There are four (4) or eleven percent (11%) of the respondents got 96-100 for their academic performance. Twelve (12) or thirty-two percent (32%) of the respondents gained academic performance of 86-90. While only one (1) or three percent (3%) of the respondents got a grade of 75-80. As compared to the first quarter, it is evident that the academic performance of the respondents increased.

Table 3. 2nd Quarter – Academic Performance

2 nd Quarter – Academic Performance	f	%
Outstanding (90 – 100)	4	11.00
Very Satisfactory (85 – 89)	21	55.00
Satisfactory (80 – 84)	12	32.00
Fairly Satisfactory(75 – 79)	1	3.00
Did Not Meet Expectation(Below 75)	0	0.00
Total	38	100.00

Based from the researcher, those who perform well during the first quarter also perform well in the second quarter.

Relationship between Learning Style and Academic Performance

Table 4 presents the relationship between the learning styles of the respondents and their

academic performance. The computed r-value for the correlation between the academic performance in science during first quarter and their learning style is +0.676 which is interpreted as "positive high correlation". This is significant at 5% level; thus, null hypothesis is rejected.

Table 4. Relationship Between Learning Style and Academic Performance

	Computed r	P - Value	Interpretation	Decision ($\alpha = 0.05$)
Learning Style and Academic Performance - 1 st Quarter	+0.676	0.00001	Positive High Correlation	Reject Ho (Significant)
Learning Style and Academic Performance - 2 nd Quarter	+0.897	0.00001	Positive High Correlation	Reject Ho (Significant)

In the same manner, the computed r-value for the correlation between the academic performance in science during second quarter and their learning style is +0.897 which is interpreted as "positive high correlation". This is significant at 5% level; thus, null hypothesis is rejected.

This implies that learning style correlates highly to the academic performance. This means that the learning style of the students is connected to their academic performance. Being aware of this, teachers can develop lessons and activities that suits well their learners learning styles. In this way, they are helping

their students in developing their skills and increasing their academic performance.

Conclusion

Based on the findings, the following conclusions were drawn:

1. Majority of the respondents are auditory learners. There are very few kinesthetic learners.
2. Most of the respondents got a Satisfactory level on their academic performance during the first quarter. There was a noticeable increase in their academic performance during the second quarter where majority of the respondents got Very Satisfactory level.
3. Learning style of the respondents significantly affect their academic performance.
4. Several interventions are needed in order to increase the performance of the students in science. These interventions should consider the learners' learning styles.

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