Learning Style and Teaching Style as Determining Factors in Academic Performance of Senior High School

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ABSTRACT

This study aimed to investigate the impact of learning styles and teaching styles on the academic performance of senior high school students at Lorenzo S. Sarmiento Sr. National High School. The study involved 273 respondents from the senior high school student population and employed a quantitative-correlational design. The statistical tools used were average weighted mean, Pearson R, and multiple regression analysis. The study revealed that senior high school students have a high level of learning styles, including auditory, kinesthetic, and visual modalities.The research also found that students adopt different teaching styles, including authority, delegator, demonstrator, and facilitator styles. The academic performance of students was found to be high, considering school-related, student-related, and teacher-related factors. Furthermore, the study showed a significant correlation and relationship between learning style, teaching style, and academic performance. The null hypothesis was rejected, except for three indicators where the null hypothesis is not rejected, which are visual learning style for learning style and demonstrator style and facilitator style for teaching style. The study provides valuable insights into the interconnected dynamics of learning styles, teaching styles, and academic performance among senior high school students and offers a comprehensive understanding of the factors influencing educational outcomes in this particular context.

Keywords:GAS, Learning Style, Teaching Style, Academic Performance, Philippines

INTRODUCTION

The academic performance of the Australian students was static, and some of them faced difficulty in achieving a passing grade (Hare, 2023). Furthermore, in Indonesia, education expanded in primary and secondary education, and the academic performance gap became a significant issue (Ohno, 2018). Along with this, Kenya raised concern about the academic performance of the Kenyan students because Omolo et al. (2019) found that students had difficulties in acquiring their academic performances.

In the Philippines, particularly in Caloocan City, a major factor that could be considered for students to learn properly in school was their learning style (Syguia et al., 2020). Additionally, Gayef et al. (2023) stated that it was very important for teachers to understand the concept of learning styles so that they could teach, organize students' education experiences, and achieve educational objectives. Similarly, Carrido and Ramirez (2020) revealed the need to explore the learning style and other factors affecting students had become more important as a change or innovation in pedagogical approaches, designing, and strategies were applied within their schools. A study conducted by Mamba (2023) discovered that learning style was crucial in determining students' academic performance.

Furthermore, in Palawan, the teaching style of teachers had a great impact on students' learning (Lopez et al., 2019). In addition, teachers who used the teaching styles knew the subject, which was evidenced by their ability to define, explain, and process concepts in language that students could easily understand (Reyes, 2019). Moreover, Ofiaza (2023) analyzed that teaching style had a high impact on students' academic performance.

In Davao City, the academic performance of senior high school students was affected due to learning difficulties (Berame, 2023). As well as in Davao de Oro, particularly in New Bataan, where students experienced challenges in their academic performance (Zata& Diaz, 2022). In Mawab Davao de Oro, particularly in Lorenzo S. Sarmiento Sr. National High School, some students had difficulties in achieving high academic performance because of some factors affecting their learning. With this, the researchers wanted to know if the learning style and teaching style influenced the academic performance of senior high school students.

Research on the relationship between learning and teaching styles in senior high school students was limited, as most studies had focused on individual styles without considering their combined impact on academic outcomes. This lack of comprehensive quantitative analysis was due to the use of qualitative or mixed methods approaches. The study aimed to provide insights into instructional strategies that could enhance academic performance during the critical transitional period in senior high school. It also contributed to the limited literature on this topic in the context of the senior high school system, which might differ significantly from other educational levels and require unique considerations.

Research Objectives

This quantitative study determined the relationship of learning style and teaching style to the academic performance of senior high school students. Specifically, the study was conducted to seek answers to the following objectives:

1. To determine the level of learning styles in terms of:
    1.1 visual learning;
    1.2 auditory learning; and
    1.3 kinesthetic learning.

2. To determine the level of teaching styles in terms of:
    2.1 authority or lecture style;
    2.2 delegator or group style;
    2.3 demonstrator or coach style; and
    2.2 facilitator or activity style.

3. To determine the level of academic performance in terms of:
    3.1 student related factors;
    3.2 school related factors; and
    3.3 teacher related factors.

4. To determine the significant relationship between learning style and academic performance among senior high school students.
5. To determine the significant relationship between teaching style and academic performance among senior high school students.
6. To determine which of the domains in learning style influences academic performance of senior high school students.
7. To determine which of the domains in teaching style influences academic performance of senior high school students.

METHODOLOGY

The study was conducted in a quantitative, non-experimental research design using correlational techniques. To describe the current situation as it was at the time of the study, that method had been applied to examine the causes of certain phenomena. In correlational research, data were collected for the purpose of determining whether there was a degree of association with two other measurable variables (Gay, 2006).

Population and Sample

Simple random sampling was used in the selection of respondents. The respondents of the study was the 273 senior high school students who were studying in Lorenzo S. Sarmiento Sr. National High School in Mawab. Senior high school students were ideal respondents for learning style, teaching style, and academic performance due to their critical educational stage, where diverse teaching approaches could significantly influence academic outcomes, and their maturity enabled accurate self-assessment of learning preferences, offering valuable insights into the relationship between learning and teaching styles and academic achievement.

Statistical Tool

The following statistical tools were utilized for the data analysis and interpretation.

Mean. This statistical tool was used to determine the level of learning style and teaching style and the academic performance of senior high school students in Lorenzo S. Sarmiento Sr. National High School located Mawab, Davao de Oro.

Pearson (r). This statistical tool was used to determine the significant relationship of learning style and teaching style and its effects on the academic performance of senior high school students in Lorenzo S. Sarmiento Sr. National High School located Mawab, Davao de Oro.

Multiple Regression Analysis. This statistical tool was used to determine the level of learning style and teaching style and its effects on the academic performance of senior high school students in Lorenzo S. Sarmiento Sr. National High School located in Mawab, Davao de Oro.

RESULTS

Level of Learning Style

Shown in Table 1 are the mean scores for the indicators of teaching style among senior high school students in Lorenzo S. Sarmiento Sr. National High School with an overall mean of 3.80 and described as very high with a standard deviation of 0.66. The high level could be attributed to the high rating given by the respondents in all indicators. This entails that the respondents' responses to the level of learning style are much positive in terms of visual learning, auditory learning and kinesthetic learning.

Moreover, the cited overall mean score is the result obtained from the following computed mean scores from highest to lowest: 3.87 or high for auditory learning with standard deviation of 0.63; 3.83 or high for kinesthetic learning with a standard deviation of 0.67; and 3.71 or high for visual learning with standard deviation of 0.68.

Table 1. Level of Learning Style

Indicator	Mean	SD	Descriptive Level
Visual Learning	3.71	0.68	High
Auditory Learning	3.87	0.63	High

Kinesthetic Learning	3.83	0.67	High
Overall	3.80	0.66	High

Level of Teaching Style

Shown in Table 2 are the mean scores for the indicators of teaching style among senior high school students in Lorenzo S. Sarmiento Sr. National High School with an overall mean of 4.14 and described as very high with a standard deviation of 1.04. The high level could be attributed to the high rating given by the respondents in all indicators. This entails that the respondent's responses to the level of teaching style are positive in terms of authority style, delegator style, demonstrator style, and facilitator style.

Furthermore, the cited overall mean score was the result obtained from the following computed mean scores from highest to lowest: 4.28 or high for demonstrator style with a standard deviation of 2.16; 4.13 or high for facilitator style with a standard deviation of 0.73; 4.08 or high for delegator style with a standard deviation of 0.64. and 4.07 or higher for authority style with a standard deviation of 0.62.

Table 2. Level of Learning Style

Indicator	Mean	SD	Descriptive Level
Authority Style	4.07	0.62	High
Delegator Style	4.08	0.64	High
Demonstrator Style	4.28	2.16	Very High
Facilitator Style	4.13	0.73	High
Overall	4.14	1.04	High

Level of Academic Performance

Shown in Table 3 are the mean scores for the indicators of academic performance among senior high school students in Lorenzo S. Sarmiento Sr. National High School with an overall mean of 4.08 and described as high with a standard deviation of 0.68. The high level could be attributed to the high rating given by the respondents in all indicators. This entails that the respondent's responses to the level of academic performance are positive in terms student related, school related, and teacher related.

Furthermore, the cited overall mean score was the result obtained from the following computed mean scores from highest to lowest: 4.22 or very high for teacher related with standard deviation of 0.70; 4.05 or high for student related with standard deviation of 0.63; 3.97 or high for school related with standard deviation of 0.71.

Table 3. Level of Academic Performance

Indicator	Mean	SD	Descriptive Level
Student Related	4.05	0.63	High
School Related	3.97	0.71	High
Teacher Related	4.22	0.70	Very High
Overall	3.75	0.68	High

Significance on the Relationship Between Learning Style and Academic Performance

Upon analyzing the significance of the relationship between learning style and academic performance, the Pearson's correlation coefficient (r) was calculated to be 0.431, and the associated p-value was found to be < 0.001. Hence, this leads to the decision that the null hypothesis which stated that there is no significant

relationship between learning style and academic performance among senior high school is rejected. This further means that there is a low correlation, and there is a significant relationship teaching style and academic performance.

Significance on the Relationship Between Teaching Style and Academic Performance

Upon analyzing the significance of the relationship between teaching style and academic performance, the Pearson's correlation coefficient (r) was calculated to be 0.307, and the associated p-value was found to be < 0.001. Hence, this leads to the decision that the null hypothesis which stated that there is no significant relationship between teaching style and academic performance among senior high school is rejected. This further means that there is a low correlation, and there is a significant relationship teaching style and academic performance.

Multiple Regression Analysis on the Influence of Learning Style to Academic Performance

The finding reveals the F-ratio of 21.369 and a p-value of <.001 which is far less than the 0.5 level of significance. This enables the researcher to reject the null hypothesis which states there is no domain of learning style that significantly predicts the academic performance among senior high school students.

The R-value of 0.439 indicates a strong positive relationship between learning style and academic performance among senior high school students. The coefficient of determination (R^2) which is 0.192 connotes that 19.2% of the variation in the level of learning style experienced by the senior high school students could be attributed to the level of their academic performance experienced by the senior high school students. The remaining 80.8% is a chance of variation which suggests that other factors beyond the scope of this study may also be attributed to students' engagement in learning among teachers.

Multiple Regression Analysis of the Influence of Teaching Style to Academic Performance

The finding reveals the F-ratio of 18.972 and a p-value of <.001 which is far less than the 0.5 level of significance. This enables the researcher to reject the null hypothesis which states there is no domain of learning style that significantly predicts the academic performance among senior high school students.

The R-value of 0.470 indicates a strong positive relationship between learning style and academic performance among senior high school students. The coefficient of determination (R^2) which is 0.221 connotes that 21.1% of the variation in the level of teaching style experienced by the senior high school students could be attributed to the level of their academic performance experienced by the senior high school students. The remaining 78.9% is a chance of variation which suggests that other factors beyond the scope of this study may also be attributed to academic performance among senior high school.

DISCUSSIONS

Level of Learning Style

The level of learning style of senior high school students is high. This indicates a strong inclination towards various learning styles such as visual, auditory, and kinesthetic among these students. Specifically, this suggests that senior high school students exhibit a pronounced preference for different methods of learning, including visual, auditory, kinesthetic learning styles. Moreover, this high level of learning style implies that senior high school students actively engaged in their learning processes and are likely to benefit from instructional approaches that cater to their preferred learning modalities.

For instance, they may excel when provided with visual aids like diagrams, charts, and educational videos to enhance their understanding. Similarly, the high level of auditory learning style suggests that these

students thrive in environments where listening and speaking activities are emphasized. Furthermore, the

significant prevalence of kinesthetic learning style indicates that senior high school students prefer learning through physical activities and hands-on experiences. In summary, the high level of learning style among senior high school students underscores the importance of recognizing and accommodating diverse learning preferences within educational settings.

This result is in relation to the Barbe's VAK Learning Model Theory (2003) which suggests that most people prefer to take in and process information through different learning styles namely Visual, Auditory and Kinesthetic. Moreover, different learning styles are more effective on the academic achievements of students; the effect of the VAK learning style has a significant effect on academic achievements (Vaishnav, 2013). In addition, they prefer to learn through hands-on experiences – by touching, feeling, experimenting, simulations, and through trial and error (Peart, 2020).

Level of Teaching Style

The respondents' level of teaching style is high. This means that different kinds of teaching style were positive among senior high school students. This indicates a strong inclination towards various teaching style of teachers has significantly influences the experiences of senior high school students. This result is symmetrical with the work of Lathan (2020) which emphasized that an educator's teaching style, therefore, can greatly impact a student's ability to learn and comprehend, this is why knowledge of different learning styles is essential for teachers. This study cognate with the conjecture to Dan (2023) that teaching style used by an educator can significantly influence student engagement, engagement refers to the degree of attention, curiosity, interest, and passion that students show when they are learning or being taught.

Equally, as evidence by the high level of authority style, the level of teaching style was positive. This signifies that the senior high school students preferred the authority learning style of teachers. This is congruent to the study of Xiang (2018) wherein authoritative or lecture-based teaching style has been associated with improved academic performance as it provides a structured and focused learning environment, allowing students to absorb key concepts more effectively. In result of that, the use of the Authority Teaching Style can also result in limited, permanent, and inflexible student engagement in the learning process (Sim, 2018).

Level of Academic Performance

The empirical evidence presented therein revealed a commendably high level of academic performance among senior high school students, indicative of the profound influence exerted by their scholarly endeavors. Indeed, academic achievement stands as a cornerstone in the realm of education, wielding considerable influence over students' trajectories from high school through college and beyond. This sentiment resonates with the insights provided by the proposition of Pastore and Luder (2021) which claimed that inclusive healthy schools, students, and teachers' relation were committed to provide a learning environment for a healthy development and optimal learning support for all students, regardless of their academic performance, language, learning and behavior disposition or disability. This congruent to the study of Euro (2023), highlighting the pivotal role of investing in academic excellence to equip students with the requisite skills for success both within and outside the classroom.

Moreover, our exploration delved into the multifaceted nature of academic performance, the level of student-related factors of senior high school students is high. This result is in relation to the statement of Burton (2019) that student-related factors are those that are internally related to a student's engagement to study and learn. This conforms to the study of Dowling (2018) found out that the most significant predictor of a student's academic success in the university is his or her previous academic success in high school.

Significance on the Relationship Between Learning Style and Academic Performance

The present study revealed a significant relationship between learning style and academic performance of senior high school students. This implies that learning style influences the academic performance of senior high school students, which can be seen in the data. This confirms the anchored theory of this study, the Barbe's VAK Learning Model Theory (2003), which claims that learning styles has positive and significance relationship with academic performance. This agitates the other gleaned proposition in this study, the proposition of Taylor (2023) that VAK Learning Styles Theory suggests a significant relationship between teaching styles and academic performance, emphasizing the importance of tailoring teaching methods to students' preferred learning styles for improved educational outcomes.

Further, the relationship between overall learning style and academic performance is significant among senior high school student. These findings affirmed the result of the study of Mozaffari et al. (2020) which indicates that VAK Learning Styles and academic achievement in students revealed that there is significant relationship between learning styles and academic performance, highlighting the need for further studies with larger sample sizes to explore this connection more comprehensively. This also conforms with the claim of Ortega (2019) that Grasha's teaching styles model integrates individual teaching and learning styles, emphasizing how the stylistic qualities of teachers and students can enhance the quality of the learning experience, ultimately impacting academic performance.

Significance on the Relationship Between Teaching Style and Academic Performance

The present study revealed a significant relationship between teaching style and academic performance of senior high school students. This implies that teaching style influences the academic performance of senior high school students, which can be seen in the data. This confirms the anchored theory of this study, the Grasha's Teaching Style Theory (1994), which claimed that teaching style had significant relationship to academic performance and it can affect the overall academic performance. This study supported by the proposition of Cardino and Ortega (2019) that Grasha's teaching styles theory emphasizes the significant impact of teaching styles on academic performance, highlighting the importance of understanding individual learning styles to enhance the quality of the learning experience.

Further, the relationship between overall teaching style and academic performance is significant among senior high school student. These findings support the result of the study of Martin (2019) which indicates that the relationship between teaching styles, such as the Expert Teaching Style, Formal Authority Teaching Style, and Facilitator Teaching Style, and academic performance has been supported by research, showing a positive correlation between experienced teachers and student outcomes. This also conforms with the claim of Sim and Matore (2019) that indicates that a mismatch between students' learning styles and teachers' teaching styles can lead to ineffective instructional activities, underscoring the need for teachers to adapt their styles to match students' preferences for improved academic achievement.

Multiple Regression Analysis on the Influence of Learning Style to Academic Performance

The regression coefficient is to test the significant influence of overall learning style and academic performance of senior high school. Using the Multiple Regression in Jeffreys's Amazing Statistics Program (JASP), the data revealed that the learning style and academic performance of senior high school students has a significant influence. Therefore, the significance level of hypothesis of learning style and academic performance among senior high school students is rejected.

Correspondingly, this result supports the study of Mozaffari et. al. (2020) that VAK learning styles (Visual, Auditory, Kinesthetic) and their impact on academic performance, highlighting the importance of considering teaching methods based on students' learning styles to enhance academic performance. Moreover, an effective learning strategy could overcome those barriers to create learning that suited the

learner (Cabual, 2021). As well, in a study was carried out on learning style, focusing mainly on its classification, the relationship between learning style and academic performance, etc. Studies had shown that the learning efficiency of learners could be promoted by providing them with appropriate learning content organization methods according to their different learning styles (Xing, 2023).

Multiple Regression Analysis of the Influence of Teaching Style to Academic Performance

The regression coefficient is to test the significant influence of overall teaching style and academic performance of senior high school. Using the Multiple Regression in Jeffreys's Amazing Statistics Program (JASP), the data revealed that the teaching style and academic performance of senior high school students has a significant influence. Therefore, the significance level of hypothesis of teaching style and academic performance of senior high school students is rejected.

The teaching style used by an educator can significantly influence student engagement, engagement refers to the degree of attention, curiosity, interest, and passion that students show when they are learning or being taught and it can lead to improvement in their academic performance (Dan, 2023). Furthermore, teaching styles are significant environmental and social factors in satisfying the need of belongingness in classroom, which consequently influences motivation and performance (Inayat & Ali, 2018). In the same way, teaching styles offer a more flexible course experience, for both students and educators (Persaud, 2023).

CONCLUSION

In conclusion, the result of the study revealed that the first independent variable which is the learning style got an overall level of high, within its indicators; visual learning style, auditory learning style, and kinesthetic learning style. Moreover, the second independent variable which is teaching style got an overall level of high, within its indicators; authority teaching style, demonstrator teaching style, facilitator teaching style, and delegator teaching style. On the other hand, the dependent which is variable academic performance with its indicators; student related factors, school related factors, and teachers related factors got also a high level.

In addition, there is low correlation between learning style and academic performance of senior high school as well as the teaching style and academic performance of senior high school. The regression analysis also showed that in terms of learning style, only visual learning style is not significantly influencing the academic performance of senior high school students. In terms of teaching style, only authority teaching style and delegator teaching style were significantly influencing the academic performance of senior high school students.

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