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LEARNING STYLES AND ACADEMIC PERFORMANCE AMONG SENIOR HIGH SCHOOL, PRIVATE SCHOOLS, LOON, BOHOL

EILEEN L. IBARRA, JANICE AURORA T. NAMOC
Graduate School, University of Bohol, Tagbilaran City, Philippines

***Corresponding Author**: ibarraeileen86gmail.com*

ABSTRACT

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This study examined the learning styles and academic performance of senior high school students from selected private schools in Loon, Bohol, Philippines. Specifically, it identified students' preferred learning styles using the Visual, Aural, Read/Write, and Kinesthetic (VARK) framework, described their academic performance levels, and examined the relationships among learning styles, demographic characteristics, and academic achievement. The study employed a quantitative correlational research design involving 258 randomly selected senior high school students from Saint Teresa Academy, Sacred Heart Academy, and the University of Bohol–Loon Institute during the School Year 2022–2023. Data were gathered using the VARK Questionnaire and students' academic records. Descriptive statistics and Chi-square tests of independence were used to analyze the data. The findings revealed that auditory learning was the most preferred learning style (41.1%), followed by kinesthetic (32.9%), read/write (16.7%), and visual (5.8%) modalities. Most respondents demonstrated outstanding academic performance (64.3%). Results further indicated that learning styles were not

significantly associated with sex, age, grade level, or academic performance. However, significant relationships were found between academic performance and the demographic variables of sex, age, and grade level. The study concludes that while learning preferences provide useful information for instructional planning, they do not significantly influence academic achievement. Educational interventions should therefore emphasize diverse and evidence-based teaching strategies that address the needs of all learners.

INTRODUCTION

The increasing diversity of learners in contemporary classrooms has prompted educators to explore instructional approaches that accommodate individual differences in learning. Among the factors frequently examined in educational research are learning styles, which refer to learners' preferred ways of receiving, processing, and organizing information. Understanding these preferences has been considered important in designing learning experiences that promote student engagement and academic success.

One of the most commonly used models for viewing learning preferences is Fleming's Visual, Aural, Read/Write and Kinesthetic (VARK) model. The concept classifies learners according to their primary sensory modalities. It has been widely used in education to determine learners' preferred learning modes. Proponents suggest that knowledge of learning preferences may help teachers choose appropriate instructional strategies and help students develop good study habits (Fleming & Mills, 1992).

The VARK model, although very popular, has not been conclusively linked empirically to academic accomplishment. Some research has shown that certain learning preferences are associated with better academic achievement (Magulod, 2019; Zain et al., 2019). Other studies have shown no significant association between learning styles and academic results (Awang et al., 2017; Wilkinson et al., 2014). These contradictory results suggest that the impact of learning styles on academic achievement may vary across educational settings, student groups, and learning environments. Very little research has been conducted in the Philippine setting on the association between learning styles and the academic achievement of senior high school learners, especially in private secondary schools. Most of the available research has focused on students in higher education. This creates a knowledge gap regarding how learning preferences are reflected among learners at the senior high school level. With the advent of K-12 curricula and the growing focus on learner-centered teaching, empirical data on students' preferred learning styles may offer useful insights for curriculum development, instructional design, and learner support.

There is a variety of research on learning styles in higher education contexts. However, there is very little data on senior high school students in Philippine private schools. Moreover, prior findings on the correlation

between learning styles and academic achievement are inconclusive. Some research claims substantial relationships, whilst other studies do not uncover any meaningful relationships. Such discrepancies suggest that additional research in diverse educational settings is warranted.

Thus, this study was conducted to determine the learning methods and academic performance of senior high school students from chosen private schools in Loon, Bohol. Specifically, it assessed students' primary learning preferences using the VARK framework, characterized their academic performance, and investigated whether significant links existed among learning styles, selected demographic factors, and academic achievement. The findings are likely to contribute to the growing body of data on learning preferences and have practical implications for improving teaching and learning methods in secondary schools.

Theoretical Background. This study is primarily anchored in the VARK Model developed by Neil Fleming and Mills (1992), which proposes that learners differ in their preferred modes of receiving and processing information. The VARK framework classifies learning preferences into four modalities: Visual (V), Aural (A), Read/Write (R), and Kinesthetic (K). Visual learners prefer information presented through diagrams, charts, and graphical representations; aural learners learn best through listening and discussion; read/write learners favor text-based materials; while kinesthetic learners prefer hands-on experiences and practical applications (Fleming & Mills, 1992).

The VARK model suggests that learners may exhibit a dominant preference for a single modality (unimodal) or a combination of multiple modalities (multimodal). Although the model does not claim that one learning style is superior to another, it emphasizes the importance of recognizing learner diversity to facilitate effective instructional planning. Within educational settings, identifying students' preferred learning modalities may help teachers design learning activities that enhance engagement, participation, and knowledge acquisition (Fleming, 2012).

The study is further supported by the Experiential Learning Theory (ELT) of David A. Kolb (1984), which views learning as a continuous process whereby knowledge is created through the transformation of experience. According to Kolb, effective learning occurs through a cycle consisting of concrete experience, reflective observation, abstract conceptualization, and active experimentation. The theory recognizes that learners develop preferences for how they perceive and process information, resulting in variations in learning approaches and educational experiences.

The Experiential Learning Theory (ELT) provides a valuable lens for understanding why students may prefer different modes of learning. Learners build knowledge through their interactions with the learning environment, their previous experiences, and chances to reflect on and apply what they have learned. Thus, kids who experience varied educational settings may develop preferences for visual, aural, read/write, or kinesthetic learning modalities.

The combination of the VARK Model and Experiential Learning Theory provides a theoretical framework to investigate the learning preferences of senior high school students. The VARK model describes the modalities through which learners prefer to learn. Experiential Learning Theory explains how learning preferences may be shaped by experience and interaction with the environment. Together, these frameworks offer a basis for studying whether inequalities in academic achievement among senior high school students are related to diversity in learning styles.

RESEARCH METHODOLOGY

This study employed a quantitative correlational research design to examine the relationship between learning styles and academic performance among senior high school students. The design was deemed appropriate because it enabled the researcher to determine whether significant associations existed between students' preferred learning styles, selected demographic characteristics, and academic achievement without manipulating any study variables.

Research Setting and Participants. The study was conducted at three private secondary educational institutions in Loon, Bohol, Philippines: Saint Teresa Academy, Sacred Heart Academy, and the University of Bohol–Loon Institute. These schools offer Senior High School programs under the K–12 curriculum and serve students from diverse academic tracks and backgrounds.

The target population consisted of 777 enrolled senior high school students during the School Year 2022–2023. Using proportional random sampling, 258 students were selected to participate in the study. The sample size was considered adequate to provide representative data and facilitate statistical analysis of the variables under investigation.

Instrument. Data on students' learning preferences were gathered using the VARK Questionnaire developed by Fleming and Mills (1992). The instrument identifies learners' preferred sensory modalities in four categories: Visual (V), Aural (A), Read/Write (R), and Kinesthetic (K). The VARK questionnaire has been widely utilized in educational research and has demonstrated acceptable psychometric properties in diverse educational settings (Fleming, 2012). The VARK questionnaire has been widely used in educational research, and previous studies have reported acceptable psychometric properties (Fleming, 2012). However, reliability testing within the local context was not conducted and is acknowledged as a limitation of the study.

Academic performance was measured using students' final general averages obtained from official school records, subject to the approval of school authorities and compliance with applicable data privacy regulations. Academic performance was categorized according to the grading classifications prescribed by the Department of Education.

Data Collection Procedures. Prior to data collection, permission

to conduct the study was secured from the school administrators of the participating institutions. After obtaining the necessary approvals, the researcher administered the VARK questionnaire to the selected respondents. Participants were informed of the purpose of the study and were assured that their responses would be treated confidentially and used solely for research purposes.

Following the administration of the questionnaire, students' academic performance records were obtained through documentary analysis with the approval of the concerned school authorities. The collected data were encoded, verified, and prepared for statistical analysis.

Ethical Considerations. The study adhered to fundamental ethical principles in educational research. Participation was voluntary, and informed consent was secured from all respondents. Participants were informed of their right to decline participation or withdraw from the study at any stage without penalty. Confidentiality and anonymity were maintained throughout the research process. Personal identifiers were excluded from the database, and all information was reported in aggregate form to protect participants' privacy. The study further complied with the provisions of the Philippine Data Privacy Act of 2012 (Republic Act No. 10173).

Statistical Analysis. Descriptive statistics, including frequency counts, percentages, and rankings, were used to describe the respondents' demographic profile, preferred learning styles, and academic performance levels. To determine the association between learning styles and respondents' demographic characteristics (sex, age, and grade level), the Chi-square Test of Independence was employed. The same statistical procedure was used to examine the relationship between demographic characteristics and academic performance.

Furthermore, the Chi-square Test of Independence was utilized to determine whether a significant relationship existed between students' preferred learning styles and academic performance. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), with the level of significance set at $\alpha = .05$.

RESULTS AND DISCUSSION

In terms of learning preferences, the results showed that the Auditory (A) learning style was the most preferred modality, with 106 students (41.1%) identifying it as their dominant learning preference. This was followed by Kinesthetic (K) learners with 85 students (32.9%), Read/Write (R) learners with 43 students (16.7%), and Visual (V) learners with 15 students (5.8%). Only a small proportion of respondents exhibited bimodal preferences, including Auditory–Read/Write (1.6%), Auditory–Kinesthetic (1.2%), Visual–Kinesthetic (0.4%), and Auditory–Visual (0.4%).

The predominance of auditory learning suggests that verbal interaction

and discussion remain important components of students' learning experiences within the participating schools. However, the absence of a significant relationship between learning styles and academic performance indicates that academic success is likely influenced by multiple learner, instructional, and environmental factors rather than by preferred learning modalities alone. The substantial proportion of kinesthetic learners likewise indicates that many students benefit from experiential, hands-on learning activities that enable them to engage with concepts and skills actively. These findings support Fleming and Mills's (1992) assertion that learners differ in how they prefer to receive and process information, highlighting the importance of employing varied instructional approaches to address diverse learning needs.

The findings are partly consistent with the study of Noor Nasyikin Md Zain et al. (2019), which reported that kinesthetic and auditory modalities were among the most preferred learning styles among university students. However, the present study found auditory learning to be the dominant preference, suggesting that learning preferences may vary across educational levels and institutional contexts. The result further supports the view that learning preferences are shaped by educational experiences and learning environments rather than being universally distributed across populations.

Regarding academic performance, the majority of respondents demonstrated high achievement. Specifically, 166 students (64.3%) received an Outstanding rating, 74 (28.7%) a Very Satisfactory rating, and only 18 (7.0%) a Satisfactory rating. The absence of learners within lower performance categories suggests that the participating schools maintain favorable academic conditions and provide sufficient support mechanisms that enable students to attain satisfactory or higher levels of achievement.

The high proportion of students with outstanding academic performance may be attributed to several factors, including effective instructional delivery, supportive learning environments, parental involvement, student motivation, and academic monitoring systems implemented by the schools. The finding aligns with the perspective of Andreas Schleicher (2012), who emphasized that student achievement is influenced not only by individual learner characteristics but also by the quality of educational experiences and institutional support provided by schools.

Taken together, the findings indicate that while senior high school students exhibit varied learning preferences, most respondents demonstrate strong academic performance. This suggests that students may be adapting successfully to the instructional approaches used in their schools, regardless of their preferred learning modality. The result further underscores the importance of maintaining diverse teaching strategies that accommodate auditory, kinesthetic, read/write, and visual learners while promoting high levels of academic achievement among all students.

RESULTS AND DISCUSSION

Relationship Between Learning Style and Demographic Characteristics. The results revealed that learning styles did not vary significantly by sex, age, or grade level. This suggests that students' preferences for visual, auditory, read/write, or kinesthetic modes of learning are relatively independent of demographic characteristics. Although auditory learning emerged as the dominant preference among respondents, it was observed across demographic groups.

Table 1. *Relationship Between Learning Style and Demographic Characteristics (n = 258)*

Variable	χ^2	df	p-value	Decision	Interpretation
Sex and Learning Style	6.353	7	.499	Fail to Reject H_0	Not Significant
Age and Learning Style	10.714	14	.708	Fail to Reject H_0	Not Significant
Grade Level and Learning Style	13.025	7	.072	Fail to Reject H_0	Not Significant

Significant at p < .05.

The finding supports Fleming's VARK model, which posits that learning preferences are individual characteristics that are not necessarily determined by biological or demographic factors. Similar findings were reported by Arbabisarjou et al. (2016), who found no significant relationship between learning styles and demographic characteristics among medical students. Likewise, Dobson (2010) reported that learning style preferences did not differ significantly across demographic categories.

The absence of significant differences may indicate that students are exposed to similar instructional environments, learning resources, and educational experiences, contributing to comparable learning preferences regardless of demographic background. This finding further suggests that teachers should avoid making assumptions about students' learning preferences based solely on age, sex, or grade level and instead employ varied instructional approaches that address multiple learning modalities.

Relationship Between Academic Performance and Demographic Characteristics. The findings demonstrated significant relationships between academic performance and the demographic variables of sex, age, and grade level. This suggests that variations in academic achievement among the respondents may be partly associated with these personal characteristics.

Table 2. *Relationship Between Academic Performance and Demographic Characteristics (n = 258)*

Variable	χ^2	df	p-value	Decision	Interpretation
Sex and Academic Performance	15.062	2	.001	Reject H_0	Significant
Age and Academic Performance	15.162	4	.004	Reject H_0	Significant
Grade Level and Academic Performance	6.011	2	.050	Reject H_0	Significant

Significant at p < .05.

The significant relationship between sex and academic performance may reflect differences in learning behaviors, study habits, motivation, and academic engagement. Previous educational research has documented gender-related differences in achievement patterns, often attributed to differences in self-regulation, learning strategies, and academic persistence.

Similarly, age was significantly associated with academic performance. Older students may possess greater maturity, stronger self-management skills, and increased educational motivation, which can positively influence academic outcomes. Developmental differences in cognitive and socio-emotional capacities may also contribute to variations in academic achievement across age groups.

The significant relationship between grade level and academic performance suggests that academic expectations, curriculum complexity, and educational experiences differ across grade levels. Students at higher grade levels may have developed stronger academic competencies and learning strategies that contribute to improved academic outcomes.

These findings support the view that academic achievement is influenced by a complex interaction of personal, developmental, and contextual factors rather than by learning preferences alone.

Relationship Between Learning Style and Academic Performance. The results revealed no statistically significant relationship between students' preferred learning styles and academic performance. This finding indicates that academic achievement among senior high school students was not determined by whether students preferred visual, auditory, read/write, or kinesthetic learning modalities.

Table 3. *Relationship Between Learning Style and Academic Performance (n = 258)*

Variable	χ^2	df	p-value	Decision	Interpretation
Learning Style and Academic Performance	18.082	14	.203	Fail to Reject H_0	Not Significant

Significant at p < .05.

The result contributes to a growing body of evidence questioning the assumption that matching instructional methods to students' preferred learning styles necessarily leads to higher academic achievement. While learning preferences may influence students' engagement, comfort, and participation in learning activities, they do not appear to be sufficient predictors of academic success.

This is consistent with the conclusion of Wilkinson et al. (2014), who found no significant association between learning styles and performance across different assessment formats. Likewise, Awang et al. (2017) found no significant association between students' VARK choices and academic success. The research shows that good academic performance is determined by several factors, such as motivation, study habits, self-management, quality of education, learning environment, and cognitive capacity.

According to Kolb's Experiential Learning Theory, children learn through a mixture of experience, reflection, conceptualization, and experimentation. Thus, rather than relying on a single preferred learning mode, exposing learners to diverse instructional strategies may enhance learning. This study supports a current educational idea that good teaching is about using alternative approaches to meet the needs of diverse learners and empowering students' ability to learn across different contexts.

This research also implies that teachers should not limit instruction according to students' so-called styles. Rather, instructional planning should be directed toward active learning, differentiated instruction, collaborative engagement, and higher-order thinking activities that meet the needs of all learners, regardless of preferred learning modality.

Overall, the results suggest that the learning styles were independent of students' demographic variables and not substantially connected with academic success. Conversely, demographic variables such as sex, age, and grade level were substantially related to academic success. These results imply that learning preferences are important for instructional design but may not be accurate indicators of academic performance. Preferred learning modalities in themselves tend to have less effect on academic success than learner traits and educational experiences.

Limitations of the study. There are several limitations to consider when interpreting the findings. Firstly, the study relied on self-reported learning style preferences, which may not adequately represent actual learning activities. Secondly, the participants were recruited from private schools in a single town, which limits the generalizability of the findings. Third, the study adopted a cross-sectional design, which precluded causal inference about the association between learning styles and academic achievement.

CONCLUSION

The study identified the learning styles and academic performance of senior high school students in selected private schools in Loon, Bohol. Auditory learning may be prevalent because teacher-centered instructional strategies continue to dominate Philippine secondary schools, where lectures, oral recitations, and verbal exchanges remain the predominant educational practices. Most respondents demonstrated strong academic performance, reflecting high achievement at the participating institutions. The findings also found no significant association between sex, age, and grade levels of kids and their learning styles.

Similarly, no significant association was identified between learning styles and academic achievement. Such results indicate that although students may have some preferences regarding information delivery and processing, these choices do not always lead to variations in academic achievement. Nevertheless, learning styles do not seem to be the only factors determining academic achievement. However, academic performance was significantly related to the demographic factors of sex, age, and grade level. This suggests that learner traits and developmental variables may play a more important role in influencing academic success than learning-style choices.

As a general rule, the results are consistent with the concept that learning styles can be valuable guidelines in lesson preparation and learner engagement, but not as the main factors influencing academic achievement. Effective teaching and learning are most successful when inclusive, adaptable instructional strategies are employed to meet learners' unique needs and promote academic achievement.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are offered:

1. **For Teachers.** Teachers should continue employing diverse instructional strategies that integrate auditory, visual, read/write, and kinesthetic activities to accommodate varied learner preferences. Rather than focusing exclusively on students' dominant learning styles, instructional practices should promote multiple modes of learning and active engagement.
2. **For School Administrators.** School administrators should support professional development programs that strengthen teachers' competencies in differentiated instruction, learner-centered pedagogy, and inclusive classroom practices. Such initiatives may help sustain high levels of student achievement across diverse learner groups.
3. **For Curriculum Developers.** Curriculum planners should design learning experiences that provide balanced opportunities for

listening, reading, writing, observation, collaboration, and hands-on application. This approach ensures that students develop flexibility in learning across different contexts and tasks.

4. **For Guidance Counselors and Student Support Personnel.** Guidance and student support programs may include learning preference awareness activities that help students understand their strengths and adopt effective study strategies. However, students should also be encouraged to develop competencies beyond their preferred learning modalities.
5. **For Parents and Guardians.** Parents should provide supportive home learning environments that encourage a range of learning activities, including discussion, reading, practical activities, and independent study, thereby reinforcing the development of diverse learning skills.
6. **For Future Researchers.** Future studies may examine other factors that potentially influence academic performance, such as motivation, self-regulated learning, study habits, emotional intelligence, learning environment, socioeconomic status, and teacher effectiveness. Researchers may also employ mixed-methods or longitudinal designs to gain deeper insights into the complex factors affecting student achievement.
7. **For Educational Policy and Practice.** Educational institutions should avoid relying solely on learning-style classifications when making instructional decisions. Instead, emphasis should be placed on evidence-based teaching practices that promote critical thinking, collaboration, problem-solving, and meaningful learning experiences for all students.

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