

VARK Learning Styles Vis-À-Vis Academic Performance of Elementary Education Students

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Abstract:

Students' preferred methods of taking in, processing, and remembering information are referred to as their learning styles. The VARK model, one of the most well-known frameworks, distinguishes between four main types of learners: visual, auditory, reading/writing, and kinesthetic. The aim of this study was to identify the relationship between learning styles and academic performance of Bachelor of Elementary Education students of Mandaue City College enrolled in the academic year 2023-2024. Students' visual, aural, read-and-write, and kinesthetic learning styles were evaluated as part of the research design. The study looked at learners' academic achievement at various year levels. The results showed that kinesthetic learning was the preferred learning style among learners. However, there was no significant relationship found between VARK Learning styles and academic performance when considering the students' year level. These findings highlight the importance of understanding students' learning styles to improve learning styles and enhance the teaching-learning process. It is recommended to put a Learning Styles Enhancement Program into place to further improve the educational experience. By identifying and utilizing each student's learning style, this program seeks to assist learners improve their academic performance. Teachers must consider other teaching strategies that accommodate students with varying learning styles, particularly in disciplines where traditional approaches might not be effective. Developing personalized learning plans and making use of a variety of teaching strategies and resources are crucial components of this curriculum. To guarantee the program's success, it is also recommended that parents get involved and teachers receive ongoing training and assistance.

Keywords: VARK Learning Styles, Academic Performance, Learning Strategies, Teaching Strategies, Bimodal

Introduction:

The VARK model is a way of categorizing different learning styles based on sensory modalities Othman & Amiruddin (2010), cited by Farman (2023). It suggests that there are four main types of learners: visual, auditory, reading/writing, and kinesthetic. Each learner has a unique learning style that varies depending on their inclinations. Various teaching approaches should be employed by teachers, depending on the state of each student, as different learning styles stem from the particular differences and distinctive values that each student exhibits when acquiring knowledge. Teachers can determine students' strengths and shortcomings by examining their learning styles. Educators must possess a professional understanding of psychology, which pertains to students' learning styles, interests, talents, attitudes, beliefs, and challenges they may encounter in their academic pursuits.

Many researchers investigate learning styles in different fields, including medicine, finance, engineering, and more. According to our best knowledge and upon searching in the library, no prior study had been looked at how students in an education program, specifically those studying BEED at Mandaue City College, learn and how it affects their grades. The study found that if teachers don't understand how students learn best, the students may not perform well academically or in other activities. Understanding and discussing this phenomenon is essential so that teachers can prepare their teaching strategies accordingly. Dinglasan and Patena (2013), also cited in the study of Alova and Salas (2022), indicate that students' capacity to manage their studies and complete the tasks their teacher assigns determine their academic performance. Grades are frequently used to assess a student's ability to convey newly learned information orally or in writing and their capacity for factual study and retention. The school wants to improve students grades by looking at their test scores. Meanwhile, academic performance was a way to measure and compare how well students are doing in school. Learning plays a big role in how students perform academically. The learning process changes from person to person. Learning style is the preferred way for students to learn something new. It was very important to know how students preferred to learn in order to make online learning more effective. By understanding their learning styles and preferences, online courses can be designed in a way that suits them best. This helps in making the teaching and learning process more efficient by modifying and organizing it accordingly.

According to Fayombo (2015), also cited by Nursasonoa et al. (2020), if students know what they are good at and what they struggle with, they can come up with different ways to learn better. Unfortunately, not many teachers and students at MCC know about these, so there are few studies have been done on learning styles. The study aimed to figure out how elementary education students learn and how it affects their grades.

The researchers selected Mandaue City College due to its large student enrollment, which provides a substantial sample size for the study. No studies have been done at Mandaue City College regarding learning styles and there is a notable lack of research focusing on elementary education students, particularly in this local context. This study aims to address this gap by identifying how the VARK learning styles of Bachelor of Elementary Education students at Mandaue City College are related to their academic performance. Based on the findings, the study proposes a learning style enhancement program tailored to BEED students, helping teachers develop differentiated instructional strategies that cater to the varied learning preferences within the classroom. The study revealed that BEED students utilized a range of learning styles, with many exhibiting a bimodal preference, particularly for a combination of red-and-write and kinesthetic styles. In terms of academic performance, the data indicated that while first- and third-year students performed at a "very good" level, fourth-year students achieved a "superior" performance rating. However, the study found no significant relationship between learning styles and academic performance overall, though academic performance was significantly influenced by the students' year level. Based on these results, the proposed VARK Learning Strategies Enhancement Program seeks to support students in identifying and utilizing their preferred learning styles through various instructional methods, such as interactive whiteboards, group discussions, note-taking workshops, and hands-on activities, fostering a more inclusive and effective learning environment.

Literature Review:

Every student has a way of learning and understanding information. Some learn by repeating things out loud, some by writing things down, and others by doing hands-on activities. This means each person has a different learning style. A learning style includes the factors, behaviors, and attitudes that help a student learn in a specific situation. It involves how students take in information, how interested they are, and how they react to the learning environment. Learning styles can be identified by certain traits like thinking, feeling, social interactions, and physical behaviors.

It is important to understand how students prefer to learn and their study habits, as these preferences and habits affect their academic success. According to Magulod Jr. (2018), Filipino university students in applied science courses have different learning styles and study habits that influence their performance. Additionally, this understanding provides students and educators with positive feedback on their areas of strength and weakness in learning and teaching. Recognizing learning styles can influence curriculum design, allowing instructors to adopt a learner-centered approach. Pillai et al. (2018) assert that knowing students' preferred learning methods helps them reach their full potential.

Ramirez (2022) found a strong correlation between academic success and learning styles, suggesting that these styles significantly impact academic progress. This connection implies that students' learning preferences are closely linked to their academic achievement. Gonzales and Reyes (2016), citing Ramasamy et al. (2018), noted that considering students' learning styles is crucial for teachers. Teachers should design lessons that include exercises fitting the needs of each student and support their learning, regardless of their unique styles, to enhance the teaching-learning process's significance. Mamba (2023) highlighted that understanding students' learning preferences is essential for determining how they gather and process information, as different learning styles can lead to varied classroom performance and readiness for higher education.

Education is crucial for societal growth and economic success. However, disparities in academic achievement among diverse demographics underscore the need for equitable access to quality education. Addressing these issues is vital for reducing social inequality and optimizing learning outcomes for all students. Kahu & Nelson (2018) emphasized that student achievement remains a concern for governments, policymakers, and educational leaders, focusing on grades, retention rates, and qualification completion rates.

Bailey & Garratt (2002), cited in Cornelius-Ukpepi (2019), noted that factors like the learning environment, preferred learning styles, and interest in the subject matter influence students' learning. A student's preferred learning style is determined by their typical methods of knowledge acquisition and application, as well as their response to stimuli in a learning environment. These learning styles recognize that people learn in various ways, leading to diverse perceptions of course material.

Given that each student has a unique learning style, disparities in the most effective education method are inevitable. Felder & Dietz (2002) highlighted that the most successful teaching occurs when multiple learning styles are accommodated, as encouraging students to engage in less preferred modes can broaden their skill sets. To tailor instructional or assessment materials to students' preferred learning styles, it is first necessary to determine whether academic performance depends on these preferences and how these styles are distributed within a student cohort.

Alavi and Toozandehjani (2017), cited in Mangulod Jr. (2018), argued that understanding the variety of learning styles in applied science courses leads to more successful learning experiences. They asserted that students' self-actualization develops over time and that knowing preferred learning methods can enhance study effectiveness. Teevan et al. (2011), cited by Wesonga & Aurah (2019), suggested that understanding learning patterns can help teachers implement effective teaching strategies to improve academic performance.

Teachers need to identify each student's preferred learning style and adapt their teaching strategies to facilitate the adoption of diverse learning styles in the classroom. Although some studies have shown that students will learn most effectively when taught in ways that suit their learning styles, critics, such as Pash et al. (2008) cited by Nancekivell et al. (2020), argue that there is limited evidence supporting the idea that aligning teaching styles with students' learning styles leads to better outcomes.

Research from various countries indicates that students' learning styles significantly influence their academic achievement, specific findings can vary by country. Yamazaki (2005), as referenced by Jilardi Damavandi et al. (2011) and cited by Lamy Alkooheji & Abdulghani Al-Hattami (2018), noted that nations continually develop new teaching techniques to meet their educational needs. Customizing academic materials to match individual learning styles can enhance learning outcomes, especially for students performing at low or moderate levels. Teachers must be aware of students' learning styles and their impact on academic performance to support their progress effectively.

Research Method:

This study employed a descriptive quantitative research method with a correlational design to examine the learning styles of elementary education students at Mandaue City College and their relationship with academic performance. The respondents included students officially enrolled in the 2023-2024 academic year, with a focus on those in the education program, selected through stratified random sampling. Data were collected using a standardized questionnaire based on the VARK Learning Style Questionnaire, which measured students' learning style preferences through 16 four-choice questions. The data gathering process involved obtaining permissions from relevant authorities, administering the questionnaire via Google Forms, and ensuring ethical standards were upheld to protect participant confidentiality. Data analysis utilized Slovin's formula, frequency counts, means, simple percentages, and two-way ANOVA to evaluate the relationship between learning styles and academic performance, yielding insights into the preferences and academic outcomes of the respondents.

Findings and Discussion:

The results indicate that students enrolled in the Bachelor of Elementary Education, majoring in General Content, predominantly prefer kinesthetic learning as their primary learning style. This suggests that these future educators are more engaged and perform better in activities that involve movement, hands-on tasks, and physical interaction with their learning materials.

Table 2:
Visual Learning Style

Year Level	Visual	Percentage
	Total Number of Responses	
First Year	116	28.78%
Second Year	78	19.35%
Third Year	106	26.30%
Fourth Year	103	25.55%

Table 2 reveals that the first-year students had the highest percentage (28.30%) of those who preferred the visual learning style, excelling when using pictures, symbols, and videos. Third-year students followed with 20.62%, also favoring visuals like diagrams and flow charts to enhance their learning. Fourth-year students came next with 18.39%, similarly benefiting from visual aids. The second-year students had the lowest percentage (13.47%), with a preference split between visual and other learning styles. According to Felder & Solomon (2007), as cited by Cabual (2021), visual learners have a strong memory for visual materials such as pictures, diagrams, and videos, using tools like concept maps and color-coded notes to better understand and connect ideas.

Table 3:
Aural Learning Style

Year Level	Aural	Percentage
	Total Number of Responses	
First Year	182	31.32%
Second Year	141	24.26%
Third Year	118	20.30%
Fourth Year	140	24.09%

Table 3 showed that the second-year students had the second highest percentage of those using the auditory learning style, favoring methods like listening to recorded discussions. Fourth-year students also showed a preference for auditory learning, engaging in activities that involve hearing or listening. Conversely, third-year students had the lowest percentage

of auditory learners, with most favoring other learning styles. First-year, second-year, and fourth-year students showed a preference for auditory learning as a means to enhance their performance. According to Gonzales & Reyes (2016), as cited by Moneva et al. (2020), auditory learners prefer learning through listening, often benefiting from reading aloud or discussing topics with others. They find tools such as voice recordings, conversations, and verbal summaries helpful in processing and understanding information.

*Table 4:
Read & Write Learning Style*

Year Level	Read & Write	Percentage
	Total Number of Responses	
First Year	148	30.08%
Second Year	133	27.03%
Third Year	103	20.93%
Fourth Year	108	21.95%

Table 4 shows that about 30.08% of first-year students prefer the read-and-write learning style, making it the most popular learning approach among this group. These students not only engage with visual aids and auditory materials but also enjoy reading aloud and taking notes. Second-year students closely follow, with 27.03% favoring this style, often taking notes during discussions and reading books. Fourth-year students also prefer the read-and-write approach, though their proportion drops to 21.95%, as they learn best through writing and reading notes. Third-year students have the lowest percentage (20.93%) of those who prefer the read-and-write style, with a stronger inclination towards other learning styles. This trend is supported by Yan (2017), as cited in Correa et al. (2022), who emphasizes that good reading skills are crucial for understanding new information and enhancing language abilities. Reading improves vocabulary, critical thinking, and communication skills, while writing is essential for developing literacy and self-expression.

*Table 5:
Kinesthetic Learning Style*

Year Level	Kinesthetic	Percentage
	Total Number of Responses	
First Year	197	24.02%
Second Year	227	27.68%
Third Year	187	22.80%
Fourth Year	209	25.48%

Table 5 reveals that second-year students exhibited the highest preference for the kinesthetic learning style at 27.68%, followed by fourth-year students at 25.48%, and first-year students at 24.02%. Third-year students had the lowest preference at 22.80%, indicating a stronger inclination towards other learning styles like visual, auditory, reading, and writing. The results suggest that second-year, fourth-year, and first-year students are more inclined to kinesthetic learning, engaging in activities like dancing and extracurricular tasks that involve movement. This preference aligns with findings by Weichel (2016), as cited by Jamilah & Hajriah (2020), which describe kinesthetic learners as active individuals who learn best through hands-on activities and physical engagement. They excel in environments where they can touch, feel, and move, benefiting from role-playing, games, and hands-on demonstrations. These learners are often eager participants in projects and can inspire others to join in.

Table 6:
Summary of VARK Learning Styles

	TOTAL	%
Visual	403	17.55
Aural	581	25.30
Read & Write	492	21.43
Kinesthetic	820	35.71

Over four years, data shows a range of learning preferences among students, with the kinesthetic learning style being the most common, favored by 35.71% of students who prefer hands-on, physical engagement in learning. The aural style follows at 25.30%, with a significant number of students preferring auditory learning through lectures and discussions. The Read & Write style, preferred by 21.43% of students, and the Visual style, chosen by 17.55%, emphasize traditional methods like reading, note-taking, and using visual aids. Table 6 confirms that the kinesthetic style is most preferred, with students expressing their learning through actions and activities. The aural style ranks second, as many students prefer listening to discussions and engaging in conversations. The third is the Read & Write style, where students enjoy note-taking and reading. The Visual style has the lowest preference, with only a few students favoring visual aids like pictures and diagrams. According to Marriott (2002), cited by Md. Zain et al. (2019), VARK learning styles categorize how students prefer to learn—by seeing, hearing, reading/writing, or doing—and these styles can help predict academic success.

Table 7:
Academic Performance

Year Level	Academic Performance Mean	Interpretation
First Year	1.7	Very Good
Second Year	1.6	Very Good
Third Year	1.7	Very Good
Fourth Year	1.5	Superior
TOTAL	1.6	Very Good

Table 7 highlights variations in academic performance across different year levels. First-year students have a mean score of 1.7, indicating their average performance is at this level. Third-year students also have a mean score of 1.7. Second-year students, however, show slightly better academic performance with a mean score of 1.6, while fourth-year students achieve the highest mean score of 1.5. The overall mean academic performance across all year levels averages 1.6, reflecting the evolving nature of academic achievement throughout the 2023–2024 school year. First-year students have the lowest academic performance, interpreted as very good, as they adjust to the college environment. Third-year students also have a low performance mean of 1.7, interpreted as very good due to the pressure and workload of this critical college stage. Second-year students perform slightly better, with a mean of 1.6, reflecting their adjustment and enjoyment of college life. Fourth-year students attain the highest performance mean of 1.5, interpreted as superior, as they effectively apply knowledge and strategies gained throughout their college journey to achieve better grades.

*Table 8:
Relationship between VARK Learning Style and Academic Performance*

Intercept	ANOVA F value	P value	Hypothesis	Interpretation
Year Level	11.76	0.000	Reject	Significant
VARK Learning Styles	0.42	0.922	Accept	Not Significant
<i>V</i>		0.263	Accept	Not Significant
<i>A</i>		0.516	Accept	Not Significant
<i>R</i>		0.552	Accept	Not Significant
<i>K</i>		0.713	Accept	Not Significant
<i>AK</i>		0.618	Accept	Not Significant
<i>RK</i>		0.766	Accept	Not Significant
<i>VK</i>		0.538	Accept	Not Significant
<i>VAR</i>		0.647	Accept	Not Significant
<i>VARK</i>		0.368	Accept	Not Significant

Table 8 showed that the relationship between year level and academic performance reflects distinct learning stages. In the first year, students are adjusting to a new environment. By the second year, they have adapted and strive for better performance and grades. The third year is critical, as students must prioritize their studies to secure good grades and progress to the fourth year. The final year involves applying all the knowledge and skills acquired from previous years in real-life contexts, with a focus on achieving passing grades for graduation. The VARK Learning Styles Model categorizes learning preferences into three modes: unimodal, bimodal, and hybrid. Unimodal learners prefer a single mode of learning, bimodal learners prefer two modes, and hybrid learners favor a combination of different learning styles.

*Table 9:
VARK Modes*

Year Level	Unimodal				Bimodal				Hybrid	
	V	A	R	K	VR	VK	AR	AK	RK	VAR VARK
1 st	4.34	21.73	8.69	43.47			4.34	13.04		4.34
2 nd	3.44	3.44	13.79	55.17	6.89	3.44		6.89	6.89	
3 rd	7.40	22.22	22.22	55.55				3.70	3.70	
4 th	4.34	13.04	4.34	56.52					8.69	4.34

Table 9 categorizes students across different year levels based on their preferred learning styles: unimodal (Visual, Auditory, Reading/Writing, Kinesthetic), bimodal (combinations like Visual-Reading/Writing, Visual-Kinesthetic, Auditory-Reading/Writing, Auditory-Kinesthetic, Reading/Writing-Kinesthetic), and hybrid (Visual-Auditory-Reading/Writing, Visual-Auditory-Reading/Writing-Kinesthetic). Kinesthetic learning consistently emerges as the dominant preference across all year levels, with the highest percentages for each year consistently falling under this category. This suggests that students generally favor learning through hands-on activities, movement, and tactile experiences.

While kinesthetic learning is the most prominent, there is significant variability in learning preferences, particularly among first- and second-year students, who often display bimodal preferences. This indicates a strong inclination towards

combinations like Visual and Reading/Writing or Auditory and Kinesthetic. Unimodal preferences, such as strictly visual, auditory, or reading/writing, have lower percentages compared to bimodal and hybrid preferences, suggesting that most students do not favor a single mode of learning.

These findings underscore the importance of incorporating multiple modalities in teaching methods to accommodate diverse learning preferences. Educators should consider the dominance of kinesthetic learning and the notable presence of bimodal and hybrid styles when designing instructional strategies. By integrating hands-on activities, interactive experiences, and multimedia resources, teachers can enhance student engagement and learning outcomes. Moreover, providing flexibility in teaching methods fosters a more inclusive learning environment that supports the varied needs of students.

Conclusion:

Being aware of students' learning styles effectively improves learning situations, completes online courses effectively, and organizes the teaching-learning process. The most common learning style preferred by elementary education students was the (K) kinesthetic. Most elementary education students are bimodal and have the same learning style preferences. A significant relationship was found between VARK Learning style and academic performance at the year level. There is no significant relationship was found between VARK learning styles and academic performance when it comes to the total number of respondents. Further studies with different designs are recommended.

Limitations and Further Research:

Based on our observations at Mandaue City College, due to a shortage of resources and materials, the professors are solely focused on one learning modality: catering to all students, although they have various prepared learning styles.

The researchers would recommend the implementation of VARK Learning Styles Enhancement Program that is one way that the student's is would assist in identifying and using the distinct learning styles to improve their academic performance.

- Teachers must create a more inclusive and effective learning environment that addresses the diverse needs of all students.
- School must utilize educational technology tools and resources that support various learning styles of the students.

The researchers have observed that Mandaue City College (MCC) encourages the application of differentiated learning and teaching strategies. Mandaue City College (MCC) creates a more inclusive and effective learning environment by understanding and accommodating learning styles. VARK learning styles can applied in Mandaue City College (MCC) by categorizing them as visual. Mandaue can incorporate visual aids into lectures and presentations, such as graphs, charts, diagrams, and maps. This visual approach caters to students with a strong visual preference for learning, allowing them to understand better and retain information. Auditory Mandaue City College can provide opportunities for auditory learners by incorporating audio materials, group discussions, and presentations. These activities engage auditory learners and help them process information through listening and speaking. Read and Write, Mandaue City College can provide written materials, note-taking opportunities, and written assignments to cater to reading/writing learners. This study is limited only for BEED students from first year until fourth year. Further study with different design is recommended.

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