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## **VARK Learning Styles and Academic Achievement of Pre-service Teachers in a State University in the Philippines**

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### **ABSTRACT**

*Learning styles highlight individual variations of preferred educational approaches and study methods. This study examines the level of the learning styles in terms of Visual, Aural, Read/Write, and Kinesthetic (VARK) of the Bachelor of Elementary Education (BEED) students and their level of achievement and its relationship. This study was conducted last December 2023 at Bukidnon State University College of Education, Casisang Annex Campus, with 60 2nd to 4th-year BEEEd students as the respondents. The researchers used an adapted-modified questionnaire from VARK Questionnaire (Version 8.01) by VARK Learn Limited and the 2nd Semester A.Y. 2022–2023 General Weighted Average (GWA) of the BEED students from the BuKSU SIAS online for data collection. The results showed that VARK learning styles had a positive response rate, with kinesthetic learning style as the highest among the four, interpreted as high, and their level of academic achievement interpreted as very good. It was also shown that the visual, read/write, and kinesthetic learning styles are negligible correlated and have no significant differences with the level of academic achievement. Moreover, aural learning style also has a negligible correlation, but there is a significant difference in the student's academic achievement. The results show that every student has their learning style, and it is suggested that the curriculum and institutions adapt the learning styles. Teachers could use the implications of this study to improve and incorporate various teaching methods.*

### **INTRODUCTION**

The field of education is constantly evolving to meet the changing needs of students in our world. One prominent challenge teachers face is recognizing that every student has unique strengths, preferences, and ways of understanding the world. Students may face challenges with academic performance related to teachers' pedagogy. Problems may arise if teaching methods do not engage or cater to diverse learning styles. Ineffective communication, unclear instructions, or a lack of feedback can help comprehension. Additionally, an overemphasis on memorization rather than understanding may impact long-term retention. Students benefit when pedagogy aligns with their needs, fostering a positive learning environment and supporting academic success.

The concept of learning styles has provided frameworks for understanding this diversity. To ensure teaching, it must explore how elementary education students interact with information and process it since this forms the foundation for their learning journey.

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The VARK model, formulated by Neil Fleming in 1987, provides a significant conceptual framework for comprehending, adapting to diverse learning styles, and catering to individual needs. The present paradigm classifies students into four primary modalities: visual, aural, read/write, and kinesthetic. This framework offers a method for discerning individual preferences in information processing. Recognizing the VARK model's importance in education enables teachers to develop instructional approaches congruent with students' learning styles, resulting in heightened student engagement and improved knowledge retention.

Additionally, this model promotes a more comprehensive approach to pedagogy, highlighting that no one learning style is superior to others. It underscores the need to cultivate diverse instructional techniques to augment educational experiences (Fleming, 2006). Learning styles suggest that individuals prefer acquiring and processing information effectively, and they influence how students engage with educational content.

According to Kasim et al. (2019), people learn through various learning styles. Still, instructors might only sometimes provide their students with lessons and materials that best suit their learning preferences. A student's performance may suffer due to a mismatch between their learning style and the teacher's style of instruction. As such, Covaci (2019) stated that students' learning styles frequently serve as the "shadow witness" for their academic achievement. Knowing and comprehending this element may help the educational transformation process and, in certain situations, may offer improved teaching and reporting techniques for students. Hence, everybody learns uniquely. Scholars assert that better attitudes towards learning and higher productivity can arise from meeting our learning styles. Students must understand their preferred learning method and how they process information in the classroom. It will make them comfortable with the learning process (Perjanjian, 2022).

However, many studies classified which students' learning styles are most dominant. Still, there needs to be more research on how each learning style influences academic achievement and examines the level of students' learning styles.

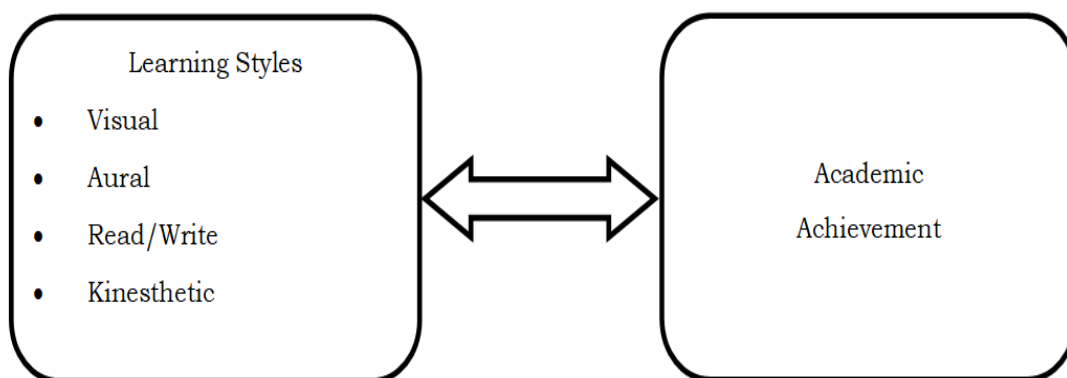
This study is significant to the educational system in examining the students' learning styles that influence academic achievement attributed to their learning styles. Students' styles are crucial for the success of their education. Hence, this study aimed to determine the level of learning styles among the students that will guide the teachers in their teaching methods and learning environment. It will also contribute to the students' academic success.

## **FRAMEWORK OF THE STUDY**

Examining the students' learning styles has drawn attention from both the students and the teachers. To effectively fulfill the needs of this particular group of students, teachers, and institutions must thoroughly understand the prevailing learning styles of Bachelor of Elementary Education (BEE) students. The VARK model is a commonly used framework for evaluating learning styles, visual, auditory, reading/writing preferences, and kinesthetic. According to Berkova et al. (2020), The efficacy of the teaching process is achieved by knowledge of the proper learning styles that students use to approach the material. The subject's difficulty and the students' practical preparation are two aspects that influence their preferred learning approaches.

There is a correlation between the learning styles of elementary education students and their academic achievement. Pauline and Collings (2018) state that each student has different learning styles and a range of demands. In addition to addressing student variety, offering options in tests to meet those needs helps do away with the learning environment.

In this theoretical framework, the researchers aim to explore various factors that influence the academic achievement of Bachelor of Elementary Education (BEED) 2nd to 4th-year students at Bukidnon State University during the academic year 2023-2024. The framework provides a structured approach for examining how these factors impact students' educational outcomes. Learning styles impact academic achievement by influencing students' engagement with instructional materials and teaching approaches. Academic achievement, specifically the student's general weighted average (GWA), is the outcome or measure of success researchers seek to understand and explain in the context of BEED students' learning styles. The extent to which teaching approaches cater to students' strengths and preferences can influence their academic achievement. The learning environment includes the physical classroom setting and available resources that shape students' engagement with the curriculum. In essence, this theoretical framework provides a structured perspective for researchers to explore how learning styles impact the academic performance of BEED students. By identifying these learning preferences, educators and institutions can improve their teaching and learning strategies by making informed decisions that cater to the unique needs of their students, ultimately leading to improved academic outcomes, as shown in Figure 1.



*Figure 1. This schematic diagram shows the learning styles that influence academic achievement.*

## **STATEMENT OF THE PROBLEM**

This study aims to determine the learning styles of the students taking Bachelor of Elementary Education 2nd to 4th-year at Bukidnon State University in the A.Y. 2023-2024.

1. What is the level of BEED students' learning style in terms of:
  - a. Visual;
  - b. Aural;
  - c. Read/Write; and
  - d. Kinesthetic?
2. What is the level of achievement of the BEED students?

3. Is there a significant relationship between the learning styles of the BEEd students and their academic achievement?

## RESEARCH METHODS

This study used a quantitative-correlational research method to examine the correlation between variables among the learning styles that impact academic achievement among Bachelor of Elementary Education (BEEd) students. Correlation research is carried out to determine a relationship between two closely related things, how one affects the other, and what changes are eventually noticed.

The study was conducted at Bukidnon State University College of Education Casisang Annex Campus with 2nd and 4th-year BEEd students as the respondents.

The participants of this study were the 2nd to 4th-year BEEd students in the A.Y. 2023-2024, 1st semester. They are Bachelor of Elementary Education (BEEd) students enrolled at Bukidnon State University. The total population of the 2nd to 4th-year BEEd students enrolled in the academic year 2023-2024 is 117. Only 60 BEEd students were selected as the respondents of this study.

The researchers contacted the respondents through an online platform by sending a Google Form questionnaire. A questionnaire contained a VARK Model Learning Styles questionnaire and details about the GWA of the students. Researchers gathered the data to assess the relationships between variables. It allowed the researchers to calculate correlation coefficients between the variables for the 2nd to 4th-year BEEd students.

The researchers used stratified random sampling to ensure a broad population representation relevant to the research question and includes a proportional representation of different learning styles. Only the 2nd to 4th year excluded the 1st year BEEd students in this Academic Year since the researcher needed the GWA from the previous semester. Within each stratum, the researchers use random sampling methods to select respondents. Out of 117 BEEd 2nd-year to 4th-year students, the researchers randomly responded to each class section with 60 BEEd students, 51% of the total population. Collect data on learning styles and academic achievement and analyze the data using appropriate statistical techniques to examine correlations. These variables were selected based on individuals as our respondents, suggesting potential associations in this study serve as a source of information during the data collection.

The researchers used an adapted-modified research questionnaire. The questionnaire for the students was adapted from the VARK Questionnaire (Version 8.01) by 2019 VARK-Learn Limited. The researchers used Likert scale questionnaires to measure the selected variables. In the questionnaire, each learning style consisted of 16 items and could be scaled to Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). The researchers determined the mean and standard deviation in the level of learning style of BEEd students in terms of visual, aural, read/write, and kinesthetic. Table 1 shows the Mean Interpretation in the Likert Scale, which was used to determine the interpretation of the overall mean in the data.

Table 1. Mean Interpretation in Likert Scale

Scale	Interval	Interpretation	Level Description	Qualifying Statement
1	1.00 - 1.80	Strongly Agree	Very High	This implies that the level of learning style is very much evident.
2	1.81 - 2.60	Agree	High	This implies that the level of learning style is very evident.
3	2.61 - 3.40	Neutral	Moderate	This implies that the level of learning style is moderately evident.
4	3.41 - 4.20	Disagree	Low	This implies that the level of learning style is rarely evident.
5	4.21 - 5.00	Strongly Disagree	Very Low	This implies that the level of learning style needs improvement.

The researchers determined the frequency and percentage of the students' academic achievement. Regarding the BEEed students' academic achievement level, the researchers determined the mean and standard in the grading scale, as shown in Table 2. The students' general weighted average (GWA) from the BukSU SIAS online in the previous academic year 2022-2023.

Table 2. Grading Scale

Grades	Percentage	Level of Achievement	Qualifying Statement
1.00 – 1.29	100 - 96	Excellent	The students indicate a very high level of achievement.
1.30 – 1.79	95 - 88	Very Good	The students indicate a high level of achievement.
1.80 – 2.19	87 - 84	Good	The students indicate a moderate level of achievement.
2.20 – 2.99	83 - 76	Fair	The students indicate a low level of achievement.
3.00	75	Passing	The students indicate a very low level of achievement.

This study used Pearson's Product Moment Correlation Coefficient (PPMCC) to determine whether the particular learning styles (visual, aural, read/write, and kinesthetic) and the General Weighted Average (GWA) of the participants significantly correlate. The researchers determined the significant relationship between the level of VARK learning styles of BEEed students and their academic achievement, as shown in Table 3, which was used to determine the value of the results of Pearson r and its description.

Table 3. The scale of Pearson's Correlation Coefficient

Scale of correlation coefficient	Value
0.90 to 1.00 (-0.90 to -1.00)	Very High Positive (Negative) Correlation
0.70 to 0.90 (-0.70 to -0.90)	High Positive (Negative) Correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate Positive (Negative) Correlation
0.30 to 0.50 (-0.30 to -0.50)	Low Positive (Negative) Correlation
0.00 to 0.30 (0.00 to -0.30)	Negligible Correlation

Ethical guidelines were strictly adhered to during the entire study. Respondents provided informed consent while maintaining their privacy, anonymity, and confidentiality.

## RESULTS AND DISCUSSION

The results of the data gathered by the researchers were analyzed and interpreted. The discussions were based on the responses from the 60 respondents, who are 2nd to 4th year BEEEd students at Bukidnon State University. The analysis was done using IBM SPSS software to compute the mean and the standard deviation. The researchers also used Pearson's Product Moment Correlation Coefficient (PPMCC) to determine the significant relationship between the two variables, which followed the data results and quantitative analysis interpretation.

### The Level of VARK Learning Styles of the 2nd to 4th-year BEEEd Students

Table 4. Level of Visual Learning Style of the 2nd to 4th-year BEEEd Students

Question	Mean	Standard Deviation	Qualitative Description
1. I need to find the ways to a shop that a friend has recommended. I would use a map.	2.43	0.31	High
2. A website has a video showing how to make a special graph or chart. There is a person speaking, some lists and words describing what to do and some diagrams. I would learn most from seeing the diagrams.	1.87	0.24	High
3. I want to find out more about a tour that I am going on. I would use a map and see where the places are.	2.10	0.27	High
4. When choosing a career or area of study, these are important for me: working with designs, maps or charts.	2.40	0.31	High
5. When I am learning, I see patterns in things.	1.97	0.25	High
6. I want to save more money and to decide between a range of options. I would use graphs showing different options for different time periods.	2.78	0.36	High
7. I want to learn how to play a new board game or card game. I would use the diagrams that explains the various stages, moves and strategies in the game.	2.47	0.32	High

8.	I have a problem with my heart. I would prefer that the doctor showed me a diagram of what was wrong.	2.20	0.28	High
9.	I want to learn to do something on a computer. I would follow the diagrams in a book.	2.20	0.28	High
10.	When learning from the internet I like interesting designs and visual features.	1.82	0.23	High
11.	I want to learn about a new project. I would ask for diagrams to show the project stages with charts of benefits and costs.	2.20	0.28	High
12.	I want to learn how to take better photos. I would use diagrams showing the camera and what each part does.	2.23	0.29	High
13.	I prefer a presenter or a teacher who uses diagrams, charts, maps or graphs.	1.83	0.24	High
14.	I have finished a competition or test and I would like some feedback. I would like to have feedback using graphs showing what I achieved.	2.45	0.32	High
15.	I want to find out about a house or an apartment. Before visiting it, I would want a plan showing the rooms and a map of the area.	2.08	0.27	High
16.	I want to assemble a wooden table that came in parts (kitset). I would learn best from diagrams showing each stages of the assembly.	1.92	0.25	High
<b>Overall Mean</b>		<b>2.18</b>	<b>0.28</b>	<b>High</b>

Table 4 shows the results of the 2nd to 4th-year BEEed students in the given questionnaire that determines the level of the Visual learning style of the students. It showed that the majority of the 60 respondents responded positively, resulting in an overall mean of 2.18, interpreted as High, which implies that the level of Visual learning style used by the students is very evident, as shown in Table 1. Students who retain information visually can mentally image their learning and best absorb information through reading and viewing images.

A study by Ling (2017) supported this finding that a visual student is a person who can memorize and understand better from pictures, diagrams, and charts. This shows that visual students are good observers and positively impact classroom performance.

Table 5. Level of Aural Learning Style of the 2nd to 4th-year BEEed Students

Question	Mean	Standard	Qualitative
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		<b>Deviation</b>	<b>Description</b>
1.	I need to find the ways to a shop that a friend has recommended. I would ask my friend to tell me the directions.	1.78 0.23	Very High
2.	A website has a video showing how to make a special graph or chart. There is a person speaking, some lists and words describing what to do and some diagrams. I would learn most from listening.	2.25 0.29	High
3.	I want to find out more about a tour that I am going on. I would talk with the person who planned the tour or others who are going on the tour.	1.85 0.24	High
4.	When choosing a career or area of study, these are important for me: communicating with others through discussion.	1.62 0.21	Very High
5.	When I am learning, I like to talk things through.	1.68 0.22	Very High
6.	I want to save more money and to decide between a range of options. I would talk with an expert about the options.	2.23 0.29	High
7.	I want to learn how to play a new board game or card game. I would listen to somebody explaining it and ask questions.	1.88 0.24	High
8.	I have a problem with my heart. I would prefer that the doctor described what was wrong.	1.63 0.21	Very High
9.	I want to learn to do something on a computer. I would talk with people who know about the diagram.	1.97 0.25	High
10.	When learning from the internet I like audio channels where I can listen to podcasts or interviews.	2.28 0.29	High
11.	I want to learn about a new project. I would ask for an opportunity to discuss the project.	1.90 0.25	High
12.	I want to learn how to take better photos. I would ask questions and talk about the camera and its features.	1.82 0.23	High
13.	I prefer a presenter or a teacher who uses question and answer, talk, group discussions, or guest speakers.	1.92 0.25	High
14.	I have finished a competition or test and I would like some feedback. I would like to have feedback from somebody who talks	1.83 0.24	High



it through with me.			
15. I want to find out about a house or an apartment. Before visiting it, I would want a plan showing the rooms and a map of the area.	2.02	0.26	High
16. I want to assemble a wooden table that came in parts (kitset). I would want a discussion with the owner.	2.20	0.28	High
<b>Overall Mean</b>	<b>1.93</b>	<b>0.25</b>	<b>High</b>

Table 5 shows the results of the 2nd to 4th-year BEEd students who were given a questionnaire that determined their aural learning style level. It showed that respondents responded positively, resulting in an overall mean of 1.93, interpreted as High, which means that the level of Aural learning style used by the BEEd students is very evident, as shown in Table 1. Communicating with others through discussion has the highest weighted mean among the 16 questions but is also interpreted as high.

Various studies seconded this result. In a study by Condaris (2019), the Aural learning style has been acknowledged to be challenging, but using tools necessary for hearing can benefit aural students.

Table 6. Level of Read/Write Learning Style of the 2nd to 4th-year BEEd Students

Question	Mean	Standard Deviation	Qualitative Description
1. I need to find the ways to a shop that a friend has recommended. I would write down the street directions I need to remember.	2.25	0.29	High
2. A website has a video showing how to make a special graph or chart. There is a person speaking, some lists and words describing what to do and some diagrams. I would learn most from reading the words.	2.42	0.31	High
3. I want to find out more about a tour that I am going on. I would read about the tour on the itinerary.	2.22	0.29	High
4. When choosing a career or area of study, these are important for me: using words well in written communication.	2.23	0.29	High
5. When I am learning, I read books, articles, and handouts.	2.05	0.26	High
6. I want to save more money and to decide between a range of options. I would read a print brochure that describes the options in detail.	2.53	0.33	High

7.	I want to learn how to play a new board game or card game. I would read the instructions.	2.03	0.26	High
8.	I have a problem with my heart. I would prefer that the doctor gave me something to read to explain what was wrong.	2.37	0.31	High
9.	I want to learn to do something on a computer. I would read the written instructions that came with the program.	2.20	0.28	High
10.	When learning from the internet I like interesting descriptions, lists, and explanations.	2.18	0.28	High
11.	I want to learn about a new project. I would ask for a written report describing the main features of the project.	2.25	0.29	High
12.	I want to learn how to take better photos. I would use the written instructions about what to do.	2.57	0.33	High
13.	I prefer a presenter or a teacher who uses handouts, books, or readings.	2.23	0.29	High
14.	I have finished a competition or test and I would like some feedback. I would like to have feedback using a written description of my results.	2.23	0.29	High
15.	I want to find out about a house or an apartment. Before visiting it, I would want a printed description of the rooms and features.	2.35	0.30	High
16.	I want to assemble a wooden table that came in parts (kitset). I would learn best from written instructions that came with the parts for the table.	2.27	0.29	High
<b>Overall Mean</b>		<b>2.27</b>	<b>0.29</b>	<b>High</b>

Table 6 shows the result of the questionnaire given to the 2nd- to 4th-year BEEd students that determine the level of the students' read/write learning style. The overall mean of 2.27, interpreted as High, implies that the Read/Write learning style is very evident. Students who would read instructions if they wanted to play a new board game have the highest mean of 2.03, but it is interpreted as High, as shown in Table 1. Moreover, this shows that read/write students prefer reading textbooks, handouts, and notes while learning new material and learn better by repeatedly rewriting and silently reviewing their notes.

Few studies support this result. Setiawan (2019) states that reading and writing students are integrative skills and essential, constructive, and complex processes. A brainstorming strategy is an effective method in this type of learning style.

Table 7. Level of Kinesthetic Learning Style of the 2nd to 4th-year BEEd Students

Question	Mean	Standard Deviation	Qualitative Description
1. I need to find the ways to a shop that a friend has recommended. I would find out where the shop is in relation to somewhere I know.	2.03	0.26	High
2. A website has a video showing how to make a special graph or chart. There is a person speaking, some lists and words describing what to do and some diagrams. I would learn most from watching the actions.	1.87	0.24	High
3. I want to find out more about a tour that I am going on. I would look at details about the highlights and activities on the tour	1.83	0.24	High
4. When choosing a career or area of study, these are important for me: applying my knowledge in real situations.	1.73	0.22	Very High
5. When I am learning, I use examples and applications.	1.53	0.20	Very High
6. I want to save more money and to decide between a range of options. I would consider examples of each option using my financial information.	2.07	0.27	High
7. I want to learn how to play a new board game or card game. I would watch others play the game before joining in.	1.72	0.22	Very High
8. I have a problem with my heart. I would prefer that the doctor used a plastic model to show me what was wrong.	2.10	0.27	High
9. I want to learn to do something on a computer. I would start using it and learn by trial and error.	2.08	0.27	High
10. When learning from the internet I like videos showing how to do or make things.	1.65	0.21	Very High
11. I want to learn about a new project. I would ask for examples where the project has been used successfully.	1.73	0.22	Very High
12. I want to learn how to take better photos. I would use examples of good and poor photos showing how to improve them.	1.72	0.22	Very High
13. I prefer a presenter or a teacher who uses demonstrations, models or practical sessions.	1.60	0.21	Very High
14. I have finished a competition or test and I would like some feedback. I would like to	1.90	0.25	High

have feedback using examples from what I have done.			
15. I want to find out about a house or an apartment. Before visiting it, I would want to view a video of the property.	1.77	0.23	Very High
16. I want to assemble a wooden table that came in parts (kitset). I would learn best from watching a video of a person assembling a similar table.	1.75	0.23	High
<b>Overall Mean</b>	<b>1.81</b>	<b>0.24</b>	<b>High</b>

Table 7 shows the results of the given questionnaire from respondents that determines the level of the Kinesthetic learning style of the 2nd to 4th-year BEED students. The positive response rate of the respondents is shown by the overall mean of 1.81, which is interpreted as high and implies that the level of Kinesthetic learning style used by the BEED students is very evident, as shown in Table 1. Through bodily movement, kinesthetic students comprehend and retain knowledge. They are “hands-on” students who learn best by doing—who favor touching, moving, building, or drawing what they learn.

Various studies supported this finding. Hardiana & Suyata (2018) state that kinesthetic students learn by doing. They imply physical involvement. The data shows that the kinesthetic learning style is the highest among the other learning styles. The highest to lowest level of learning style in VARK, based on the results of its mean and standard deviation, are in the following order: kinesthetic, aural, visual, and read/write learning styles.

Table 8. Summary of the Level of VARK Learning Styles of 2nd to 4th-year BEED Students

Learning Styles	Mean	Standard Deviation	Qualitative Description	Qualifying Statement
Visual	2.18	0.28	High	This implies that the level of learning style is very evident.
Aural	1.93	0.25	High	This implies that the level of learning style is very evident.
Read/Write	2.27	0.29	High	This implies that the level of learning style is very evident.
Kinesthetic	1.81	0.24	High	This implies that the level of learning style is very evident.
<b>Grand Mean &amp; SD</b>	<b>2.05</b>	<b>0.27</b>	<b>High</b>	<b>This implies that the level of learning style is very evident.</b>

Table 8 shows the overall result of the level of the VARK learning styles of the 2nd to 4th-year BEED students, which was remarkable in terms of the students’ methods and techniques in learning. It shows that each learning style does not differ from the other learning styles, where the Visual, Aural, Read/Write, and Kinesthetic learning styles are all described as *High*, which implies that each level of the learning style is very evident. This result showed the grand mean of 2.05, interpreted as *High*, which implies that the level of learning styles the BEED students used is very evident.

These findings can help teachers choose the best learning method for their students. According to Poves et al. (2019), some students have multimodal learning styles, which is a combination of two or more learning styles, and with that, they tend to learn and adjust to what the teacher’s teaching style can be, and students can still have good comprehension with what is taught. The association of different teaching methods and techniques can help the students enhance their learning skills (Luzano, 2024).

### **The Level of Academic Achievement of the 2nd to 4th-year BEEed Students**

Table 9. The level of achievement of the BEEed students

Level of Achievement	GWA	F	%
Excellent	1.00 – 1.29	1	1.67
Very Good	1.30 – 1.79	50	83.33
Good	1.80 – 2.19	9	15
Fair	2.20 – 2.99	0	0
Passing	3.00	0	0
Mean		<b>1.63</b>	
Level		<b>Very Good</b>	
Qualifying Statement Standard Deviation		<b>The students indicate a high level of achievement</b>	
		<b>0.15</b>	

Table 9 shows the level of achievement of the 2nd to 4th-year BEEed students in the A.Y. 2023-2024, 1st semester, in which the GWA of the BEEed students was interpreted through its mean and standard deviation. Out of 60 respondents, one student has an excellent level of achievement, 1.67% of the population; 50 students have a very good level of achievement, 83.33 % of the total population, and there are 9 students with a level of achievement good which is 15% of the total population. The data shows that the mean is 1.63, and its standard deviation is 0.15. The mean 1.63 of the GWA of the students was interpreted on the grading scale as *very good*, which means that *the students indicate a high level of achievement*, as shown in Table 2.

In terms of academic achievement in the findings, the overall score of the 2nd to 4th-year BEEed students was categorized as *very good*. Most of the students were categorized as very high, while the rest were categorized as good in academic achievement and in an excellent category. Meanwhile, no students were categorized in fair and passing levels of achievement. Based on this result, the researchers concluded that the students' achievement level is in a very good category. It is often believed that the teaching approach employed by the teacher is crucial in determining the academic achievement of the students (Widodo & Mugiyo, 2021; Luzano & Ubalde, 2023). The majority of students have a very good category for their academic achievement, which indicates that they genuinely pay attention to and understand the significance of their academic achievement, according to the statistics on the academic achievement level of the students.

### **The Significant Relationship between the VARK Learning Styles and Academic Achievement of the 2nd to 4th-year BEEed Students**

To identify the significant relationship between the learning styles and academic achievement of the 2nd to 4th-year BEd students, the researchers relied on the outcomes of the VARK Likert scale Questionnaire results and GWA of the students. The level of students' learning styles in terms of visual, aural, read/write, and kinesthetic can be used to find the significant relationship between the level of learning style and the student's academic achievement based on the student's GWA from the previous semester of the 60 BEd students was used to determine the correlation between the two variables.

The data results used Pearson  $r$  and  $p$ -value to determine the value of a significant relationship between the student's learning styles and academic achievement. The  $p$ -value has a significant difference below 0.05; if above 0.05, there is no significant difference. It provides data to determine the significant relationship between the visual learning style and the student's academic achievement. The  $df$  in the table is  $N=60-2$ , resulting in  $N=58$ . The correlation is significant at the level of 0.05 (2-tailed).

Table 10. Test of Significant Relationship between Visual Learning Styles and Academic Achievement.

Variables	Mean	SD	df	r	p-value
Visual	2.18	0.28	58	0.04	0.74
GWA	1.63	0.15			

Significant at the 0.05 level (2-tailed)

Table 10 shows the data results of the students' visual learning style and academic achievement, with a Pearson value of  $r = 0.04$  and a  $p$ -value of 0.74. The scale correlation coefficient of the Pearson  $r = 0.04$  value indicates that the correlation is at the "negligible" level based on Pearson's Correlation Coefficient scale, as shown in Table 3. There is a very low correlation between the visual learning style and the academic achievement of the 2nd to 4th-year BEd students, which means the learning style has an insignificant impact on academic achievement. There is a weak correlation, but there is no significant difference.

The results of the significant relationship between visual learning style and academic achievement indicate a negligible relationship. These results align with a study by Jawad (2018) that discovered a strong relationship between students' academic achievement and learning styles, suggesting a potential relationship between the two variables. The students' visual learning styles impact their academic achievement inadequately because of the very low correlation.

Table 11. Test of Significant Relationship between Aural Learning Styles and Academic Achievement.

Variables	Mean	SD	df	r	p-value
Aural	1.93	.025	58	0.27	0.04
GWA	1.63	0.15			

Significant at the 0.05 level (2-tailed)

Table 11 shows the students' aural learning style and academic achievement data, with a Pearson value of  $r = 0.27$  and a  $p$ -value of 0.04. The  $p$ -value is 0.04. Generally, if the  $p$ -value is less than the chosen significance level, which is 0.05, conclude that there is a significant difference. The Pearson  $r = 0.27$  value based on Pearson's Correlation Coefficient scale, as shown in Table 3, indicates a *negligible correlation*.

There is a weak positive correlation but there is a significant difference between the two variables. There is a negligible correlation between the aural learning style and the academic achievement of the 2nd to 4th-year BEd students, implying that their aural learning style slightly impacts their academic achievement. According to Khan (2019), every student is engaged in this method of instruction, regardless of their learning style. Additionally, it recognizes and appreciates the diversity of students. It is critical to consider the teaching methods and learning styles of the students that may affect academic achievement (Luzano, 2020).

Table 12. Test of Significant Relationship between Read/Write Learning Styles and Academic Achievement.

Variables	Mean	SD	df	r	p-value
Read/Write	2.27	0.29	58	0.05	0.70
GWA	1.63	0.15			

Significant at the 0.05 level (2-tailed)

Table 12 shows the students' reading/writing learning style and academic achievement data, with a Pearson value of  $r = 0.05$  and a p-value of 0.70. The Pearson  $r = 0.05$  scale correlation coefficient indicates a very low correlation based on Pearson's Correlation Coefficient scale, as shown in Table 3. For 2nd to 4th-year BEd students, a *negligible correlation* exists between their read/write learning style and academic achievement. There is a negligible correlation between the two variables but no significant difference. This suggests that the impact of learning style on academic achievement is inadequate.

According to Ilcin (2018), many educational factors influence students' learning process. Therefore, the learning style may be one factor that impacts the student's academic achievement.

Table 13. Test of Significant Relationship between Kinesthetic Learning Styles and Academic Achievement.

Variables	Mean	SD	df	r	p-value
Kinesthetic	1.81	0.24	58	0.15	0.27
GWA	1.63	0.15			

Significant at the 0.05 level (2-tailed)

Table 13 shows the students' kinesthetic learning style and academic achievement data, with a Pearson value of  $r = 0.15$  and a p-value of 0.27. The Pearson  $r = 0.15$  scale correlation coefficient indicates a *negligible correlation* based on Pearson's Correlation Coefficient scale, as shown in Table 3. Based on the results, there is a very low correlation, but there is no significant difference. A negligible correlation exists between their kinesthetic learning style and academic achievement, implying that the student's kinesthetic learning style and academic achievement have a low impact.

Ilcin (2018) stated that students in a collaborative environment would have an engaging academic performance. Kinesthetic students benefit from collaborative learning by thriving in a diverse and dynamic learning environment through hands-on experiences, active participation, and social engagement (Luzano, 2023).

## CONCLUSION

1. The findings of this study show that there is diversity in the students' VARK learning styles. The positive response of the respondents shows that the level of the VARK learning styles was interpreted as high. This implies that every student has their own learning style, and teachers must consider incorporating various teaching methods. The result also shows that students identified kinesthetic as the dominant learning style, and having the highest mean emphasizes the importance of using experiential and hands-on learning strategies in teaching.
2. In terms of the level of academic achievement of the students, the overall academic achievement of the respondents was categorized as very good, which provides a crucial framework for evaluating a significant relationship between the student's learning style and academic achievement. This evident success of the students in their academic pursuits suggests a potential correlation with their learning approaches.
3. This study also reveals that the VARK learning styles and the student's academic achievement have a negligible correlation. There is no significant difference between the student's visual, read/write, and kinesthetic learning styles and academic achievement. This implies that while there is a connection, it is not strong enough to have a meaningful impact on the student's academic achievement, emphasizing the importance of considering additional factors that may contribute to their academic success. The aural learning style has a negligible correlation, with a significant difference. This observed relationship is not strong enough to draw meaningful conclusions and also suggests the need to explore other factors that may influence student academic success. A low correlation between the aural learning styles and a statistically significant relationship persists, which implies that while the association is not particularly strong, it holds statistical significance, indicating a significant impact of the aural learning styles on the student's academic achievement. These results indicate that these learning styles do not contribute directly to the student's academic achievement but have a slight influence. This might be due to the diverse learning approaches employed by the students in their academic field. Instead of learning styles alone, other contributing factors need to be considered to improve students' academic achievement. Therefore, this study shows that each learning style has strengths and limitations. The VARK learning styles have a very low correlation to the academic achievement of the BEEd students.

The findings of this study implicate that learning styles are not the only factor that may boost students' academic achievement. Teachers in the field cannot use only one teaching method for some of the student's learning styles. Incorporating all teaching methods for teaching and learning activities will enhance the learning experience of students with diverse learning styles.

## **RECOMMENDATION**

Based on the summary above and conclusions, the following recommendations were made based on the results obtained from the analysis of data:



- ✓ Future researchers may explore the application of diverse teaching methodologies tailored to different learning styles across various academic subjects.
- ✓ Researchers may extend the investigation to different educational levels or institutions to validate the observed trends and correlations.
- ✓ Educational practitioners and policymakers may consider integrating tailored instructional materials based on learning styles into the curriculum.
- ✓ Professional development opportunities may be offered to teachers to improve their knowledge and skills to become more proficient in implementing teaching strategies aligned with various learning styles.
- ✓ Continuous research efforts are encouraged to explore the long-term effects of incorporating learning style-based interventions on students' overall academic development and success.
- ✓ Opportunities like workshops and seminars may be offered to teachers to enhance their understanding and proficiency in implementing teaching strategies aligned with various learning styles.

## REFERENCES

- i. Berkova, K. et al. (2020). Learning style preferences of university and college students. <https://eric.ed.gov/?q=vark+model&id=EJ1265745>
- ii. Broadbent, K. (2021). 4 Different Learning Styles: The VARK Theory 4 Different Learning Styles: The VARK Theory (melioeducation.com)
- iii. Cardino, J. M., & Cruz, R. a. O. (2020). Understanding of learning styles and teaching strategies towards improving the teaching and learning of mathematics. LUMAT, 8(1). <https://doi.org/10.31129/lumat.8.1.1348>
- iv. Condaris, C. (2019). Correlating Methods of Teaching Aural Skills with Individual Learning Styles, Athens Journal of Humanities and Arts, 6(1), <https://www.athensjournals.gr/humanities/201901HUM.pdf#page=15>
- v. Covaci, M. (2019). The VARK Model Investigated at the Students from PPPE. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3375825](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3375825)
- vi. Hardiana, M.T.A.N., & Suyata, P. (2018). The Effectiveness of VAK (Visual, Auditory, Kinesthetic) Model in Learning of Summary Writing, International Journal of Research and Review, 5(8), <https://d1wqtxts1xzle7.cloudfront.net/63685566/IJRR00820200620-123276-1jfouxj-libre.pdf?>
- vii. Hidayah, N. et al (2022). Correlation Between Learning Styles and Academic Achievement. <https://jurnal.radenwijaya.ac.id/index.php/PSSA/article/download/534/364>
- viii. Ilcin, N. et al (2018). The relationship between learning styles and academic performance in TURKISH physiotherapy students. <https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-018-1400-2>
- ix. Kasim, S. et al. (2019). Learning Styles and Teaching Styles Determine Students' Academic Performances. <https://eric.ed.gov/?id=EJ1238274>

- 
- x. Khan, S. et al. (2019). A Study of Relationship between Learning Preferences and Academic Achievement. <https://files.eric.ed.gov/fulltext/EJ1217902.pdf>
- xi. Ling, A.S. (2017). Does Learning Style Impact Student Academic Performance?, *International Journal of Education, Learning and Training*, 2 (2), [https://www.researchgate.net/profile/Abdul-Basit66/publication/325734955\\_DOES\\_LEARNING\\_STYLE\\_IMPACT\\_STUDENT\\_ACADEMIC\\_PERFORMANCE](https://www.researchgate.net/profile/Abdul-Basit66/publication/325734955_DOES_LEARNING_STYLE_IMPACT_STUDENT_ACADEMIC_PERFORMANCE)
- xii. Luzano, J. F. (2020). Development and Validation of Strategic Intervention Materials (SIMs) of the Selected Topics in Trigonometry of Precalculus Discipline in Senior High School. *Journal of Mathematics and Statistics Studies*, 1(2), 26–37.
- xiii. Luzano, J. & Ubalde, M. (2023). Notable Accounts of the Professional Practice of Tertiary Mathematics Teachers in the Philippines. *Science International (Lahore)*, 35(2), 129-133.
- xiv. Luzano, J. (2024). Assessment in Mathematics Education in the Sphere of Artificial Intelligence: A Systematic Review on Its Threats and Opportunities. *International Journal of Academic Multidisciplinary Research*, 8(2), 100-104.
- xv. Luzano, J. (2024). Robustness of Quantitative Research Methods in Mathematics Education. *International Journal of Academic and Applied Research*, 8(3), 55-58.
- xvi. Luzano, J. (2024). Exploring Gender-Inclusive Pedagogical Strategies in Mathematics. *International Journal of Academic Pedagogical Research*, 8(3), 39-42.
- xvii. Luzano, J. (2024). Dichotomies of Mathematics Classroom Discourses in Higher Education: A Systematic Review. *International Journal of Academic Multidisciplinary Research*, 8(3), 84-87.
- xviii. Luzano, J. (2024). A Scoping Review of the Professional Practices and Standards in Mathematics in Higher Education. *Journal of Harbin Engineering University*, 45(3), 1 – 6.
- xix. Luzano, J. (2023). The Interplay of Conceptual Understanding and Problem-Solving Competence in Mathematics. *International Journal of Multidisciplinary Approach and Studies*, 10(2), 89-97.
- xx. Luzano, J. (2023). An ADDIE Model Analysis on the Engineering of Contextualized Intervention Materials (CIMs) and Students' Achievement in Mathematics. *International Journal of Multidisciplinary Approach and Studies*, 10 (6), 25-47.
- xxi. Obilor, E. & Amadi E. (2018). Test for Significance of Pearson's Correlation Coefficient. (PDF) Test for Significance of Pearson's Correlation Coefficient ([researchgate.net](https://www.researchgate.net))
- xxii. Poves, J.L., et al. (2019). The Vark Learning Styles among University Students of Business Schools, *Journal of Educational Psychology – Propositos y Representaciones*, 7(2), p. 401-415, <https://eric.ed.gov/?id=EJ1220557>
- xxiii. Setiawan, F. (2019). The Effectiveness of Mind Mapping and Brainstorming Techniques to Teach Writing to Visual and Read Write Learning Style Students,

- 
- Syntex Literate: Jurnal Ilmiah Indonesia, 4(5),  
<https://core.ac.uk/download/pdf/268472248.pdf>
- xxiv. VARK-Learn Limited (2019). The VARK Questionnaire (Version 8.01). <https://vark-learn.com/wp-content/uploads/2014/08/The-VARK-Questionnaire.pdf>

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