

Learning Styles and Its Association with Academic Performance among Nursing Students

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Abstract

Learning styles play a significant role in shaping academic performance among nursing students, who must integrate theoretical knowledge with clinical skills. This study explores the relationship between preferred learning styles—visual, auditory, reading/writing, and kinaesthetic—and students' academic outcomes. Using a descriptive cross sectional research design was used for the study. Data were collected from nursing students through standardized learning style inventories and academic records. Findings suggest that majority of the nursing students were either graphic (38%) or tangible (38%). Comparison of mean academic performance across different learning-style groups revealed that learners scores were more or less similar for learning styles such as tangible, reading, and graphic (72.8%, 72.1%, 72.3%). There was a slight fall in academic percentage (68.56%) among aural learners. There was no significant association found between learning styles and academic performance ($\chi^2 = 6.28$, $df = 3$, $p > 0.05$). Hence, no single learning style guarantees academic success; rather, adaptability and the use of blended strategies are key factors. The study highlights the importance of aligning teaching methods with diverse learning preferences to enhance student engagement and performance. Incorporating varied instructional approaches, such as simulations, lectures, and interactive activities, can support holistic learning and better prepare nursing students for professional practice.

Keywords: learning styles, academic performance, graphic, aural, tangible, reading

1. Introduction

Education systems today face the challenge of catering to students with diverse backgrounds, cognitive abilities, and learning preferences. One concept widely discussed in this context is learning styles, which refers to the consistent ways in which individuals prefer to perceive and process information.^[1] The assumption underlying learning-style approaches is that identifying these preferences and adapting teaching strategies accordingly may enhance student learning and, ultimately, academic achievement.^[2]

However, despite their widespread use in educational practice, the empirical evidence on whether learning styles truly influence academic performance remains mixed. Some studies suggest that particular learning styles may be associated with better performance in specific disciplines or tasks.^[3,4] For example, visual learners may perform better in subjects requiring diagrams or spatial reasoning, while kinesthetic learners may excel in skill-based training. Conversely, other systematic reviews and meta-analyses have found

insufficient support regarding correlation on instruction to a student's preferred style improves performance.^[5,6]

This inconsistency highlights a gap in educational research: while learning styles are popular among students and educators, there is limited robust evidence to justify their use as predictors of academic outcomes. Investigating this relationship is therefore necessary to Provide clarity on the actual influence of learning styles on student performance. It will also guide educators in choosing evidence-based teaching strategies rather than relying solely on learning-style classifications. It may further contribute to the design of student-centered curricula that promote inclusivity and address individual differences in learning. Further, it will help learners become aware of their preferences and develop a flexible repertoire of study strategies to optimize academic achievement.

Given the increasing emphasis on outcome-based education and quality assurance in higher education, exploring the connection between learning styles and academic performance is both timely and essential. A well-designed study in this area can provide empirical data that either supports or challenges current educational practices and help shape more effective pedagogical approaches.

Nursing education is distinct from many other disciplines because it requires the integration of cognitive, psychomotor, and affective domains of learning. Students are expected not only to acquire theoretical knowledge but also to develop clinical reasoning, communication skills, and hands-on competencies necessary for safe and effective patient care.⁷ In such a demanding context, understanding how nursing students learn best is vital. Identifying the dominant learning styles of nursing students may help educators design more effective teaching approaches. For example, students with visual preferences may benefit from simulation videos and flowcharts, while kinesthetic learners may learn better through clinical simulations, role-play, and skill labs.^[8]

Modern nursing curricula emphasize student-centered and outcome-based education. Awareness of learning styles can help faculty move away from one-size-fits-all teaching and instead create a blended, multimodal environment that supports diverse learners.^[9] By becoming aware of their own learning styles, nursing students can develop metacognitive skills and adapt study methods. This promotes lifelong learning, which is essential in the constantly evolving field of healthcare. ^[10]

The present study aims to;

1. Identify the predominant learning styles among nursing students using a standardized tool.
2. To compare academic performance across different learning style categories.
3. To determine whether there is a significant association between learning styles and academic achievement among nursing students.

Methods

A cross-sectional descriptive–analytical design was adopted to assess the learning styles of undergraduate nursing students and examine their relationship with academic performance. Participants were selected using stratified random sampling, and data were collected through the standardized VARK questionnaire

to identify preferred learning styles. Academic performance was measured using the most recent cumulative examination scores or GPA obtained from institutional records. Descriptive statistics were used to summarize demographic details and distribution of learning styles and academic performance among nursing students. Associations are computed using chi-square test.. Ethical approval and informed consent were obtained, and confidentiality of participants was maintained throughout the study.

Results

1. Demographic Characteristics of Participants

A total of 100 nursing students participated in the study of which 50% of the participants were between 20-21 years and 50% were above 21 years. Majority 90 (90%) of the nursing students were females and 10 (10%) of them were males. There were equal number of participants (50%) from 3rd and 4th year B. S c nursing.

Table 1. Demographic characteristics of participants n=100

Variable	category	Frequency	Percentage%
Age in years	20-21 years	50	50%
	>22 years	50	50%
Gender	Male	10	10%
	Female	90	90%
Year of study	3 rd year	50	50%
	4 th year	50	50%

Table 2. Distribution students based on their learning styles. N=100

Learning style	Frequency (n)	Percentage(%)
Graphic	38	38%
Reading.	14	14%
Aural	10	10%
Tangible	38	38%

The table 2 shows distribution of students based on VARK questionnaire assessment that majority of the nursing students were using either graphic (38%) or tangible (38%) learning style followed by reading mode (14%) and aural (10%).

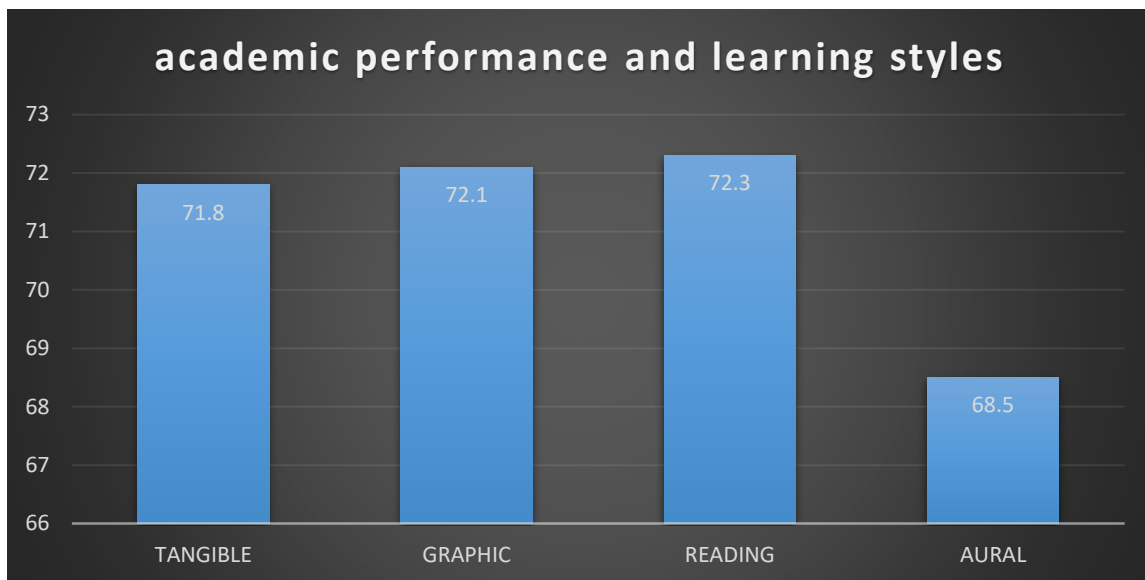
Table 3. Academic performance of nursing students

N = 100

Category	Frequency (n)	Percentage (%)
High	70	70%
Average	30	30%
Low	0	0

The table 3 shows that mean academic score of participants are 71.95% (Range -61%-81%) Performance was categorized as **high (70%), average (50%-69%), and low (<50%)**. There were 70% of them who scored high and 30% in average category and none of them scored low.

4. Mean scores of academic performances across various learning styles



The **figure- 1** shows that comparison of mean academic performance across different learning-style groups and it reveals that learner’s scores were more or less similar for learning styles such as tangible, reading, and graphic (72.8%,72.1%, 72.3%). There was a slight fall in academic percentage (68.56%) among aural learners

Association of Academic Performance Across Learning Styles

A chi- square test was done to find the association between academic performance and learning styles among nursing students. However, there was no significant association found between learning styles and academic performance ($\chi^2 = 6.28, df = 3, p > 0.05$). Hence it was interpreted that academic performance doesn’t have any association with learning styles of nursing students.

Discussion and summary

The present study assessed the learning styles of undergraduate nursing students and examined their relationship with academic performance. The most commonly reported learning style was graphic and tangible, followed by reading and aural. Mean academic scores did not show much variation among graphic, tangible and reading. But among aural learners it was low. However, differences were not statistically significant. Chi-square indicated no significant association between learning styles and academic performances among students.

The predominance of kinaesthetic and multimodal learning styles aligns with previous findings among nursing students, who often engage in practical, hands-on training that reinforces these preferences.¹² Similar studies have reported a mix of learning preferences, highlighting the need for multimodal instructional approaches in nursing education.³

Regarding the relationship between learning styles and academic performance, the current study's finding of no significant association is consistent with systematic reviews and meta-analyses suggesting that the "matching hypothesis" lacks robust empirical support^{4,5}. Some studies have reported modest differences, often discipline- or context-specific, but overall evidence indicates that learning styles alone are not reliable predictors of academic achievement.^{6,7}

Implications

- The diversity of learning styles among nursing students emphasizes the importance of student-centered, multimodal teaching strategies, such as combining lectures, demonstrations, discussions, simulations, and group activities etc.
- Faculty should focus on evidence-based teaching techniques (e.g., active learning, problem-based learning, reflective practice) rather than attempting to match instruction strictly to learning styles.
- Awareness of their own learning preferences may help students develop flexible study strategies and improve self-directed learning, a crucial skill in professional nursing.

Strengths of the Study

- Use of a standardized, validated instrument (VARK) for assessing learning styles.
- Inclusion of a representative sample across different years of study.

Limitations

- Academic performance was measured only using examination scores/GPA, which may not capture clinical competence fully.
- Self-reported learning styles may be subject to response bias.
- Multimodal learners were categorized according to the dominant preference, potentially oversimplifying complex learning behaviors.

Recommendations

- A longitudinal or experimental studies can be conducted to explore causal links between learning styles and learning outcomes.
- A similar study can be conducted to assess the impact on practical aspect of nursing education.
- A study can be conducted to find the impact of multimodal learning strategies on both academic performance and skill acquisition.

Conclusion

The study revealed a diversity of learning styles among nursing students, with a slight predominance of tangible and graphic learning modes. However, no significant association was found between learning styles and academic performance, which supports previous evidence that teaching tailored exclusively to individual learning styles may not necessarily improve educational outcomes. Therefore, nursing educators should focus on implementing multimodal and evidence-based teaching strategies while encouraging students to develop flexible study habits that can enhance learning, adaptability, and professional competence.

Nurse educators play a crucial role in preparing competent healthcare professionals. Since nursing students possess diverse learning preferences and educational needs, the adoption of varied teaching and learning methods is essential to create an engaging, inclusive, and effective learning environment. Multimodal teaching strategies—such as lectures, simulations, demonstrations, case-based learning, group discussions, audio-visual aids, and e-learning platforms—help address these differences by engaging multiple senses and promoting active participation.

Furthermore, the use of different instructional approaches enhances critical thinking, clinical reasoning, knowledge retention, psychomotor skills, and student motivation. It also prepares nursing students for real-world clinical practice by integrating theoretical knowledge with practical application. Rather than relying on a single teaching method, nurse educators should adopt flexible and learner-centered approaches that support lifelong learning and professional development.

Overall, multimodal learning strategies contribute significantly to improving the quality of nursing education and ensuring that future nurses are equipped with the knowledge, skills, and competencies required for safe and effective patient care.

Conflict of Interest

Nil.

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