

## Learning Styles as A Teaching Process in Elementary and Middle School Nursing Students

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### Abstract

*Learning styles are a significant aspect of the teaching process in nursing students. They encompass individual preferences and approaches to acquiring and processing new information. Each student possesses a unique learning style, and understanding this can be advantageous in adapting and enhancing teaching strategies to align with their abilities, aspirations, and needs. Additionally, recognizing their learning style involves addressing the issue of diverse learning styles. The objective of this study is to identify learning styles as a teaching process in elementary and middle school nursing students. The methodology employed in this study is quantitative and non-experimental. The data were collected using a validated instrument that was adapted to align with the characteristics of the student population at the Universidad Estatal del Sur de Manabí. The findings of this study highlight the importance of adapting teaching strategies to accommodate individual preferences. A diverse range of learning styles was identified, including visual, auditory, and kinesthetic. The study's conclusions suggest that learning styles play a crucial role in the teaching process for elementary and middle school nursing students, and that they can be utilized to enhance learning outcomes.*

**Keywords:** *Bimodal Teaching, Teaching-Learning, Learning Styles, Teaching Technics*

### INTRODUCTION

In the context of nursing education, learning styles are defined as students' individual preferences in how they perceive, process, and assimilate information. These preferences can be classified into four main categories: active, reflective, theoretical, and pragmatic. Active learners tend to prefer active participation in learning activities, while reflective learners often prioritize observation and analysis of information. Theoretical learners tend to gravitate towards understanding abstract concepts, and pragmatic learners often benefit from learning through practical application (1).

The term “learning” is defined as an active and persistent process that brings about transformations in individuals according to their abilities, aspirations, and needs. To understand how people learn, it is essential to address the issue of different “learning styles,” which are responsible for the diverse ways in which learners at all levels respond to the educational process. Each individual's learning style reflects their preference for directing cognitive processes toward particular types of perception, selection, and comprehension of information (2).

In the 21st century, one of the primary challenges facing education, particularly at the post-secondary level, is to recognize and empower the student as the central agent and driving force in their own formative process. This necessitates a collaborative effort on the part of educational institutions and teachers alike, who must demonstrate flexibility and adaptability in order to effectively transfer knowledge within the classroom setting.

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Conversely, it is imperative to address the shortcomings that students bring with them when they enter higher education, particularly with respect to the absence of study habits (3).

This deficiency can result in challenges when adapting to the demands of higher education and developing the skills necessary for effective knowledge assimilation. There is a growing interest in improving the educational conditions of students, but this approach is no longer limited only to didactic or pedagogical aspects. Attention is now paid to the internal aspects of the student, which allows for the development of broader competencies, beyond their purely memoristic skills. This interest arises from the changes that have occurred over time in the educational contents, which require not only memorization, but also the ability to handle multiple sources of information to transform them, relate them, and apply them effectively (4).

In order to achieve the aforementioned objective, the authors of this paper collaborated with a Research Program (I+D+H) at the Southern State University of Manabí, Nursing Career. The curriculum, innovation, education, and training are presented in the projects “Innovative bimodal teaching for the development of competences in university students” and “Bimodal teaching system for the development of learning and knowledge technologies.” The results obtained are shown after an initial diagnosis was carried out to identify the methodologies that students at the basic and intermediate levels are most adapted to, based on the need for educational change in higher education.

The educators engaged in these initiatives prioritize the instruction of overarching competencies through a dual or bimodal methodology. The aforementioned pedagogical experiment is conducted with the objective of fostering the development of general competencies, including leadership skills, among the participating students. This approach enables students to acquire the skills necessary to effectively address professional challenges in exceptional situations. From this perspective, the program focuses on reinforcing competencies from a broad perspective. According to the CES, there is a need for future professionals to add value in their work performance through the development of general competencies such as leadership, team collaboration, critical thinking, analysis and synthesis, ethical commitment, and others.

## LITERATURE REVIEW

In the contemporary era, there is a societal imperative for individuals to engage in continuous learning, thereby acquiring autonomy and developing an awareness of their own mental processes when confronted with challenges. This entails the ability to analyze problems, plan, monitor, and evaluate performance. Research in the cognitive domain has demonstrated that individuals learn through a multitude of avenues, underscoring the significance of contemplating the variables that shape the capacity to learn. One such variable is learning style, which pertains to individual proclivities in selecting learning strategies (5).

Although learning styles tend to be relatively stable, they can be modified. It is the responsibility of educators to facilitate students' identification of their learning style and equip them with the ability to adapt it to different educational contexts. Among the studies on learning styles, those that seek to validate instruments that facilitate the diagnosis of learning styles and, therefore, the student's self-knowledge stand out. Kolb, Honey, Munford, and Alonso are recognized authors in this field, focusing their research on experiential learning and its relationship with learning styles. Each of these researchers identified four successive stages in the learning process: having an experience, reflecting on it, drawing conclusions, and planning future actions (6), (7).

**Table 1. Learning styles**

Learning Styles	Description
<b>Active Style</b>	This style indicates an inclination toward participation in new experiences and total commitment to teamwork. People with this style are usually cheerleaders, improvisers, explorers, bold and spontaneous.
<b>Reflective style</b>	Individuals with this style prefer to analyze the experience from different perspectives. They are meticulous in data collection and analysis, showing themselves to be thoughtful, detail-oriented, responsive, analytical, and thorough in their approach.
<b>Theoretical style</b>	Those with this style enjoy adapting and integrating observations into logical and complex theories. They have deep and systematic thinking, being methodical, rational, critical, objective and structured in their thought process.

<b>Pragmatic style</b>	This style is characterized by a preference for the practical application of ideas. They are experimental, practical, direct, effective and realistic in their approach, looking for concrete solutions that can be applied in real situations.
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In light of the advancements in nursing education and the evolution of the discipline, it is imperative to conduct periodic reviews of the learning profiles of nursing students to ascertain their learning preferences. There is a growing recognition of the pivotal role played by both teachers and students as social, cultural, and research agents in the field of learning (8).

This recognition highlights the necessity of engaging with the surrounding environment of this pedagogical dynamic, which is manifested in the material resources and the context in which such engagement occurs. Currently, there is a general consensus that there are multiple theoretical approaches to learning, reflecting the diversity of perspectives within this field.

### **Educational Innovations**

The current innovations and reforms in the field of education are centered on the Competency-Based Approach (CBA), which has a significant impact on curriculum management, educational quality policy, teaching and assessment processes. This approach, which has gained considerable traction globally, necessitates a meticulous, discerning, and proactive approach to study and application, as well as a rigorous and ingenious implementation strategy. The competency-based approach is transforming the teaching and learning processes by articulating theory and practice, contextualizing training, guiding the organization of content, promoting comprehensive training, and establishing rigorous evaluation mechanisms based on performance in challenging situations (9).

**Table 2. Characteristics of learning styles.**

<b>Active</b>	<b>Reflexive</b>	<b>Theoretical</b>	<b>Pragmatic</b>
Animators	Observers	Comprehensive	Comprehensive
Improvisers	Thorough	Organized	Organized
Discoverers	Receptive	Retailers	Retailers
New challenges	Analytical	Scholars	Scholars
Spontaneous	Patients	Statesmen	Statesmen
Creative	Prudent	Researchers	Researchers
Novel.	Observers	Writers	Writers
Adventurers	Condescending	Comprehensive.	Comprehensive
Renovators	Comprehensive.	Organized	Organized
Inventors	Organized	Retailers	Retailers
Vital	Retailers	Scholars	Scholars
Creative	Scholars	Statesmen	Statesmen
Released	Statesmen	Researchers	Researchers
Protagonists	Researchers	Writers	Writers
Innovative	Writers	Comprehensive	Comprehensive
Chatty		Organized	Organized
Participatory			Retailers

*Source: Authors' elaboration based on a review of the literature*

The term “competency,” from an epistemological perspective, has its roots in the Latin “competere,” which signifies that which aligns with or is relevant to the individual within their designated scope of responsibility. In the context of education, this translates into fostering the development of competencies in students, entrusting them with the responsibility of shaping their own learning journey. In Mexico, the construction of training designs based on the Competency Model has been adopted as an educational policy. This process is

inherently complex, as competencies identify fields of knowledge and educational practices that are themselves of notable internal complexity (10).

Competencies are processes through which individuals engage in activities or problem-solving in their daily lives and work. These processes integrate the knowledge of “knowing how to do,” “knowing how to know,” and “knowing how to be,” with critical awareness and assuming responsibility for their actions. These competencies refer to capacities that produce specific results in situations that require particular skills or abilities to achieve such achievements. These are adaptive and cognitive-behavioral, allowing individuals to respond to environmental demands with a certain level of adequacy (11).

In light of the accelerated advancement of knowledge and the advent of new information and communication technologies, the competency-based model is presented as an alternative for the development of adaptive, cognitive, and behavioral capacities that enable students to effectively navigate the challenges of their time. In higher education, this model fosters autonomous learning, which facilitates comprehensive training and enhances students' ability to transition into the workforce. This approach necessitates an integration of conceptual, procedural, and attitudinal knowledge.

In the field of health, the objective is to enhance educational practice in order to positively influence academic performance, in accordance with the quality indicators set forth by national accrediting agencies. Furthermore, it acknowledges the existence of individual differences in cognitive processes related to learning, which leads to the consideration of learning styles as significant factors in educational practice. The aim is to identify the fundamental learning style itself in order to improve or strengthen preferences and develop the capacity to learn effectively (12).

In the academic field, the significance of comprehending the diverse didactic strategies that can be employed to facilitate learning styles is underscored, along with the factors that shape their evolution and expression in each individual, with the aim of devising optimal teaching and learning processes. The manner in which students learn and the subject matter to be learned can inform the didactic strategies utilized.

Awareness of learning styles provides the basis for task- and activity-oriented teaching strategies, including the selection of materials, which can enhance individual abilities and facilitate meaningful learning, with direct implications for academic performance. Despite the established relationship between strategies and learning styles, many teachers do not consider these possibilities when designing their teaching plans (13)

It is of the utmost importance that educators select learning objectives, content, and activities in a manner that aligns with the mental organization of their students and remains consistent over an extended period of time. This approach ensures that individual skills are effectively linked to academic achievement.

Within the spectrum of skills, abilities, and interests that enable learners to confront novel challenges, several domains merit particular attention:

### **Global Awareness**

Application of 21st century skills to address global issues.

Collaboration and learning with individuals from diverse cultures, religions and walks of life, promoting mutual respect and open dialogue.

Understanding of other nations and cultures, including the use of languages other than Spanish.

### **Economic, Financial and Entrepreneurship Literacy**

Making appropriate personal economic decisions.

Understand the role of the economy in society.

Develop entrepreneurial skills to increase productivity at work and explore career options.

**Citizenship Competencies**

Effective participation in civic life, including government processes.

Exercise of citizen rights and responsibilities at the local, state, national and global levels.

Awareness of the local and global implications of civic decisions.

**Learning and Innovation Competencies:** These skills are vital to preparing students for the increasingly complex living and working environments of the 21st century:

**Creativity and Innovation Competencies**

Demonstration of originality and inventiveness at work.

Development, implementation and communication of new ideas.

Openness to new and diverse perspectives.

Creative and tangible contribution in the field of innovation.

**Critical Thinking and Problem-Solving Skills**

Complete reasoning for understanding.

Complex decision-making and problem solving.

Identification of significant questions and formulation of effective solutions.

**Communication and Collaboration Skills**

Clear and effective expression of thoughts and ideas.

Effective work with various groups.

Flexibility and collaboration to achieve common goals.

**Personal and Professional Life Skills**

Flexibility and adaptability.

Initiative and self-direction.

Social and cross-cultural skills.

Productivity, reliability.

Leadership and responsibility.

**RESULT AND FINDINGS**

**Table 3. Preference in Learning Styles**

Learning styles	Medium Preference									
	Very low		Casualty		Moderate		Loud		Very high	
	1	%	2	%	3	%	4	%	5	%
Active	7	1,9%	9	2%	22	6%	119	32%	215	58%
Reflexive	32	9%	33	8,9%	82	22%	126	34%	99	27%
Theoretical	5	1,3%	11	3%	61	16%	91	24%	204	55%
Pragmatic	5	1,3%	13	3,4%	40	11%	46	12%	168	45%
Basic Preference										
Active	6	4%	8	5%	44	28%	68	44%	30	19%

Reflexive	12	8%	42	27%	56	36%	35	22%	11	7%
Theoretical	4	3%	3	2%	7	4%	31	20%	111	71%
Pragmatic	3	2%	2	1%	8	5%	30	19%	113	73%

In the case of intermediate-level students, it was observed that 58% exhibited a markedly high preference for the active learning style, while the reflective style was valued by 27%, the theoretical by 55%, and the pragmatic by 45% with a high or very high preference, respectively. Conversely, at the basic level, while the active style maintains its dominance with 44% of high or very high preference, a decline is evident in comparison to middle-level students. With regard to the reflective style, there is evidence of a greater preference, with 36% of basic-level students indicating a high or very high preference. With regard to the theoretical style, there is a notable increase in preference, with 71% of basic-level students indicating a high or very high preference, compared to 55% of middle-level students. In conclusion, the pragmatic style also demonstrates an increase in preference at the basic level, with 73% of students indicating a high or very high preference, compared to 45% of middle-level students.

**Table 4. Visual Learning Style Item Results**

Questions	Basic Level				Intermediate level			
	YES	%	NO	%	YES	%	NO	%
Do you think you have the ability to do bibliographic searches using multiple search engines such as Scopus, Pubmed, Chochrane regarding a particular topic?	112	72%	44	28%	185	72%	69	27%
Do you have knowledge on how to do a literature search and filter relevant articles?	112	72%	46	29%	188	73%	66	26%
Do you think you have the ability to supervise and lead a literature review activity?	94	60%	62	40%	153	60%	101	40%
Do you think you have the ability to educate and motivate the patient regarding their treatment plan?	143	92%	13	8%	237	92%	17	7%
Do you have knowledge of critical thinking and problem-solving skills, through real or simulated cases?	120	77%	43	28%	173	67%	81	32%
As a student, do you create a mental image of what you study?	128	82%	28	18%	235	91%	22	9%
As a student, do you create a mental image of what I see?	136	87%	20	13%	229	90%	25	10%
As a student, you learn best when someone represents information in a pictorial form (e.g., a picture, a flowchart?	137	37%	6	2%	225	60%	4	1%
As a student, do you create a mental image of what you read?	118	32%	9	2%	212	57%	33	9%

The analysis of the results by items of the visual learning style in basic and middle-level nursing students reveals interesting patterns that influence the teaching and learning process. At both levels, the students believe they have the ability to do bibliographic searches using multiple search engines. A total of 72% of the basic-level students and 73% of the middle-level students expressed high confidence in their information search abilities. However, it is essential to acknowledge that this proficiency may be influenced by prior experience and training in utilizing these tools. Conversely, the percentages exhibited a slight decline at both levels in terms of the capacity to supervise and direct a literature review activity. Conversely, the majority of students at both levels believe they are capable of educating and motivating patients regarding their treatment plan, with figures ranging from 92% to 93%. With regard to critical thinking and problem-solving skills, the majority of students at both levels claim to possess these abilities, although the percentage is slightly lower at the intermediate level (67%). Furthermore, a considerable proportion of students at both levels indicated that they create a mental image of the material they study (82% and 91%), as well as that they learn better when the information is represented in pictorial form (37% and 60%) at the basic level. Nevertheless, the proportion of students who create a mental

image of the material they read is lower, particularly at the basic level (32%) and the intermediate level (57%). This could indicate a potential area for improvement in teaching strategies to enhance reading comprehension.

## **CONCLUSION**

The educational environment, including the actors involved such as parents, as well as cognitive schemes and other variables, exerts a significant influence on the teaching-learning processes. It is therefore the primary responsibility of teachers to recognize how students learn and what strategies they use, allowing the design of activities that promote the well-being and quality of the education provided. Thus, ensuring an optimal and effective learning environment for students. Contemporary didactic approaches posit that students should not merely acquire knowledge; they should also learn how to apply and update it throughout their lives, developing their skills to adapt to an ever-evolving environment. It was observed that students who engage in reflective learning tend to receive greater attention from educators and demonstrate superior academic performance. This phenomenon can be attributed to the influence of specific educational practices, such as the use of guides that promote reading comprehension and the analysis of data provided.

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