

## Review Article

# Nursing Students' Learning Styles: Impact on their Academic Achievements

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**Abstract:** Students' learning styles have been the center of several studies. Nevertheless, it remains complex and can be affected by many factors. Nursing students, for instance, are required to learn large quantities of theoretical content in a short time, which necessitates the use of different learning styles during their studies. Learning in health professional programs, such as nursing, requires various ways of teaching and learning. Studying nursing requires the ability to perform a great variety of clinical skills. Exploring the students' learning styles is considered one of the effective approaches for a good learning process. Many studies have explored the issue of learning styles among nursing students; however, there is little known about the learning styles of nursing students in Oman. Therefore, this article explains the importance of exploring the different learning styles among nursing students and it shed-lights on some theoretical models of the learning styles. In addition, it gives a brief description of studies exploring the learning styles in Arab Gulf countries and Oman. As educators, we need to know the students well enough and find out their learning styles preferences to help them succeed in their educational nursing program and eventually their career as professional nurses. Accordingly, this article gives recommendations on improving the learning outcomes among nursing students with different learning styles by using various teaching strategies.

**Keywords:** learning styles, nursing students, Academic Achievements, clinical skills.

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## INTRODUCTION

There are diverse student populations at different higher education institutions in the Middle East and throughout the world. Students come from different backgrounds, experiences, cultures, and different learning style preferences. Mostly the predominant teaching style during their school years was memorization. As students graduate from high school and enroll in higher education institutions, they select the program of study that would help them select their career path. Learning in health professional programs, such as nursing, requires various ways of teaching and learning. To the students' surprise, they encounter various ways of being taught and learning differently than those they have been taught at schools. As they continue to study and pass through their nursing programs, they begin to take courses that require more hands-on learning, reading, writing, critical thinking, and independent learning (Stirling & Alquraini, 2017). The ways of evaluation in nursing courses are different. For many clinical courses, the nursing faculty rely less on quizzes and papers for assessment; instead, they rely more on observing the performance of clinical skills and the use of Objective

Structured Clinical Examination (OSCE) (Stirling & Alquraini, 2017).

Nursing education is constantly changing to meet the nursing profession's ever-changing needs. The days of long lecture hours and routine memorization are gone. To satisfy the requirements and the demands of the profession, new and innovative teaching strategies are fundamental. Some of these strategies include case studies, student presentations, collaborative assignments, and videos (Van Der Wege *et al.*, 2020). For teaching to be effective, students must be engaged, engrossed in learning, and inspired (Van Der Wege *et al.*, 2020).

Learning is not depending on the memorizing capabilities of the learners; however, it depends on other factors such as personality traits, personal interest, type of duty, and type of learning style (Mahmood *et al.*, 2019). Therefore, it is important for faculty to address the students learning needs and early explore the learning styles among his/her students in order to overcome the challenges that might face the students in their learning endeavor. Exploring the learning styles of the students is considered one of the effective factors of the learning process.

### **Learning and learning styles**

Learning is a continuous and collaborative process and is the product of student and teacher activity within a learning environment (Zhu *et al.*, 2019). It is difficult for traditional nursing education to accommodate with the new education environment due to the variations in the patterns of diseases, the aging population fast growth, and the internationalization of nursing education. According to Zhu and colleagues (2019), there has been a shift from the traditional teacher-centered approach to the newer learner-centered approach to meet those challenges. Hence, a need to adopt new teaching methods and learning to various degrees is essential. Zhu and colleagues also emphasized that many factors can influence a student's learning style, including gender, age, geographical background, level of education, and educational major, among other factors.

According to Katowa-Mukwato and colleagues (2017), learning style combines cognitive, affective, and physiological characteristics that guide how people receive information and interact with it and respond to the learning environment. Learning styles are beliefs, preferences, and behaviors that people can use to help them learn in a unique position. In other words, learning styles are not an individual's abilities but the preference of a person in receiving information (Mahmood *et al.*, 2019). Mahmood and colleagues also stated that learning style is a person's learning preferences in apprehending, organizing, and processing information and learning experiences.

Ojeh and colleagues (2017) confirmed that learning styles differ significantly in different professions or specialties. An individual usually chooses degree courses where the learning environment nurtures the learning styles. The authors stated that many studies had reported an increase in student learning, enhanced student performance and motivation by adapting teaching strategies that suit the individual learning styles (Ojeh *et al.*, 2017).

### **The rationale for the need to apply learning styles**

Various studies suggested a need to design educational strategies geared towards student learning styles as it plays a vital role in problem-solving and learning. Finding out the methods that students use to process information and their learning styles allows teachers to guide them to advance toward broader training goals and achieve broader critical thinking and problem-solving skills (Shirazi & Heidari, 2019).

Learners use different learning styles due to their differences. Learning *styles* are defined as a set of beliefs, preferences, and behaviors that people use to help them learn in a given situation. Learning style can help explain many individual differences in learning. Understanding students' learning styles is essential because if educational materials and teaching styles

align with learning styles, this can enhance course content and promote academic achievement (Mahmood *et al.*, 2019).

Madu and colleagues stated that students vary in the ways they prefer to learn. These varied preferences in learning include but are not limited to; learning from lectures, group discussion, reading and jotting down notes on a topic, watching videos of materials to be learned, or demonstration (2019). Thus, identifying students' learning styles can help them modify their learning preferences accordingly and challenge educators to include many teaching methods to accommodate all learning style preferences. It can also help maximize students' understanding of concepts, improve their readiness for internal and professional examinations, and increase students' academic performance (Madu *et al.*, 2019).

Assessment of undergraduate nursing student learning styles preference can help design and develop proper lesson plans based on students' preferred learning methods. It can significantly increase their participation (student-centered) in the teaching-learning process, thereby increasing their understanding of the subject matter. Also, identifying students' learning styles can help determine faculty instructional methods and develop lessons related to the student's preferred learning style. Similarly, nursing students' preferred learning styles can help design a nursing curriculum that would promote learning, translating to confidence, competence, and the adequate understanding of learning materials (Madu *et al.*, 2019).

Unfortunately, according to Hallin (2014), most teachers are not aware of student learning styles preference, thereby using one or few teaching methods, which can be a disadvantage for some students. As a result, the content of an educational program providing a single learning style would fail to meet many learners' anticipations because learners could face poor comprehension, poor retention, and frustration. Eventually, it would lead to poor academic performance and can adversely affect lifelong learning.

### **Learning styles models and tools**

There are diverse learning style models and tools. The most recognized one is the Kolb model (Experiential Learning Theory), a measurement instrument called Learning Style Inventory (LSI). Another modified version of Kolb's experiential learning model is the Honey and Mumford model, the Learning Style Questionnaire (LSQ), which identified four types of learners: activists, theorists, pragmatists, and reflectors (Cuevas, 2015).

Kolb's Experiential Learning Theory (ELT) believes that learning is a process where knowledge is created through the transformation of experiences or new situations (McLeod, 2017). The ELT focuses on

information processed through a cyclical learning model, where the learners encounter, reflect and transform new situations or experiences. Emphasizing the role that experience plays in the learning process is one of the distinguishing aspects of ELT that separate it from other learning theories (McLeod, 2017).

Another widely used model is Fleming's VAK/VARK model that classifies individuals into either visual, auditory, read/write, or kinesthetic learners (Bhagat *et al.*, 2015). All learning styles are essential, and being familiar with them allows teachers to choose from a wide range of instructional strategies. Many other tools have been developed over time to understand how individuals learn, such as Vermont's inventory and Meyer Brigg's Indicator (Bhagat *et al.*, 2015).

The Dunn and Dunn Learning Style Model, based on Cognitive Style and Brain Lateralization Theories, is a comprehensive model that identifies learning styles by analyzing individuals' unique strengths and preferences for how they learn best (Mukhalalati & Taylor, 2019).

Myers-Briggs Type Indicator® (MBTI®) allows individuals to identify their personality type, strengths, and preferences, including learning and teaching (The Myers & Briggs Foundation, 2021). These include how a person directs their energy, introverted versus extroverted (IE); how information is processed, sensing versus intuition (SN); how decisions are made, thinking versus or feeling (TF); and, the preference for organization, judging versus perceiving (JP).

### **Studies Supporting Learning Styles**

Nursing is an active profession, and nursing education is constantly changing to meet the needs of the ever-changing challenges of the nursing profession (e.g., the management of disaster and the fight of pandemic diseases). Therefore, to meet the demands of the nursing profession, new and innovative teaching strategies are required. The new teaching strategies (such as case studies, collaborative projects, simulations, and student presentations) could motivate them and engage them in different learning experiences (Van Der Wege *et al.*, 2020).

Many challenges face the nursing profession, including the nursing shortage, increase in patient acuity, and the emergence of new pandemics and crises. All those challenges require the nurses to be well-prepared with up-to-date knowledge and skills to combat those challenges. Therefore, to help nursing students succeed in both their study and their future work, nursing faculty need to explore new ways to help students better understand the nursing concepts and skills. When planning classroom activities and instruction, nursing faculty should be aware of the

learning styles of each student and try to develop activities that are suitable for all students.

Gayathiri and colleagues (2018) conducted a descriptive cross-sectional study in Bangalore, India, with a sample of 269 undergraduate nursing students using stratified random sampling to test the different preferences of nursing students learning styles using the VARK questionnaire. The results showed that more students prefer the kinesthetic learning style, with a mean of 7.67, followed by aural learning with 6.64 scores. Similarly, Alharbi and colleagues (2019) conducted another descriptive cross-sectional study and used a convenience sample of 56 undergraduate nursing students in Saudi Arabia. The purpose of the study was to examine the learning preferences using the Arabic version of the Felder-Silverman learning style model (FSLSM) questionnaire among Saudi nursing students from the college of nursing, King Saud University, Saudi Arabia. The results showed that the noticeable learning style among the nursing students was visual (67.9%). The second learning style was active learning (50%), followed by sequential learning style (37.5%), while the least favorite was the verbal style (3.6%). Almasi and colleagues (2018) conducted a descriptive cross-sectional study with a sample of 100 nursing and midwifery students using the VARK learning style questionnaire. The results showed that the visual style was the most common, while the students' kinesthetic learning style was the least used.

Another descriptive correlational study in Saudi Arabia using the Learning Style Questionnaire (LSQ) was by Mahmood *et al.* (2018) and it was aimed to determine the sample of 117 bachelor nursing students' learning styles and their relation to their learning and academic achievement. It concluded that learning is enhanced when an active learning style was used, and also, most nursing students preferred visual/verbal learning style.

Mancilla and colleagues (2020) conducted a quantitative, descriptive, and correlational study of the cross-sectional type with 186 nursing students in Chile. The researchers used the Honey-Alonso Questionnaire of Learning Styles. The results showed that the learning style, the Reflexive one style, was commonly used, with a mean value of 53%, followed by the Theoretical with 39%. Stirling and Alquraini (2017) conducted a cross-sectional survey study to assess the learning styles of 125 female nursing students in Saudi Arabia. The findings showed that the majority of the Saudi nursing students (80.5%) in this study had some preference for kinesthetic learning. About 38% of those students had a strong preference for kinesthetic learning, while others preferred auditory, reading/writing, and visual learning (10.6%, 4.9%, and 2.4%, respectively).

Latif and colleagues (2019) used a descriptive study with a cross-sectional design with a convenient sampling of 51 nursing students from Malaysia to identify the learning styles of the nursing students. VARK questionnaire was used for data collection. The study showed students learning styles were kinesthetic and auditory learning styles with 14 (27.5%) each. The other results showed that ten students (19.6%) had combinations of various styles, seven students (13.7%) had read/write learning styles, and six students (11.8%) had visual learning styles.

Thambawita and colleagues (2021) studied the preferred learning styles among 327 nursing undergraduate students of KAATSU International University (KIU), Sri Lanka. The study was a descriptive cross-sectional study that used the VARK (Visual, Aural, Read/Write, Kinesthetic) questionnaire. The study showed that 68.5% of students using a unimodal learning style while 31.5% of students used multimodal learning preference. Another worth mentioning result was the kinesthetic learning style used by almost half of the students (49.8%) followed by aural (12.8%), visual (4.6%), and read/write (1.2%). Generally, it was noted that not all students are self-directed. Another notice from the previous studies that most of the researchers were using either Kolb's ELT or the VARK questionnaire to find out the nursing students learning styles preferences. Those results showed that more students incline towards visual and kinesthetic learning.

### **Learning styles among healthcare-related programs in Oman**

According to Maqbali and colleagues (2019), the history of nursing education in Oman started with a 2-year nursing program for male orderlies in Al Rahma School of Nursing within what was formerly known as Mutrah hospital in 1970, developed by the American Missionary Association. Since the renaissance and due to the necessity of increasing the number of hospitals and health centers, more nursing education institutions were built to accommodate more students. From that time on, there was a rapid increase in the enrollment of students to nursing specialty. Also, the length of the nursing education programs increased from two years' diploma to a four-year baccalaureate program.

The Ministry of Health established nursing institutes all over Oman offering nursing programs to accommodate the shortage of nurses in the country. In 2001, the Oman Specialized Nursing Institute (OSNI) was opened that offer post-basic training in various specializations such as midwifery, neonatal/pediatric intensive care, accident, emergency care, nephrology, health services management, mental health, adult critical care and administration. In 2002, the first baccalaureate nursing program in Oman was established at Sultan Qaboos University (SQU). In 2004, two private universities, the University of Nizwa (UON) and

Buraimi University College (BUC), offered four-year BSN programs.

In Oman, undergraduate students enter the nursing programs after a national selection process operated by the Higher Education Admission Center. Many of those students were previously taught using different teaching methodologies with a predominant didactic teaching style, and most were dependent on memorization (Stirling and Alquraini 2017). When they join the nursing programs, they face the fact that they need to use different learning methods, which may affect their abilities to handle new information and skills.

Little is known about the learning styles of students studying in healthcare-related programs in Oman, except for one study conducted by Panambur and colleagues (2014). Panambur and colleagues (2014) used a descriptive, cross-sectional study to assess the favored learning style of 140 students studying in the preclinical years of the medical degree program at Oman Medical College, Suhar, using the VARK Model. The results showed that 65% of students preferred learning using a combination of either two (14%), three (19%), or four (32%) sensory modalities. The kinesthetic style was the most preferred learning style for use in combination with other modes. However, about one-third (35%) of the students preferred a single style of learning distributed either visual (8%), auditory (9%), read/write (9%), or kinesthetic (9%). Whereas the rest of the students (65%) preferred using either two (14%), three (19%), or four (32%) styles of teach (Panambur *et al.*, 2014).

The researchers admitted that the knowledge of students' learning preferences helped the teachers teaching in preclinical courses to overcome the predisposition of those teachers to treat all students similarly. It also helped them provide a focus for developing strategies that are geared towards individual learners. Therefore, Panambur and colleagues (2014) recommended that the curriculum and the academic teaching design be restructured by adding strategies that match the learners' preferences. In addition, knowing more about the students' learning styles can help teachers accommodate the students' learning preferences in their lesson plan and incorporate some of the learning strategies suitable for a large classroom setting. Furthermore, a longitudinal study can be conducted to deeply assess the learning style preferences of the same cohort groups of students during their clinical years.

Unfortunately, there was no single study conducted to explore the learning styles among nursing students in Oman. Conducting such a study would help understand the preferred learning styles deeply among nursing students and the important learning strategies to be integrated into the nursing curriculum. Both



quantitative and qualitative studies can be conducted to improve the nursing students' academic and clinical performance.

## RECOMMENDATION

From the studies conducted regarding the learning styles among nursing students, particularly in the Arabian Gulf countries, it is worth noting that there is still a significant need to conduct research studies among nursing students in Oman. These studies would determine nursing students learning style preferences, preferably at the beginning of their enrollment in the Bachelor of Nursing Program. The information gathered would encourage higher education institutions to integrate various learning strategies in the nursing curriculum that can accommodate the student's learning preferences and the learning strategies suitable for those students.

Being familiar with students' learning preferences would help nursing teachers treat all students similarly and concentrate on developing strategies designed for individual learners. For instance, the traditional lecture uses PowerPoint slides which can benefit the auditory and read/write most learners. Whereas laboratory demonstrations, interactive learning activities, and hands-on learning can help visual and kinesthetic learners. Active learning strategies (e.g., cooperative learning exercises, role-playing, simulations, debates, and games) can be adapted for all students and can be used effectively in large classrooms. A well-designed teaching/learning process should address varied learning preferences for the promotion of individual learning. The use of several teaching methods that address different learning can optimize students' learning, which would increase success in both internal and professional examinations.

## CONCLUSION

In conclusion, the best learning style is not dependent upon any single style or any style-like consistency in approach. It was advocated that learners take flexible methodologies for instruction to enhance their learning. Therefore, identifying nursing students' preferred learning styles is essential, as this can help teachers develop educational strategies that can lead to better outcomes. It can also help the teachers determine a range of methods by which information is conveyed to students. It is concluded that there is a gap in studies, and there is a need for further studies regarding nursing students learning styles, particularly in Oman. There is a need to conduct future research to assess the relationship between the preferred learning styles and academic performance/success.

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