

## Nursing Students' Preferred Learning Styles

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### Abstract

**Background and purpose:** Learning style is the processing of information and comprehension. If teachers present contents in a style that matches a student's preferred learning style, academic performance and success will improve. If content retention improves it will result in an increase in the test scores. It is also important to determine if students, as a group, fit into a particular style or a particular cycle as they move through an educational program.

**Methods:** The study is a descriptive analytical research. Nursing Students at Isfahan Medical Sciences University completed a questionnaire formulated to assess learning styles. Analysis of variance was used to investigate the possible relationship between learning cycle and student's grades in the curriculum (i.e. freshman, sophomore, junior, or senior). Cross tabulation was used to test for a relationship between learning style and student academic year of study in the curriculum.

**Results:** 294 students received the Kolb LSI questionnaire. The data demonstrated that juniors preferred a converger learning style and the senior students were in the abstract conceptualization cycle of learning. There were no relationships demonstrated between other groups in the study.

**Conclusion:** The junior and senior students appear to prefer the stage of learning involving thinking and problem analysis. When a group of students demonstrate a preference for particular learning style teachers can develop their curriculum along their learning style

**Key words:** LEARNING STYLES, NURSING STUDENTS, FRESHMAN, SOPHOMORE, JUNIOR, SENIOR

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### Introduction

David Kolb stated that knowledge is created through the transformation of experience. (1) With every new experience, learners possess the ability to learn something new and to increase their knowledge base. It is the teachers who increase knowledge base when educating students. Academic success for the student may encompass setting-goal, choosing effective teaching methods, time management, study skills and proper assignments, and student's preferences for a particular style of learning. (2) A student's learning style determines how that

person comprehends and processes information and is important for the student and the teacher. (3) Various theories have been forwarded so far concerning learning style. Field dependence and field independence, creative and fast learning, holistic and atomistic learning, deep and shallow learning, theoretical and applied learning, active and thoughtful learning are just some examples to be cited: One of these theories, which has been vastly utilized in learning about the learning styles in students of nursing has been David Kolb taxonomy. Kolb, the founder of the experiential learning theory, believes that experience is a very vital factor in learning. (4) According to this theory, learning is the active process of the individual's interaction with his/her environment and life occasions. (5) The way in which information is presented will

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affect the student's ability to learn. Students learn in many different ways; some individuals grasp new material when it is presented using a kinesthetic style and others prefer an audio/visual style. (6) some individuals learn new subject with role playing or when using a problem based method. Regardless of the style of learning, most teachers use only a small number of teaching styles. For example, lecture is presented and followed weeks later with an exam or demonstration may be used and at the end student's performance will be evaluated.

However, there are as many ways to teach as there are to learn. Are teachers employing the best teaching method for the students? Teachers must understand that students differ in their learning style and it is imperative to implement a variety of teaching styles to teach them. (7) Incorporating diverse styles of teaching in the lesson plan could enhance comprehension and retention of content. (8) Employing strategies to improve teaching effectiveness may occur if teachers match teaching style with student learning style. (9) There are a number of tests used to assess learning styles. One of the most common tests used today is the Kolb Learning Style Inventory (LSI). (10)

Kolb's work is based on the theories of Jean Piaget, John Dewey, and J.P. Guilford, and is supported in the literature as being a valid instrument to test learning styles. Kolb's LSI classifies the learner into one of four learning styles: 1) Converger, 2) Diverger, 3) Assimilator, and 4) Accommodator. (7)

Kolb defined four learning cycles. These cycles include: 1) Concrete Experience (CE), which consists of learning from feelings or reactions to new experiences, 2) Reflective Observation (RO), which consists of learning from listening and observing, 3) Abstract Conceptualization (AC), which consists of learning from thinking or analyzing problems in a systematic method, and 4) Active Experimentation (AE), which consists of learning by doing.

According to Kolb, everybody goes through these stages and this cycle is probably repeated several times before learning becomes finalized. (11) The point is, however, that not all learners can be

successful in all of the stages of this cycle as they are in others.

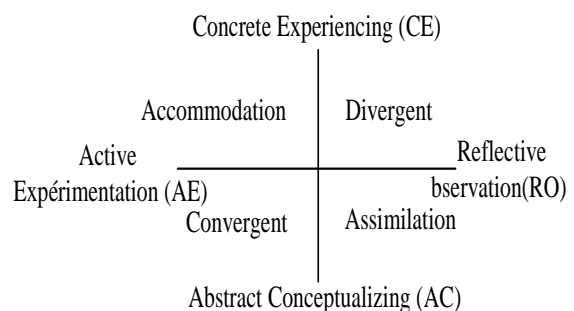
On the basis of his studies in this respect, Kolb proposes four styles of learning. According to him people are eventually placed at the end of either of the two extremes.

Thinking \_\_\_\_\_ Feeling  
Observing \_\_\_\_\_ Acting

Assimilators prefer to learn using Reflective Observation and Abstract Conceptualization. The learner integrates observations into the world of existing concepts.

Convergers learn using Active Experimentation and Abstract Conceptualization. Kolb describes it as someone who learns by thinking and doing. Accommodators learn using 'Active Experimentation and Concrete Experience'. The learner takes new concepts/experiences and adjusts them to relate in the real world. These students are motivated by being actively involved in the learning process.

Divergers learn using 'Concrete Experience and Reflective Observation'. These students prefer specific information presented in a detailed, systematic and reasoned manner. (12) Divergers need time to reflect on the information presented. Although these types of learners incorporate Concrete Experience into their style, they prefer to watch before getting involved. (13)



Students move between learning cycles. Kolb states that the actual process of growth in any single individual probably proceeds through successive oscillations from one stage to another. The learning process is dynamic and based on the learners' needs for different abilities at different times. Therefore, one should not assume that a student learns using only

one style. Ideally, each student will possess a portion of each learning stage (14) although students have a preference toward a particular style, most are able to comprehend contents when presented in a different style. (15) To determine an individuals learning style, he/she completes an instrument called the “Learning Style Inventory” by answering questions contained in Kolb’s Self Scoring Inventory.

The objective of this study was to determine the learning style of nursing students at the nursing school in the Isfahan Medical Sciences University in 2005.

**Methods**

Nursing students in the nursing school in the four academic years (n= 296) completed a Kolb LSI questionnaire. The Kolb’s LSI is a questionnaire consisting of 12 sentences which describe learning. The questionnaire asks the student to rank each statement on the questionnaire according to how well each statement describes the way s/he learns. All participating students received an explanation of the study’s objectives and assurance of confidentiality of the results. Those students who did not want to participate in the study were excluded from the research. Students completed the questionnaire in the school of nursing, Isfahan Medical Sciences. The rankings from each questionnaire as well as demographic information were entered into SPSS for data analysis. An analysis of variance was used to test for a possible relationship between learning cycles and student academic years (i.e. freshman, sophomore, junior, or senior). A Tukey test was used to identify which differences are significant.

**Results**

296 subjects participated in the study. Of the 296 subjects, 21.50 %preferred the accommodator style, 29.44%preferred the diverger style, 23.25% preferred the converger style, and 25.81% preferred the assimilator style (Table 1). Male subjects made up 10.81% (n=32) of

the subjects and females consisted of 89.19% (n= 264). The demographic analysis by year of study demonstrates that 25% (n=74) of the students are freshman, 21.62 (n=64) are sophomores, 26.35% (n=78) are juniors, and 27.03 % ( n=80) are seniors (Table 2).

**Table 1:** Frequency distribution of students’ learning style

Learning Style	N	%
Converger	69	23.25
Assimilator	76	25.81
Diverger	87	29.44
Accommodator	64	21.50

**Table 2:** Frequency distribution of students by academic years

Academic year	N	%
Freshman	74	25
Sophomores	64	21.62
Juniors	78	26.35
Seniors	80	27.03

No significant relationship was found between the learning style and gender. There was no significant relationship between curriculum grade and the accommodator, diverger style.

The relationship between academic years and abstract conceptualization was found statistically significant as well as between academic years and active experimentation. In comparison with seniors, juniors were more likely to use active experimentation (p<0.05). In comparison with all other students seniors were more likely to use abstract conceptualization to active experimentation(p<0.05)

**Discussion**

Nursing students seem to have a preference for the converger learning style. The students at the

junior level seem to prefer this style of learning compared to the freshman, sophomore, and senior students. This fact is consistent with the data from the analysis of variance. This test demonstrated that the juniors students are at the active experimentation cycle of learning. This is consistent with the type of learning the juniors are experiencing in the curriculum. Nursing students in the third year of their education go to the hospital more often than the previous years and encounter patient more frequently. These students learn to utilize critical thinking skills when assessing and caring patients. The senior level students appear to cluster into the abstract conceptualization portion of the learning cycle. This stage characterizes the stage when students learn by thinking or analyzing problems which shows their ability to interpret has developed. This cycle also contains the converger learning style and is consistent with the level of learning the seniors are experiencing in the curriculum. Other studies of students' learning style also confirm these results (16). This is perhaps due to the similarity of the study discipline or personality characteristics of nursing students. The learning preferences indicate at which level each individual relies on a particular style to process and comprehend information. (16) Nursing students, prior to their upper division course work, do not fit into a particular learning style. This indicates that faculty must employ a variety of teaching techniques to affectively reach all students. The students must also become self-control in their learning process. They will need to identify the academic strengths and weaknesses they possess. (14) The teacher can assist the student in this process by administering the Kolb LSI periodically at the start of the curriculum and in the course of instruction. This will allow the students to determine if their learning style has changed. (12) It will also reveal to the students and faculty where they are situated in the learning cycle. The junior and senior level students seem to conform to a style or cycle of learning that involves thinking. By the same token, this style of learning is very important when somebody working in a dynamic environment such as many

units in the hospital. Upper level course work should incorporate a style of teaching that focuses on critical thinking skills. By matching the teaching style with the student's preferred learning style, content retention should improve, thus improving exam scores. Faculty should assess preferred learning styles throughout the students' enrollment in the curriculum and should apply a variety of teaching approaches to effectively teach all students.

## References

1. Cavanagh S. The assessment of student nurse learning style using the Kolb learning styles Inventory. *J Nurse Educ Today* 1995;(15): 181-7
2. Vanwynen E. Information processing style: One size doesn't fit all. *Nurse Educator* 1997; 22(5): 44.
3. Diaz, DP, and Cartnal, R.B. Student's learning styles in two classes: Online distance learning and equivalent on-campus. *College Teaching* 1999; 47(4): 130-5.
4. Rakoczy M, Money Sh. Learning styles of Nursing students: A 3 years cohort longitudinal study. *J Professional Nurs* 1995; 3(3):170-4.
5. Ridley JM, Laschinger S. The effect of a senior preceptorship on the adaptive competencies of community college nursing student. *J Advanced Nurs* 1995; 22: 58-65.
6. Hartman, VF. Teaching and Learning Style Preferences: Transitions through Technology. *VCCA Journal*: 9(2): 18-20.
7. Campeau, AG. Distribution of learning styles and preferences for learning environment characteristics among emergency medical care assistants in Ontario, Canada. *Prehospital and Disaster Medicine* 1997; 13(1).
8. Hardigan, PC, Cohen, SR. A comparison of learning styles among seven health professions: implications for optometric education. *The Internet Journal of Allied Health Sciences and Practice*: 1(1).
9. Healey M, Jenkins A. Kolb's Experiential Learning Theory and Its Application in Geography in Higher Education. *J Geography* 2000; 99: 185-95.

10. Viola D. Learning styles of Chinese Nursing faculty and career choice preferences. *J Nurs Educ* 1992;17:230.
11. Willcoxson L. The four stages of the learning cycle and your learning strengths. Western Australia: Murdoch University. 1998; 1-10.
12. Felder RM, Henriques ER. Learning and teaching styles in foreign and second language education. *Foreign Language Annals* 1995; 28(1): 21-31.
13. Quinn MF. The principles and practice of nurse education. London: Chapman and Hall; 1995.
14. Willcoxson M, Kolbs D. Learning style inventory: review and further study of validity and reliability. *BJ Educ Psych* 1996;66:247-57.
15. Nagata JB. Student academic performance in nursing as a function of student and faculty learning style congruency. *J Nurs Educ* 1996; 35(2): 69-73.
16. Russian, C. Preferred learning styles for respiratory care students at Texas State University – San Marcos. *The Internet Journal of Allied Health Sciences and Practice* 2005; 3 (4).