

## Students' Learning Styles in Nursing/Midwifery and Para-medicine Faculties in Bandar Abbas in 2015

Fatemeh Amini<sup>1</sup>, Mahshid Sarafranz<sup>1</sup>, Mohsen Azad<sup>2</sup>

1. Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
2. Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

\*Corresponding author: Fatemeh Amini, Health Information Technology Student of Hormozgan University of Medical Sciences, Bandar Abbas, Iran; Email: fateme.amini.hit@gmail.com.

### Abstract:

**Background and Purpose of the Study:** Students have different styles of learning which can be part of the reason why some students do not learn adequately despite prominent professors. The present research assists students to come to know the different aspects of their personality go for the right learning and studying styles and be high-achievers in studies. Considering the significance of learning in university students' academic achievement, the aim of the present research was to investigate the learning styles of Nursing/Midwifery and Para-medicine university students. **Materials and Methods:** The present research population was all students of Nursing/Midwifery and Para-medicine. The Kolb learning style inventory was used to collect data. Census was used for sampling among all male and female students entering university in either the first or second semester of 2014-15 to major in operation room, anesthesia, midwifery, health IT, medical emergency, radiology, lab sciences and nursing in Bandar Abbas.

**Findings:** Among all the subjects (n=172), the most prevalent learning styles were respectively diverging (49.4%), converging (27.3%), assimilating (12.8%) and accommodating (10.5%). 12.8% of the subjects were in the concrete experience (doing/having an experience) group; 29.1% belonged to the reflective ob.

Servation (reviewing/reflecting on the experience) group; 31.4% were in the abstract conceptualization (concluding/learning from the experience) group and 26.7% belonged to the active experimentation (planning/trying out what one has learned) group.

**Conclusion:** Analysis of learning styles among university students show that the most prevalent learning style is the diverging type and the least prevalent style is the concrete experience.

**Key terms:** learning styles, university students, academic achievement

### Introduction:

In the world today, human progress is indebted to learning which is a process aiming to enhance one's mental reflections (1). Learning style is a way of acquiring knowledge, skill or experience (2). According to Bennett, learning style refers to an individual's personal instructional

experiences as a result of the stable behavioral and performance-based patterns (3). People differ from each other in terms of their learning styles. In other words, people do not view the world in the same way and have different interests in learning styles (4). In fact, learning style can be taken as a relatively stable variable of how learning and

perception is achieved in a comprehensive interaction with the learning environment (5). Learning style is comprised of a series of cognitive, emotional and physiological characteristics as a result of one's perception and responsiveness to environment. An integration of social and cognitive factors is the basis of Kolb's theory (3). The four learning styles according to Kolb are: 1. converging style 2. Diverging style 3. Assimilating 4. Accommodating. Those with a converging style are the most capable in applying thoughts and theories. Those with a diverging style are the most capable in concrete situations. Those with an assimilating style are capable of perceiving and integrating a great deal of information in a logical way. Those with an accommodating style are the most capable of learning from first hand experiences. These four styles are the result of the two dimensions of concrete experience vs. abstract conceptualization and reflective observation vs. active experimentation. Concrete experience learns from certain experiences, communicates with others and is sensitive to one's own and others' feelings. Abstract conceptualization is focused on mental logical analysis and a

systematic plan in one's activities. Active experimentation involves the ability of doing things, taking risks and affecting others in action. Reflective observation is based on a close observation in advance to judgment, examining things from multiple aspects and a search for meanings. Kolb maintains that each of the learning styles have certain strengths and weaknesses. Therefore, one who learns through only one style does not learn thoroughly. In order for a thorough learning to take place, one is supposed to be capable of using different styles in different situations (1).

University students enjoy different learning styles and that is at least part of the reason why some students do not manage to learn well despite the presence of prominent professors (4). The present research somehow assists students to know the multiple aspects of their personality and select the right style in studying and learning to be high-achievers (6). Since every individual has idiosyncratic characteristics that are useful for a certain job, conducting similar investigations can help students and guide them in their prospective jobs (3). Due to the significance of learning in university students' academic achievement, the

present research aims to investigate students' learning styles in

### **Methodology:**

The present descriptive-analytic research was conducted in 2015 to investigate the students' learning styles in Nursing/Midwifery and Para-medicine faculties. A census was used to gather data from the students who entered university in 2014-15. The exclusion criterion was defective or incomplete questionnaires. 250 questionnaires were distributed among the students and 173 were returned (return rate of 69.2%). The data collection instrument was a questionnaire comprised of two sections the first of which delved into demographic information. The second section was Kolb's standardized questionnaire. Eventually, descriptive statistics (frequency, indices of central tendency and distribution to estimate the frequency of learning styles and the demographic information) were used along with Chi-squared test analyzed by SPSS ( $p < .05$ )

### **Instrumentation:**

In recent years, the same questionnaire has been used in promotional psychological and learning-oriented body of research

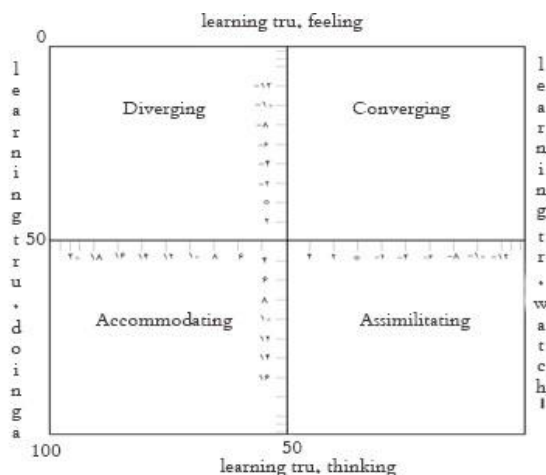
Nursing/Midwifery and Para-medicine faculties in 2015.

especially to hold learning courses frequently. This questionnaire looks into people's learning styles from these aspects: concrete experience, abstract conceptualization, reflective observation and active experimentation. A combination of these aspects yields four learning styles: diverging, converging, assimilating and accommodating. This questionnaire is comprised of 12 statements each followed by four choices. A respondent would rate the statement from 1 to 4. Therefore, the choice which corresponds most to the statement of learning style is rated 4; the choice which corresponds moderately to the statement of learning style would receive 3; the choice which corresponds less to the statement would get 2 and finally the choice which does not correspond with the statement would receive 1. Kolb's questionnaire is comprised of 12 statements with four choices for rating. The first choice for all the statements refers to a learning style through feeling; the second choice has to do with a learning facilitated through watching; the third way of learning deals with learning through thinking and finally

the fourth choice concerns learning through doing.

A sum of all scores of each choice in all the items would yield four scores that represent one's learning styles.

A subtraction of the thinking score from the feeling score and a subtraction of the doing score from watching would yield two scores



To achieve a testee's learning style, initially the first choice of all the 12 items were summed up. The same procedure was

located on two axes of the coordinate system. On one end of the vertical axis there is learning through feeling while the other end is marked by thinking. One end of the horizontal axis belongs to learning by doing while the other end belongs to watching. These four axes comprise four quarters of a square each representing one learning style. followed for choices 2, 3 and 4. Therefore, four total scores were obtained for learning styles the first of which was taken as the learning style of concrete experience. The second score concerned the learning style of reflective observation. The third score was that of the learning style of abstract conceptualization. The fourth score was that of active experimentation. The highest score would represent the testee's dominant learning style (7, 8).

### Findings:

Table 1: Percentage of different learning styles per academic field of study

Field of study	Concrete experience	Reflective observation	Abstract conceptualization	Active experimentation
Lab sciences	% 3	% 24.2	% 33.4	% 39.4
Anesthesia	% 14.8	% 22.2	% 25.9	% 37.1
Radiology	% 4.8	% 28.6	% 42.9	% 23.7
Operation room	% 10	% 26.7	% 43.3	% 20
Health IT	% 14.3	% 46.4	% 21.1	% 17.9

Medical emergency	% 27.3	% 27.3	% 24.2	% 21.2
-------------------	--------	--------	--------	--------

Chi-squared test results revealed no statistically significant correlation between the field of study and different learning styles ( $p > .05$ ). In lab sciences, anesthesia, radiology, operation room and health IT, the lowest percentage belonged to learning through concrete experience. In medical emergency, the lowest percentage was that of learning through active experimentation. The highest percentage of learning style in

lab sciences and anesthesia belonged to active experimentation. In the radiology and operation room groups, the highest percentage was that of abstract conceptualization. In health IT, reflective observation was dominant while in the medical emergency group, reflective observation and concrete experience were dominant.

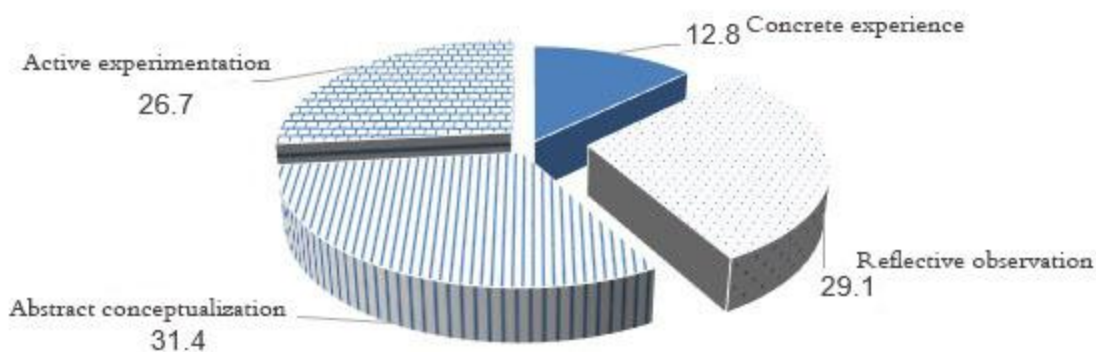


Figure 1: Percentage of different learning styles

According to figure 1, in the present research population, the highest percentage was that

of the abstract conceptualization learning style.

Table 2: Percentage of different learning styles in terms of the demographic information

Demographic information		Concrete experience	Reflective observation	Abstract conceptualization	Active experimentation
Age	>20	% 18.5	% 26.3	% 28.9	% 26.3
	<20	% 11.2	% 29.8	% 32.1	% 26.9
Sex	Female	% 9.8	% 31.2	% 32.1	% 26.8
	Male	% 18.3	% 25	% 30	% 26.7
Accommodate	Dorm	% 14.8	% 27.4	% 29.7	% 28.1
	Home	% 6.8	% 34.1	% 36.4	% 22.7
(year of) entering university	2014	% 13.3	% 24.3	% 34.4	% 27.8
	2015	% 12.2	% 34.2	% 28	% 25.6

According to table 2, in all demographic information, the lowest percentage of learning style was that of the concrete experience. In all demographic information except for those entering university in 2014,

the highest percentage of learning style was that of abstract conceptualization. For those entering university in 2015, the highest percentage of learning styles was reflective observation ( $p>.05$ ).

Table 3: Percentage of different learning styles in different fields of study

Field of study	converging	assimilating	diverging	accommodating
Lab sciences	% 24.2	% 6.1	% 63.6	% 6.1
Anesthesia	% 18.5	% 11.1	% 51.9	% 18.5
Radiology	% 19	% 19	% 62	% 0
Operation room	% 33.4	% 0	% 53.3	% 13.3
Health IT	% 42.9	% 10.7	% 35.7	% 10.7
Medical emergency	% 24.3	% 30.3	% 33.3	% 12.1

According to table 3, in all fields except health IT, the highest percentage of learning style was that of the diverging. In health IT, the highest percentage belonged to the converging style. A statistically significant divergence was found between learning style and field of study ( $p=.023<.05$ ). The

lowest percentage of learning styles in lab sciences, anesthesia, health IT and operation room was that of the assimilating style while in the radiology, medical emergency and health IT fields of study, it was the accommodating type.

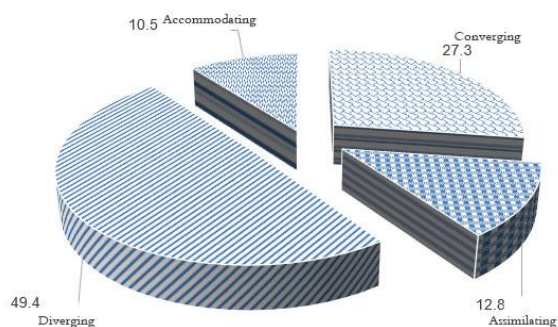


Figure 2: Percentage of different learning styles

According to figure 2, the diverging learning style had the highest percentage (49.4%) in this research.

Table 4: Percentage of different learning styles in terms of the demographic information

Demographic information		converging	assimilating	diverging	accommodating
Age	>20	% 23.6	% 13.2	% 50	% 13.2
	<20	% 28.3	% 12.7	% 49.3	% 9.7
Sex	Female	% 28.3	% 20	% 40	% 11.7
	Male	% 26.8	% 8.9	% 54.5	% 9.8
Accommodation	Dorm	% 26.6	% 14.1	% 50	% 9.3
	Home	% 29.6	% 9.1	% 47.7	% 13.6
(year of entering university)	2014	% 25.6	% 11.1	% 53.3	% 10
	2015	% 29.3	% 14.6	% 45.1	% 11

Chi-squared test of the demographic information and learning styles revealed no statistically significant correlation ( $p > .05$ ). According to table 4, the highest percentage of learning style in all demographic information belonged to the diverging type and the lowest percentage among those of the age  $>20$ , female and residing in their own home was the assimilating style. For others, it was the accommodating type.

#### **Discussion:**

Recognition of learning styles plays a key role in university students' learning and studies (7). Therefore, the present research

among students. A body of research in Iranian universities of medical sciences showed the prevalence and popularity of the converging and assimilating learning styles (8-10). In the present research, converging and diverging learning styles showed to be the most prevalent among the university students. Considering the function of converging style in this study and other similar research, the reason why this style is very popular among the students of these faculties might be its correspondence to the course subjects in these faculties which was also approved by Kolb (11). In fact, those

aimed to investigate students' learning styles at Nursing/Midwifery and Para-medicine faculties in Bandar Abbas in 2015. The aim was to make students aware of their learning styles so as to be more successful in studying their field.

The present findings indicated that the dominant learning style among Nursing/Midwifery and Para-medicine students was firstly the diverging style (49.4%) and then the converging style (27.3%). A review of the related literature has indicated that learning styles vary

who follow a converging learning style learn better through thinking about the topics and acting according to a certain instruction. In order to solve their problems, these individuals listen to others and act accordingly. They prefer their instructions to follow a problem-solving approach accompanied by new ideas and practical affairs (11, 12). In the present research, 42.9% of the health IT students acknowledged that they used the converging learning style. Since this learning style should be accompanied by practical experience in the face of new environment,



these students who are deprived of practical courses might face difficulty in learning. Professors teaching such courses are recommended to adopt a simulation-based approach to teach new materials. The accommodating learning style results from integrated concrete experience and active experimentation. The majority of people using this style learn something new through experiencing and doing. They tend more to experience new challenges and experiences and learn from them (11). In the present research, students of anesthesia (18.5%), operation room (13.3%) and medical emergency (12.1%) showed to use the highest percentage of accommodating style. However, it cannot be ignored that students in these three majors are more faced with new challenging situations.

Chi-squared test showed no statistically significant correlation between demographic variables and learning styles ( $p > .05$ ). This was similar to the findings of other national body of research including Najafpour et al., Pooladi's investigation of medical students' learning styles, Valizade's investigation of Nursing and Midwifery students' learning style, Sarchami et al.'s investigation of Nursing students' learning

style in Qazvin University of medical sciences and Hosseini's study of pharmacology students' learning styles (1, 9, 13, 14, 15, 16). This similarity also existed in such international body of research as Paine and Coax who found a significant correlation between learning style and demographic variables (17, 18).

#### **Conclusion:**

A body of research has proved that university students at different grades use different learning styles which can show that people use a different style according to the time and age. It is, therefore suggested that longitudinal investigations be done to explore the learning styles people use through time. Personal characteristics can be also involved using a certain learning style. Students can be guided on what learning styles to choose in accordance with their personal characteristics and age requirements.

#### **Acknowledgements:**

The authors should like to express their thanks to Hormozgan University of medical sciences for their financial support. Gratitude is extended to Apra-medicine students who filled out the questionnaires and contributed to this research.

## References:

1. Najafpoor Zh, Tajfar F, Shirazi M & Keshmiri F. Learning Styles Of Postgraduate and Undergraduate Healthcare Management Students of Tehran University of Medical Sciences. *Journal of Payavard Salamat* 2013; 7(6):490-501.
2. Akbari M & Motamedi A. The relationship between learning styles and personality traits and ways of problem solving in students. *Journal of Quarterly new ideas in education*. 2011; 6(3):11-25.
3. Yazdi M. Review and compare different methods and styles of learning, Al-Zahra University students. *Quarterly Journal of New Thoughts on Education*. 2009; 5(2); 123-144
4. Keshtkaran A, kaffashi SH & sadegifar J. A Study on the Relationship between Thinking Styles and Preference Learning Methods among Students of Shiraz University of Medical Sciences. *Journal of Medical Education Development*. 2013; 6 (10): 50-55
5. Cassidy S. Learning styles: an overview of theories, model and measurers. *Education Psychology* 2004; 24(4): 399-444.
6. Hosseini nasab D & Roein H. determine the relationship between cognitive (learning styles) with the personality of students of Tabriz University. *Journal of Psychology (Tabriz University)*. 2006; 1(2, 3):87-121.
7. Zerang R. Relationship between learning styles and academic engagement and academic performance Ferdowsi University of Mashhad 2012. Master's Thesis. Mashhad Ferdowsi University.
8. Izadi S & Mohammadzade Adamolaei R. The relationship between learning styles, personality traits and academic performance. *Journal of Daneshvar Raftar* 2008; 14(27):15-28.
9. Fleming ND & Mills C. Not another inventory, rather a catalyst for reflection. *To Improve The Academy* 1992; 11(1): 137-44.
10. Kalbasi S, Naseri M, Sharifzadeh GH & Poorsafar A. Medical students learning style in Birjandmedical sciences university. *SDME* 2008; 5(1): 10-6[Article in Persian].
11. Pooladi A, Bahram Rezaee M, Abedi F & Molanaee A. The study of learning styles in different Semester's medical students in basis of Kolb theory in Kordestan medical sciences university in 2006, Kerman: Kerman University of Medical Sciences: 8th National Congress on Medical Education, 2007.
12. Meyari A, Saburi Kashani A & Biglerkhani M. Comparison of learning styles medical students and Relationship with educational achievement. *Strides in Development of Medical Education* 2009; 6(2): 110-8[Article in Persian].
13. Kolb AY & Kolb DA. The kolb learning style inventory-version 3.1 2005 technical pacifications. Available at: [www.whitewater-rescue.com/support/pagepics/lsitechmanual.pdf](http://www.whitewater-rescue.com/support/pagepics/lsitechmanual.pdf) . 2005.
14. Seif AA. Training psychology. Tehran: Agah; 2001: 171-82[Book in Persian].
15. Valizadeh L, Fathiazar S & Zamanzadeh V. Nursing and midwifery students' learning styles in Tabriz Medical university. *Iranian Journal of Medical Education* 2006; 6(2): 136-40[Article in Persian].
16. Hamouzadeh P, Pourreza A, Panahi M & Salimi M. Learning styles of health services management Students at Tehran University of medical sciences. *Hospital* 2011; 10(4): 37-44[Article in Persian].
17. Sarchami R & Hoseini SM. Nursing students learning style in Qazvin medical sciences university & Correlation with their. *Journal of Qazvin University of Medical Sciences* 2004; 8(30): 64-7[Article in Persian].
18. Hoseini M, Azizi F & Khanzadeh A. Learning styles of medical students based on Kolb theory in

- Qazvin medical sciences in 2008. Iranian Journal of Medical Education 2003; 2(4): 87-8[Article in Persian].
19. DeCoux VM. Kolb's learning style inventory: a review of its applications in nursing research. J Nurs Educ 1990; 29(5): 202-7.
20. Paine G, Reedman RJ & Rubens AJ. Learning style preferences of public health students. J Med Syst 1996; 20(6): 377-84.