



## Dynamics of self-directed learning in M.Sc. nursing students: A qualitative research

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### Abstract

**Introduction:** Working in the complex and ever changing healthcare settings forces the nurses and nursing students to be equipped with lifelong learning skills. One of the lifelong learning skills is self-directed learning. This study aimed to explore the M.Sc. nursing students' self-directed learning activities.

**Methods:** A qualitative design using conventional content analysis approach was used in this study. Semi-structured interviews were conducted with twelve Iranian M.Sc. nursing students who were selected using purposive sampling.

**Results:** Data analysis indicated that the M.Sc. nursing students performed different activities in their self-directed learning. These activities were categorized into four main themes and ten subthemes. The main themes were "sensory perceptions", "knowledge construction", "problem-centered orientation", and "interaction with others".

**Conclusion:** According to the findings, the M.Sc. nursing students performed different intellectual and experiential self-directed activities for promoting their learning. Besides, the students' perseverance and inquisitiveness played an important role in their self-directed learning in the challenging clinical environments.

**Keywords:** Self-directed learning; Qualitative study; Nursing student

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### Introduction

Nowadays, the world is changing so fast that obtaining education certification is only the stepping stone of an eternal learning voyage (1). Today, nurses work in complex health care settings in which social, technological, and medical changes cause them to face different challenges (2). In addition, nursing is a professional career in which knowledge and practice are not fixed and change dynamically. Therefore, this is a hot issue that nursing education should grow nurses as lifelong learners who are prepared to learn in all situations and achieve the necessary learning skills according to their professional needs. This

can be carried out by different ways; for example, nursing educators must identify the students' preferences and learning styles to select the best strategies for education and evaluation (3). Traditionally, didactic educational methods were mainly used in nursing education field. However, regarding the recent nursing educational needs, these methods are not effective any more. Today, nursing programs have focused on using various methods of adult learning, such as Self-Directed Learning (SDL) (4). If SDL is planned effectively, it results in more active learning so that students achieve more thoughtful points of view about the subjects instead of having a superficial

attitude and come to deep understanding instead of reproduction of their learning materials (5). Moreover, independent learning lets the students take the responsibility of their own learning and participate actively in the learning process. This increases the sense of belonging to learning and enhances the students' positive motivation (5). Self-directed learners are usually characterized as being independent and positive towards learning (6, 7). It is also believed that they are able to plan, manage, and evaluate their own learning (6, 8). Therefore, one of the significant goals of higher education is to develop the students' ability to be self-directed in learning (4).

SDL contains the activities that students perform in order to regulate their recognitions on the basis of this approach and increases their awareness and knowledge. Researchers believe that educational improvement not only depends on the individuals' basic knowledge, but also is closely related to factors, such as having information about learning activities and the way of using this knowledge. The results of some investigations showed that using some studying and learning strategies affected the academic practice of medical students (9, 10). Up to now, numerous quantitative investigations have been performed about SDL among nursing students. Some of these studies have investigated the students' readiness for SDL (11, 12) and its relationship with other educational factors, such as learning styles (13-15), individual factors (16), and academic performance (17). Nevertheless, a limited number of qualitative studies have investigated the students' activities for SDL.

SDL is affected by different factors, such as the structure of educational culture (18) and personal and social factors (19, 20). Moreover, when researchers are willing to understand the phenomenon and the structures and social factors that shape and influence the behavior (19), qualitative research is appropriate to be used. Therefore, in the present study researchers decided to use qualitative content analysis approach.

Considering the importance and necessity of SDL and its related activities in nursing students' lifelong learning, the present study aimed to determine the M.Sc. nursing students' SDL activities

## Methods

In this study, a qualitative design using conventional content analysis approach was used. This approach deals with developing categories inductively and interpreting textual or verbal data, and is used when there is imperfect understanding (21).

This study was conducted on 12 M.Sc. nursing students at Shiraz University of Medical Sciences, Shiraz, Iran selected through purposeful sampling. The inclusion criterion of the study was being M.Sc. nursing student at Shiraz University of Medical Sciences. Sampling with maximum variation was applied by choosing the samples from both genders and different years of study.

The study data were gathered by conducting semi-structured, personal, in-depth interviews in a room located in the nursing department. The interviews lasted for 20-77 minutes, with a mean of 48 minutes. The questions were continuously asked about the essence of the data, covering topics such as who, what, when, where, how and with what consequences. Probing questions were also used beside these open-ended questions to explore the participants' learning experiences. At the end of each interview session, the interviewer asked the participant to add any supplementary information not addressed. Using a digital sound recorder, we recorded all the interviews.

The processes of data collection and data analysis took place simultaneously. A qualitative content analysis approach with manifest and latent analyses was used for data analysis. After every interview session, we listened to the interviews carefully and they were immediately transcribed verbatim. Then, the transcripts were reviewed several times to get the general understanding. After that, each interview transcript was read exactly and line-by-line and all the words, sentences, and paragraphs containing meaning units were extracted and coded. The data and generated codes were constantly compared. Consequently, the codes were categorized according to the similarities and homogeneity. Then, preliminary categories were merged to form more abstract ones. Finally, the study theme was generated.

## Ethical considerations

This study was approved by the Research Council and the Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran (Code: EC-9361-6981). Necessary permissions were obtained from the administrators of the study setting prior to the study. Also, all the participants were informed about the study objectives, approximate time of the interview, voluntary nature of participation in the study, questions and method of audio taping or note taking during the interview, and confidentiality of the information. At last, written informed consents were obtained from all the participants.

## Trustworthiness

Lincoln and Goba's evaluation criteria

for credibility, dependability, confirmability, and transferability were used to ensure the trustworthiness of the data and the findings (22). The credibility of the findings was obtained using techniques, such as close relationship with the participants, member-checking, peer checking, and prolonged engagement in the study (about two years). For enhancing the confirmability of the findings, external peer-checking was done. In doing so, pieces of data and the corresponding findings were checked with two experienced qualitative researchers, two PhD nursing candidates, and one PhD candidate of educational psychology. They approved the data and gave useful suggestions. Dependability of the findings was also obtained through accurate documentation of the study steps. In addition, sampling with maximum variation was adopted for enhancing the transferability of the findings.

## Results

The study findings showed that the students used various methods for learning and played an important role in their own learning process. The activities that the students performed for their SDL were categorized into four categories and ten subcategories. The main categories were “sensory perceptions”, “knowledge construction”, “problem-centered orientation”, and “interaction with others”. What follows includes each theme, category, and subcategory reported using the participants’ direct quotations to declare their meaning and sense (Table 1).

1. *Sensory perception*: The students used visual and auditory senses through precise observation and active listening for learning. Therefore, this main category consisted of two subcategories, namely “visual perception” and “auditory perception”.

1.1. *Visual perception*: The students stated that they deeply learnt the subjects or procedures presented through photos and films or those trained practically by the instructor or other

healthcare formers in the hospital. They said that this type of learning would rest in their minds for many years. One of the students stated: “*Most of the things that remained in my mind were the films. Films stayed more in my mind rather than theory.... For example, I wanted to search about an issue on the internet; I accidentally found a film about pericardiocentesis and I watched it. It exactly remained in my mind*” (p2). Another student also pointed out: “*The instructor at that clinic did something that will remain in my mind forever. She fastened and tightened the tourniquet, pressed the patient’s edematous hand, the patient’s vein got bulged out, and she got the vein by a needle...*” (p3).

1.2. *Auditory perception*: The participants’ another activity for SDL was active listening. The students processed, analyzed, and memorized what they had listened to learn it. According to the participants, acquiring and analyzing various useful ideas and information during nursing and medical rounds assisted them to increase their knowledge. One of the students noted: “*I always like to be at their (physicians’) rounds and listen to their discussions... For the first time in the B.Sc. course when Bechet disease was not taught to us, we were taken to the hospital.... a doctor at a round talked about this disease; it was so interesting to me*” (p6).

2. *Knowledge construction*: In addition to sensory perception, the participants used “active engagement in situation”, “active rehearsal”, “absorption of information”, and “selecting appropriate learning strategies” in their learning processes.

2.1. *Active engagement in situation*: In addition to sensory learning, our participants made an effort to improve their own learning by active involvement in performing the procedures. They preferred practical and experimental methods of learning rather than other methods. They noted that the subjects in which they got involved practically led to more permanent learning:

**Table 1:** The main theme, categories, and subcategories of the study

Subcategory	Category	
Visual perception	Sensory perceptions	Self-directed learning activities
Auditory perception		
Active engagement in situation	Knowledge construction	
Active rehearsal		
Absorption of information based on cognitive map		
Selecting appropriate learning strategies		
Active seeking	Problem-centered orientation	
Problem analysis		
Interpersonal participation	Interaction with others	
Role modeling		

*"I prefer practical learning. I mean if I don't perform something in practice, I learn nothing. I forget it. Even if I memorize it, it is in vain. I like it to be practical"* (p2).

Furthermore, the students tried to carry out the theoretical points in practical forms and then evaluate the results: *"When I studied physics or chemistry, I got to do all the research at home. For example, I did the tests by dishes and the available things in a way that I understood all the things well"* (p6).

In addition, the students achieved some experiences out of events and incidents that happened in the environment and they used these experiences for providing more effective cares in future. *"One night a patient fell down from the bed. Well, it was an experience for me in other situations to raise the side rails and also check the patient repeatedly. S/he must be in sight and under precise supervision. Also, in the conditions where a patient may get agitated, we ask one's visitor to stay with him/her at the bedside. So, I myself experienced it"* (p2).

**2.2. Active rehearsal:** The students mostly used repeating methods in order to learn and memorize the subjects supposed to be memorized. They also applied some strategies, such as summarizing, note taking, and highlighting, for learning more and establishing the subjects in their minds. One of the students stated: *"I often try to repeat because one or two time repetition is not enough for me. I usually try to repeat more; if it's practical, it remains in the mind and it is not necessary to read it anymore, but memorizable subjects remain in my mind only by repetition"*(p2). Another student said: *"In my study process, I'm used to taking notes, I mean I usually take the note and highlight the subject by underlying or highlighting it in another color. It helps me so much and I can remind even where that word was.... This note taking helps me a lot"* (p4).

**2.3. Absorption of information based on cognitive map:** During the process of researching and learning the materials, the students made an attempt to achieve a general view point about the subject and make a connection between the new subject and their previous knowledge. Then, they were prepared for learning more specific and detailed issues based on their needs. One of the students stated: *"First, I begin with the general subject [for searching]. For example, in searching about a disease, I searched a lot in Google.... after I got a general idea about the disease, I sought for the details... for example, about the subject of falling down in old people, I used the key word "falling" for searching to*

*see what it gives me. Then, when I found the issues, books, and articles that were presented, I searched with more details"* (p3). Another student said: *"Well, according to the information I have, I don't accept all the things I get [in searching]. I pick the things based on the books I've read and those I'm sure they are true."* (p2).

**2.4. Selecting appropriate learning strategies:** The students noted that considering their conditions, they preferred to select the learning strategies that were easier to conduct and required less time and cost. They also preferred the strategies, which helped them understand more deeply and induced more long-term learning. In addition, the students generally preferred visual, practical, and interpreting strategies of learning rather than other strategies. One of the students noted: *"I had challenge with myself to determine which one of these [learning methods] was better. I select the one which is easier, doesn't take a lot of my time, remains in my mind, and at least I get what it means."*(p2). Another student mentioned: *"There was an English class, which cost very much. I didn't know if I would progress if I took it up. I'm not sure, but I didn't take it! Instead, I referred to a language scholar and asked her to test my language level and, accordingly, introduce a series of books to me. Well, I bought the books. You know, one fifth or one seventh of the cost of the class, I paid for the books. Now, I have a lot of books to which I refer when it is needed"* (p4).

**3. Problem-centered approach:** The findings showed that the students had problem-centered approach in their learning. Facing different problems, they tried to understand and learn the subject through exploring, questioning, and analysis. Based on this description, this category was divided into two subcategories, i.e. *"active seeking"* and *"problem analysis"*.

**3.1. Active seeking:** The students struggled to use their own sense of curiosity to improve their learning during caring activities. They also asked questions arising from their routine clinical practice from their instructors, peers, staff nurses, supervisors, and even physicians.

*"Well, whenever it gets nonsense for me, I'm curious to find the reason. Then, I ask others.... when the doctor comes to visit the patient, I ask him. If it's not possible, I ask the supervisor or my seniors. If I don't understand it, I search on the internet to find it out. Because I'd like to know what's the answer... I don't let any question remain unanswered"* (p2).

Furthermore, the students noted in their experiences that they learnt more deeply and effectively when teachers used case-based or

problem-based teaching methods and classes were managed through question and answer method. One of the students noted: *“The instructor posed a case and asked questions. Then, she asked us to find the answers with each other and take the answer back to her. Trying to find the answers was very effective. We thought about the answers in the class and this affected our learning. Everybody was really satisfied with this method”* (p1).

In addition to learning in class, the students tried to provide a number of questions out of the studied passage and find some answers for them. This was done in order to understand and remember the subject effectively. In other words, they learned the issue through question and answer method. One of the students declared: *“At first, I read it [the passage] in a flash. Then, two or three times more, I read it with more focus... and I'd like to make questions out of that, in a way that the question and the answer are with each other. I make question from the passage; the answer is also available. When I read the question and the answer together, it remains in my mind more”* (p2).

3.2. *Problem analysis*: When faced with work-related and education-related problems, the students tried hard to find their underlying causes, reflect on themselves, and manipulate the conditions for preventing the recurrence of the problem and improving their learning. *“I mean whenever a problem occurs in the ward, I analyze it myself. Why does this problem occur? What shall I do so that it doesn't happen anymore? I mean I criticize myself and do whatever I can for not repeating it any more”* (p2).

While studying theoretical issues the students also tried to analyze the subjects in advance in order to understand them well. Then, if necessary, they memorized them through making relationships between the new issues and the previously perceived ideas. One of the students said: *“If I read a book, I shall analyze it; memorization alone is in vain. I should analyze the materials in a way that I can understand them well; otherwise, memorization is not profitable”* (p2).

4. *Interaction with others*: Students' interaction with others in different fields leads to *“role modeling”* and *“interpersonal participation”* in addition to learning encouragement.

4.1. *Interpersonal participation*: The students cooperatively discussed and negotiated with each other and shared their knowledge with others. They noted that they had learned so much from knowledge sharing and active participation in group discussions. In this regard, one of the

students mentioned: *“When we were in the ward with each other, two or three of us read something with each other and explained it to others. Well, it's good and effective...Before the exam, we gathered and reviewed the important points that we guessed might be included in the exam together ....Well, when someone understands something better and explains it, you can learn it better”* (p1).

4.2. *Role-modeling*: The students selected the scholars and nurses with high levels of scientific knowledge and experience as their models, which motivated them to try harder for learning. One of the students said: *“If the evil says go to sleep, I say no! For succeeding and reaching the higher models, if I'm shaky, I may not succeed. It causes me to put away that indolence”* (p6). Additionally, the students usually obtained the learning strategies from those who applied them effectively.

## Discussion

The present study aimed to explore the activities of the M.Sc. nursing students for SDL. The findings revealed that the students were actively involved in their learning and adopted different learning activities and strategies to benefit from different working and learning environments. This active involvement makes students more proficient, flexible, resourceful, and qualified learners. Moreover, nurse educators can promote this active learning process by developing a standard curriculum that motivates the students' creativity and active participation in the learning process. Considering the students' preferred activities for SDL helps develop a flexible learner-centered curriculum that allows the students to develop and use their learning strategies effectively (23). It also assists nursing educators in providing a supportive learning environment, which facilitates the students' learning, increases their professional maturity, and improves the healthcare quality (24).

According to the study findings, the four main activities that the nursing students did in their SDL were *“sensory perceptions”*, *“knowledge construction”*, *“problem-centered orientation”*, and *“interaction with others”*. These activities can be compared to Kolb's experiential learning theory. In Kolb's Learning Cycle (1981), through reflective observation, learners observe, listen, and assess the subjects critically from different points of view to find their meanings and underlying causes. Then, through abstract conceptualization, learners use thinking and logic for promoting learning. Consequently, they use reflective observation and abstract conceptualization for

assimilating their knowledge and experience. Finally, through active experimentation, learners apply these experiences (25).

The study findings showed that sensory perception was one of the activities the students used for SDL in classes and clinical settings. The participants declared that they learned more effectively from visual media, such as medical pictures, videos, and power points in class as well as from their self-learning. Careful observation of patients, colleagues, physicians, and clinical instructors' behaviors in clinical settings were also important strategies for learning. The findings of a qualitative study conducted by Suikkala and Leino-Kilpi also revealed that observing different patients helped the nursing students promote their learning (26). Similarly, Baraz, Memarian, and Vanaki (2014) noted that nursing students closely observed the performance of physicians, practicing nurses, and their clinical instructors to promote their learning (27). These findings confirm that observational learning is one of the important strategies used by students for acquiring knowledge and expertise.

Another strategy used by the students for SDL was active listening in class and clinical rounds as well as listening to patients and their visitors. Ghiyasvandian, Malekian, and Cheraghi also reported active listening as one of the activities that nurses did for achieving knowledge and information (28). In the same line, Gidman (2013) noted that listening actively and communicating effectively with care recipients, as a valuable source of information, could help the nurses promote their learning (29).

In addition to acquiring information through sensory perception, the students tried to construct their knowledge through "active engagement in situation", "active rehearsal", "absorption of information", and "selecting appropriate learning strategies". The students were involved in learning situations and preferred practical training rather than theoretical ones. They also tried to carry out the theoretical issues in practice. Hartigan-Rogers et al. (2007) believed that using the obtained skills and knowledge in everyday practice was a learning strategy that smoothed progression of students' professional socialization (30). Keeling and Templeman (2013) also stated that active involvement in clinical care improved students' comprehension of clinical interventions and helped them think more critically (31). Besides, Westein, Sundler, and Berglund (2015) believed that nursing students could determine their own deficiencies by practicing their knowledge in practical training, which helped them understand how to improve their nursing performances (32).

In order to learn more efficiently and fix the subjects in their minds, the students used active rehearsal strategies, such as repeating, reviewing, summarization, note-taking, and highlighting. Shank believed that repetition of information through word-by-word repetition, underlying the materials, note-taking, and summarization comprised different forms of mental reviewing. Self-repetition of information is an effective way for the materials that need to be memorized and mental reviewing has a key role in keeping the knowledge in mind. Reviewing can be used for sophisticated sorts of learning, but it should include something more than sole repetition of information. Other useful reviewing methods consist of underlining, highlighting, and summarizing the materials (33). Shahidi et al. assessed the quality of study skills among the students of Fasa University of Medical Sciences and reported that taking notes was the most important study strategy for succeeding in exams (34). The results of other studies also showed that note-taking increased the students' motivation for progression (35) and reviewing and mental rehearsal of the procedures led to promotion of clinical performance (36).

While searching for and learning the materials, the students tried to achieve a general view about the subject and make a connection between the new subject and the previous data to create their own cognitive map. Then, according to their needs, they investigated and learned more specific materials. Harpaz, Balik, and Ehrenfeld described significant learning as an attraction of concepts and arguments into the existing cognitive constructions. They believed that significant learning propels the learners to assess each subject from different aspects, determine connections between different areas of knowledge, and fill the knowledge gap independently. Accordingly, it helps them clarify and complete the existing knowledge and improve their critical thinking (37). Also, many studies have emphasized the effectiveness of the concept mapping method in educating and evaluating nursing students (38, 39).

Considering different learning conditions, the students selected appropriate learning strategies. Based on the results, they mostly preferred the learning strategies that helped them understand more deeply. They generally preferred visual, practical, and interpreting strategies of learning. Similarly, Wetzing's investigation of the nurses' preferences for applying learning strategies showed that the nurses preferred to be educated by visual strategies, such as practical demonstration including multimedia presentation and simulation,

in order to reinforce their learning (40).

Other activities performed by our participants for learning were active seeking, which included searching and questioning. The students struggled to use their own sense of curiosity to improve their learning. They preferred question and answer strategy for class teaching. They also attempted to make questions from the texts they read. Nicoll and Tracy (2007) also believed that proper application of questioning facilitated the process of learning. Questioning motivates the students to participate in the learning process and helps them achieve higher comprehension skills through obtaining profound, detailed understanding of the subject. It can also promote active learning by exploration of new experiences and application of knowledge (41). Profetto-McGrath, Smit, Day, and Yonge (2004) discussed the value of questioning skills among students and tutors in nursing programs and noted that they should ask kinds of questions that promote critical thinking skills (42).

Problem analysis was another strategy that the participants used for Problem-Based Learning (PBL) and SDL. Cooke and Moyle mentioned that PBL approach could promote problem solving and critical thinking in students. It also encouraged the students to identify their own learning needs and participate actively in their SDL process. Furthermore, it facilitated team working, creative learning from peers, and integration of knowledge (43). The findings of the study by Ozturk, Muslu, and Dicle showed that the self-directed and active nature of PBL developed the students' ability to think critically, tolerate others' opinions, and evaluate in consistent data before concluding (44). Working in sophisticated healthcare settings, nursing students must develop their problem solving skills in order to deliver safe and professional care to their patients.

In the current study, the students stated that interpersonal interaction and partnership with others in different affairs, such as class group discussion and conversation with others, played an important role in their learning process. The students extended and validated their understanding through group discussions and reflections. Baghcheghi, Koohestani, and Rezaei (2011) also believed that small group teaching enabled the students to discuss. They also noted that using participatory learning methods in the classes with theoretical subjects improved the nursing students' communication skills and perseverance for problem solving (45). In the same line, Westin, Sundler, and Berglund indicated that students learned from each other, deepened their knowledge, and improved their

nursing skills during training and discussion within study groups (32).

The results of the present study demonstrated that the students selected the scholars and nurses with high levels of experience and knowledge as their own ideal models. They also tried to reach the scientific and professional status of their optional models. Fluit, Bolhuis, Stuyt, and Laan (2011) believed that a good role model could have an enormous effect on development of the students' competence and confidence in nursing discipline (46). The findings of a review study carried out by Baldwin, Mills, Birks, and Budden (2014) also showed that nursing students adopted experienced nurses as their role models for transferring their knowledge to practice and demonstrating professionalism (47).

## Conclusion

According to the findings of this study, the MSc. nursing students performed different self-directed intellectual and experiential activities for promoting their learning. Also, in the challenging clinical environments, the student's perseverance and inquisitiveness played an important role in their SDL. Hence, postgraduate education must provide the students with different training skills to enable them for lifelong learning in different situations. In addition, designing teaching strategies based on the students' learning preferences can promote their motivation and maximize their academic success.

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