

Jordanian baccalaureate nursing students' perception of their learning styles

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Aim: The purpose of this descriptive study was to determine Jordanian nursing students' perception of their learning styles.

Method: All nursing students enrolled in four universities offering a baccalaureate degree in nursing at the time of the research project ($n = 420$) were approached. A structured self-administered questionnaire (Autonomous Learner Index) developed by the researchers was used for data collection. The questionnaire was pilot tested on a sample of nursing students who were not included in the study. The tool was reliable with an alpha coefficient of 0.89.

Findings: The majority of Jordanian nursing students perceived themselves as independent learners. The vast majority of students indicated that they have a desire to learn new things, are curious to learn, and can identify their goal independently. However, a low percentage of students indicated having good study skills, ability to concentrate while studying and using their study time efficiently. The two-tailed t -test indicated no significant differences at alpha 0.05 levels between students' learning preferences and the selected demographic variables.

Conclusion: Based on the study findings, it is suggested that nurse educators should provide positive reinforcement of students' active involvement in the learning process, which will stimulate continued self-direction. Moreover, courses on study skills, writing skills, and literature searching skills should be introduced early in nursing curricula.

Keywords: Autonomous Learner Index, Baccalaureate Programs, Jordanian Nursing Students, Learning Styles

Introduction

Over the past decade, the health care and higher education systems have seen considerable change and increased accountability for their activities, and the signs suggest that the next 10 years will be no different (Spencer & Jordan 1999). The health care system is bringing new care delivery models in which nurses are expected to play a large part (Marquis & Huston 2000). Clients are presenting needs that are more sophisticated and more increasingly involved in self-care and in the care of their families (Bevis & Watson 1989). Employers anticipate hiring practitioners who are more knowl-

edgeable and who can adapt their practice to the full range of the care continuum (Coluccio et al. 1994).

The professional nurses' sense of self has changed dramatically in the last 30 years. The image of the nurse that the profession currently desires to project to the public is that of an autonomous, rational decision maker (Kaler et al. 1989). Changes in the management of nursing care units and in the methods of delivering nursing care have been instituted in part to reflect increased level of staff nurses' autonomy. This calls for an increasingly sophisticated professional nurse who is able to demonstrate capabilities of critical thinking, advanced problem solving and keen focus on outcomes (Coluccio & Kelley 1994; Marquis & Huston 2000).

The changes in the health care scene have had many consequences. Nursing education is facing continuous challenges to

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prepare the kind of nurse who can accept the ambiguities of the modern health care world in which uncertainties necessitate frequent judgements with ethical and moral dilemmas. The nurse sought from nursing education is one who can act and reflect and who has the nature of compassionate scholar with an ever inquiring and expanding mind (Bevis & Watson 1989). Nursing education must prepare nurses who can shape changes, not just respond to them (Schufzenhofer & Musser 1994). A significant factor in the major changes in nursing education has been the notion of facilitating learning rather than the transmission of facts and of helping students to learn how to learn rather than encouraging rote learning (Irvine 1995). Schroeder (1993) indicated that faculty members are bewildered and frustrated with the students they see in their classrooms today. They see contemporary students as hopelessly under-prepared or less bright or motivated than previous generations.

Jordan, as other parts of the world, has and is still witnessing changes in both the health care delivery system and the educational system. Jordan is a small country of 92 300 km² (57 354 square miles). Its borders extend from Syria in the north to Saudi Arabia in the south east and from Iraq in the east to Israel in the west (Fig. 1). Jordan's population is estimated at 5.2 millions. About 56% of the whole population is under 20 years of age and nearly one-third is students. Jordan also has one of the highest literacy rates in the Arab world. Basic education (grades 1–10) is compulsory and free, and literacy training is free for all residents of Jordan.

The development of education in Jordan has been dramatic. Current trends in education and training emphasize that the learners, whether school children or university students, need to acquire skills and personal characteristics which will enable them to become independent and self-directed citizens. Jordanian school curricula include learning activities that promote problem solving, critical thinking abilities, and independence among stu-

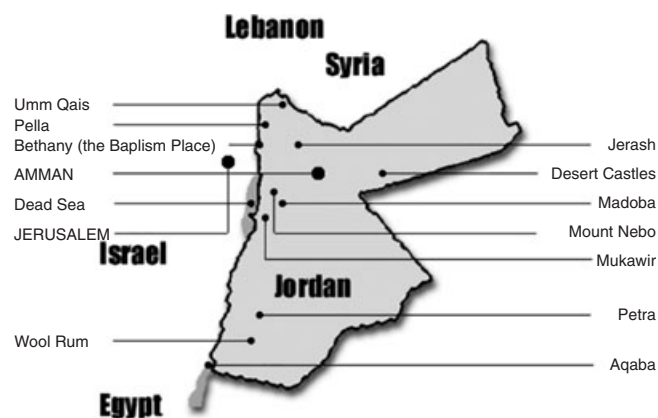


Fig. 1 Jordan map.

dents. However, at the end of the 12 years of schooling students have to sit for a national general exam (Tawjihi) which, in most cases, assesses students' abilities to comprehend factual information presented in textbooks. Moreover, acceptance to universities is competitive based on the Tawjihi scores.

Teachers and clinical instructors working at the various Jordanian nursing schools have frequently reported that their nursing students are dependent on teachers for acquiring information, and that there is little student preparation for and participation in classroom sessions. At the same time, they believe that professional nurses ought to be independent decision makers, learners, and care providers. Therefore, they question whether a dependent learner would be able to pursue the role of an autonomous professional nurse. Moreover, in the present era of computer and internet technology, computer-mediated learning capitalizes on independence and autonomy in learning. Consequently, this study aims at measuring nursing students' perception of their learning styles in order to outline proposals for facilitating independent learning behaviours and attitudes among the students.

Purpose

To identify Jordanian baccalaureate nursing students' perception of their learning styles in order to outline recommendations that may help nurse educators to facilitate independent learning among their students.

Study problems

(1) What is the nursing students' perception of their learning styles? and (2) is there a relationship between selected demographic variables and students' perception of their learning styles?

Literature review

Today's changes in the health care require that nurse educators take actions to ensure the availability of large numbers of knowledgeable practitioners skilled in adapting to this pace of change. Teachers, students and curricula determine the quality of nursing education. In most nursing schools, emphasis is always on curriculum development, selection and organization of content, organization of teaching, and student evaluation. Certain dimensions of the nurse educators' role, such as the ability to develop objectives, assess students' needs, and evaluate their performance, are frequently discussed in the nursing literature. An important aspect of the nurse educators' role has traditionally received less attention, namely their role in identifying the factors that should be considered in the selection of teaching – learning strategies particularly, students' learning preferences, styles and concerns (Callister et al. 2000; Ostmoie et al. 1984). Stutsky & Laschinger (1995) added that nurse educators should be cognizant of their students' learning styles so as to design well-rounded curricula.

Rourke & Lysynchuck (2002) indicated that recently many researchers accepted learning styles as an important construct in education. This had led to numerous individual studies and subsequent meta-analyses that found significant correlation between learning styles and learning outcomes. A learning style is generally described as an attribute or quality of an individual which reflects a pattern of information-processing behaviours used to acquire knowledge or skills and prepare for an anticipated test of memory (Kelly 1997; Newble & Entwistle 1986; Stutsky & Laschinger 1995).

Several theoretical models have been proposed to explain learning style preferences and several instruments have been developed to diagnose these preferences, some of which are the Kolb experimental model, Canfield model, and Witkin's field independence-dependence model (Cleverly 1994). Kolb developed a model of experiential learning and a learning style inventory based on the preferred learning mode. Reliance on a particular mode of learning results in a certain style. The four basic learning styles described by Kolb are:

(1) convergent (applies ideas, and excels at problem solving and decision-making), (2) divergent (imaginative and has the ability to view a situation from many perspectives), (3) assimilator (excels in inductive reasoning and has the ability to create theoretical models), (4) accommodator (good at doing things, carrying out plans and tasks, and involving self in new experiences).

Canfield's model proposes that learners have preferences for the conditions under which learning takes place. The conditions are:

(1) affiliation (friendly relationships with instructors and peers), (2) structure (desire for organization and detail), (3) achievement (freedom to set goals and study independently), (4) eminence (desire for competition and learning from authority on a subject).

Witkin's model identified two learning styles based on people's ability to distinguish between the significant and the contextual. Witkin's learning styles are:

(1) field-independent (perceives figures as discernible from their backgrounds and easily perceives objects and ideas that are embedded in a context), (2) field-dependent (more global approach and tends to perceive total configurations rather than separate parts) (Cleverly 1994; Deyoung 1990; Merritt 1983; Paul et al. 1994; Stutsky et al. 1995).

Very little information from the vast amount of research performed on learning styles has been applied to nursing education (DeCoux 1990). Cleverly (1994) examined some teaching and learning perspectives and concluded that nurse educators should strive for matching teaching to learning styles.

Nurse educators and researchers are becoming more interested in understanding and integrating students' learning styles into nursing curricula to promote satisfying learning experiences

resulting in the formulation of criteria for academic excellence and to increase productivity in the work place (Billings 1994; Nagata 1996). The results of Newble & Entwistle's (1986) review of literature on learning styles and approaches to learning indicated that students learn in different ways, some being more appropriate than others. They further indicated that the approach students adopt appears to be an important factor in determining both the quantity and quality of their learning. Vaughn & Baker (2001) emphasized that using a variety of teaching methods and teaching styles creates optimal teaching-learning environment and gives learners multiple ways to excel.

Merritt investigated learning style preferences of baccalaureate nursing students in 1983 using the Kolb and Canfield models of learning styles. Merritt studied the differences in learning style preferences between traditional (basic BSc nursing students) and non-traditional adult learners (RN baccalaureate nursing students). The findings indicated that both groups prefer structured environment within which course expectations and requirements are clearly defined and content is presented in a logical and organized manner. Traditional learners prefer to be actively involved in learning including direct contact with the content or situation being studied that is not teacher-controlled.

Ostmoe et al. (1984), investigated the differences in preference among two groups of baccalaureate nursing students; some beginning their first nursing course and some completing their last. The findings suggested that both groups prefer learning strategies that are traditional in nature, teacher-directed, denote students' passivity and are highly organized.

Paul et al. (1994) investigated the learning preferences of medical students at the United Arab Emirates University. Results showed that students prefer experiences dealing with concrete and applied task rather than abstract tasks. Myrskog (1997) investigated the influence of the educational context on student nurses' conceptions of learning and approaches to learning. The findings showed that conceptions and approaches are to some extent contextually dependent.

Nagata (1996) used Kolb learning style inventory to study the effects of teacher-student learning style congruency on academic performance among traditional and non-traditional nursing students. The findings indicated no statistically significant differences in preferred learning styles among different groups of students. The majority of students (41.6%) were abstract learners and tended to be reflective observers more than active experimenters.

Suliman (2003) conducted an exploratory study to identify differences in clinical judgement abilities and learning styles among Jordanian registered nurses in hospital settings. The predominant learning style of the registered nurses was that of the converger. Results also indicated that learning styles appear to affect clinical

judgement abilities and those who were divergers had significantly higher clinical judgement abilities than other styles.

The literature suggests that the variety and distribution of learning styles is wide among nursing students' population. It seems sensible for educators to consider learners' characteristics and to monitor ways in which students say they learn best and to listen to their preferences (Burnar 1991; Sobral 1995). A recognition of the strengths and weaknesses of individuals' learning styles by the individual concerned and the educator is the key to providing the appropriate learning experiences to develop those individuals (Cleverly 1994).

Methods

This descriptive study was conducted at four of the six Jordanian universities offering a baccalaureate degree in nursing as the other two were in their early developmental stages at the time of the study. Three of the universities are located in Amman, the capital of Jordan, and the fourth is located in the north of Jordan. Formal approval to conduct the study was obtained through the appropriate channels. All nursing students enrolled in the four universities at the time of the study were approached ($n = 420$). Consent for participation was confirmed by the subjects' acceptance to fill out the questionnaire as was clarified in the cover letter. The response rate was 61.9%.

The majority of the study sample (87.6%) consisted of students from public universities and higher percentages of participants were males (53.8%) as compared to 46.2% females (Table 1). Table 1 shows the percentages of students from the first, second, third and fourth years, respectively. The Tawjihi scores of the majority of the students were about 80% (49.9% had scores between 80% and 89% and 13.8% had scores about 90%). The majority of the sample (81.7%) did not have backgrounds in nursing education or work. Only 28.3% had worked either as a staff nurse or Associate Degree nurse or nursing assistant or worked while studying.

A structured self-administered questionnaire – Autonomous Learner Index (ALI) – was developed by the researchers based on an intensive review of the literature. It was developed in the Arabic language to ensure better understanding of students. It consists of two parts: part (1) pertains to demographic data and part (2) included a list of 24 short statements that describe independent and dependent learning behaviours. In front of the statements is a five-point Likert scale ranging from strongly agree to strongly disagree. Nine of the 24 statements indicate dependent learning and 15 indicate independent learning. The questionnaire was reviewed for content validity by a panel of nurse educators. Reliability was tested through a pilot study on a sample of students who were not included in the study (alpha coefficient was 0.89).

Table 1 Participants' Background ($n = 420$)

Variable	Frequency	%
Gender		
Male	226	53.8
Female	194	46.2
Student level		
First year	149	35.5
Second year	81	19.4
Third year	114	27.1
Fourth year	75	17.9
School attended		
Public	368	87.6
Private	52	12.4
Grade point average		
a	3	0.7
b+	33	7.9
b	75	17.9
c+	186	44.3
c	68	16.2
d+	38	9.0
d	17	4.0
Tawjihi score		
70.9 or less	28	6.7
71–79.9	133	31.7
80–89.9	201	49.9
90–99.9	58	13.8
Pre-university study in nursing		
Diploma	48	11.5
Practical	4	1.0
Tawjihi nursing	25	6.0
None	343	81.7
Pre-nursing work		
Staff nurse	48	11.4
Associate Degree nurse	3	0.7
Assistant nurse	4	1.0
Work while study	22	5.2
Never	343	81.7
Years of work experience		
Zero	386	87.6
2–5 years	22	5.2
>5 years	29	6.9

The data were collected by the researchers themselves. Consistency of data collection was assured and bias was controlled as the researchers worked as a group throughout the research project and, thus, developed a collective feeling and a consensus regarding each step. Each of the research group members was assigned to collect data from one of the four universities. Data collection from each university was performed at the beginning of class sessions with the permission of teachers. The average time needed to fill the questionnaire was 15 min. Data collection was performed over a 1-month duration.

Analysis of the findings was carried out using SPSS. It focused on the participants' demographic characteristics and their responses to the ALI. The analysis was performed by obtaining descriptive statistics, frequencies and percentages for sample characteristics, as well as for measuring students' responses to the ALI items indicating students' learning styles; dependent vs independent.

Findings and discussion

Knowledge about students' learning preferences has potential usefulness for teachers for adjusting their teaching styles to maximize learning achievement (Callister et al. 2000; Paul et al. 1994). Consequently, the present study investigated Jordanian nursing students' perception of their learning styles.

Figure 2 shows that the mean score obtained on all the items of the Autonomous Learner Questionnaire was 1.214, which indicates that the nursing students who participated in the study perceived themselves as independent learners. Moreover, Table 2 indicates that 44.5% of the sample responded positively to the item 'I am an independent learner'. This confirms the students' perception of themselves.

This result contradicts the prevailing feeling among the teaching staff at the faculties of nursing who had frequently reported little student preparation and participation in classroom sessions. Schroeder (1993) also reported similar results. Merritt's (1983) study clarified that students reported their preference to highly structured teaching-learning environment.

The vast majority of students (94.1%) indicated that they had a desire to learn new things, 75% indicated that they were curious to learn, and 74.6% reflected that they could identify their goals independently. On the other hand, only 45% of the students indicated that they could find references for any subject and 50.5% indicated difficulty in adjusting resources to need. Paul et al. (1994) reported that most students preferred to learn when they were given clear and specific direction objectives and assignment. Similarly, Merritt (1983) indicated that baccalaureate nursing students were not particularly concerned with having an opportunity to set their own goals or pursue their own learning interest.

Relatively low percentages of students indicated having good study skills, ability to concentrate while studying, and using their study time efficiently (37.1%, 25.5%, and 45%, respectively).

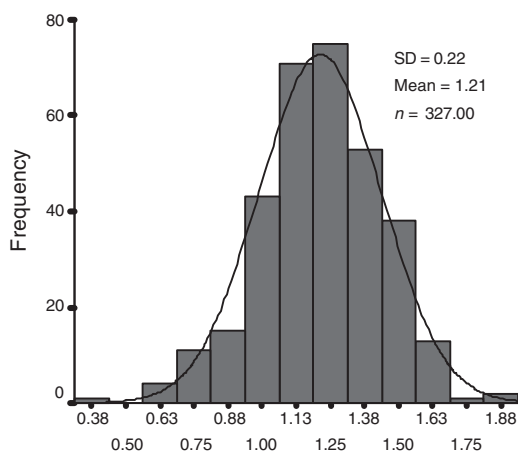


Fig. 2 Autonomous Learner Index score.

Moreover, 37.1% reported that they study only for examinations. Those learning behaviours among students may be related to their inability to organize their time efficiently, in addition to the language barrier as the students have to study in English and from English references. Callister et al. (2000) reported that Jordanian nursing students rated finding time to study their highest concern.

Regarding solving own problems, 72.3% indicated that they work hard to find solutions, 65% indicated that they enjoy problem solving, and 61.9% reported that they like doing small research projects as part of their course work. However, 60.3% indicated preference for sequenced stable activities, 59.7% indicated preference for textbook courses, and 45.9% reported their preference for help in this area. This finding is consistent with that of Ostmo et al. (1984) who reported that nursing students preferred learning strategies that were traditional in nature, teacher-directed, and highly organized. The results are also consistent with those of the study conducted by Stutsky & Laschinger (1995), which indicated that a concrete learning style prevailed among all types of nursing students. They explained that, based on Kolb theory, concrete style is in the first stage of the learning cycle, where a person relies on his or her concrete experimentation abilities. Concrete abilities involve preference for learning tangible and specific practical skills and emphasize personal involvement with individuals in everyday situations. Learning occurs from feelings at this stage.

Although 72.3% of the students feel comfortable in independent learning, 66.2% indicated that they need little assistance from the teacher and only 25.9% indicated that they do the minimum for any course. However, only 41.7% of the students reflected feelings of independence during theoretical courses. According to Myrskog (1997), this leads to passivity of students causing them to attend only to separate facts and details, and to be unable to comprehend the holistic meaning of concepts. Ausubel (1978), on the other hand, indicated that in order to learn meaningfully individuals must take responsibility for their own learning. A relatively higher percentage of the students (59.8%) reflected feelings of independence during clinical courses. This might be attributed to the overwhelming nature and complexity of the tasks incorporated in the clinical setting as compared to classroom activities. Callister et al. (2000) indicated that students are more concerned about harming patients, which motivates them to prepare before the clinical experience with relevant learning activities facilitated by faculty.

Although the results of the study reflected that the baccalaureate nursing students perceive themselves as independent learners, a considerable percentage of the students reported uncertainty regarding most of the items. The highest proportion of their reported uncertainty related to the item 'I am an independent learner'. A similar percentage (35%) reflected uncertainty regard-

Table 2 Autonomous Learner Index scores/all schools ($n = 420$)

Item	Uncertain		Disagree/SD		Agree/SA	
	Frequency	%	Frequency	%	Frequency	%
Desire to learn new things (I)	22	5.2	3	0.7	375	94.1
Have good study skills (I)	98	23.3	166	39.5	156	37.1
Need little assistance from teacher (I)	69	16.4	73	17.4	278	66.2
Feel comfortable in independent learning (I)	58	13.8	58	13.8	304	72.3
Curious to learn (I)	64	15.2	41	9.8	315	75.0
Work hard to find solutions (I)	76	18.1	39	9.3	305	72.6
Find references for any subject (I)	136	32.4	95	22.6	189	45.0
Prefer help to solve my problems (D)	77	18.3	150	35.7	193	45.9
Prefer sequenced stable activities (D)	54	12.9	113	26.9	253	60.3
Do the minimum for any course (D)	75	17.9	236	56.1	109	25.9
Like doing research (I)	86	20.5	74	17.6	260	61.9
Difficulty adjusting resources to needs (D)	99	23.6	109	26.0	212	50.5
Finish assignments before due date (I)	100	23.8	67	16.0	253	60.21
Cannot concentrate (D)	111	26.4	202	48.1	107	25.5
Identify own goals independently (I)	71	16.9	36	8.6	313	74.6
Finish assignments only for a due date (D)	77	18.3	145	34.5	198	47.2
Use study time efficiently (I)	146	34.8	85	20.2	189	45.0
Enjoy problem solving (I)	80	19.0	63	15.0	277	65.0
Prefer textbook course (D)	55	13.1	114	27.1	251	59.7
Study only for exams (D)	98	23.3	166	39.5	156	37.1
Feel independent during theory courses (I)	125	29.8	120	27.6	175	41.7
Feel independent during clinical courses (I)	98	23.2	71	16.9	251	59.8
I am an independent learner (I)	158	37.6	75	17.9	187	44.5
I am a dependent learner (D)	147	35.0	148	35.3	125	29.8

SD, strongly disagree; SA, strongly agree; I, independent; D, dependent.

ing the item 'I am a dependent learner'. This may be related to their previous experience with the educational system that made them unable to judge whether they are dependent or independent. Some of the students verbalized this during data collection. They questioned the likelihood of being independent when they could not select the specialization they wanted to study. One student said: 'to be independent means to study whatever you want and whenever you like.'

According to Paul et al. (1994) a host of environmental and personality variables results in great heterogeneity among a student population within any discipline. The two-tailed *t*-test indicated no significant differences at alpha 0.05 level between gender, type of educational sector (public or private), and the grade of the student in the university (first year or fourth year), and independent learning (Table 3). Paul et al. (1994) reported contradictory results. They clarified that students tend to shift toward more independence in learning as they move to the clinical setting. They also reported that female students prefer more teacher-

Table 3 Relationship between independent learning and selected variables

Item	t	df	Significance (2-tailed)
Gender			
Female	15.391	225	0.056
Male	13.222	193	0.059
Educational sector			
Public	17.867	367	0.06
Private	11.337	51	0.076
Student level			
First year	7.809	148	0.102
Second year	8.606	78	0.116
Third year	13.644	113	0.089
Fourth year	15.166	74	0.053

Significant at alpha 0.05.

orientated, well-organized and practical learning than male students. Schutzehofer & Musser (1994) found that the level of education in nursing demonstrates the only significant positive correlation with independence.

Conclusion, implications, and recommendations

Learning styles and preferred learning approaches are believed to have an influence on students' learning. Nurse educators need to be cognizant of their students' learning styles in order to adapt their particular mode of teaching to complement the learner group. The results of the study indicate that the majority of Jordanian nursing students perceive themselves as independent learners, although with some uncertainty expressed. Based on the results of the present study the following implications and recommendations are postulated:

- Nurse educators should design learning experiences in which cooperative learning is encouraged and students are challenged and actively involved in learning.
- Nurse educators should provide positive reinforcement of students' active involvement in the learning process, which will stimulate continued self-direction.
- Nurse educators need to be aware of their own teaching styles, which are unlikely to match the learning styles of all students. Hence, they should develop skills, which are likely to enhance the learning to all students.
- Nurse educators should act as facilitators of learning and should ensure the availability of resources and opportunities for practice.
- Courses on study skills, writing skills and literature searching skills should be introduced early in the nursing programmes.
- Sessions on counselling and clinical supervision should be encouraged for all students throughout the programme to help them acquire skills in problem solving and critical thinking.
- Further studies may be needed to explore specific approaches for allowing students to take a more active role in the teaching-learning process in the different clinical training settings as well as in the classroom.
- Further investigation of the relationship of learning styles to teaching styles is needed.

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