

Learning Styles of Nursing Students in regard to Their Gender and Academic Batches: A Comparative Study

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Abstract

Background: Understanding how students learn is crucial for educators to effectively support and address their learning challenges. This knowledge enables teachers to tailor their instructional approaches to meet diverse learning needs. **Objectives:** The study aimed to compare nursing students' learning styles across different genders and academic batches. **Design:** A comparative descriptive research design was employed. **Setting:** The research was conducted at the Faculty of Nursing, Suez Canal University. **Participants:** A total of 590 nursing students participated in the study. **Methods:** The Grasha-Riechmann Student Learning Styles Scale was utilized to assess and categorize students' learning styles. **Results:** The analysis revealed that competitive and independent learning styles demonstrated the highest mean scores. Female nursing students scored significantly higher than their male counterparts in collaborative, competitive, dependent, and participant learning styles. Moreover, statistically significant differences were observed in learning styles across the four nursing student batches, except for the dependent learning style. **Conclusion:** The dominant learning styles of nursing students are collaborative, competitive, and independent. Besides, there are significant differences regarding gender between nursing students in all styles except the independent, and avoidant, also, there are significant differences among the four batches in all learning styles except the dependent style. **Recommendations:** Educators should develop targeted teaching strategies to enhance avoidant, dependent, and participant learning styles. Furthermore, individual differences related to gender and academic batches should be carefully considered and addressed in educational approaches.

Keywords: Learning styles, Nursing students, Academic batches.

1. Introduction:

Students are distinct people with diverse learning styles (Ellis, 2013). Many educators have defined the term "learning style". Shokrpoor, Rezaee, and Nikseresh (2015) defined learning style as a person's preferred method and way of learning. It is

also the student's consistent pattern of behavior and performance when approaching his or her learning experiences (Berns, 2015). Furthermore, Grasha (2002) described it as the personal characteristics that may influence a student's ability to acquire information, communicate with

classmates and teachers, and participate in the learning process.

More than 70 learning style models have been established based on various research findings (**Dinham, 2016**). Kolb's model, Gregorc's model, Honey and Mumford model, Dunn and Dunn model, Fleming VARK model, Felder-Silverman model, and Grasha-Reichmann model are examples of learning style models (**Kauts & Samita, 2019**).

Grasha-Reichmann's learning style model is most suited for studying the social-emotional side of learning (**Grasha, 2002**), which is critical in the Problem-Based Learning (PBL) approach used by many nursing schools across the world. **Grasha (2002)** established six learning styles: independent, avoidant, collaborative, dependent, competitive, and participant.

Independent learners are self-governing learners who prefer to work alone, receive little instruction from their teacher, and do not rely on their peers. Avoidant learners, on the other hand, dislike learning and strive to avoid it whenever possible. They are commonly referred to as sleeping partners among the group members. Furthermore, these students typically rank at the bottom of the achievement scale (**Grasha, 2002**).

Collaborative learners enjoy social connection. They prefer working in large groups and can benefit from sharing ideas, thoughts, experiences, information, and talents. Dependent learners, on the other hand, frequently seek assistance from their classmates and teachers. Furthermore, when students do not understand a subject, they go to their peers and teachers for help (**Grasha, 2002**).

Collaborative learners enjoy working in large groups and can learn by sharing ideas, thoughts, experiences, knowledge, and talents. Dependent learners, on the other hand, frequently rely on their classmates and teachers for assistance, and they see peers and teachers as a source of support when they do not understand the lesson (**Grasha, 2002**).

Competitive learners compete and fight with their peers for the teacher's attention and recognition. Their primary concern is to compete and receive rewards for their efforts. Finally, the participant learners are very engaged and willing to take on the responsibilities assigned to them. They communicate effectively with their classmates and demonstrate greater self-learning (**Grasha, 2002**).

Many factors can influence students' learning styles, causing some styles to be

dominant over others. These characteristics include genetic factors, gender, culture, age, personality, hemisphere dominance, educational background, and academic accomplishment, as well as the type of course (Amir, Jelas, & Rahman, 2011; Choudhary, Dullo, & Tandon, 2011; Kumar et al., 2011; Zhou, 2011).

Significance of the study:

Understanding learning styles can assist students learn how to learn. As a result, the learning process will be more convenient, efficient, and fun. As a result, learners gain more autonomy and accountability for their learning. Understanding students' learning styles also allows teachers to develop classes that are more effective at helping students solve difficulties (Awla, 2014; Biggs, 2001; Gilakjani & Ahmadi, 2011; Tuan, 2011).

Aim of the Study:

The current study aims to compare nursing students' learning styles regarding their gender and academic batches.

Research questions:

- What is the dominant learning style of nursing students?
- Is there a significant difference in learning styles between male and female nursing students?

- Is there a significant difference in learning styles among batches of nursing students?

2. Subjects and methods:

Research Design:

The study used a comparative descriptive design.

Setting:

Faculty of Nursing at Suez Canal University which adopts the Problem Based Learning (PBL) strategy.

Sample:

The study encompassed a comprehensive sample of 590 nursing students who were invited to participate in the study. Clear after communication about study objectives and benefits. The majority of them (62.9%) were females compared to 37.1% were males. Their mean age was 20.58 ± 1.31 ranging from 18 to 24 years old. The second batch represented the highest percentage of students (30.3%) compared to the first batch (20.7%). Before starting this study, the total population was 720 students. 590 of them agreed to participate in the study, 72 of them participated in the pilot study, and 58 of them were a dropout of the sample.

Tool of data collection: Data were collected

using the Students' Learning Styles Questionnaire which consists of two parts.

Part one of the questionnaire is made up of items to obtain students' demographic information that includes age, sex, and batch.

Part two of the questionnaire is the **Grasha-Riechmann Student Learning Styles Scale (GRSLSS)** which was developed by **Riechmann and Grasha (1974)**. It was used in this study to identify nursing students' learning styles. It contains 60 statements relating to six learning styles: independent, dependent, competitive, collaborative, avoidant, and participant, with 10 statements on each learning style (**Grasha, 2002**).

The **GRSLSS** had been translated into Arabic and validated by **Gelgel (2013)**. It had been answered on a 5-point Likert Scale ranging from strongly agree = 5 to strongly disagree = 1. The students are grouped into low, moderate, or high levels for each learning style (**Grasha, 2002**). To convert the scores to the **GRSLSS** norms proposed by Grasha, the obtained scores for each learning style were divided by 10. The dominant style was the style that scored the highest mean (**Gelgel, 2013**). The scoring and the classification of the **GRSLSS** are given in **Table (1)**. The total reliability

coefficient (Cronbach's Alpha) of the **GRSLSS** in the current study was 0.78.

Fieldwork:

The data were collected throughout 13 weeks during the second semester of the academic year 2015-2016, specifically in February, March, April, and May. Students were asked to complete the questionnaire about their learning styles during PBL sessions, lectures, seminars, skills lab, and clinical training. Data were gathered through structured interviews with students, either individually or in groups, after explaining the purpose of the study and how to complete the questionnaires. The students took 25-30 minutes to complete the questionnaire.

Ethical considerations:

Official permission was obtained from the faculty dean for collecting the data from students. The anonymity of the questionnaires ensured the confidentiality of the participant's answers, and every individual enrolled in the study had the ability to decline participation or withdraw from it at any time.

Data analysis:

Data were analyzed descriptively and inferentially using SPSS software (Statistical Packages for Social Science) version 20. Descriptive analysis was used in the form of

frequencies, percentages, means, and standard deviation. For inferential analysis, the Independent Sample t-test, and ANOVA test were used. P-value < 0.05 was set as the level of significance of the results.

3. Results:

Table (2) shows mean scores and levels of nursing students' learning styles. It was found that four learning styles scored a high level, their mean scores were 3.97 ± 0.54 for the collaborative, 3.93 ± 0.59 for the competitive, 3.91 ± 0.45 for the independent, and 3.32 ± 0.59 for the avoidant. Whereas the two learning styles scored a moderate level, their mean scores were 3.77 ± 0.43 for the dependent and 3.69 ± 0.57 for the participant. The collaborative, competitive, and independent scored the highest means.

Table (3) shows the comparison of learning styles among nursing students in regard to gender. It was found that there were significant differences between male and female nursing students in all learning styles except the independent, and avoidant.

Table (4) shows the comparison of learning styles among nursing students in regard to academic batches. It was found that there were significant differences among the four batches of nursing students

in all learning styles except for the dependent style.

4. Discussion:

Regarding the levels of students' learning styles, the current study result showed that the collaborative, competitive, independent, and avoidant styles scored a high level, whereas the dependent and participant styles scored a moderate level. This result is partially in agreement with **İlçin, Tomruk, Yeşilyaprak, Karadibak, and Savcı (2018)** who reported that the collaborative, dependent, and avoidant styles scored a high level, compared to the independent, competitive, and participant styles which scored a moderate level. Whereas, **Olivier et al. (2021)** reported that the collaborative style scored a high level, while the independent, competitive, participant, dependent, and avoidant styles scored a moderate level.

The collaborative style scored a high level. This result is in agreement with **Karabuga (2015)**. Also, this result may be due to the Faculty of Nursing at Suez Canal University being a PBL school. In this regard, there was a positive correlation between PBL, and the collaborative learning style (**Budakoglu, Erdemli, & Babadogan, 2012**), as students in PBL,

work in small groups and share experiences to solve problems (**Abrandt Dahlgren, 2011**).

The competitive learning style scored a high level. This result agrees with the findings of **Karabuga (2015); Mahamod, Embi, Yunus, Lubis, and Chong (2010)** who reported that the competitive learning style scored a high level. This result may be due to the competition encourages students to perform well (**Kristensen, Troeng, Safavi, & Narayanan, 2016**).

The independent learning style scored a high level. This result is in agreement with **Budakoglu et al. (2012)** who reported that the independent learning style scored a high level. Whereas, **Karabuga (2015); and Olivier et al. (2021)** reported that the independent learning style scored a moderate level. The current study finding may be due to the PBL encourages students to learn independently (**Moust, Bouhuijs, & Schmidt, 2021**).

The avoidant learning style scored a high level. This result is in agreement with **İlçin et al. (2018); Olivier et al. (2021)** who reported that the avoidant learning style scored a high level. Whereas,

Budakoglu et al. (2012) reported that the avoidant learning style scored a low level, compared to **Karabuga (2015)** who reported that the avoidant learning style scored a moderate level. The present study result might be due to the low self-esteem of those students and the overwhelming learning activities. In this regard, **Duvall and Roddy (2020)** indicated that low students' self-esteem contributes to students' avoidance of overwhelming and challenging learning activities. Additionally, those students might be less interested in nursing study.

The dependent learning style scored a moderate level. This result agrees with **Bozkurt (2013); and Bruce and Chilemba (2017)** who reported that the dependent learning style scored a moderate level. Whereas, **İlçin et al. (2018); and Karabuga (2015)** reported that the dependent learning style scored high. The current study result might be because nursing students are progressing toward a more independent style through higher education programs (**O'Fathaigh, 2000**).

The participant's learning style scored a moderate level. This result agrees with **İlçin et al. (2018); and Karabuga (2015)** who reported that the participant

learning style scored a moderate level. The present study result might be due to there are many factors that could affect students' participation in the learning process such as teachers' and classmates' traits, class content, and educational setting characteristics (**Mustapha, Abd Rahman, & Yunus, 2010**). Also, a large number of students and the shortage of tutors at the Faculty of Nursing at Suez Canal University could affect students' participation in classes.

Generally, collaborative, competitive, and independent learning styles scored the highest means. This result means that these three learning styles are the dominant learning styles of nursing students at Suez Canal University (**Gelgel, 2013**).

Concerning the difference between male and female nursing students in Grasha-Riechmann learning styles, it was found that there were significant differences between male and female nursing students in all learning styles except the independent, and avoidant styles. This result is in agreement to some extent with **Bozkurt (2013)** who reported that there were significant differences between males and females in collaborative and dependent

learning styles. Whereas **Halili, Naimie, Siraj, AhmedAbuzaid, and Leng (2014)** reported that there were significant differences between males and females in all learning styles except the competitive, and dependent learning styles.

The female students were higher than males in the collaborative learning style with a significant difference. This result agrees with **Baneshi, Tezerjani, and Mokhtarpour (2014)**. Also, this result is supported by **Wilhelmsson, Ponzer, Dahlgren, Timpka, and Faresjö (2011)** who reported that female students prefer teamwork more than male students. In addition, the current study results found that the female students were higher than males in the competitive learning style a significant difference. This result disagrees with **Olivier et al. (2021)**.

The female students were higher than males in the dependent learning style with a significant difference. This result agrees with **Bozkurt (2013)**. The present study result is supported by **Hamidah, Sarina, and Kamaruzaman (2009)** who reported that female students normally experience fear of academic failure and they depend on their teachers. Also, the female students were higher than males in

the independent learning style with no significant difference. This result disagrees with **Baneshi et al. (2014)**. Also, it was supported by **Young- Jones, Burt, Dixon, and Hawthorne (2013)** who reported that female students take more responsibility for their academic success than males.

The female students were higher than males in the participant learning style with a significant difference. This result is in agreement with **Baneshi et al. (2014)**. The present study result might be due to female students being more likely and keen to participate in school activities and more active in the classroom (**Shaari, Yusoff, Ghazali, Osman, & Dzahir, 2014**). Whereas male students were higher than females in the avoidant style with no significant difference. This result disagrees with **Baneshi et al. (2014)** who reported that males were higher than females in the avoidant learning style with a significant difference. The present study result is supported by **Cowen and Moorhead (2014)** who reported that many male nursing students have reported a sense of isolation within nursing schools. This situation is exacerbated by a lack of male nursing faculty and role models within the nursing profession (**Cooper & Gosnell,**

2018).

Regarding the difference in nursing students' Grasha-Riechmann learning styles among batches, it was found that there were significant differences among the four batches of nursing students in all learning styles except the dependent learning style. This result is mostly congruent with **Gujjar and Tabassum (2011)** who reported that there were significant differences in all learning styles among the classes. The present study result might be due to the students studying different courses each year. In this regard, **Felder (2020)** indicated that students' learning styles can change depending on the type of subject.

5. Conclusion:

Based on the findings of this study, the dominant learning styles of nursing students are collaborative, competitive, and independent. Also, there was a significant difference between male and female nursing students in all learning styles except the independent, and avoidant. Besides, there was a significant difference among the four batches of nursing students in all learning styles except for the dependent learning style.

6. Recommendations:

The Faculty of Nursing at Suez Canal University should take the needed measures to enhance the positive high-level learning styles as the collaborative, competitive, independent, and positive moderate levels styles as participant styles. Also, it should improve the negative high-level learning styles as the avoidant learning style and the negative moderate-level styles as the dependent style. Besides, the

individual differences regarding sex and batches among nursing students should be considered.

Conflict of interest:

None

Acknowledgement:

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Table 1: The scoring and the classification of GRSLSS

Learning styles	Low	Moderate	High
Independent	1.0-2.7	2.8-3.8	3.9-5.0
Avoidant	1.0-1.8	1.9-3.1	3.2-5.0
Collaborative	1.0-2.7	2.8-3.4	3.5-5.0
Dependent	1.0-2.9	3.0-4.0	4.1-5.0
Competitive	1.0-1.7	1.8-2.8	2.9-5.0
Participant	1.0-3.0	3.1-4.1	4.2-5.0

Table 2: Mean scores and levels of nursing students' learning styles (n = 590)

Learning Style	Mean ± SD	Level
Independent	3.91 ± 0.45	High
Avoidant	3.32 ± 0.59	High
Collaborative	3.97 ± 0.54	High
Dependent	3.77 ± 0.43	Moderate
Competitive	3.93 ± 0.59	High
Participant	3.69 ± 0.57	Moderate

Table 3: Comparison of learning styles among nursing students in regard to the gender

	Male n = 219	Female n = 371	t	P-value
	Mean ± SD	Mean ± SD		
Independent	3.90 ± 0.46	3.91 ± 0.45	-0.309-	0.757
Avoidant	3.37 ± 0.59	3.29 ± 0.59	1.497	0.135
Collaborative	3.86 ± 0.60	4.04 ± 0.50	-3.708-	0.000*
Dependent	3.70 ± 0.45	3.82 ± 0.41	-3.262-	0.001*
Competitive	3.84 ± 0.61	3.99 ± 0.57	-3.060-	0.002*
Participant	3.58 ± 0.63	3.76 ± 0.55	-3.591-	0.000*

**Significant at p < 0.05*

Table 4: Comparison of learning styles among nursing students in regard to academic batches

Learning styles	First Batch n = 122	Second Batch n = 179	Third Batch n = 162	Fourth Batch n = 127	f	P-value
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD		
Independent	3.89 ± 0.45	3.88 ± 0.43	3.88 ± 0.43	3.82 ± 0.50	5.22	0.001*
Avoidant	3.17 ± 0.60	3.40 ± 0.59	3.25 ± 0.58	3.42 ± 0.56	5.44	0.001*
Collaborative	4.13 ± 0.48	3.96 ± 0.55	3.98 ± 0.58	3.82 ± 0.51	7.13	0.000*
Dependent	3.81 ± 0.38	3.78 ± 0.39	3.76 ± 0.46	3.74 ± 0.48	0.57	0.634
Competitive	4.11 ± 0.47	3.92 ± 0.540	4.03 ± 0.63	3.67 ± 0.63	14.60	0.000*
Participant	3.84 ± 0.54	3.63 ± 0.58	3.81 ± 0.58	3.48 ± 0.58	12.24	0.000*

**Significant at p < 0.05*

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