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The Relationship Between Online Learning Readiness and Social Interaction Anxiety among Nursing Students in Alexandria University

[1]Mayar Elnakeeb and [2]Sabrein Mahmoud Ali Khalifa

[1]Psychiatric Nursing and Mental Health Department, Faculty of Nursing, Alexandria University, Egypt
[2]Nursing Administration Department, Faculty of Nursing, Alexandria University, Egypt

Abstract: Online learning is an innovative way of learning that appears promising in enhancing information exchange and decrease the curricula load for the students. It is expected to improve the quality of the learning process and the graduate to meet the expectation of the nursing labor market. Thus, its application requires the support of the institution as it is considered as one important step in restructuring the nursing profession. Students are usually facing many challenges including social interaction anxiety which interferes with their learning. This study aimed to investigate the relationship between online learning readiness and social interaction anxiety among Faculty of Nursing students, Alexandria University. This study used a descriptive cross-sectional correlational design. A convenient sample of 404 nursing students accepted to participate in the study. The tools of the study included the Online Learning Readiness Scale (OLRS) and the Social Interaction Anxiety Scale (SIAS). Results of the study revealed that higher students' online learning readiness is related to higher social interaction anxiety. So, it can be concluded that students' online learning increase by social interaction anxiety to handle social anxiety by resorting to an electronic method that helps them avoid face to face interaction and that provides a safe environment and comfort zone to interact with others.

Key words: Online Learning · Nursing Students Readiness · Social Interaction Anxiety

INTRODUCTION

Today, in higher education institutions, the teaching strategies are rapidly changing to conform to the rapidly increasing knowledge and vast online resources [1]. The use of information technology and e-learning provides the higher education and the nursing undergraduate programs with rich resources that are readily available at free costs [2]. Institutional support and university administration are important dimensions for online learning to guarantee its effectiveness and persistence [3]. E-learning is changing the culture of traditional teaching/learning and challenging the educational landscape by providing opportunities that are irrespective to time and space [4]. In this study, E-learning definition is adopted from Garrison's2011 work and is referred to as an "Electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge" [5]. According to Organization for Economic Co-operation and Development online learning is also defined as the use of information and communication technologies in diverse processes of education to support and enhance learning in institutions of higher education. It includes the usage of information and communication technology as a complement to traditional classrooms, online learning or mixing the two modes [6]. Online learning may be also defined as a method of teaching that allows students to participate without being on campus [7].

The literature reports that the significance of online learning in nursing education is controversial [8]. In fact, there is evidence supporting better learning outcomes when technological learning was used for knowledge creation [9]. Yet, a systematic review revealed no difference between groups when comparing traditional learning to online learning [10]. Thus, it is useful to understand the theoretical underpinning for use of online learning in nursing education [10]. One of the most prominent theories about online learning is the Diffusion of innovation theory (DOI). This theory states that *Innovation* is a new idea or object. Adoption is a decision to make full use of the Innovation and rejection is a

Corresponding Author: Sabrein Mahmoud Ali Khalifa, Nursing Administration Department, Faculty of Nursing, Alexandria University, Egypt.

decision not to adopt an innovation. The DOI is a theory spanning time and space and provides a view of human behavior change bridging disciplines and society [11].Online learning is an application of DOI theory because it is considered as an innovative way of learning [12].

It is assumed that online learning could unburden overloaded curricula to facilitate information exchange and collaborative learning [13] improving the quality of learning and access to education and training, providing flexibility for time and place, responding to labor market conditions and to innovative technology itself and reducing costs and improving effectiveness of educational services [13-15]. It is now thought that successful integration of online learning into teaching and learning environments cultivates technology-knowledge and diminishes clinical-practice deficiencies [16]. Nowadays, nursing organizations are stressing on information management and application of patient care technology as essential for baccalaureate education accreditation criteria [17]. Accordingly, it is important to include online learning as one step in the technological advance restructuring of the nursing profession [16].

The literature has identified several criteria for a student to be successful in an online learning environment as Students need to be extraverts, conscientiousness, accepting of the experience [18, 19] are familiar with the Internet. Also, many different factors are contributing to the students' online learning experience. These factors include their learning style, personal situation, ICT skills, confidence and attitude [20] and familiarity [21] subject background knowledge, motivation, effectiveness of teaching, communication with staff and between students, time to study and access to ICT support [22].

University Administrators should understand not all students fall within these criteria [19]. The programs must communicate the change, the design, implementation of the plan, control the workload and capacity of the tool and give proper training to educators and students while maintaining adequate support services and integration of time to start [7]. A good learning experience, according to Estelami [23] is one where a student can ‘master new knowledge and skills, critically examine assumptions and beliefs and engage in an invigorating, collaborative quest for wisdom and personal, holistic development. Accordingly, it is crucial for any university to know, before the implementation of online learning, if the shift to online learning technologies is what the students want and accept [24, 25]. So, it is important to assess the students' readiness for online learning before using the online learning environment to make sure the students are capable of using it in the best way and to reduce the risk of failure and increase the chance of success in the adoption of online learning [26]. Students' online learning readiness assessment will shed the light on the students' capability to adapt to technological challenges, collaborative learning and training as well as the synchronous and asynchronous self-paced learning and training.

With the growing population of Egypt, Online learning is considered as a means of alleviating conventional educational problems such as overcrowded classrooms and transportation problems [27]. Numerous online learning projects have been launched by Egyptian governmental universities since 2002 including the National projects such as the "Higher Education Enhancement Project" (HEEP) Sponsored by World Bank and the Open Source Platform for Higher Education Sponsored by UNESCO, Tempus projects Sponsored by European Commission General Directorate for Education and Culture [27].

Learning according to the social learning theory is facilitated and shaped by the existence of an interactive social context [28]. Lu and Churchill [29] reported that online learning helps in promoting students' interaction and in developing social networking skills outside the classroom. Additionally, it was reported that the use of technology in learning promotes students' engagement in a social workspace [30]. Thus, it can be concluded that, online learning plays a great role in social interaction.

Social interaction anxiety is defined as the fear and avoidance of meeting interacting and expressing oneself with others [31]. It is one aspect of social anxiety which makes the individual suffer from marked and persistent fear of being evaluated negatively and rejected [32]. So, it interferes with the individual's ability to initiate positive social encounters and the development of close relationships [31]. This anxiety results in the use of safety-seeking behaviors in social situations. So, the person mentally practices what he is going to say next in a conversation. Planning one's next sentence makes it hard to keep up with the conversation itself [32]. Social anxiety is associated with the belief that symptoms of anxiety in one-self will be perceived by others as a sign of weakness, incompetence, mental instability and/or stupidity and lead to humiliation or embarrassment [32]. Literature demonstrates a high prevalence of anxiety in college students and particularly in nursing students [33-35]. It was listed as one of the top-five factors

that affect college students' academic performance [36]. The literature reported that, the presence of excessive anxiety can negatively impact nursing students' cognitive abilities, physical health and clinical performance and safely providing care to patients [36-40]. One study provided preliminary results about anxiety in online learning and reported that 39% of the studied students had anxiety [39]. It was also reported that students who use online learning will inevitably suffer a sense of isolation [40]. So, it continues to be an area of growing concern among academic providers [36]. Consequently, parallel to the attention to online learning, there is a concern of social interaction anxiety [38]. Thus this study aimed to investigate the relationship between online learning readiness and social interaction anxiety among Faculty of Nursing students, Alexandria University.

MATERIAL AND METHODS

Study Design: This study used a descriptive correlational design to collect the necessary data.

Setting: The study was conducted at the Faculty of Nursing, Alexandria University. The Faculty has nine academic departments: Medical-Surgical Nursing, Critical Care Nursing, Pediatrics Nursing, Obstetrics and gynecological Nursing, Nursing Administration, Community Health Nursing, Gerontological Nursing, Psychiatric Nursing and Mental Health and Nursing Education. It belongs to the ministry of higher education. The faculty offers Bachelor degree for undergraduate students and Diploma, Master degree and Doctorate degree for graduate students. It follows the credit hours system that offers students a flexible studying schedule. The total number of students enrolled in the Bachelor program in the academic year 2016-2017 was 1500 students.

Subjects: The subjects for this study were 400 nursing students enrolled in the Faculty of Nursing. The Epi info program was used to estimate the sample size based on using 10% acceptable error, 95% confidence coefficient, 50% expected frequency and population size of 1500. The program revealed the minimum sample size to be 350 students. Thus, it was decided in the present study to recruit a sample of 400. Accordingly, a convenient sample of 404 nursing students accepted to participate in the study.

Tools: The tools of the study included two questionnaires.

Tool I: Online Learning Readiness Scale (OLRS): It was developed by Hung *et al*. [41] to measure readiness for online learning for college students. The scale is composed of five subscales. The first subscale is the "Self-directed learning" subscale is composed of 5 items. It is centered on learners' taking responsibility for the learning context to reach their learning objectives. The second subscale is the "Learner control" is composed of 4 items and is centered on online learners' control over their learning (Control that manifested itself as repeating or skipping some content) and on efforts by online learners to direct their own learning with maximum freedom. The third subscale is the "motivation for learning" is composed of 4 items and is centered on online learners' learning attitudes. The fourth subscale the "Computer/Internet self-efficacy" is composed of 3 items and is about online learners' ability to demonstrate proper computer and Internet skills. The final concept "Online communication self-efficacy" is composed of 3 items and is centered on describing the learners' adaptability to the online setting through questioning, responding, commenting and discussing.

The scale is ranked on a 5-point Likert scale, with anchors ranging from 1 (Strongly disagree) to 5 (Strongly agree). Students' mean scores and standard deviations on the five subscales were calculated by summing the answers to each item in that subscale and then dividing the sum by the number of that subscale's items. In addition, a total mean can be calculated so that the higher the mean score, the more online learning readiness can be assigned to the students. In this study the tool has acceptable internal consistency for the overall score (Alpha= 0.79) and the subscales as follows: computer internet self-efficacy Alpha= 0.74, self-directed learning Alpha= 0.85, learner control in an online context Alpha= 0.76, motivation for learning in an online context Alpha= 0.77 and online communication self-efficacy Alpha= 0.82.

Tool II: The Social Interaction Anxiety Scale (SIAS): The social interaction anxiety scale (SIAS) was originally developed by Mattick and Clarke [31] to assess social interactional anxiety, defined as extreme distress when initiating and maintaining conversations with friends, strangers, or potential mates. The SIAS consists of 20 items that are rated from 0 *(Not at all characteristic or*

true of me) to 4 *(Extremely characteristic or true of me).* Items are self-statements describing one's representative reaction to situations that involve social interaction in dyads or groups. The SIAS is scored by summing the ratings (After reversing the 3 positively worded; items 5, 9 and 11). Total scores range from 0 to 80, with higher scores representing higher levels of social interaction anxiety. In this study the tool has shown acceptable internal consistency (Alpha= 0.84).

Methods:

- Written permission from the Faculty Administration was obtained.
- In order to use The OLRS and SISRS, bilingual experts in the field of Nursing translated the scales and then blind back translation was done.
- A jury of five experts in Psychiatric Nursing and Mental health evaluated the validity of the scales and reported that the scales have face and content validity.
- A pilot study was done on 20 nursing students to examine the feasibility and acceptability of the study tools.
- Alpha Cronbach's was done to measure the internal consistency of the study tools.
- The subjects of the study were selected conveniently. Then the aim of the study was explained to each student and an informed consent was obtained from those who accepted to participate in the study.
- The questionnaires were distributed to the students, collected and revised for any missing data.
- Statistical analysis was done using SPSS (v20).
- Data were analyzed descriptively to obtain number and percentage, means, standard deviation and mean percent scores. Then bivariate analysis was done using Pearson's test and t-test. Multivariate analysis was done using ANOVA.

Ethical Consideration: The aim of the study was explained to each student and an informed consent was obtained from those who accepted to participate in the study. Then data were collected by approaching participants in small group. The purpose of the study was explained again and students were free to withdraw from the study at any time. The researchers distributed a self-administered anonymous questionnaire to students and the students were reassured that their responses would be confidential.

RESULTS

Table 1 shows the association between demographic characteristics of nursing students enrolled in the Faculty of Nursing four academic years. It can be observed from the table that 79.5% of the studied students (n=404) are females. The percentage of female students was higher than male students with statistically significant association (x^2=9.411, p=.024) between gender and academic year, with the highest percentage (88.3%) in the 4th year (Eighth semester) (n=94). Also, 50.2 % of the studied students (n=404) were below 21 years old with a mean of 20.60±1.68, while all fourth-year students (n=94) were aged 21 years or more with a mean of 22.19±1.13. There was also a highly statistically significant association between age and academic year (x^2=194.123, p<0.001).

Most of the studied students (90.8%) lived in urban areas, 88.1% of them lived with their relatives or families, 93.1% of them reported that they are active social media users. The table also illustrates that 55.7% of the studied students (n=404) reported no experience in using Online learning while the highest percentage (63.6%) among third year students (n=132) reported previous experience with online learning with a highly statistically significant association between experience and academic year (x^2=52.631, p<0.001). Additionally, 59.9% of the studied students n= 404) reported preference of traditional teaching strategies where the highest percentage (68.2) is amongst the third year students (n=132) with a statistically significant association between preference of traditional teaching strategies and academic year (x^2=9.261, p=.026).

Simultaneously, the studied students (n=404) reported preferring a mix between traditional and online learning with a percentage of 74% were most (88.8%) of the first-year students (n=107) reported, with a high statistically significant association, that they prefer a mix between traditional and online learning (x^2=20.563, p<0.001). Additionally, 89.4% of the studied students (n=404) reported having an electronic device that could be used for online learning with a high statistically significant association (x^2=24.701, p<0.001) and 89% of them reported having a smart phone with a high statistically significant association (x^2=48.854, p<0.001).

Table (2) shows comparison between the students enrolled in the four academic years regarding their mean percent scores on the online learning readiness scale. The table illustrates that the first-year students have the

Table 1: The association between demographic characteristics of nursing students enrolled in the Faculty of Nursing four academic years

	Academic year											
	1st year (n = 107)		2nd year (n = 71)		3rd year (n = 132)		4th year (n = 94)		Total (n = 404)			
	No.	%	No.	%	No.	%	No.	%	No.	%	Test of Sig.	p
Gender												
Male	31	29	13	18.3	28	21.2	11	11.7	83	20.5	x^2=	0.024*
Female	76	71	58	81.7	104	78.8	83	88.3	321	79.5	9.411*	
Age												
<21	98	91.6	54	76.1	51	38.6	0	0	203	50.2	x^2=	<0.001*
≥21	9	8.4	17	23.9	81	61.4	94	100	201	49.8	194.123*	
Min.-Max.	18.0-24.0		19.0-25.0		20.0-29.0		21.0-26.0		18.0-29.0		F=	<0.001*
Mean±SD.	19.0±1.17		20.03±1.11		21.06±1.30		22.19±1.13		20.60±1.68		131.745*	
Citizen												
Urban	94	87.9	62	87.3	124	93.9	87	92.6	367	90.8	x^2=	0.255
Rural	13	12.1	9	12.7	8	6.1	7	7.4	37	9.2	4.06	
Living with												
Relatives/family	97	90.7	62	87.3	115	87.1	82	87.2	356	88.1	x^2=	MCp=
University dorm	9	8.4	5	7	14	10.6	8	8.5	36	8.9	4.709	0.579
Alone	1	0.9	4	5.6	3	2.3	4	4.3	12	3		
Active use of social media												
Yes	96	89.7	67	94.4	125	94.7	88	93.6	376	93.1	x^2=2.632	0.452
No	11	10.3	4	5.6	7	5.3	6	6.4	28	6.9		
Experience with Online learning												
Yes	30	28	14	19.7	84	63.6	51	54.3	179	44.3	x^2=	<0.001*
No	77	72	57	80.3	48	36.4	43	45.7	225	55.7	52.631*	
You prefer traditional teaching												
Yes	54	50.5	46	64.8	90	68.2	52	55.3	242	59.9	x^2=	0.026*
No	53	49.5	25	35.2	42	31.8	42	44.7	162	40.1	9.261*	
You prefer mix between traditional and electronic learning												
Yes	95	88.8	49	69	84	63.6	71	75.5	299	74	x^2=	<0.001*
No	12	11.2	22	31	48	36.4	23	24.5	105	26	20.563*	
You have electronic device												
Yes	107	100	57	80.3	120	90.9	77	81.9	361	89.4	x^2=	<0.001*
No	0	0	14	19.7	12	9.1	17	18.1	43	10.6	24.701*	
Type of electronic device												
Lab-top	19	17.8	4	7.1	29	100	15	100	67	32.4	x^2=118.650*	<0.001*
I pad	2	1.9	1	1.8	4	100	2	66.7	9	5.3	x^2=36.216*	MCp<0.001*
Smart phone	89	83.2	47	70.1	101	100	69	100	306	89	x^2=48.854*	<0.001*
Others	2	1.9	5	9.1	8	100	4	80	19	10.9	x^2=59.214*	MCp<0.001*

x^2: Chi square test MC: Monte Carlo F: F for ANOVA test

p: p value for comparing between the studied groups

*: Statistically significant at $p \leq 0.05$

highest mean percent scores on the computer/ internet self-efficiency subscale, the self-directed learning subscale, the learner control in an online context subscale, the online communication self-efficacy, and the overall/total score.

Regarding the motivation for learning (In an online context) subscale, both the first and the second year students had almost equal mean percent scores (78.79±14.74 and 78.94±16.73, respectively) which are higher than the scores of the third and fourth year students.

A statistically significant difference between groups was found for the self-directed learning subscale, the motivation for learning subscale and the overall/total score. (f=6.760, p<0.001), (f=12.314, p<0.001) and (f=4.779, p=0.003) respectively. On further analysis, the post hoc test revealed that regarding the self-directed learning, the first-year students showed statistically significant higher scores than the third-year (p=0.017) and the fourth year students (p<0.001) while no statistically significant difference was found between the second year students and the other three groups or between the third and fourth year students.

The post hoc test also revealed that regarding the motivation for learning (In an online context), the fourth-year students showed statistically significant lower scores than the other three groups where p<0.00 for the first and second year students and p=0.004 for the third-year students.

Finally, the post hoc test revealed that regarding the overall readiness for learning score, the first-year students showed statistically significant higher scores than the

Table 2: Comparison between the students enrolled in the four academic years regarding their mean percent scores on the online learning readiness scale

	Academic year						
Online learning readiness scale	1st year (n = 107)	2nd year (n = 71)	3rd year (n = 132)	4th year (n = 94)	Total (n = 404)	F	p
Computer /internet self-efficiency							
Total score	8.63±2.76	7.65±2.98	8.22±2.92	8.36±2.81	8.26±2.87	1.713	0.164
% score	57.51±18.42	50.99±19.84	54.80±19.45	55.74±18.75	55.07±19.14		
Self -directed learning							
Total score	18.04±3.88	16.62±4.13	16.38±4.45	15.35±4.63	16.62±4.39	6.760*	<0.001*
% score	72.15±15.52	66.48±16.51	65.52±17.80	61.40±18.52	66.49±17.54		
p1		0.137	0.017*	<0.001*			
Sig. bet. Years		p2=0.981,p3=0.239,p4=0.288					
Leaner control (in an online context)							
Total score	8.89±2.79	8.38±2.76	8.27±2.43	8.70±2.82	8.55±2.68	1.261	0.288
% score	59.25±18.57	55.87±18.39	55.10±16.22	58.01±18.80	57.01±17.88		
Motivation for learning (in an online context)							
Total score	15.76±2.95	15.79±3.35	14.72±3.34	13.17±3.82	14.82±3.50	12.314*	<0.001*
% score	78.79±14.74	78.94±16.73	73.60±16.68	65.85±19.12	74.11±17.51		
p1		1	0.084	<0.001*			
Sig. bet. Years		p2=0.136,p3<0.001*,p4=0.004*					
Online communication self-efficiency							
Total score	10.27±3.45	9.93±3.32	9.55±3.08	9.70±2.74	9.84±3.15	1.111	0.345
% score	68.47±23.0	66.20±22.15	63.69±20.53	64.68±18.26	65.63±21.02		
Overall							
Total score	61.58±11.33	58.37±12.21	57.14±11.91	55.29±13.84	58.10±12.47	4.779*	0.003*
% score	68.42±12.58	64.85±13.57	63.48±13.24	61.43±15.38	64.55±13.85		
p1		0.321	0.029*	0.002*			
Sig. bet. Years		p2=0.905,p3=0.384,p4=0.681					

F: F for ANOVA test

p: p value for comparing between the studied groups

p1: p value for comparing between 1st year and each other Academic year

p2: p value for comparing between 2nd year and 3rd year

p3: p value for comparing between 2nd year and 4th year

p4: p value for comparing between 3rd year and 4th year

*: Statistically significant at $p \leq 0.05$

Table 3: Comparison between the students enrolled in the four academic years regarding their means on the Social interaction anxiety scale (SIAS)

	Academic year						
Social interaction anxiety scale (SIAS)	1st year (n = 107)	2nd year (n = 71)	3rd year (n = 132)	4th year (n = 94)	Total (n = 404)	F	p
Total score	52.26±13.05	51.69±13.69	51.90±15.17	51.54±15.25	51.88±14.35	0.046	0.987
% score	52.26±13.05	51.69±13.69	51.90±15.17	51.54±15.25	51.88±14.35		

F: F for ANOVA test

p: p value for comparing between the studied groups

*: Statistically significant at $p \leq 0.05$

third-year (p=0.029) and the fourth-year students (p=0.002) while no statistically significant difference was found between the second-year students and the other three groups or between the third and fourth-year students.

Table 3 illustrates the comparison between the students enrolled in the four academic years regarding their means on the Social interaction anxiety scale (SIAS). The table shows that the first-year students had the highest mean percent score but with no statistically significant difference between groups.

Table 4 shows the correlation between the social interaction anxiety scale (SIAS) and the online learning readiness scale (OLRS) of the studied students in the four academic years. It can be noticed from the table that the faculty of nursing students in general (n=404) showed a statistically significant positive relationship between the SIAS and the OLRS total score (r= 0.121, p=0.015). Regarding the four academic years, there was no correlations between the SIAS and the OLRS in the first and the second years. As for the third year, there is a statistically significant relationship between the

Table 4: Correlation between social interaction anxiety scale and online learning readiness scale

	Social interaction anxiety scale (SIAS)									
	1st year (n = 107)		2nd year (n = 71)		3rd year (n = 132)		4th year (n = 94)		Total (n = 404)	
Online learning readiness scale	R	P	r	p	r	p	r	p	r	P
Computer /internet self-efficiency	0.079	0.418	0.057	0.640	0.206*	0.018*	0.210*	0.042*	0.152*	0.002*
Self -directed learning	-0.184	0.058	-0.032	0.791	0.030	0.730	0.212*	0.040*	0.025	0.611
Leaner control (in an online context)	0.126	0.195	-0.041	0.734	0.135	0.123	0.204*	0.048*	0.120*	0.016*
Motivation for learning (in an online context)	0.008	0.936	0.038	0.752	0.078	0.377	0.132	0.206	0.072	0.148
Online communication self-efficiency	-0.030	0.761	0.082	0.496	0.173*	0.047*	0.271*	0.008*	0.124*	0.013*
Overall	-0.020	0.841	0.026	0.826	0.156	0.074	0.245*	0.017*	0.121*	0.015*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

Table 5: Relation between Online learning readiness scale and Social interaction anxiety scale (SIAS) with demographics data (n = 400)

	Online learning readiness scale						
	Computer /internet self-efficiency	Self -directed learning	Leaner control (in an online context)	Motivation for learning (in an online context)	Online communication self-efficiency	Overall	Social interaction anxiety scale (SIAS)
Gender							
Male	62.89±21.29	68.87±17.02	58.31±18.18	75.48±15.84	71.08±20.12	67.95±13.57	53.45±16.38
Female	53.04±18.03	65.87±17.65	56.68±17.81	73.75±17.92	64.22±21.05	63.68±13.81	51.47±13.78
t (p)	3.871*(<0.001*)	1.390 (0.165)	0.743 (0.458)	0.861 (0.390)	2.673* (0.008*)	2.524* (0.012*)	1.010 (0.314)
Age							
<21	54.98±19.45	68.06±16.60	55.83±17.0	78.20±14.80	66.24±22.0	65.79±12.52	52.97±13.75
>21	55.16±18.87	64.90±18.35	58.21±18.69	69.98±19.04	65.01±20.02	63.31±15.0	50.78±14.88
t (p)	0.096 (0.924)	1.818 (0.070)	1.339 (0.181)	4.847*(<0.001*)	0.588 (0.557)	1.807 (0.072)	1.536 (0.125)
Citizen							
Urban	55.68±19.07	66.59±17.35	57.18±17.93	74.37±17.40	66.03±20.97	64.84±13.8	51.92±14.48
rural	49.01±19.07	65.41±19.53	55.32±17.49	71.49±18.59	61.62±21.45	61.71±14.21	51.41±13.13
t (p)	2.027* (0.043*)	0.392 (0.695)	0.606 (0.545)	0.956 (0.340)	1.217 (0.224)	1.311 (0.191)	0.209 (0.834)
Life with whom							
Relatives/family	55.37±19.05	66.45±17.32	56.93±18.13	74.34±17.33	65.94±20.94	64.68±13.78	52.35±14.43
University dorm	55.0±19.74	66.22±18.13	58.15±15.99	73.06±17.50	64.26±21.74	64.20±13.89	49.31±11.97
Alone	46.11±19.38	68.33±23.35	56.11±16.69	70.42±23.40	60.56±22.29	61.76±16.65	45.42±17.14
F (p)	1.362 (0.257)	0.071 (0.931)	0.091 (0.913)	0.362 (0.697)	0.463 (0.630)	0.271 (0.763)	2.001 (0.137)
Active use of social media							
Yes	55.99±18.91	66.49±17.17	57.70±17.77	74.28±17.47	66.91±20.46	65.08±13.67	51.90±14.25
No	42.62±18.18	66.43±22.37	47.86±17.12	71.79±18.22	48.33±21.21	57.54±14.65	51.57±15.90
t (p)	3.620* (<0.001*)	0.014 (0.989)	2.834 (0.005)	0.727 (0.467)	4.625* (<0.001*)	2.801* (0.005*)	0.116 (0.907)
Experience with Online learning							
Yes	56.69±53.78	65.45±67.31	57.62±56.53	72.51±75.38	66.11±65.24	64.36±64.71	52.22±51.60
No	18.78±19.36	17.98±17.18	17.55±18.16	17.16±17.71	21.13±20.98	14.27±13.54	14.87±13.95
t (p)	1.519 (0.129)	1.055 (0.292)	0.604 (0.546)	1.637 (0.102)	0.410 (0.682)	0.247 (0.805)	0.426 (0.670)
You prefer traditional teaching							
Yes	52.64±19.47	65.87±18.17	56.31±17.30	74.09±17.09	64.44±20.11	63.66±13.64	52.12±14.23
No	58.68±18.09	67.41±16.58	58.07±18.70	74.14±18.17	67.41±22.25	65.89±14.10	51.51±14.56
t (p)	3.142* (0.002*)	0.864 (0.388)	0.968 (0.333)	0.025 (0.980)	1.394 (0.164)	1.591 (0.112)	0.424 (0.672)
You prefer mix between traditional and online learning							
Yes	57.12±17.97	67.28±16.61	57.75±17.99	74.98±16.78	67.47±20.65	65.74±13.19	51.56±14.34
No	49.21±21.15	64.23±19.87	54.92±17.46	71.62±19.31	60.38±21.28	61.17±15.15	52.77±14.41
t (p)	3.426* (0.001*)	1.409 (0.161)	1.396 (0.164)	1.587 (0.114)	3.002* (0.003*)	2.746* (0.007*)	0.743 (0.458)
You have electronic device							
Yes	55.62±18.72	67.05±17.15	57.38±17.85	74.29±16.97	66.20±21.07	65.0±13.56	51.75±14.23
No	50.39±22.03	61.77±20.18	53.95±17.98	72.56±21.70	60.78±20.22	60.80±15.74	52.93±15.43
t (p)	1.495 (0.141)	1.647 (0.106)	1.188 (0.236)	0.506 (0.615)	1.604 (0.109)	1.677 (0.100)	0.509 (0.611)
Type of electronic device							
Lab-top	58.21±20.19	62.93±17.99	58.51±17.93	74.55±16.30	68.06±20.52	64.84±14.18	51.84±12.56
I pad	56.30±14.57	63.11±16.94	54.07±17.14	73.33±12.75	64.44±15.63	62.96±10.45	55.11±11.24
Smart phone	55.27±18.75	67.05±17.36	56.58±17.77	73.71±17.22	66.03±21.51	64.65±13.83	51.44±14.61
Others	58.95±23.02	70.32±17.25	60.0±20.61	80.0±13.94	62.46±22.13	67.54±13.74	59.79±13.98
F (p)	0.597 (0.617)	1.450 (0.228)	0.472 (0.702)	0.852 (0.466)	0.393 (0.758)	0.314 (0.815)	2.211 (0.086)

t: Student t-test

p: p value for comparing between the studied categories

F: F for ANOVA test

*: Statistically significant at $p \leq 0.05$

computer/internet self-efficacy and the online communication self-efficiency subscales of the OLRS and the SIAS (r=0.206, p=0.018; and r=0.173, p=0.047 respectively). As for the fourth-year students, there was a statistically significant relationship between the computer/internet self-efficacy (r=0.210, p=0.042), self-directed learning (r=0.212, p=0.040), learner control (r=0.204, p=0.048), online communication self-efficiency (r=0.271, p=0.008), the overall OLRS (r=0.245, p=0.017) and the SIAS.

Table (5) shows the relationship between the online readiness scale and the social interaction anxiety scale and the socio-demographic characteristics of the studied subjects. The table illustrates that the social interaction anxiety scale was not correlated with any of the socio-demographic characteristics.

Regarding the online readiness scale ORS, there is a statistically significant difference (t=2.524, p =0.012) between overall ORS and gender where the mean for male (67.95±13.57) was higher than that of females (63.68±13.81).Overall ORS also showed a statistically significant difference (t=2.801, p=0.005) where those who were active users of social media (65.08±13.67) are higher than those who weren't (57.54±14.65). Additionally, Overall ORS also showed a statistically significant difference (t=2.746, p=0.007) where those who preferred a mix between traditional learning and online learning (65.74±13.19) are higher than those who didn't (61.17±15.15).

Regarding the online communication self-efficacy subscale of the ORS, there is a statistically significant difference (t=2.673, p =0.008) between this subscale and gender where the mean for male (71.08±20.12) was higher than that of females (64.22±21.05). The online communication self-efficacy subscale of the ORS also showed a statistically significant difference (t=4.625, p<0.001) where those who were active users of social media (66.91±20.46) are higher than those who weren't (48.33±21.21). Additionally, the online communication self-efficacy subscale of the ORS also showed a statistically significant difference (t=3.002, p=0.003) where those who preferred a mix between traditional learning and online learning (67.47±20.65) are higher than those who didn't (60.38±21.28).

As for the motivation for learning (In an online context) subscale of the ORS, it showed a statistically significant difference (t= 4.847, p<0.001) where those who were in the age group less than 21 years old had a higher mean (78.20±14.80) than those who were 21 years old or more 69.98±19.04.

Regarding the computer/internet self-efficacy subscale of the ORS, it showed a statistically significant difference (t= 3.871, p<0.001) where the mean for males (62.89±21.29) was higher than that of females (53.04±18.03). Further, those who lived in urban residency showed higher computer/internet self-efficacy (Mean =55.68±19.07) than those who lived in rural areas (Mean = 49.01±19.07) with a statistically significant difference (t= 2.027, p=0.043). Moreover, those who were active users of social media showed higher computer/internet self-efficacy (Mean = 55.99±18.91) than those who weren't (Mean =42.62±18.18) with a statistically significant difference (t=3.620, p<0.001) Additionally, those who preferred traditional teaching methods had lower computer/internet self-efficacy (Mean = 52.64±19.47) than those who didn't (Mean =58.68±18.09) with a statistically significant difference (t=3.426, p=0.001). Finally, those who preferred a mix between traditional learning and online learning had higher computer/internet self-efficacy (Mean =57.12±17.97) than those who didn't (49.21±21.15) with a statistically significant difference (t=3.426, p=0.001).

DISCUSSION

Advances in technology have changed people's life style as well as the educational and teaching methods and strategies [10]. Most educational institutions are changing their educational system to include online education [7]. This requires administrative and organizational support and funding [42]. In Egypt, there is a serious attitude towards the use of online learning and technology in education [43]. This is necessary because nowadays, university students especially nursing students are faced with many challenges and in many circumstances have social interactional anxiety [44]. Literature about online learning revealed that the use of online learning may improve students 'interaction [29]. There is also literature reporting that students using online learning have anxiety [39] and a sense of isolation [40]. Accordingly, this study aimed to investigate the faculty of nursing students' readiness to use online learning and to investigate the relationship between readiness for online learning and social interactional anxiety.

In accordance with available literature [39, 40] this study revealed that there is a relationship between readiness for online learning and social interactional anxiety of the studied nursing students. The results of this study showed that first-year students were higher on

the readiness for learning and the self-directed learning than the third and fourth-year students. This is supported by finding of the present study that motivation for online learning is related to younger age, being less than 21 and it reflects that they are as freshmen more willing to use online learning. On the other hand, fourth-year students were lower on motivation for learning in an online context. These results suggest that younger students are closer to technology use and application than older students as they grew to find technology readily available around them using social media and computers. Additionally, they are enthusiastic to learn on their own. First-year students are more motivated to learning in an online context as they are more able to value the significance of online learning in what it could add to their learning experience and that it will facilitate access to knowledge and to their faculty staff and colleagues.

Additionally, the results of the present study showed that First year students have higher self-directed learning. Similarly, Arpanantikul *et al*. [45] found that nursing students in the first-year undergraduate nursing students' Self-Directed Learning readiness scores are at a high level. In contrast, there is literature reporting that fourth year students have higher self-directed learning than lower years [46] and other reporting no relation between online learning use and students' study year [47]

Social interaction anxiety was not related to any of the socio demographic data or to the students' academic year. This may reflect that people with their different educational levels, social and cultural backgrounds all have equal chance of having social interaction anxiety. In line with this finding, Afolayan *et al*. [48] found that students showed high anxiety level with academic performance and that there is no difference between gender and academic performance on students.

However, social interaction anxiety had a statistically significant positive correlation with online learning readiness indicating that as the studied student online learning readiness increase, their social interaction anxiety increases. It seems logical to assume that students who face social interaction anxiety may resort to online learning. Or it may be possible that online learning use is a source of social interaction anxiety. In the same line, Saade *et al*. [39] reported that the level of anxiety in online learning is higher among middle eastern students, particularly the Arabs than students from Western origins, even though, Arabs are less intimidated by technology use and they rationalized this by the presence of some kind of motivational mechanisms for Arab students.

In particular, the fourth-year students showed a statistically significant positive correlation between computer/internet self-efficiency, self-directed learning, learner control and online communication on one hand and social interaction anxiety on the other hand. Regarding the computer/internet self- efficacy there is literature reporting that according to the Social Learning Theory, repeated computer exposure without the benefit of anxiety-reducing mechanisms would cause a feedback loop that could result in higher and higher levels of anxiety [49]. Further, it was reported that anxiety can be manipulated to increase computer/internet self-efficacy thus increasing the quality of the educational experience as indicated by an increase in performance [50]. On the other hand, Hauser *et al*. [34] found that anxiety is negatively related to computer/internet self-efficacy. Another study is inconclusive regarding the effect of anxiety on computer/internet self-efficacy and performance [33]

Social interaction anxiety of the first and second-year students did not show any correlation with online learning readiness or its subscales. This finding may be interpreted in the light of the low scores of the fourth-year than the first-year students indicating that higher online learning readiness did not correlate with social interaction anxiety, while fourth year students who scored less on the online readiness scale showed significant positive correlation. It may be logical to conclude that there are other variables in fourth year that lead to this correlation. Possibly, being older, closer to graduation and preparing to real work as a graduate lead to less interest in online learning and consequently lesser motivation and readiness for its use and higher social interaction anxiety as they are expecting life changes and increasing stress. However, this interpretation needs further research to confirm it. In contrast to this finding, the literature reported that first year students in general have more anxiety [51]. Saade *et al*. [52] reported that an increase in anxiety reduces intrinsic motivation, which is a form of enjoyment while learning. Further, Russel and Topham [35] reported that social anxiety affects students' learning activities. Interestingly, the social interaction anxiety of the fourth-year students did show a correlation with motivation for learning in an online context. Although fourth year students showed statistically significantly difference than the other three precedent years (Table 2), reflecting lower motivation to learning, yet, it seems that motivation for learning does not have a relationship with social interaction anxiety.

The data of this study showed that male students had higher online learning readiness than female students. In the same vein, Hung [3] reported that male teachers exhibited greater readiness for online learning. Furthermore, the percentage of females among fourth year students is higher than males. Additionally, females showed statistically significant lower correlation with the online learning readiness scale and Computer/internet self-efficacy and online communication self-efficacy are related to male gender. Nevertheless, there is literature supporting that there are no significant differences between males and females regarding average participation, grade, motivation and satisfaction. However, there was just some differences in the use of some Moodle resources and in a limited number of items related to the higher perceived interferences of the online learning activities with social life in men and a greater sense of duty in women [53]. Also, Cole *et al.* [54] could not find a significant difference in student satisfaction with online learning across gender and age. On the other hand, Gómez *et al*. [55] mentioned that the females' satisfaction level with online learning was higher than the males.

CONCLUSIONS

In summary, the results of this study revealed that there is a relationship between online learning readiness and social interaction anxiety. The faculty of nursing students enrolled in the first year has higher overall online learning readiness and self-directed learning than the third and fourth-year students. The study also shows that higher computer/online self-efficacy, higher self-directed learning, higher learner control and higher online/communication self-efficiency are related to social interactional anxiety in the fourth-year students. Male students have higher internet self-efficacy and online/communication self-efficacy and being younger than 21 years old is related to higher motivation for learning in an online context.

So, it can be concluded that students' online learning increase by social interaction anxiety to handle social anxiety by resorting to an electronic method that helps them avoid face to face interaction and that provides a safe environment and comfort zone to interact with others. In this sense, anxiety may be used and redirected to enhance online learning readiness as a method to cope or deal with social interaction anxiety. This study emphasizes the importance of using online learning as a new teaching strategy that appear promising in enhancing the nursing education and the quality of the graduate.

Recommendations: Based on the results of this study, it is recommended to:

- Increase the number of online courses and use motivational strategies to get the students engaged in online learning as a way to deal with social interaction anxiety.
- Start online learning in first year while trying to include as many courses as possible to make benefit of the first-year students' readiness of online courses. Then continue to apply online learning in second third and fourth year.
- There is a need to upgrade computer and internet self-efficacy for female students and students from rural areas.
- Fourth year students will need more motivational strategies in order to start and continue using online learning.
- The availability and accessibility of computers and internet in the faculty is mandatory to guarantee full activation of online learning by all students especially those who have little access to computers/internet.
- Further research is required to study the relationship between social interactional anxiety and readiness for online learning to explore the possibility of the presence of other affecting extraneous variables and to confirm the relationships available in fourth year students.

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