

Assessment of under Graduate Nursing Student's Readiness for Self-Directed and E-learning

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Abstract

Background: Self-directed learning readiness is considered to be highly personalized as well differs significantly between learners in different programs found in higher education so definite abilities, attitudes as well personality characteristics are required for self-directed learning. **Aim:** this study aimed to assess undergraduate nursing student's readiness for self-directed and E-learning. **Subject and Method:** **Design:** descriptive design was used in this study. **Setting:** study was conducted at the Faculty of Nursing, El- Fayoum University. **Subjects:** subjects of the present study included representative sample from the four academic years. **Tools:** Data for this study were collected by using two tools namely; self-directed learning readiness questionnaire and E-learning readiness questionnaire. **Results:** more than three quarter (77.3%) of under graduate nursing students had high level of self-directed readiness. While less than half (43.6%) of them had moderate readiness level for E-learning. And there was a highly and positively statistically significant correlation between self-directed learning readiness dimensions and total electronic learning readiness **Conclusion:** there was a highly and positively statistically significant correlation between self-directed learning readiness dimensions and total electronic learning readiness. **Recommendations:** Conduct training sessions for educators to enhance their ability to transform traditional lectures into diverse multimedia formats. Enhance students' understanding and knowledge about the concept and significance of E-learning through increased awareness campaigns and educational initiatives.

Keywords: self-directed learning readiness, nursing students, E-learning.

Introduction:

Self-directed learning (SDL) is a crucial skill that medical students must acquire to facilitate lifelong learning throughout their careers. It enables individuals to pursue and learn the knowledge and skills they require. The importance of developing and nurturing self-directed skills has gained prominence in adult education, leading to an increase in research and studies on SDL worldwide (Abdelhafez & Abed ALy, 2020). Knowles (1975) provided a widely cited definition of SDL, describing it as a learning process in which learners take responsibility for their own learning by identifying their needs, setting goals, selecting appropriate resources, employing suitable strategies, and evaluating outcomes (Karatas, 2021)

Self-directed learning is a dynamic and learner-centered approach that emphasizes learners' autonomy, motivation, and self-

regulation. It involves individuals taking the initiative to identify their learning needs, set goals, select appropriate learning resources, and evaluate their progress. SDL is rooted in the idea that learners are actively involved in constructing their knowledge and developing critical thinking skills. By fostering self-directed learning, students develop lifelong learning skills that enable them to adapt to changing educational and professional environments. (Robinson, Persky, 2020).

Self-directed learners are critical thinkers who contemplate their learning, personally evaluate their mastery of educational materials and their progress toward goal achievement and are talented to solve problems effectively by successfully using their supra-cognitive capabilities. Self-directed learners are concentrated on the future, they are ready and active contributors in learning chances, and they are innovative and inspired. Furthermore, they are responsible for their own learning

automatically through setting distinct learning goals and through the development and use of necessary study skills and self-interest and reassurance to successfully achieve their personal goals (**Abdo , Sleem, 2021**)

E-learning readiness encompasses being psychologically and mentally prepared for the online learning experience. It involves the ability to recognize opportunities for utilizing electronic resources, such as the internet. Emphasizing e-readiness is crucial in designing and organizing effective e-learning strategies for distance education and student success. Identifying e-readiness enables the efficient utilization of computer and communication technologies to achieve comprehensive e-learning objectives (**Elewa, 2022**).

An ideally prepared student for online learning should possess skills in navigating learning management systems like Blackboard or Canvas, effective communication through online technology, a high level of technology self-efficacy, and the ability to self-direct their learning. While research acknowledges the relationship between online learning readiness and these skills, establishing benchmarks to assess these skills proves challenging. (**Gay, et al.2018**).

E-learning offers flexibility in terms of time and location, allowing learners to access educational content at their convenience. It provides opportunities for personalized learning, collaboration, and engagement through interactive multimedia elements, discussion forums, and virtual simulations. (**Bubou, Job, 2021**)

The convergence of self-directed learning and electronic learning has created new opportunities and challenges in education. The integration of SDL principles within e-learning environments empowers learners to take control of their educational journey, choose their learning paths, and develop metacognitive skills. Moreover, e-learning enhances access to educational resources, promotes active engagement, and enables personalized learning experiences tailored to individual needs. (**CHAROKAR, DULLOO, 2022**)

Overall, SDL and e-learning play significant roles in the academic lives of students today. SDL empowers students to learn independently, draw upon their experiences, and tap into diverse sources of knowledge. E-learning complements this approach by offering flexibility and enabling students to engage in self-directed learning activities effectively. (**Abdelsamea, Shamrokh, 2020**)

Significance of the study:

Health care system is advancing rapidly which place great challenges on health practitioners to keep and maintain the pace of attaining new knowledge for their professional growth and provision of quality patient care. Directed self-learning has been described as the most effective mode of learning for individuals in the information age as it is the way for coping with the constant changes in knowledge. Research study will be potential solution to enhance quality of learning in nursing institute (**Said, Ghani, Khan and Kiramat, 2015**).

By Observation of the teaching-learning process in nursing colleges shows that this is dominated mostly by lecture methods, from which it may be assumed that the nursing education programs do not adequately prepare nursing students for active lifelong learning. PBL challenges students to take on a greater responsibility in the process of learning. This paradigm shift involves engaging with the problem rather than content coverage, it is important assisting nursing students to become self-directed learners, during their training to prepare them for the real world in order to become lifelong learners. Hence the importance of the study lies in knowing nursing students readiness toward self-directed learning in faculty of nursing.

Aim of the Study:

The present Study will be to assess the undergraduate nursing student's readiness for self-directed and e-learning.

Research Question

What are undergraduate nursing student's

levels of readiness for self-directed and e-learning?

Subjects and Methods

Research Design:

A descriptive design was used in this study.

Research Setting:

This study was conducted at the Faculty of Nursing, El- Fayoum University. It included six scientific departments namely, nursing administration, psychiatric and mental health nursing, medical-surgical nursing, maternal and newborn health nursing, pediatric nursing, and community health nursing.

Subjects:

The subjects of the present study included representative sample from the four academic years. Through the academic year (2021-2022). The

Data Collection Tools	o. of items	cronbach alpha
Self-directed learning readiness questionnaire	0	0.898
E-learning readiness questionnaire	7	0.952

subjects will include 321 out of (1922)

Tools of the study:

Data were collected using two tools namely:

1- Tool (1): self-directed learning readiness questionnaire:

It was used to examine the nursing student's readiness toward self-directed learning it was developed by **Saad, (2015)** and was modified by the researcher it consists of two parts:

Part 1: Socio-demographic sheet: this part intends to collect data related to characteristics of the study subjects as (age, gender, marital status, and academic level, previous certification before college, Place of residence during the study , Original place of residence , Previous system of education (precollege), previous computer courses.)

Part 2: This part consists of (40) items which divided into three dimensions.

❖ Scoring system:

The response to each item was scored as follows: 1 = never, 2 = seldom, 3 = sometimes, 4= often, 5 = always. The scores of each dimension and for the total scale were summed and converted into percent scores. The self-directed learning readiness was considered low if <60%, moderate if 60-<75%, and high if 75%+.

2- Second tool: E-learning readiness questionnaire. It aimed to assess undergraduate nursing students' academic satisfaction. Was developed by **Saad, (2015)** and was modified by the researcher. It contains (67) items which divided into eight dimensions

The response to each item was scored as follows: 1 = No, 2 = sometimes, 3 = Yes. The scores of each dimension and for the total scale were summed and converted into percent scores. The E-learning readiness was considered low if <60%, moderate if 60-<75%, and high if 75%+.

Preparatory Phase:

In this phase the researcher review current and past, local and international related literature using textbooks, scientific articles, periodicals, journals and internet to prepare the tool for data collection.

Pilot Study:

A pilot study was performed on 32 nursing students (10% of the sample) to check the clarity and applicability of this study tool and to estimate the time required to complete the questionnaire sheets for each participant. The time for filling the questionnaire took about 30-40 minutes. A pilot study was conducted in December 2022. Data obtained from the pilot study was analyzed and no modifications were done, so pilot study sample was included to the main study sample.

Content Validity:

To achieve the criteria of trustworthiness of the data collection tools to be used in this study, the tools were tested and evaluated for their face and content validity, and reliability.

Face and content validity: was tested by five professors (Jury) from five experts in the field of nursing administration and mental health nursing departments.

Reliability:

Internal consistency reliability was using Cronbach's alpha to assess the consistency of results across items within a test. In internal consistency reliability estimation; a single measurement instrument (tool) administered to a group of students on one occasion was used to estimate reliability. Cronbach's alpha coefficients were 0.898 for self-directed learning readiness and 0.952 for electronic learning readiness.

Fieldwork:

After securing all official permissions, the researcher started the actual field work. The data were collected from all four academic years. The field work of the study was executed in 2 months from the beginning of November 2022 and completed at the end of December 2022. The researcher divided each grade of the nurse students into groups to collect tool in their classrooms before and after lectures three days/week. The time consumed to answer the questionnaire sheet ranged from 30 - 40 minutes. The researcher introduced herself to nurse students in the classroom then explained the aim, components of the questionnaire sheet and invited them to participate. Those who gave their verbal consent to participate were handed the tool form. The researcher was present during the data collection period to explain how to filling the questionnaires, clarify any ambiguity and answer any questions then the researcher checked each filled questionnaire sheet to ensure its completion

Ethical Considerations

Prior to the study conduction, Ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing at Ain Shams University. The subjects were informed about their right to withdraw at any time without giving any reason and the collected data kept confidential and used for scientific work only. Oral informed consent was obtained from each participant in the study.

Administrative Design:

An official permission was obtained from the Dean of Faculty of Nursing El - Fayoum University to the head of each scientific department. This letter included the aim of the study and photocopy from data

collection tools in order to get the permission and help for collection of data. An oral consent was obtained from each participant.

IV.Statistical Design:

descriptive statistics were used to present data as frequencies and percentages for qualitative, and means, standard deviations and medians for quantitative variables. Analytic statistics included chi-square or Fisher exact tests for comparing categorical variables, and Spearman's rank correlation for the relations among quantitative and ranked variables. Mmultiple regression analysis was used to identify the independent predictors of the scores of readiness. The level of sstatistical significance was set at p-value <0.05. All analysess were performed on SPSS 20.0 statistical package.

Results:

Table (1): shows that (61.4%) nursing students ranged from 17 to - 23years, with a mean age of (19.9±1.4). As well, the highest percentages of nursing students were female, single, third of them were in the first year (29.3%, 28% &24.6, respectively). Besides, 79.4%of the nursing students had general secondary degree, (91.9%) live with family. Regarding residence, 70.4% of them were from rural area. As well, 96.3% of the study subjects had governmental education.

Table (2): Shows that more than half (69.2%) of nursing students don't have previous computer courses with a mean (0.5±0.9). additionally, (18.4%) of nursing students attend Microsoft Office, Photoshop (8.7%), and a low percentage attended ICDL (5.6%).

Table (3): reveals that more than three-quarters (77.3 %) of nursing students had a high level of self-directed readiness. Additionally, more than four-fifth (82.9%) of them had a high level of self-directed readiness toward self-control dimension, while more than three-quarters (82.2%) of them had a high level toward desire for learning dimension.

Table (4): Indicate that there was a statistically significant relation between students' total electronic learning readiness and self-directed learning readiness. Regarding their self-control was high with a percentage of (85.7%) at ($p < 0.001$).

Table (5): Indicate that independent positive predictors for self-directed learning readiness score were their private school. While married, their p-value (0.070) was a negative independent predictor of self-directed learning readiness score.

Table (6): show that age and gender were independent negative predictors of

electronic learning readiness score at p-value 0.001, while the numbers of courses were independent positive predictors at p-value 0.001

Figure (1): show that there was a statistically significant positive correlation between students electronic learning readiness score and self-directed learning readiness score.

Table (7): shows that there was a highly and positively statistically significant correlation between self-directed learning readiness dimensions and total electronic learning readiness at p-value < 0.01 . Meanwhile, the strongest correlation was between self-management and desire for learning ($r=0.507$).

Table (1): demographic characteristics of students in study sample (n=321).

	Frequency	Percent
Age:		
<21	197	61.4
21+	124	38.6
Range	17-23	
Mean±SD	19.9±1.4	
Median	20.0	
Gender:		
Male	125	38.9
Female	196	61.1
Marital status:		
Single	303	94.4
Married	18	5.6
Academic level:		
1	94	29.3
2	90	28.0
3	79	24.6
4	58	18.1
Pre-university education:		
Nursing	66	20.6
General secondary	255	79.4
Live in:		
Private accommodation	20	6.2
University campus	6	1.9
With family	295	91.9
Live with family:		
No	26	8.1
Yes	295	91.9
Residence:		
Urban	95	29.6
Rural	226	70.4
Pre-university school:		
Public	309	96.3
Private	12	3.7

Table (2): Previous attendance of training courses in computer among students in the study sample (n=321).

	Frequency	Percent
Had previous computer courses:		
No	222	69.2
Yes	99	30.8
Courses (n=99): [@]		
ICDL	18	5.6
Computer basics	22	6.9
Microsoft office	59	18.4
Photoshop	28	8.7
Other	25	7.8
No. of courses attended:		
Range	0-5	
Mean \pm SD	0.5 \pm 0.9	
Median	0.0	

Table (3): Self-directed learning readiness among students in the study sample (n=321).

Dimensions	Self-directed readiness					
	Low		Moderate		High	
	No.	%	No.	%	No.	%
Self-management	46	14.3	77	24.0	198	61.7
Desire for learning	12	3.7	45	14.0	264	82.2
Self-control	12	3.7	43	13.4	266	82.9
Total	12	3.7	61	19.0	248	77.3

Table (4): Relations between students' total electronic learning readiness and self-directed learning readiness dimensions .

Self-directed learning readiness	Electronic learning readiness						X ² test	p-value
	Low		Moderate		High			
	No.	%	No.	%	No.	%		
Self-management:								
Low/moderate	58	43.9	50	35.7	15	30.6	3.40	0.18
High	74	56.1	90	64.3	34	69.4		
Desire for learning:								
Low/moderate	31	23.5	21	15.0	5	10.2	5.61	0.06
High	101	76.5	119	85.0	44	89.8		
Self-control:								
Low/moderate	36	27.3	12	8.6	7	14.3	17.07	<0.001*
High	96	72.7	128	91.4	42	85.7		
Total:								
Low/moderate	42	31.8	24	17.1	7	14.3	10.68	0.005*
High	90	68.2	116	82.9	42	85.7		

(*) Statistically significant at p<0.05

Table (5): Best fitting multiple linear regression model for the self-directed learning readiness score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	4.23	0.16		26.576	0.000	3.91	4.54
Married	-0.18	0.09	-0.11	-1.896	0.059	-0.36	0.01
Private school	0.21	0.11	0.10	1.816	0.070	-0.02	0.43

R-square=0.02 Model ANOVA: F=3.62, p=0.028

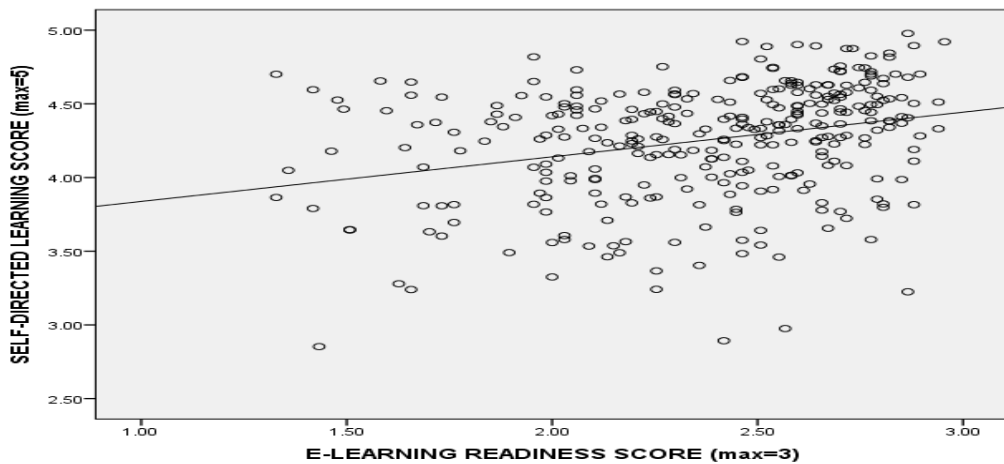
Variables entered and excluded: age, gender, academic level, pre-university education, residence, live with family, training courses

Table (6): Best fitting multiple linear regression model for the electronic learning readiness score.

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	3.66	0.28		13.220	<0.001	3.11	4.20
Age	-0.05	0.01	-0.18	-3.602	<0.001	-0.07	-0.02
Female gender	-0.16	0.04	-0.21	-4.021	<0.001	-0.24	-0.08
Rural residence	-0.09	0.04	-0.11	-2.111	0.036	-0.17	-0.01
No. of courses	0.11	0.02	0.28	5.208	<0.001	0.07	0.16

R-square=0.22

Model ANOVA: F=21.71, p<0.001



Variables entered and excluded: marital status, academic level, pre-university education, live with family

Figure (1): Correlation between students’ electronic learning readiness and self-directed learning readiness scores.

Table (7): Correlation matrix of self-directed learning readiness dimensions scores and total electronic learning readiness score.

	Spearman's rank correlation coefficient		
	Self-directed learning readiness dimensions		
	Self-management	Desire for learning	Self-control
Self-directed learning readiness dimensions:			
Self-management	1.000		
Desire for learning	.507**	1.000	
Self-control	.549**	.503**	1.000
Total electronic learning readiness	.275**	.181**	.321**

(**) Statistically significant at p<0.01

DISCUSSION

Self-directed learning is one of the most important competencies of students. Self-directed Learners attempt to update their knowledge and competencies once they are graduated from the formal education system. Self-directed learning is an essential part of lifelong learning. Considering constant and rapid changes in medical science and technology, self-directed learning is essential for nursing students, because this can lead to better care provided for patients. (Adib, Ghiyasvandian, 2019)

Regarding previous attended different computer programs among students the result of this study demonstrated that a high percentage attended Microsoft Office courses, indicating its popularity among the students. Photoshop courses were attended by a smaller percentage of nursing students. On the other hand, the percentage of students who attended ICDL (International Computer Driving License) courses was relatively low in the same way in a study conducted, in Port Said, by Mohamed (2022) to assess Factors Contributing to The Application of Information Technology System and Their Benefits and found more than half of the studied nurses didn't attend training courses in the use of information systems for nursing education and work..

Conversely, the previous findings were in disagreement with those of a study conducted by Zaman (2021) found that the majority of the study nurses attended training courses related using electronic documentation.

Regarding Dimensions of self-directed learning readiness among students, the finding of the current study revealed that approximately more than three-quarters of nursing students displayed a high level of self-directed readiness. Additionally, more than four-fifth of nursing students had a high level of self-directed readiness toward self-control dimension This suggests that they possess the ability to regulate their own behavior, set goals, and maintain discipline in their studies. Similarly, more than three-quarters of nursing students showed a high level of self-directed readiness in the desire for learning dimension. This indicates a strong motivation and eagerness to acquire knowledge and engage in learning activities. These findings

highlight the positive attitudes and attributes of nursing students when it comes to self-directed learning. The high percentages in both self-control and desire for learning dimensions suggest that nursing students are proactive, motivated, and capable of taking responsibility for their own learning processes.

These result agreed with Singh, (2020), in the Nepal, to assess readiness for self-directed learning among nursing students in a medical college chitwan and found that majority of the students expressed a high level of readiness for self-directed learning, indicating that they were well-prepared and motivated to take responsibility for their own learning. Students demonstrated a relatively high level of self-control in their approach to self-directed learning. On the other hand, desire for learning had the lowest mean score, suggesting that participants expressed a relatively lower level of motivation or interest in self-directed learning compared to the other subscales.

While the result of this study disagree with Gulley, (2022) That the highest mean self-control sub scale followed by the desire for learning subscale The self-management subscale had the lowest mean

Regarding dimension of electronic learning readiness among students, the finding of the current study revealed that less than half of the nursing students demonstrated a moderate level of electronic learning readiness. Furthermore, only half of them had a high level of electronic learning readiness for the internet skills dimension, while had a moderate level of electronic learning readiness for the academic skills dimension. This finding suggests that a significant proportion of students may lack the necessary skills and familiarity with computer usage

From the researcher point of view clarification of these findings due to nursing students may require additional support and training to enhance their electronic learning readiness. Addressing these gaps by providing targeted interventions, such as internet skills training, promoting self-directed learning strategies, and offering computer literacy programs, could contribute to improving the

overall electronic learning readiness of nursing students.

Regarding relations between student's *self-directed learning* readiness concerning self-management and their characteristics the present study results revealed there was a statistically significant relationship between self-management and age. This suggests that age plays a role in influencing self-management abilities among nursing students. There was also a statistically significant relationship between self-management and marital status. This finding suggests that marital status has an impact on self-management readiness among nursing students.

These findings of the present study are in congruence with results reported by **Mohoaduba, (2018)** who showed that no correlation between nursing students' age and SDL. From the researcher point of view it is importance of considering individual characteristics, such as age and marital status, when examining self-directed learning readiness among nursing students. Understanding these factors can help identify potential areas of support or intervention to enhance self-management skills and promote successful learning experiences.

Furthermore, the analysis of this study also revealed a statistically significant relationship between academic level and desire for learning. This implies that students at different academic levels may exhibit varying levels of motivation and interest in their studies. It is important to consider that as students' progress through their academic journey, their motivation and desire for learning may evolve. Factors such as increased specialization, career aspirations, and the perceived relevance of the subject matter may influence students' motivation levels. This finding is supported by **Nevels, (2021)** concluded that students at higher academic levels displayed higher levels of intrinsic motivation and a stronger desire for learning compared to those at lower academic levels.

The result of this study found that there was no statistically significant relationship between students' self-directed learning readiness concerning self-control and their

characteristics. This implies that factors such as gender, marital status, and academic level did not show a significant association with self-control in the context of self-directed learning readiness. The result of this study agrees with **AlRadini, (2022)** found that there is a positive relationship between self-control and self-directed learning readiness in online learning. The authors suggest that self-control is important factors that can help students learn effectively in an online setting.

While the result of this study disagree with **Al Balushi,(2021)** the result finding The nursing students obtained the highest score in the self-control subscale, followed by self-management and desire for learning subscale study, the participating medical students scored higher in the SC subscale more than the DL and SM subscales. This could be interpreted that students are capable of handling problems and setting their own learning goals. The participating medical students scored higher in the SC subscale more than the DL and SM subscales. This could be interpreted that students are capable of handling problems and setting their own learning goals.

Conclusion:

In the light of the present study finding, it can concluded that , more than three quarter of under graduate nursing students had high level of self-directed readiness . While less than half of them had moderate readiness level for E-learning. And there was a highly and positively statistically significant correlation between self-directed learning readiness dimensions and total electronic learning readiness. This finding answer the research question which stated that Is there a difference in undergraduate nursing student's level of readiness for self-directed and e-learning among nursing students?

Recommendations:

In the light of the findings of the current study the following recommendations are proposed:

1. Implement training programs specifically designed to equip teachers with the

necessary technical skills required in the modern educational landscape.

2. Ensure an adequate provision of computers in public schools to facilitate widespread access for students, enabling them to develop essential computer skills.
3. Administer a pre-enrollment assessment to evaluate students' computer skills before their admission to the university.
4. Conduct training sessions for educators to enhance their ability to transform traditional lectures into diverse multimedia formats.
5. Promote the widespread adoption of E-learning applications to facilitate learning processes.
6. Revise the curriculum to align with the requirements and methodologies of e-learning techniques.
7. Evaluate the readiness of nursing teachers for E-learning, assessing their preparedness and competence in utilizing digital platforms for educational purposes.
8. Assess the readiness of faculty members for E-learning, examining their capabilities and readiness to embrace and effectively implement online learning methodologies.
9. Investigate the obstacles encountered in using E-learning and explore potential strategies to overcome them, improving the adoption and effectiveness of digital learning platforms.
10. Periodic regular evaluation of nurse's knowledge and perception of patient's rights and advocacy.

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