

The relationship between Self-Directed Learning Readiness and Online Learning Engagement among Nursing Students

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ABSTRACT

Background: Self-directed learning (SDL) was a vital educational principle in higher education that has been promoted by various institutions due to its value in developing professionals to become lifelong learners. Additionally, self-direction plays an emphasized role in online learning environments. **Aim:** This study was aimed to assess the relationship between self-directed learning readiness and online learning engagement among nursing students. **Design:** A descriptive correlational research design was used in carry out this studied. **Setting:** This study was conducted at Faculty of Nursing of Fayoum University on the first grad students. **Subjects:** A convenience sample, the total subject at the time of collecting data were (n=240) of the first grade students have or have no readiness to apply online learning engagement. **Tools of data collection:** Data were collected using two tools; (I): Self-directed learning readiness questionnaire and (II): Student online learning engagement scale. **Results:** It shows that more than two-fifths (41.7% & 47.5%) of the studied nursing students had a low level of both self-directed learning readiness and online learning engagement respectively. While more than one-fifth (20.8% & 27.1%) of them had a high level respectively. **Conclusion:** There was a highly statistically significant positive correlation between self-directed learning readiness and online learning engagement among the studied nursing students. **Recommendations:** Develop training programs regarding self-directed learning readiness and online learning engagement to maintain satisfactory level of nursing student.

Key words: *Engagement, Readiness, Self-Directed Learning and Student Online Learning.*

Introduction:

Instead of a teacher-centered learning method self-directed learning was a student-centered learning method that encourages individual learners to take more control of their own learning process with or without the help of others. Under this learning method students can freely decide what they learn and how they want to learn (*Amber, 2022*). Learning a life-long process, entails the ability, desire to continually gain knowledge and skills. Self-directed learning requires the learner to take responsibility for manage their own learning needs. Formulate plans to meet these goals. One's level of self-directed learning readiness was thought to exist on a continuum and impacted by one's abilities, attitudes and personality traits but it can be improved through experience and practice with autonomous learning activities (*Brandon, 2022*).

Self-directed learning readiness has a high level of flexibility. Can start by incorporating it into smaller lessons that last only a day or two. If you decide to use this learning strategy in your classroom it might be beneficial first to give students a smaller lesson to complete on their own. This allows them to get used to doing it successfully before beginning a larger project by themselves (*McLaughlin, 2018*). Self-directed learning readiness a journey of continuous growth and development. It requires a proactive and persistent approach to learning an open mindset and a commitment

Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/> to lifelong learning. By cultivating self-directed learning readiness, individuals can unlock their full potential, expand their knowledge, skills, pursue their passions with autonomy and enthusiasm (*Abdelhafez, 2020*).

Student engagement closely related to attendance, grades, general well-being, school success, absenteeism, school dropout, social problems and subsequent challenges in adulthood (including health and career). While students may display both proactive engagement (i.e., goal setting and planning) engagement may also be reactive (i.e., trying to “fix” what was found to be poorly functional learning strategies). The risks of not being able to engage in learning should not be underestimated or underplayed. That engagement a critical for learning can be reflected in several reviews conducted during recent decades (*Nina, 2022*).

Engaging students in online learning has become one of the most important discussions in educational circles. Teaching in an online educational environment may be more challenging because students might be easily distracted by family members or the temptations of the web. Students may also feel frustrated and isolated in an online classroom compared to in-person learning, making it harder to achieve positive outcomes (*Mark, 2019*).

All institutions and schools around the world converted from in-person instruction to online versions as a result of the COVID-19 pandemic. Online education thus replaced all other forms of instruction. Both students and teachers found it difficult to adjust to the quick shift to online learning. Finding a dependable wi-fi connection, setting up a home office in a private, quiet and well-lit space. Students were less engaged when there was no physical interaction between professors and students (*Klodiana, 2022*).

The goal of overall education to produce educated citizens. Majority of the institutes are implementing self-directed classes. It would be possible only with a nursing teacher's help. Teacher's role was like a facilitator than a traditional teacher. The main role of teachers to promote awareness in students about SDL. To engage students in SDL activities like topic discussion are one of the major components while learning through SDL. Also a teacher's role to engage students in group discussions through SDL strategies (*Khalid, 2020*). Self-direction plays an emphasized role in online learning environments. Self-directed learners actively engage in the learning process and can adopt proper learning strategies according to the learning setting. A technology-rich learning environment can provide students with great opportunities and abilities to be self-directed in their learning (*Laine, 2021*).

Significance

Self-directed learning was described as learning on one's initiative with the learner taking major responsibility for the effort's design, implementation and evaluation using SDL as teaching approach to develop students' abilities to self-regulate their teaching-learning process (*Grande, 2022*). Self-directed learners actively engage in the learning process and can adopt proper learning strategies according to the learning setting. A technology-rich learning environment can provide students with great opportunities and abilities to be self-directed in their learning (*Laine, 2021*).

With reference to learning strategies previous studies showed that there are a number of strategies to enhance and promote SDL. It was founded that self-directed learners can teach other student's too as to transfer their own learned knowledge. Further, group work assignments help student's in understanding subject matter with full understanding while the self-directed learners can utilize their learned knowledge. By doing so, it had enhance their learning while promoting to a wider range. Likewise, collaborative learning also enhances SDL. It was found that interactive online sessions provide different projects (*Khalid, 2020*).

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Online learning an innovative way of learning that appears promising in enhancing information exchange and decreasing the curricula load for the students. Expected to improve the quality of the learning process and the graduate to meet the expectation of the nursing labor market. So, it continues to be an area of growing concern among academic providers (*Ibrahim, 2020*).

National and international investigations have been done to explore SDL in nursing education (*Hill, 2020*). Additionally, only a few studies focus on SDL readiness of undergraduate nursing students and its relation to online learning engagement still in need of more investigations (*Dogham, 2022*).

Aim of the Study:

The study was aimed to assess the relationship between self-directed learning readiness and online learning engagement among nursing students through the following objectives:

- 1- Assess the level of self-directed learning readiness among nursing students.
- 2- Assess the level of online learning engagement among nursing students.
- 3- Find out the relation between relationship between self-directed learning readiness and online learning engagement among nursing students.

Research Questions:

Is there a relationship between self-directed learning readiness and online learning engagement among nursing students?

Subjects and Methods:

This study was portrayed under the four main designs as follows;

- I- Technical design.
- II- Operational design.
- III- Administrative design.
- IV- Statistical design.

I- Technical design: The technical design included research design, setting, subject and tools for data collection.

Research design: A descriptive correlational research design was used in carry out this studied.

Setting: The study was conducted at the Faculty of Nursing in Fayoum University. Which affiliated to Ministry of high education, the faculty has only one Nursing program for first grade student distributed on six different scientific nursing departments, Medical Surgical Nursing Department, Pediatric Nursing Department, Maternity and Gynecological Nursing Department, Community Health Nursing Department, Psychiatric and Mental Health Nursing Department and Nursing Administration Department.

Subjects: A convenience sample (n= 240) of the first grade students at Faculty of Nursing of Fayoum University had or not had readiness to apply online learning engagement.

Tools of data collection:

Two tools were used to collected necessary data as the following.

First tool; Self-Directed Learning Readiness (SDLRS) Questionnaire sheet; This tool was used to assess the level of the self-directed learning readiness which consisted of two parts:

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Part 1: Personal characteristics of the participants which included (Age, gender, Place of birth, Current residence, Marital statuses, Type of secondary and have you attended any training program regarding self-directed learning readiness).

Part 2: Self-Directed Learning Readiness (SDLRS) Questionnaire sheet. This tool was developed by (Guglielmino, 1977) and modified by the researcher based on literatures review. It consisted of (58) items modified to (41) items according to "jury" opinion which covered eight dimensions in self-directed in learning; (Openness to learning opportunities contain 8 items, Self-concept as an effective learner contain 6 items, Initiative and independence in learning contain 8 items, Informed acceptance of responsibility for one's own learning contain 6 items, Love of learning contain 3 items, Creativity contain 3 items and ability to use basic study skills and problem-solving skills contain 2 items).

Scoring system:-Participant's response's on a 5-points Likert scale which ranged from almost never (1) to almost always (5) as the following: (1) (Almost never), (2) (Not often), (3) (Sometimes), (4) (Usually) or (5) (Almost always). Total participant's responses were classified to < 60% as low level, $\geq 60\%$ to < 75% as moderate level and $\geq 75\%$ as high level (Millanzi, 2021) and (Dogham, 2022).

Second tool; (SEOLQ, Student Online Learning Engagement Scale) Questionnaire sheet; This tool was developed by (Pintrich, 1991), (Eachus & Cassidy 2006) adapted by (C. Schumacher, 2018) and had been modified by the researcher based on literatures review. It consisted of (29) items which covered four dimensions in online learning engagement; (Goal orientation contains 5 items, Time and study environment contains 6 items, Self-regulation contains 7 items and Web user self-efficacy contain 11 items).

Scoring system: -

Participant's response's on a 5-points likert scale were used in this study. The responses which ranged from disagree (1) to agree (5) as the following: (1) (Disagree), (2) (Somewhat disagree), (3) (Neither agree nor disagree), (4) (Somewhat agree), (5) (Agree). Total participant's responses were classified to < 60 as low level, $\geq 60\%$ to < 75% as moderate level and $\geq 75\%$ as high level (Millanzi, 2021) and (Dogham, 2022).

Validity:

The developed tool was formulated and submitted to five experts (3 professors and 2 assistant professor) in nursing administration from Faculties of Nursing in different Universities (Ain-Shams University, Elmansora University and Cairo University) to assess the content validity needed modifications were made.

Reliability:

Cranach's Alpha was used to determine the internal reliability of the tools. It was 0.999 & 0.982 for self-directed learning readiness questionnaire and student online learning engagement scale respectively.

Ethical considerations:

Prior study conduction the research approval was obtained from the Scientific Research Ethical Committee in Faculty of Nursing Helwan University. In addition, an approval was obtained from the dean of Faculty of Nursing of Fayoum University before starting the study.

Also, oral informed consents were sought and obtained from participant's subjects prior to data collection they were informed about the purpose and expected outcomes of the study. They assured that the study was harmless their participation was voluntary and they had the right to withdrawal from the study at any time without any reason. They also assured that anonymity and confidentiality were guaranteed, as well the gathered data was used for the research purpose only. Ethics, values, culture and beliefs were respected.

II- Operational design:

Preparatory phase:

It included reviewed of past, current, national and international related literatures. Theoretical knowledge's of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

Pilot study:

The pilot study was done on 10% of the sample to examine the clarity of questions and time needed to complete the study tools. The time for filling the study tools sheet ranged between 10-15 minutes. Based on the results the necessary modifications were done. Subjects included in the pilot study were excluded from the study.

Field work:

Purpose of the study was simply explained to the participants who agreed to participate in the study prior to any data collection. Data collection were started from the first of December (2022) to the end of April (2023). Data were collected 5 days/ week about (40-50) questionnaire sheets / day and the questionnaire required (10 to 15) minutes.

III- Administrative design:

To carry out the study an official permission was obtained from the Dean of Faculty of Nursing of Fayoum University explaining the aim and objectives was obtained cooperation and permission to conducted the study and collected data were done.

IV-Statistical design:

Data entry and analysis were performed had been used SPSS statistical package version 25. Categorical variables were expressed as number and percentage while continuous variables were expressed as (mean \pm SD). Chi-Square (χ^2) was used to test the association between row and column variable of qualitative data. The ANOVA test was used to compare mean in normally distributed quantitative variables at two groups. Pearson correlation was done to measure correlation between quantitative variables. For all tests a two-tailed p-value ≤ 0.05 was considered statistically significant, P-value ≤ 0.01 was considered highly statistically significant. While p-value > 0.05 was considered not significant.

Result:

Table (1) Shows personal characteristics among the studied nursing students it shows that more than three-quarters (79.2%) of the age of the studied nursing students was ranged from 18 to 20 years old with a mean age of 18.32 \pm 1.23. Considering gender more than two-thirds (66.7%) of them were female with a male to female ratio were 0.5:1. Regarding place of birth and current residence more than four-fifths (83.3%) of them lived in the town area. Additionally, all (100%) of them were single holding a public secondary school certificate and didn't attended training courses.

Figure (1) Clarifies self-directed learning readiness among the studied nursing students. It denotes more than two-fifths (41.7%) of the studied nursing students have a low level of self-directed learning readiness followed by more than one-third (37.5%) of them have a moderate level. While only one-fifths (20.8%) of the studied nursing students have a high level of self-directed learning readiness. In addition to presence of highly statistically significant difference between low, moderate and high level at $\chi^2=17.5$, P=0.000.

Table (2) Illustrates mean score of total self-directed learning readiness among the studied nursing students = (125.5 \pm 33.26). In addition to the presence of highly statistically significant difference between score of low, moderate and high level at P=0.000. Additionally, it shows that dimensions of informed acceptance of responsibility, openness to learning opportunities, self-confidence, love of learning, initiative and independence gained higher percentages (31.3%, 24.6%, 24.2%, 20.8% and 20.8% respectively). While the dimension of problem-solving skills gained a lower percentage (77.5%).

Figure (2) Clarifies online learning engagement among the studied nursing students. It denotes, nearly to one-half (47.5%) of the studied nursing students have a low level of online learning engagement followed by about one-quarter (25.4% & 27.1%) of them have a moderate and high level respectively. In addition to presence of highly statistically significant difference between low, moderate and high level at $\chi^2=21.7$, P=0.000.

Table (3) Illustrates mean score of total online learning engagement among the studied nursing students = (93.41 \pm 29.07). In addition to presence of highly statistically significant difference at P=0.000 between score of low, moderate

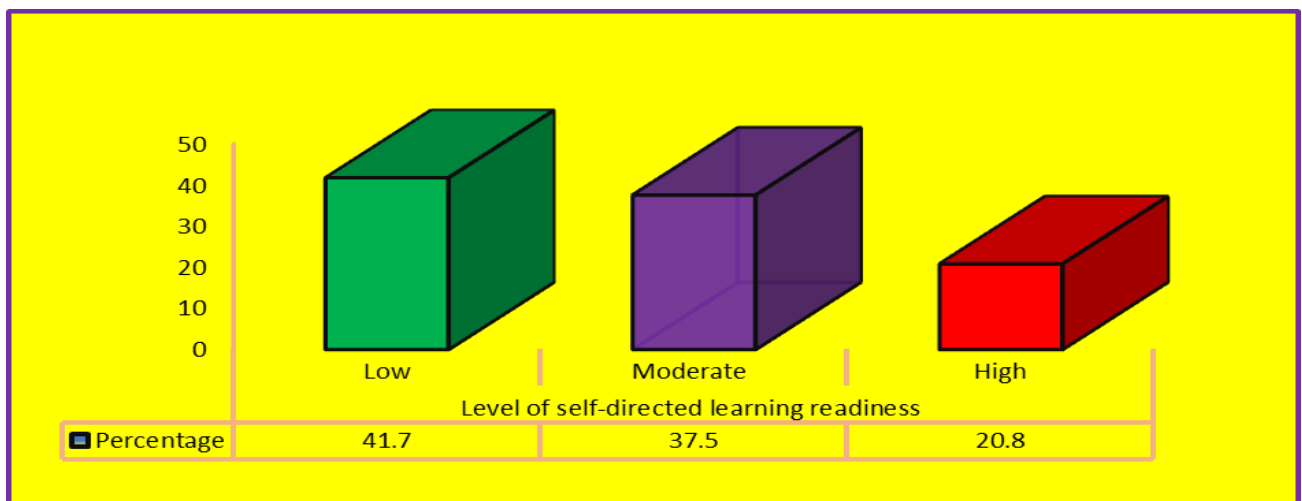
Vol. 3, Issue 5, Month: March 2024, Available at: <https://hijnrp.journals.ekb.eg/> and high level at P=0.000. Additionally, it shows that dimension of self-regulation gained higher percentage (41.3%). While the dimension of web user self-efficacy gained a lower percentage (52.9%).

Table (4) Clarifies that there are highly statistically significant positive correlation between self-directed learning readiness and online learning engagement among the studied nursing students at (r = 0.988 and P= 0.000).

Table (5) Linear regression analysis are conduct to empirically determine whether self-directed learning readiness are a significant determinant of online learning engagement among the studied nursing students. Regression results in table (4) Indicate the goodness of fit for the regression between of total self-directed learning readiness effect on online learning engagement was excellence. Additionally, it indicates that self-directed learning readiness was responsible for (97.5%) of the variation in online learning engagement ($R^2 = 0.975$). Additionally, F statistic of (9424) indicated that the overall regression model are highly significant (P = 0.000). Moreover, it revealed that self-directed learning readiness a positive predictor factor of online learning engagement among the studied nursing students. As $\beta = (0.863)$ indicates that the increase in self-directed learning readiness by one standardized point score are associated with an increase in online learning engagement by (0.863) standardized point score.

Table (1): Frequency distribution of personal characteristics among the studied nursing students (n=240)

| Items | | N | % |
|----------------------------|---------------------------|-------------|-------|
| Age (year) | ▪ 16 < 18 | 50 | 20.8 |
| | ▪ 18-20 | 190 | 79.2 |
| | ▪ Mean± SD | 18.32± 1.23 | |
| Gender | ▪ Male | 80 | 33.3 |
| | ▪ Female | 160 | 66.7 |
| | ▪ Male to female ratio | 0.5:1 | |
| Place of birth | ▪ Countryside | 200 | 83.3 |
| | ▪ Twon | 40 | 16.7 |
| Current residence | ▪ Countryside | 200 | 83.3 |
| | ▪ Twon | 40 | 16.7 |
| Marital Statutes | ▪ Single | 240 | 100.0 |
| Type of secondary | ▪ Public secondary school | 240 | 100.0 |
| Attending training courses | ▪ No | 240 | 100.0 |



$\chi^2=17.5, P=0.000$

Figure (1): Percentage distribution of self-directed learning readiness among the studied nursing students (n=240)

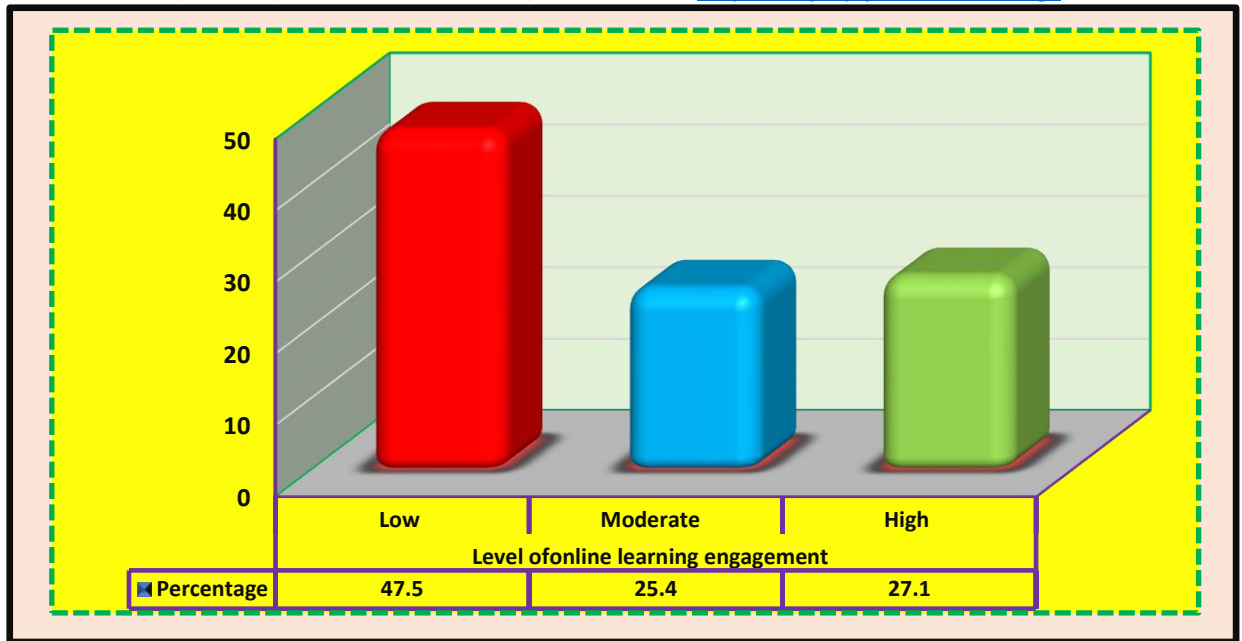
Table (2): Mean score of total self-directed learning readiness during pre, post & three months follow up among the studied nursing students (n=240)

| Items | | No | % | Min | Max | $\bar{x} \pm SD$ | F- test | P- Value |
|---------------------------------------|--------------|------------|--------------|-----------|------------|----------------------|------------|----------------|
| Self-confidence | Low | 110 | 45.8 | 6 | 17 | 10.46 ± 3.02 | 979 | 0.000** |
| | Moderate | 71 | 29.6 | 18 | 22 | 19.0 ± 0.41 | | |
| | High | 59 | 24.6 | 23 | 29 | 26.0 ± 1.75 | | |
| | Total | 240 | 100.0 | 6 | 29 | 16.82 ± 6.78 | | |
| Love of learning | Low | 65 | 27.1 | 5 | 8 | 7.06 ± 1.01 | 996 | 0.000** |
| | Moderate | 125 | 52.1 | 9 | 11 | 10.03 ± 0.65 | | |
| | High | 50 | 20.8 | 13 | 13 | 13.0 ± 0.00 | | |
| | Total | 240 | 100.0 | 5 | 13 | 9.85 ± 2.17 | | |
| Positive orientation | Low | 55 | 22.9 | 6 | 14 | 9.95 ± 2.16 | 640 | 0.000** |
| | Moderate | 160 | 66.7 | 15 | 18 | 16.38 ± 0.99 | | |
| | High | 25 | 10.4 | 19 | 24 | 21.88 ± 2.18 | | |
| | Total | 240 | 100.0 | 6 | 24 | 15.47 ± 3.75 | | |
| problem solving skills | Low | 186 | 77.5 | 3 | 5 | 3.87 ± 0.422 | 781 | 0.000** |
| | Moderate | 50 | 20.8 | 6 | 7 | 6.12 ± 0.32 | | |
| | High | 4 | 1.7 | 8 | 8 | 8.0 ± 0.000 | | |
| | Total | 240 | 100.0 | 3 | 8 | 4.41 ± 1.10 | | |
| Creativity | Low | 20 | 8.3 | 6 | 8 | 7.70 ± 0.57 | 297 | 0.000** |
| | Moderate | 199 | 82.9 | 9 | 11 | 10.0 ± 0.61 | | |
| | High | 21 | 8.8 | 12 | 13 | 12.2 ± 0.43 | | |
| | Total | 240 | 100.0 | 6 | 13 | 10.02 ± 1.11 | | |
| Initiative & independence | Low | 90 | 37.5 | 11 | 23 | 18.83 ± 2.08 | 4234 | 0.000** |
| | Moderate | 100 | 41.7 | 25 | 28 | 27.63 ± 0.92 | | |
| | High | 50 | 20.8 | 32 | 38 | 34.48 ± 2.04 | | |
| | Total | 240 | 100.0 | 11 | 38 | 25.76 ± 6.18 | | |
| Informed acceptance of responsibility | Low | 120 | 50.0 | 8 | 17 | 13.48 ± 3.53 | 520 | 0.000** |
| | Moderate | 45 | 18.8 | 18 | 22 | 20.29 ± 1.30 | | |
| | High | 75 | 31.3 | 23 | 27 | 26.16 ± 1.44 | | |
| | Total | 240 | 100.0 | 8 | 27 | 18.72 ± 6.22 | | |
| Openness to learning opportunities | Low | 108 | 45.0 | 11 | 23 | 18.15 ± 3.65 | 594 | 0.000** |
| | Moderate | 74 | 30.8 | 24 | 29 | 26.73 ± 1.39 | | |
| | High | 58 | 24.2 | 30 | 39 | 33.38 ± 2.23 | | |
| | Total | 240 | 100.0 | 11 | 39 | 24.47 ± 6.83 | | |
| Total | Low | 100 | 41.7 | 56 | 119 | 92.81 ± 17.11 | 718 | 0.000** |
| | Moderate | 90 | 37.5 | 124 | 152 | 135.7 ± 7.39 | | |
| | High | 50 | 20.8 | 160 | 191 | 172.5 ± 8.53 | | |
| | Total | 240 | 100.0 | 56 | 191 | 125.5 ± 33.26 | | |

*Significant $p \leq 0.05$

**Highly significant $p \leq 0.01$

F: ANOVA Test



$\chi^2=21.7, P=0.000$

Figure (2): Percentage distribution of online learning engagement among the studied nursing students (n=240)

Figure (2) Clarifies online learning engagement among the studied nursing students. It denotes, nearly to one-half (47.5%) of the studied nursing students have a low level of online learning engagement followed by about one-quarter (25.4% & 27.1%) of them have a high and moderate level respectively. In addition to presence of highly statistically significant difference between low, moderate and high level at $\chi^2=21.7, P=0.000$

Table (3): Mean score of total online learning engagement during pre, post & three months follow up among the studied nursing students (n=240)

| Items | | No | % | Min | Max | $\bar{x} \pm SD$ | F- test | P- Value |
|------------------------------|--------------|------------|--------------|-----------|------------|----------------------|------------|----------------|
| ▪ Goal orientation | Low | 63 | 26.3 | 7 | 14 | 11.92 ± 2.25 | 585 | 0.000** |
| | Moderate | 100 | 41.7 | 15 | 18 | 15.53 ± 0.98 | | |
| | high | 77 | 32.1 | 19 | 25 | 22.55 ± 2.40 | | |
| | Total | 240 | 100.0 | 7 | 25 | 16.83 ± 4.59 | | |
| ▪ Time and study environment | Low | 91 | 37.9 | 6 | 17 | 12.01 ± 3.81 | 3672 | 0.000** |
| | Moderate | 99 | 41.3 | 18 | 22 | 20.83 ± 1.53 | | |
| | high | 50 | 20.8 | 24 | 30 | 26.22 ± 1.87 | | |
| | Total | 240 | 100.0 | 6 | 30 | 18.61 ± 6.15 | | |
| ▪ Self-regulation | Low | 50 | 20.8 | 9 | 20 | 15.84 ± 3.32 | 557 | 0.000** |
| | Moderate | 91 | 37.9 | 21 | 26 | 22.34 ± 1.96 | | |
| | high | 99 | 41.3 | 27 | 35 | 31.48 ± 3.22 | | |
| | Total | 240 | 100.0 | 9 | 35 | 24.76 ± 6.75 | | |
| ▪ Web user self-efficacy | Low | 127 | 52.9 | 12 | 32 | 23.72 ± 5.61 | 704 | 0.000** |
| | Moderate | 47 | 19.6 | 34 | 41 | 35.49 ± 1.41 | | |
| | high | 66 | 27.5 | 42 | 55 | 49.86 ± 3.89 | | |
| | Total | 240 | 100.0 | 12 | | 33.21 ± 12.10 | | |
| Total | Low | 114 | 47.5 | 34 | 86 | 68.43 ± 14.96 | 580 | 0.000** |
| | Moderate | 61 | 25.4 | 87 | 108 | 99.49 ± 5.80 | | |
| | high | 65 | 27.1 | 109 | 145 | 131.5 ± 10.40 | | |
| | Total | 240 | 100.0 | 34 | 145 | 93.41 ± 29.07 | | |

Table (4): Correlation between self-directed learning readiness and online learning engagement among the studied nursing students (n=240)

| Items | Self-directed learning readiness | |
|----------------------------|----------------------------------|---------|
| Online learning engagement | R | 0.988 |
| | p-value | 0.000** |

Significant $p \leq 0.05$

**Highly significant $p \leq 0.01$

r-Pearson Correlation Coefficient;

Table (5): Linear regression analysis of self-directed learning readiness effect on online learning engagement among the studied nursing students (n=240)

| Unstandardized coefficients | | standardized coefficients | T Test | P Value | r | R Square | F | P Value |
|---|------------|---------------------------|--------|---------|-------|----------|------|---------|
| β | Std. Error | Beta | | | | | | |
| 0.863 | 0.009 | 0.988 | 97.0 | 0.000 | 0.988 | 0.975 | 9424 | 0.000** |
| a. Dependent variable: Total score of online learning engagement | | | | | | | | |
| b. predictors (constant): Total score of self-directed learning readiness engagement | | | | | | | | |

Discussion

There seems to be a need for the new generation of undergraduate nursing students to use a mix of both innovative and conventional pedagogical strategies to better help them develop their professional competence in this era of massive information-technological advancements and its corresponding proliferation of exponential knowledge. SDL a process in which people take charge of analyzing and identifying their learning needs, setting learning goals, recognizing human, material educational resources, selecting and putting into practice appropriate learning strategies and evaluating learning outcomes whether with or without the help of others (*Garcia, 2021*).

The study result showed personal characteristics among the studied nursing students it confirmed that more than three-quarters of the age of the studied nursing students ranged from 18 to 20 years old with a mean age of 18.32 ± 1.23 . Considering gender more than two-thirds of them were female with a male to female ratio were 0.5:1. Regarding place of birth and current residence more than four-fifths of them lived in the town area. Additionally, all of them were single, holding a public secondary school certificate and didn't attend training courses.

Moreover, the study findings were consistent with the study result done by (*Garcia, 2021*) who studied the influence of self-directed learning skills on the academic adjustment in an online learning platform among level I and II student nurse revealed that most of the student nurse respondents were females. It goes to show that nursing remains to be a female dominant course. Additionally, result done by (*Geng, 2019*) which investigated self-directed learning and technology readiness in blending learning environment, summarized that most of the participants were female and were undergraduate students.

On other side the study finding was disharmony with the study result published at International Journal of Educational Technology in Higher Education conducted by (*Geng, 2019*) who Investigating self-directed learning and technology readiness in blending learning environment reported that the majority of the studied sample were male and they were older than 20 years old.

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Self-directed learning (SDL) refers to learning on one's own initiative with the learner taking primary responsibility for the effort's design, implementation and evaluation. Additionally, SDL has been underlined as an important educational paradigm that has gained a lot of attention in recent years especially in higher education (*Hill, 2020*).

According to this concept the study result clarified self-directed learning readiness among the studied nursing students. It denoted more than two-fifths of the studied nursing students have a low level of self-directed learning readiness followed by more than one-third of them have a moderate level. While only one-fifth of the studied nursing students have a high level of self-directed learning readiness. In addition to the presence of highly statistically significant differences between low, moderate and high level.

From the researcher's point of view, this may be as a result presence of discrimination, financial barriers and time constraints were the main barriers to SDL. On the other hand shift from teacher-centered learning to student-centered learning also sometimes appears challenging for both parties. Another barrier to SDL a self-motivation, self-esteem and lack of confidence while learning through SDL activities while administrative barriers also play an important role in independent learning. Moreover, little access to technical skills another barrier which must be overcome hence greater use of critical thinking skills must be acquired.

As well this finding was on the same direction with the study result published at International Conference on Computer Supported Education by (*Laine, 2021*) Who investigated raising awareness of students' self-directed learning readiness (SDLR) described that the studied students had a low level of self-directed learning readiness before applying the program of raising awareness of students regarding SDLR.

On other hand this finding was incongruent with the study result conducted in Ethiopian by (*Kidane, 2020*) which studied students' perceptions towards self-directed learning medical schools with new innovative curriculum: A mixed-method study illustrated that the studied students showed a significant increase in SDL score. Moreover, this data was inconsistent with the study result conducted in Saudi Arabia by (*Dogham, 2022*) who evaluated self-directed learning readiness and online learning self-efficacy among undergraduate nursing students, concluded that the two thirds of students' SDL readiness ranges between the average and above the average.

Online learning requires the development of specialized abilities to attain good learning outcomes. Students must have a basic understanding of computers and information technology before participating in an online program. Students with better computer abilities learn more in web-based courses (*Premkumar, 2019*). Students were given the responsibility of creating a hierarchy of preferred learning methods and approaches, as well as the most utilized and indicated satisfaction with the learning strategies they employ (*Dogham, 2022*).

According to this concept the study result illustrated that nearly to one-half of the studied nursing students have a low level of online learning engagement followed by about one-quarter of them have a high and moderate level respectively. In addition to the presence of highly statistically significant differences between low, moderate and high level. From the researcher point of view this may be due to the presence of inadequate support too challenging E- learning materials, lack of motivation and limited technology experience.

On the same side the study finding was supported by the study results conducted by (*Tiwari & Srivastava, 2021*) who studied thesis titled self-efficacy of online learning among nursing students during COVID-19 pandemic, reported that



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most than two thirds of students had poor online self-efficacy during COVID-19 pandemic in all subscales as well as the overall score

As well result for (*Limiansi & Hadi, 2022*) who analyzed student's self-efficacy profile in online learning. Proceedings of the 5th international conference on current issues in education highlighted that students in the disciplines of science and health should had self-efficacy in online learning.

These findings were incongruent with the study result conducted by (*Aldhani, 2021*) who assessed predictors of electronic learning self-efficacy: A cross-sectional study in Saudi Arabian Universities reported that about two-fifths of the students had good self-efficacy scores for learning environment and more than two-thirds of them in technology use.

The study result concluded there was a highly statistically significant positive correlation between self-directed learning readiness and online learning engagement among the studied nursing students. From the researcher point of view, thus may be due to that self-directed learning and online learning engagement share a number of similar traits or characteristics, such as setting clear goals for themselves, shaping the learning process in line with goals and plans, monitoring their own learning process, evaluating the outcomes of their own learning, being autonomous, having self-motivation, open to learning, being curious, being willing to learn and having self-control.

On the same view the study finding was congruent with the study result published at Journal of e-learning and knowledge society. Conducted by (*Lasfeto, 2020*) who evaluated the relationship between self-directed learning and students' social interaction in online learning environment, showed a significant relationship between students' self-directed learning readiness (SDLR) and students' social interaction in online learning environment.

The study findings were on the same direction with the study results conducted by (*Geng, 2019*) which investigated self-directed learning and technology readiness in blending learning environment implied that students who were more self-directed and with active attitudes toward technology-based products were more motivated in adopting online learning strategies and achieving their learning goals. As well the result was supported by (*Dogham, 2022*) concluded that there was a highly statistically significant positive correlation between self-directed learning readiness and online learning self-efficacy.

On opposite side, this finding was disagreed with the study result carried out by (*Tsai, 2020*) which evaluated applying online competency-based learning and design-based learning to enhance the development of students' skills in using PowerPoint and Word, self-directed learning readiness and experience of online learning. It illustrated that students who received the intervention with online DBL showed significantly better skills in using PowerPoint. However, learners who received the intervention with online CBL and/or DBL did not have significantly better SDLR or experience of online learning.

In relation to linear regression the results revealed that self-directed learning readiness are a positive predictor factor of online learning engagement among the studied nursing students. The study finding was in the same direction with the study result conducted by (*Karatas & Arpacı, 2021*) who studied thesis entitled the role of self-directed learning, metacognition and 21st century skills predicting the readiness for online learning, concluded that self-directed learning readiness are a strong positive predictor of online learning engagement. The correlation and regression part answered the research question.

Conclusion

In the light of the present study results it can be concluded that:

More than two-fifths of the studied nursing students had a low level of self-directed learning readiness followed by only one-fifth of the studied nursing students had a high level of self-directed learning readiness. Additionally, it denoted one-half of the studied nursing students had a low level of online learning engagement followed by one-quarter of them had a high level. Moreover, there was a highly statistically significant positive correlation between self-directed learning readiness and online learning engagement among the studied nursing students.

Recommendations:

Self-Directed Learning Readiness and Online Learning Engagement

At nursing personnel level:

- Conduct an orientation sessions for freshly graduating nurses at the start of their job to enlighten them about the importance of self-directed learning readiness and online engagement for the learning process.
- Develop continuous in-service training workshop about online engagement to promote nursing personal continues learning.

➤ At the organizational level:

- Raise awareness of the nursing personnel regarding the importance of self-directed learning readiness and online engagement for the learning process.
- Repeat the study on a larger sample and different geographical areas were recommended for generalization of findings.

➤ At the educational level:

- Increase the number of online courses and use motivational strategies to get the students engaged in online learning.
- Apply online learning in the first year to take advantages of fresh student readiness. Then proceed with the application of online learning in the second, third and fourth year.
- Establish availability and accessibility of computers and internet in the faculty are mandatory to guarantee full activation of online learning by all students especially those who have little access to internet.
- Design nursing curricula which encourage nursing students' self-directed learning readiness that were required for academic achievement motivation and enhancement.

➤ At the research level:

- Further studies show that self-directed learning readiness are a predictable variable for online engagement.

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