# Introducing Moodle as a New Path for Nursing Education: Students' Perception, Experience and Barriers

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**Abstract** Background*:* Moodle represents one of the most widely used open-source e-learning software platforms in higher education. It enables educators to create online courses, encourage interaction and collaborative construction of learning content. It has many capabilities such as interaction, feedback, conversation and networking. *Aim:* To explore students' perception, experience and barriers towards using Moodle as a new path for nursing education. *Research design:* The study has a descriptive exploratory research design. *Sample:* The study included a convenience sample of 221 first level nursing students in Faculty of Nursing, Mansoura University. *Tool:* Questionnaires regarding students' perceptions, experience, motivation and barriers were completed at the end of the second semester. *Results:* The majority of the studied students had computer with internet availability. Less than half of students (42%) agreed with the easier and effectiveness of Moodle as a teaching method. The students who had a good perception to Moodle were 39.8% with mean score 66.06. *Conclusion:* Students' perception affected by their experience and motivation. *Recommendations:* Enhancing the use of Moodle by lecturers, the abilities of students in the use of practical resources should be used in the use of the functions of Moodle. The role of the Lecturers and the role of technology should be balanced in a way that students will benefit from both at the highest degree.

*Keywords: e-learning, Moodle, students' perception, nursing education*

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## 1. Introduction

People are rising in a global civilization, and the entire world has become a widespread village. The progression in the technology has influenced and has changed the previous outline and our lives [1]. There is a quick development in information communication technology (ICT) with an increased focus on innovative educational delivery methods. Nowadays, it is not possible to think about teaching and learning process without using ICTs [2]. The teaching development using this technology seen at all educational levels from kindergarten to University [3].

The use of ICT in the teaching learning process does not only create the joyful learning environment but also can help motivate the students and capture their attention [4]. Students' independent learning can be trained by controlling their participation through the ICT such as web-based application. Innovation or renewal must be initiated in the classroom [5]. The educational model of teacher-centered education must be modified by lecturing in student-centered learning (SCL) where students develop and explore knowledge [6].

Learning Management Systems (LMSs) are educational technologies that provide an excellent enriched learning media by integrating various features. They provide a convenient platform for creating and distributing teaching materials, facilitating communication among various users, and enabling collaboration [7]. MOODLE (Modular Object-Oriented Dynamic Learning Environment) is a web-based open-source LMS and was developed from a socially constructivist viewpoint by Martin Dougiamas at Curtin University in Western Australia [8,9]. It has no other functionality, including the ability to integrate services, communications. MOODLE was widely accepted and adopted as it helps teachers to create high-quality online study materials [10].

Moodle is also a software that provides a solution for internet creation and organization of online courses [11]. It is one of the most widely used and easiest to use open-source e-learning platforms in higher education. This is because it has many strengths, including

communication, feedback, discussion and networking [12]. It allows the integration of a wide range of resources, from chats and forums to online booklet, a variety of questions, exercises and lecture notes, in addition to multimedia resources such as graphics, video or audio, PowerPoint, and Flash-based applications [13].

Students' experiences, perceptions and satisfaction with online assessment are linked to various student success factors interlay self-regulation, time management, self- evaluation, and prompt feedback on performance [13]. Mastery learning by its very nature enables these factors; and it is supported by student perceptions on academic success, attitudes towards learning and mathematical confidence, as well as the retention of content [14]. The option of re-taking online mastery learning assessments is viewed as a positive step for enhanced learning and comprehension [15].

Basically, there are many resources on the internet that the students may use to practice, but the students' self-study motivation is not yet built. The students lack initiation to do an independent learning. Even though the lecturers have suggested them to be active in finding related reading resources. In addition, the teaching-learning process still relays on the teacher-centered where the teachers explain the material with power point without integrating students actively [16].

There was an increase in the use of online learning in Mansoura University, more and more students are access and use the Moodle Platform. To the best of our knowledge, researches which studied students' perception, experience and barriers towards using Moodle in Egypt universities are scare. Thus, the current study was conducted to investigate this area.

# 2. Aim of the Study

The purpose of this study was to explore students' perception, experience and barriers towards using Moodle as a new path for nursing education.

# 3. Method

## 3.1. Research Design

This study has a descriptive exploratory research design.

## 3.2. Setting

This study was conducted at Faculty of Nursing, Mansoura University.

## 3.3. Sample

The study involved a convenience sample of 221 nursing students of first level who studied in the above mentioned setting. The students participated in this study on a voluntary basis. All of them have previously completed the fundamental nursing and health assessment courses at the second semester.

## 3.4. Instrument

Three tools were used to collected data for this study in addition to Computer and Internet availability related questions. Tool I: The Students' Perception Questionnaire (SPQ) instrument comprised of 20 items, using a 3-point Likert scale. Response to every item is based on scale from 1 to 3, wherein 1 = Disagree, 2 = Agree, 3 = Do not know. SPQ instrument was adapted from Sanchez and Hueros (2010) [17]. The maximum score used in this study is 60 and the minimum score is 20. High score shows positive perception towards the MOODLE.

Tool II: Students' experience of using MOODLE; this tool modified from [18]. This tool also used a 3-point Likert scale. Response to every item is based on scale from 1 to 3, wherein 1 = Disagree, 2 = Agree, 3 = Do not know.

Tool III: Students' Barriers Questionnaire; it consists of two major parts. Part I "Technical and equipment Barriers" contains 10 items and part two contains thirteen items related to Communicational and Personnel Barriers.

The tools were tested for its content validity by a group of 5 experts from faculty of Nursing. The reliability of the tools was tested by using Cronbach's Alpha test that measures the internal consistency of the tools. The reliability of tool I, tool II and tool III was 0.887, 0.868 and .913 respectively, which indicates high reliability.

## 3.5. Data Collection

Data were collected between February and March 2015, the data were gathered through a questionnaire given to students to find out their perceptions towards the application of Moodle during the teaching-learning process. It was not used only to investigate students' perception towards the implementation of Moodle but also reveal students experience and barriers of using it. This study was conducted on level one students of similar educational background and a very little or without basic IT Skills. At the end of the course, data collection was completed. The total sample size was two hundred and twenty one (221) students.

The tools were pilot tested before commencing the study for ensure the clarity, feasibility and applicability. It was tested prior to data collection on 25 nursing students.

## 3.6. Ethical Considerations

Ethical approval was obtained from the Research Ethical Committee of Faculty of Nursing, Mansoura University. Participants were informed about the aim, benefits of the study. They were assured that participation in the study was voluntary. Informed consent was obtained from those who accepted to take part in the study. The confidentiality of collected data was maintained. Data were safely stored in a cabinet and no one can get access to the data expect the investigators.

## 3.7. Statistical Analysis

Survey data were entered into statistical package of social sciences (SPSS) version 20.0 (SPSS Inc., Chicago,

IL, USA). Qualitative data were presented as number (N) and percent (%). Pie and bar charts were used for graphical presentation of data. Quantitative parametric data were presented in mean and Standard Deviation (SD). Generally, the level of significance was set at p value < 0.05 while p value > 0.05 indicated a non-significant result.

# 4. Results

This section illustrates the students' responses toward MOODEL application in learning process. Figure 1 shows students gender, it shows that 62.4 % of the students were female while 37.6 % were male.
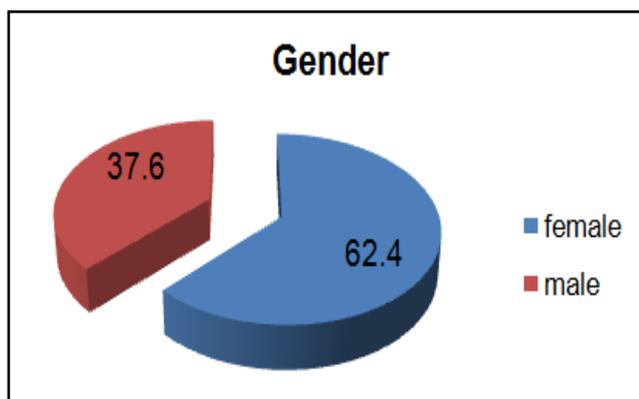


**Figure 1.** Students' gender

The result illustrates that most of participant students had computer and mobile (77.8% & 89.1%) respectively. Also it represents that 77.4% of the participants can access internet and the maximum hours spent using computer is 12 hours daily (Table 1).

**Table 1. Computer and Internet availability**

|  | yes | % | NO | % |
|---|---|---|---|---|
| **Computer availability** | 172 | 77.8 | 49 | 22.2 |
| **Mobile availability** | 197 | 89.1 | 24 | 10.9 |
| **Internet access** | 171 | 77.4 | 50 | 22.6 |
| **E- learning courses** | Min=0 Max=7 | | | |
| **Time spending using computer (hours)** | Min=0 Max=12 | | | |

Table 2 reveals that 63.3% of the participants stated that, they able to use Moodle, and 62.4 % agree with the statement of learning to use Moodle is easy. Also, it is clear that 61.1% mentioned it's easy to get materials from Moodle. Regarding solving problem facing the students during Moodle usage, 43.9% of them reported disagree of that point compared to only 33.5% can solve facing problems.

Table 3 clarifies student experience related using Moodle, slightly more than half of the students (57%) agreed with that Moodle is easy to use. As well as 54.3% of them reported that Moodle is an effective educational tool. Despite of that, 43.9% of the students did not see Moodle more convenient to do course activities.

When considering the Technical and equipment barriers regarding using Moodle, it's clear from (Figure 2) that highest barrier percentage was face difficulties due to shortness of sufficient information given on access to online education (37.6%), followed by computer quantity is not enough for learner quantity (37.1%). Nearly with the same percentage line Internet network system send data slowly take 36.2%.

As regards of communicational and personnel barriers, (Figure 3) illustrates that shortness of time constitutes a major barrier 46.2%, and the least one was do not have computer access (20.8%).

**Table 2. Students' Perception toward MOODEL**

| Items | | Disagree | | Don't know | | Agree | |
|---|---|---|---|---|---|---|---|
| | | No | % | No | % | No | % |
| **1** | Moodle helps me to learn more efficiently | 76 | 34.4 | 24 | 10.9 | 121 | 54.8 |
| **2** | Moodle improves my academic performance | 76 | 34.4 | 43 | 19.5 | 102 | 46.2 |
| **3** | Moodle makes my learning more effective | 80 | 36.2 | 35 | 15.8 | 106 | 48 |
| **4** | Moodle makes it easier to learn at university | 69 | 31.2 | 33 | 14.9 | 119 | 53.8 |
| **5** | Moodle gives me control over my learning | 91 | 41.2 | 50 | 22.6 | 80 | 36.2 |
| **6** | Overall, Moodle is advantageous for my learning | 68 | 30.8 | 26 | 11.8 | 127 | 57.5 |
| **7** | I can access the contents of Moodle | 64 | 29 | 29 | 13.1 | 128 | 57.9 |
| **8** | I can freely navigate the contents of Moodle | 70 | 31.7 | 35 | 15.8 | 116 | 52.5 |
| **9** | I can use Moodle without needing to be told how it functions | 95 | 43 | 20 | 9 | 106 | 48 |
| **10** | I can solve problems that arise on Moodle | 97 | 43.9 | 50 | 22.6 | 74 | 33.5 |
| **11** | I can use Moodle if there are user manuals available | 43 | 19.5 | 31 | 14 | 147 | 66.5 |
| **12** | Overall, I am able to use Moodle | 51 | 23.1 | 30 | 13.6 | 140 | 63.3 |
| **13** | Learning to use Moodle is easy for me | 54 | 24.4 | 29 | 13.1 | 138 | 62.4 |
| **14** | It is easy to get materials from Moodle | 60 | 27.1 | 26 | 11.8 | 135 | 61.1 |
| **15** | The process of using Moodle is clear and understandable | 66 | 29.9 | 39 | 17.6 | 116 | 52.5 |
| **16** | Overall, I believe that Moodle is easy to use | 66 | 29.9 | 27 | 12.2 | 128 | 57.9 |
| **17** | Learning using Moodle is fun | 71 | 32.1 | 39 | 17.6 | 111 | 50.2 |
| **18** | Using Moodle is a good idea | 54 | 24.4 | 39 | 17.6 | 128 | 57.9 |
| **19** | Using Moodle is an attractive way to learn | 72 | 32.6 | 29 | 13.1 | 120 | 54.3 |
| **20** | Overall, I like using Moodle | 82 | 37.1 | 31 | 14.0 | 108 | 48.9 |

**Table 3. Students' experience of using MOODLE**

| Items | Disagree | | Don't know | | Agree | |
|---|---|---|---|---|---|---|
| | No | % | No | % | No | % |
| **MOODLE is easy to use** | 75 | 33.9 | 20 | 9 | 126 | 57 |
| **The training I received was sufficient for me to start using MOODLE** | 95 | 43 | 29 | 13.1 | 97 | 43.9 |
| **MOODLE helped me access all the class material even when I was not at college** | 85 | 38.5 | 34 | 15.4 | 102 | 46.2 |
| **MOODLE makes it more convenient to do my course activities** | 97 | 43.9 | 37 | 16.7 | 87 | 39.4 |
| **MOODLE made it possible for me to refer to my notes from earlier semesters** | 91 | 41.2 | 38 | 17.2 | 92 | 41.6 |
| **Support for MOODLE was available when I needed it for my coursework** | 93 | 42.1 | 41 | 18.6 | 87 | 39.4 |
| **MOODLE helped me to better communicate with the instructor** | 77 | 34.8 | 40 | 18.1 | 104 | 47.1 |
| **MOODLE helped me to communicate and collaborate with my classmates** | 85 | 38.5 | 45 | 20.4 | 91 | 41.2 |
| **MOODLE helped me to get a prompt feedback from the instructor** | 93 | 42.1 | 37 | 16.7 | 91 | 41.2 |
| **Based on all the above features, I feel that MOODLE is an effective educational tool** | 68 | 30.8 | 33 | 14.9 | 120 | 54.3 |
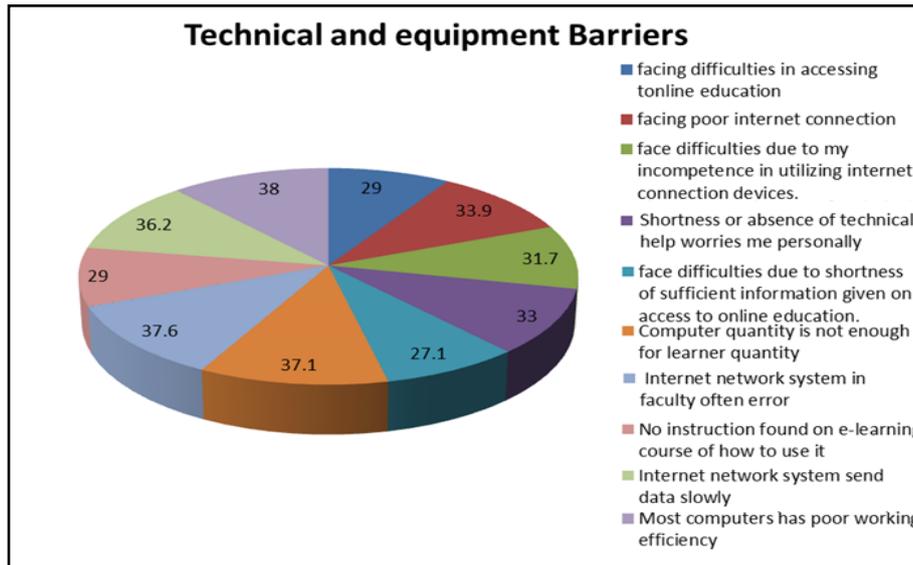


**Figure 2.** Students' barriers (Technical and equipment Barriers)
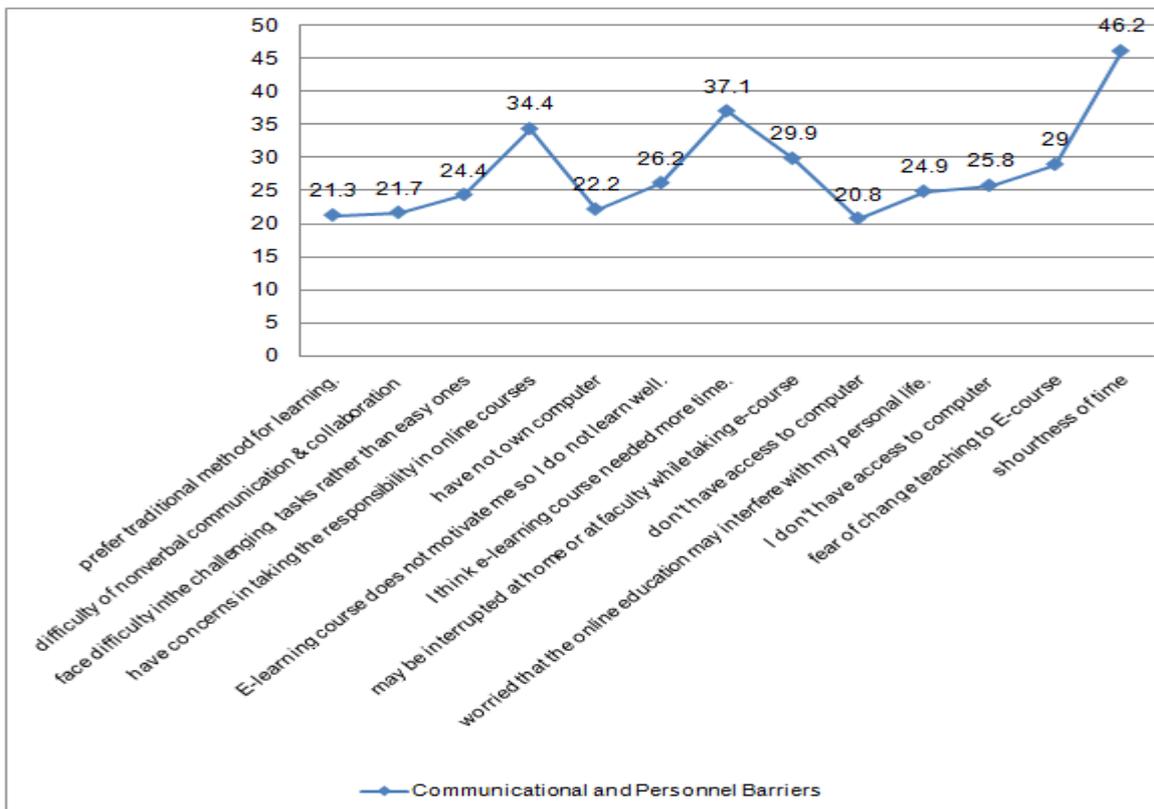


**Figure 3.** Students' barriers (Communicational and Personnel Barriers)

**Table 4. Students' perception and experience levels related to Moodle.**

| Variables Levels | No. | % |
|---|---|---|
| Students' perception | | |
| Poor | 29 | 13.1 |
| Moderate | 104 | 47.1 |
| Good | 88 | 39.8 |
| Students' experience | | |
| Poor | 57 | 25.8 |
| Moderate | 96 | 43.4 |
| Good | 68 | 30.8 |

It was found that in Table 4, 39.8% of students have good perception level related to Moodle compared to 13.1% had poor perception level , and 30.8% demonstrate good experience level compared to 25.8% had poor experience level.

As regards barriers, it notices that 48.4% of the students have high barrier level. And only 6.8% reported low barrier level. It was observed that there was no significant differences between students' total barriers levels related to Moodle in relation to students' gender (Table 5).

**Table 5. Students' total barriers levels related to Moodle in relation to students' gender**

| Variables Levels | Gender | | No. | % | X |
|---|---|---|---|---|---|
| | Male | Female | | | P |
| Barriers | | | | | |
| Low | 8 | 7 | 15 | 6.8 | 1.79 |
| Moderate | 35 | 64 | 99 | 44.8 | 0.407 |
| High | 40 | 67 | 107 | 48.4 | |

**Table 6. Correlations between students' perception, experience and barriers**

| | Barriers | |
|---|---|---|
| | r | p |
| Students' perception | -.088 | .193 |
| Students' experience | -.143* | .033 |

*. Correlation is significant at the 0.05 level (2-tailed).

Table 6 shows statistically significant negative correlation between students experience and barriers (r = -.143, p=.033).

## 5. Discussion

Recent developments around the world in education have made traditional learning ideas obsolete and have given way to new, more innovative methods of teaching [19,20]. Using Moodle in teaching improves learners' communicative language skills and includes social interaction between educators, students and students themselves. Al-Ani; Siirak [21,22] added that combining computer-based learning with learning in an E-learning environment assisted in a socially positive philosophy of education is an efficient teaching and learning method. The focus of this study was exploring students' perception, experience and barriers towards using Moodle as a new path for nursing education at Faculty of Nursing Mansoura University.

As regarding students' gender, the current findings of the study reveals that most students were female. This result is consistent with the pervious study done by [18] who stated that more than half of the students were women while the rest were male.

This study concluded that more than three quarters of students had access to the internet and the maximum hours spent using the device were 12 hours per day. This study in accordance with [23] who reviewed their results, showed that half of the respondents had Internet access from the educational institute and only forty five percent had home Internet access.

In this study, it is cleared from our findings that nearly two thirds of the participants stated that, they able to use Moodle and agree with the statement of learning to use Moodle is easy. Also, it is clear that sixty one percent of them mentioned it's easy to get materials from Moodle. Similarly, [18,24] stated that the majority students using Moodle and the student noticed the ease of using it as very high.

Regarding Students' experience of using Moodle, it was found that slightly more than half of the students agreed with that Moodle is easy to use and an effective educational tool. Despite of that, less than half of the students did not see Moodle more convenient to do course activities. These findings supported with [25]; [18] who showed that it could have a positive impact on student learning and understanding when using Moodle and overall, student found Moodle to be an effective educational tool. Also, [24] reported that most of the students reported an improvement in the learning and/or planning of activities. In addition, nearly two thirds reported an improvement in learning and planning of class activities when using Moodle for sharing of study material. On the other hand,

Concerning to technical and equipment barriers regarding using Moodle, the current findings of the study revealed that the highest percentage of barriers faced difficulties due to the shortness of sufficient information on access to online learning, accompanied by a number of computers is not appropriate for the number of learners. Approximately the same percentage line Internet network system send data slowly take. These results were followed by [23] who demonstrated that many students complained that the link to the Internet was too slow. Parallel with the present study findings, [26] reported that the findings also reflected a lack of knowledge and skills to use the Moodle system; new skills and knowledge of technology need to be developed.

As regards of communicational and personnel barriers, illustrated that shortness of time constitutes a major barrier, and the least one was do not have computer access. Al-Ani, [27] showed that there are many obstacles facing students using Moodle in learning. Some of those obstacles are related to the network disruption followed by defects in the university network.

As regards barriers, it noticed that half of the students have high barrier level and only few of them reported low barrier level. These results in contrast with [23] who reported that forty-four percent of students using Moodle reported that they did not face any barriers at all while a third are facing problems related to network and bandwidth.

With regard to the perception of students and levels of experience related to Moodle, it is evident that more than a third of students have a good level of perception and demonstrated good level of experience related to Moodle. This results in a similar view of [28] who concluded that when using the Moodle method, there was access to and benefit in huge amounts of information as well as technical skills. Also, this finding was in agreement with the study of [29] who reported in their study of Moodle that the attitudes and approaches of students were positive when using Moodle as a learning tool and they were satisfied that it was a suitable approach to modern teaching and learning. The current results were supported by [30] who showed that students found Moodle easy to use, had a high degree of functionality, and found a positive experience using Moodle.

# 6. Conclusion

This study concluded that students' perception affected by their experience and motivation. The majority of the studied students had computer with internet availability. Less than half of students agreed with the easier and effectiveness of Moodle as a teaching method.

# 7. Recommendations

Lecturers ' understanding of Moodle's features and potential areas of use should be increased through training sessions. In addition to enhancing the use of Moodle by lecturers, the abilities of students in the use of practical resources should be used in the use of the functions of Moodle. The role of the Lecturers and the role of technology should be balanced in a way that students will benefit from both at the highest degree.

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## Conflict of Interest

The authors declared that present study was performed in absence of any conflict of interest.

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