Higher Education Students' Perceptions of E-Learning Quality

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Abstract

The aim of this study was to evaluate the quality of e-learning provision at Sultan Qaboos University, Oman, from the students' perspective. The study employed a 48-item survey comprising six domains of e-learning provision. The questionnaire was administered to a sample of 1,858 male and female students across all colleges. The results revealed that the quality of the e-learning provision in four of the domains was at an intermediate level. The results also showed statistically significant differences in the third domain (System Effectiveness) in favor of male students, whereas there were no statistically significant differences in the other domains or the overall score. The findings of the study lead to a set of recommendations that may help to contribute to the dissemination and improvement of e-learning culture in general and its quality in particular, as well as furthering its integration in the educational process.

Keywords: E-learning, Quality, Standards, Moodle, Higher education, Oman, Learning management systems.

Contents

Contribution of this paper to the literature
This study derives a set of criteria to evaluate the quality of an e-learning management system (Moodle). It assists higher education institutions in considering the reality of their practices in relation to the use of e-learning platforms and making the right decisions in this regard.

1. Introduction

The recent revolutions in the fields of science, technology, and information have led to accelerated changes in various aspects of life, particularly in the education system. This has led educators to search for new methods, techniques, and models to counter the new educational challenges, which include population growth, knowledge explosion, technological development, the development of educational philosophy, and more. Studies in this field have identified the emergence of e-learning as one of the main solutions to these educational problems (Muhardi, Gunawan, Irawan, & Devis, 2020). Learning management software and platforms (e.g. Moodle) have emerged to solve problems such as time limitations and improve online cooperation and engagement among distance and online learners. These tools have provided a quantum leap in enhancing technological communication, furthering the use of information and communication technology in online learning.

2. Literature Review

E-learning is distinguished by a set of characteristics that include providing strong learning opportunities based on participation, providing opportunities for student-centered learning, having a positive impact on various aspects of learning, developing metacognition, and providing rich opportunities to recognize various sources of knowledge in various forms. Moreover, it can help dissolve individual differences between learners (Alanazy & Khalaf-Allah, 2016; Elhosary, 2000; Lorenzo & Moore, 2002; Ruhe & Zumbo, 2008). Furthermore, the results of various research studies have demonstrated the effectiveness of e-learning in various aspects of the teaching and learning process, as it provides tools for building and creating effective and efficient electronic lessons. It also enables the instructor to test and evaluate students, record their results automatically, and provide them with continuous feedback. In addition, it provides various opportunities for interaction through forums and virtual classrooms.

2.1. E-Learning Quality

Many research studies have noted the necessity of assessing the quality of e-learning in the educational process. Hijazi and Mohamed (2016) investigated the need for quality standards in virtual classrooms as one of the most important tools for distance learning. The study provided a list of the strengths and weaknesses of virtual classrooms at King Saud University, Saudi Arabia. Moreover, the study defined a list of quality standards for virtual classrooms consisting of 10 major criteria and 120 indicators. A study conducted by Alanazy and Khalaf-Allah (2016) identified the deficiencies in e-learning at Al-Jouf University, Saudi Arabia, and presented a proposal to enhance international quality standards. Moreover, Al-Najdi (2012) determined the quality of e-learning standards (educational, technical, and administrative standards) at Al-Quds Open University, Palestine. The results revealed criteria to determine the quality of content and instructional design, the support of the supervisors and learners, and administrative services e-learning quality standards in educational, technical, and administrative fields. Barker (2007) conducted a study in Canada that attempted to define the conditions that must be met in the quality standards of e-learning to ensure best practices in distance learning, learner-centered education and training, and global use of learning technologies. The study concluded that e-learning quality standards must be comprehensive, futuristic, adaptable, and consensus-based (i.e. based on the opinions of experts and stakeholders in the field instead of being subject to general higher education legislation). Varlamis and Apostolakis (2006) conducted a comprehensive review of the quality standards of e-learning in European universities. The study identified a set of standards for e-learning content, the most important of which are accessibility, content dissemination, re-usability in different contexts, and continuous development.

Alanazy and Khalaf-Allah (2016) referred to a study conducted by Florida Gulf Coast University in 2004 to define a number of local standards for the development of online learning programs; at the time of the study, they provided 225 online courses. The standards identified in that study were characterized by their comprehensiveness and their close connection to the process of converting the courses to be presented online. The standards were developed to provide guidance to the instructors and were divided into four main categories: instructional design standards, instructional feedback standards, instructional media standards, and course management standards. The application of quality standards in the e-learning process is an essential step to enhancing confidence in the system's efficiency and academic credibility. It also helps to increase the recognition of certificates from this type of learning and their accreditation in local and international councils, organizations, and bodies. In addition, it informs learners in higher education institutions. Moreover, it facilitates the movement of learners between international higher education institutions (Al-Najdi, 2012). Therefore, the standards adopted in this research are categorized into six main categories as follows:

Standard 1: Faculty Member Performance Quality

Ehlers (2004) conducted a study to explore learners' perspectives on the essence of e-learning quality. The results identified seven main factors of quality, namely tutor support for learners, cooperation and communication between learners in learning groups and with experts or the course tutor, technical characteristics of the e-learning system, cost-benefit considerations, transparency of information that learners require about the course or the institution/organization that offers it, the structure of the e-learning course, and didactics.

Standard 2: Technical Quality of the Learning Management System (Moodle)

Moodle is one of the foremost open-source learning management systems (LMS). It was developed in 2002 (Dougiamas & Taylor, 2003) and was first published in May 2008 as a platform for educators to provide a personal or private e-learning environment in a way that enhances interaction and gives users the ability to ask questions and collaborate. The system has helped institutions and stakeholders achieve their educational goals. The technical quality of an LMS may include the accuracy of its procedures and content, the option to add new content and services,

opportunities for modification, employment of human engineering principles, interoperability by various departments and colleges, ease of repair and maintenance, availability of standardized e-course designs (Abo-Megheseb, 2012). According to Bassiouny (2007) and Al-Khalifa, Abdulqadir, and Abdulghani (2008), the most important justifications for using Moodle are its provision of tools for creating, managing, designing, organizing, and delivering online courses, the availability of several languages with a dictionary that allows glossaries of new terms to be built, the availability of virtual classrooms and discussion forums that allow the instructor to communicate and discuss topics with students, enabling him/her to provide continuous and immediate feedback, and the possibility of testing and evaluating students on an ongoing basis with automated correction and recording of results.

Standard 3: Effectiveness of the Learning Management System (Moodle)

A study conducted by Yahya, Qatran, and Al-Shahari (2017) investigated the effectiveness of the Moodle system in teaching the "Reading 2" course in a higher education context. The results showed the effectiveness of the Moodle system in improving students' cognitive achievement and skill performance. Similarly, Al-Youssef and Al-Moshaikeh (2017) conducted an exploratory study to identify the effect of using Moodle on the achievement of ninth-grade female students in an English language course in Riyadh. The results revealed that the experimental group students' academic achievement was significantly better at 0.05 than that of the control group. Based on the results, the researchers recommended that Moodle should be integrated into the curriculum. Also, teachers and students should be prepared and trained to use it. Abo-Megheseb (2012) identified factors affecting instructors' Moodle acceptance at the Islamic University of Gaza, namely the quality of information, quality of service, system quality, technical support, reliance, satisfaction, expected benefit, and ease of use. In addition, the study showed that the 'expected benefit' is one of the most important factors determining instructors' use of Moodle.

Standard 4: Educational Interactions Quality

Garrison and Cleveland-Innes (2005) and Meyer (2002) noted that the interaction between teachers and students about the course content is one of the most important parts of the educational process, particularly in the context of online education, as it is linked to the learner's satisfaction and attitude. Moreover, Barker and Gossman (2013) conducted a study on the impact of a virtual learning environment (Moodle) on the learning of 248 second-year students at a Sixth Form College in England. The results showed that teaching through Moodle had a clear impact on improving students' achievement, developing students' independent learning skills, and increasing students' motivation to learn. The study also stressed its importance to teachers, as they identified areas for development in promoting the use of Moodle to enhance learning.

Standard 5: Educational Content Quality

The literature review reveals some other characteristics of e-learning, such as flexibility in time and space, and the provision of teaching and learning opportunities. In a study conducted by Edwards and Fritz (1997), students reported that e-learning was interesting and exciting. They also reported that e-learning allowed them to achieve the desired educational objectives; they were able to learn new concepts and apply them in a better way. Moreover, the researchers pointed out that the outcomes of electronic educational materials were better than those of traditional educational materials. Mishra (2002) summarized a set of standards for designing e-content. He stressed the importance of taking these standards into consideration to distinctively differentiate between e-learning and traditional learning. These differences are in the content, electronic processing, and maximum benefits of educational technology applications in e-learning.

Standard 6: Service Quality

Pham, Limbu, Bui, Nguyen, and Pham (2019) found that e-learning service quality is positively related to learner satisfaction. Lary (2002) identified student and environmental factors that contribute to completion of and success in online courses. The results of the study emphasized the significance of factors related to both the student and the learning environment. Another study (Sumak, Heričko, & Pušnik, 2011) sought to identify the factors affecting students' willingness to use an e-learning environment. Their study involved a group of 235 higher education students. The results indicated that e-learning usage depends on three factors: Perceived Usefulness (PU), Attitude Toward Using (ATU) e-learning, and Perceived Ease of Use (PEOU).

2.2. The Research Context

In light of the empirical evidence supporting the effectiveness of e-learning resources, Sultan Qaboos University (SQU), Oman, opted to employ these resources in its educational process. SQU started its e-learning project in 2001 with the aim of improving educational development and enhancing educational outcomes. They first adopted "WebCT" as an LMS for managing the e-learning process through networks that enable instructors and students to communicate and interact with each other and with the content of e-courses. In 2005, the university implemented the e-learning management system Moodle, which is still in use at the time of the current study.

To understand the reality of e-learning from the viewpoint of the students of the College of Education at SQU, Issan and Al-Ani (2007) conducted a study on a sample of 165 students. The results revealed a set of advantages and disadvantages of e-learning in the College and showed that there were statistically significant differences in the variable "Studying a course using an e-learning method" for those who had not previously studied using an e-learning method. The author measured the effectiveness of presenting the "Study Skills" course electronically via Moodle. The study instrument consisted of an achievement test that was administered before and after the experiment on a study sample of 60 students. The results of the study indicated the effectiveness of the system in developing students' academic achievements. The results also showed statistically significant differences in favor of female students. However, there were no statistically significant differences between students in the literary and scientific fields. Abdelraheem (2012) attempted to determine the College of Education students' perceptions of the quality of interaction in Moodle. The results showed that students perceived the quality of interaction positively with no

statistically significant differences between the students in terms of gender, GPA, computer experience, or individualized learning experience. When ranking different types of interaction, the students ranked self-interaction highest, followed by interaction with the instructors, and finally interaction with the content. The study, therefore, recommended that higher education institutions continue using Moodle, and should encourage faculty members to adopt it in their teaching because of its useful features.

In the interest of continuing to improve the educational process in conformity with modern education systems, technological advancements, and the emergence of new patterns of teaching and learning, SQU decided to offer some courses through the virtual classroom system within the Moodle e-learning platform. The initiative was trialed with the elective course "TECH1000: Study Skills", which is taught by one of the researchers. Moreover, the e-learning regulations at the university were approved in Summer 2019.

3. Problem Statement and Research Questions

The literature review and the efforts undertaken by both academicians and administrators at SQU clearly indicate the importance of e-learning in general, and the utilization of the Moodle LMS in the curriculum in particular. It reflects SQU's interest and desire to expand the use of Moodle in the educational process and achieve quality and accreditation for all academic programs. However, the reality indicates a number of deficiencies that limit effective achievement and quality improvement. The researchers, while teaching an elective course that is delivered online through Moodle to undergraduate students, observed a lack of certain crucial quality elements in the Moodle system. To substantiate this observation, the current study seeks to answer the following questions:
1. How do students view the quality of e-learning at Sultan Qaboos University?
2. Are there statistically significant differences between the students' perceptions of LMS quality due to their gender, academic year, and study experience with Moodle?

4. Significance of the Study

The significance of this study can be summarized in the following points. The study aims to:
- Keep pace with the new trend at SQU to teach a range of courses via Moodle
- Determine a set of criteria against which the quality of the e-learning management system (Moodle) can be evaluated
- Provide a clear picture to the officials at SQU in particular, and Omani higher education institutions in general, about the reality of practices related to employing the e-learning management system (Moodle) in the educational process

5. Study Methodology and Procedure

5.1. Study Approach

This study employed a descriptive analytical approach as the most suitable approach for the purpose of data analysis.

5.2. The Population and Sample of the Study

The study population consisted of all undergraduate students at SQU who were registered in the academic year 2018-2019. The total number of students during this academic year was 15,174, spread across nine colleges. As for the study sample, 1,950 students from all the colleges were chosen at random, and a survey was administered to collect the data. 92 questionnaires were found to be incomplete. Thus, the number of completed questionnaires was 1,858. Hence, the study sample is equivalent to 12.2 % of the study population. Table 1 provides an overview of the study sample according to the independent variables.

Table 1. Overview of the study sample according to the independent variables.

Gender College	Male		Female		Sum.	Percentage
	N	Percentage	N	Percentage		
Arts and Social Sciences	100	11.2	212	13	312	12.4
Economics and Political Science	60	4.9	51	4.1	111	4.5
Education	108	15.3	291	24.2	399	20.9
Nursing	22	18.6	44	11.9	66	13.5
Law	84	16.5	108	22.5	192	19.4
Medicine and Health Sciences	82	19.6	104	15.2	186	16.9
Science	73	8.1	171	13.8	244	11.4
Agricultural and Marine Sciences	18	3.9	85	14.9	103	8.9
Engineering	178	9.5	67	12.6	245	10.1
Total	725	107.6	1133	132.2	1858	118

5.3. Study Instrument

The present study relied on a questionnaire to collect data. This questionnaire had 48 statements distributed among six domains, namely: "Performance Quality of the Faculty Member", "Quality of the Technical System", "System Effectiveness", "Quality of the Educational Interactions", "Quality of the Educational Content", and "Quality of the Service".

5.3.1. Validity and Reliability

For review panel validation, the survey was presented to 7 reviewers from the departments of Instructional and Learning Technologies, Curriculum and Instruction, Psychology, and Educational Administration at SQU, in addition to 4 Moodle system supervisors from the E-Learning Support Department at the University's Centre for Educational Technology, who reviewed the validity of the survey. They were asked to review the statements and

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express their opinion as to whether the statements were appropriate and measured what they were designed to measure. Their suggestions and opinions were discussed and taken into account, and the statements were amended accordingly. In the following stage, it was decided that an agreement by 75% of the arbitrators on a particular statement would validate the statement for inclusion in the final questionnaire. As a result, seven statements were excluded from the original version; thus, the number of statements in the final version was 48. The responses to these 48 statements were subjected to statistical analysis. Cronbach's alpha was used to determine the reliability of the tool. The Cronbach alpha value was 0.94, which is considered an appropriate value for the reliability of a research tool.

5.4. Data Analysis

To obtain answers to the research questions, the data were entered into Statistical Package for Social Sciences (SPSS) Version 22, and statistical analysis was performed.

6. Results and Discussion

Research Question One (1): To answer this research question, a descriptive analysis was performed on the data collected from the study sample for the six domains, and the results are shown in Table 2.

Table 2. The results of the descriptive analysis for the six domains of quality.

St.	Domain	No. of Items	Min	Max	Mean	Level	Rank
1	Faculty member performance quality	6	1	5	3.36	High	4
2	Technical quality of the LMS (Moodle)	9	1	5	3.54	High	1
3	LMS (Moodle) Effectiveness	9	1	5	3.39	High	3
4	Educational interactions quality	13	1	5	3.23	Medium	6
5	Educational Content quality	5	1	5	3.49	High	2
6	Service quality	6	1	5	3.34	High	5

Table 2 shows that students regard the levels of the various quality domains of the LMS at SQU as high, except for the fourth domain, which reached an intermediate level. This finding differs from that of Abdelraheem (2012). It can also be noted that the highest levels were found to be in the second domain, while the lowest levels were in the sixth domain. One reason the highest quality was reported in the second domain is possibly that the university pays special attention to the application of technology in most of its services. In addition, it provides facilities to students, such as online registration and other online services, including master timetable services, degree plans, the option to add or drop courses, e-learning services, library services, results announcement, and more.

Moreover, it seems that the ranking of the sixth domain in the fifth position is probably because most of the students' dealings, especially males, take place during vacations and evenings, i.e., times at which students suffer from a lower service quality, which will be further discussed in the results of the second research question. This result is consistent with the findings of many studies, such as Repman and Logan (1996).

The results of the study were in line with Simanullang and Rajagukguk (2020). They found that an LMS may improve the learning process of higher education students. The study highlighted indicators leading to improved learning quality in higher education settings. Among them, support tools and discussion were ranked as the top indicators. In addition, the development of specific activities increased the quality of LMS learning from the students' perspective.

Research Question (2): To examine this research question, a one-way analysis of variance of differences (ANOVA) was conducted, and the results are shown in Table 3.

Table 3. One-way ANOVA regarding the quality of the e-learning system (Moodle) according to gender.

Domain	Gender						t-value	Sig.
	Male			Female				
	N	Mean	Std. Deviation	N	Mean	Std. Deviation		
First	725	20.35	4.09	1131	20.07	4.52	1.37	0.172
Second	725	31.78	5.64	1131	31.86	5.83	0.28	0.779
Third	725	30.87	6.31	1131	30.23	6.44	2.10	0.036 *
Fourth	725	42.50	9.79	1131	41.71	10.10	1.68	0.092
Fifth	725	17.53	3.51	1131	17.47	3.71	0.35	0.729
Sixth	725	20.21	4.43	1131	19.91	4.27	1.45	0.146
Total	725	163.24	27.74	1131	161.24	28.86	1.48	0.139

Note: *Significance at the level of (0.05).

Table 3 shows that there are statistically significant differences in the students' viewpoints on the quality of the e-learning system (Moodle) at SQU based on the gender variable (male/female). The difference was in favor of the males, while there are no statistically significant differences in any of the other domains or their total. The researchers' experiences of teaching "study skills" for a period of more than ten years confirm that the presence of statistically significant differences in the "system effectiveness" domain is a natural result and is consistent with reality. The researchers have observed that the students' ability to study courses through the Moodle system is dependent on a variety of factors, such as the student's ability to control and manage their time, the ease of referring to educational material whenever they need it, and the option of having full freedom to choose a convenient place and time to learn. All these factors increase a student's motivation for learning, and they are in agreement with the principles advocated by modern learning theories. This result is consistent with the result of Teeter (1997) that showed an increase in students' motivation and improvement in their ability to discuss and complete assignments after studying one of the e-courses. In addition, the finding of this study validates the results of Ugwoke, Edeh, and Ezemma (2018) that using an LMS has a significant effect on students' academic achievement. It seems that LMS has a great capacity to promote good study practices both within and outside the classroom. Using an LMS may

increase the active involvement and participation of students in online classroom settings, which leads to continuous learning.

As far as the difference in favor of males, it is a natural result that is consistent with the reality of the study population's university life; since most of the female students reside on campus, where they can access the internet from all university facilities, they do not have any problems accessing the courses offered through the e-learning system (Moodle). On the other hand, the male students reside off-campus, where internet services are only available to those who subscribe and pay for them, which not all students can afford. In addition, the nature of off-campus housing plays a role; space is limited, but a large number of male students from different colleges and specializations, as well as from different regions, live together. For the male students, taking part in online courses is thus limited to the time they spend on campus. This makes male students more aware and appreciative of the effectiveness of the Moodle system in teaching and learning.

Research Question (3): To examine this research question, an ANOVA test was conducted on the variable of the number of academic years, and the results are depicted in Table 4.

Table 4 shows that there is a statistically significant difference in the students' viewpoints regarding the quality of the e-learning system (Moodle) at SQU according to the variable of the number of academic years that each student has spent at the university. However, this difference is in the first domain only; there are no statistically significant differences in any of the other domains or their total. Therefore, for the first domain, the researchers performed two-way comparisons between the students' study years using the t-test, and the results are illustrated in Table 5.

Table 4. One-way ANOVA of the differences in students' viewpoints regarding the quality of the e-learning system (Moodle) according to the variable of the academic year at university.

Domains	Source of contrast	Sum of squares	Degree of freedom	Mean square	F-value	Sig.
First	Between the Groups	366.03	8	45.75	2.42	0.01
	Within the Groups	34923.36	1849	18.89		
Second	Between the Groups	242.358	8	30.30	0.91	0.50
	Within the Groups	61295.22	1849	33.15		
Third	Between the Groups	199.16	8	24.90	0.61	0.77
	Within the Groups	75646.56	1849	40.91		
Fourth	Between the Groups	630.76	8	78.85	0.79	0.61
	Within the Groups	184284.76	1849	99.67		
Fifth	Between the Groups	127.32	8	15.92	1.21	0.29
	Within the Groups	24396.94	1849	13.20		
Sixth	Between the Groups	146.29	8	18.29	0.97	0.46
	Within the Groups	34726.36	1849	18.78		
Total	Between the Groups	6521.44	8	815.18	1.01	0.43
	Within the Groups	1493984.97	1849	808.00		

Table 5. T-values for the differences in students' viewpoints regarding the first domain according to their academic cohort at the university.

Academic Cohort	N	Mean	Std. Deviation	t-value	Sig.
2018	83	20.70	4.65	0.32	0.75
2017	243	20.88	4.37		
2018	83	20.70	4.65	1.24	0.21
2016	384	20.07	4.11		
2018	83	20.7	4.65	1.59	0.11
2015	575	19.85	4.55		
2018	83	20.70	4.65	1.37	0.17
2014	434	19.99	4.28		
2018	83	20.70	4.65	0.00	1.00
2013	120	20.70	4.06		
2017	243	20.88	4.37	2.36	0.02*
2016	384	20.07	4.11		
2017	243	20.88	4.37	3.00	0.00**
2015	575	19.85	4.55		
2017	243	20.88	4.37	2.58	0.01**
2014	434	19.99	4.28		
2017	243	20.88	4.37	0.38	0.71
2013	120	20.70	4.06		
2016	384	20.07	4.11	0.75	0.45
2015	575	19.85	4.55		
2016	384	20.07	4.11	0.26	0.80
2014	434	19.99	4.28		
2016	384	20.07	4.11	1.48	0.14
2013	120	20.70	4.06		
2015	575	19.85	4.55	0.50	0.62
2014	434	19.99	4.28		
2015	575	19.85	4.55	1.90	0.05*
2013	120	20.70	4.06		
2014	434	19.99	4.28	1.63	0.10
2013	120	20.70	4.06		

Note: *Significance at the level of (0.05); **Significance at the level of (0.01).

Table 5 shows that there are statistically significant differences in the students' viewpoints regarding the performance quality of the faculty member according to their academic year at the university. This difference is

statistically significant between the 2017 cohort and each of the 2016, 2015, and 2014 cohorts. It is in favor of the 2017 cohort. The researchers believe that this result can be explained by the fact that the 2017 cohort students were more fortunate than the other three cohorts. It is only in Spring 2018 that the university began to deliver a set of university elective courses and university requirement courses completely (100%) electronically through Moodle. It provided a greater opportunity for students of the most recent cohort (2017) to study courses via this system, and their evaluation of the performance quality level of faculty members in the e-learning environment is, therefore, more accurate than that of the older cohorts (2016, 2015, and 2014), considering that at the time of the current research most of these cohorts had already completed the courses, and some of them were about to graduate.

Research Question (4): To examine this research question, a one-way analysis of variance of differences (ANOVA) of the variable 'student's study via the Moodle system' was carried out, and the results are shown in Table 6.

Table 6. The results of one-way ANOVA of the differences in students' viewpoints regarding the quality of the e-learning system (Moodle) according to the 'student's study via the Moodle system' variable.

Domain	Dealing with Moodle / Studying via Moodle						t-value	Sig.
	Yes			No				
	N	Mean	Std. Deviation	N	Mean	Std. Deviation		
First	1476	20.33	4.36	381	19.59	4.30	2.96	0.003 **
Second	1476	32.00	5.67	381	31.18	6.04	2.49	0.013 *
Third	1476	30.64	6.32	381	29.87	6.64	2.08	0.037 *
Fourth	1476	41.85	10.06	381	42.63	9.66	1.36	0.175
Fifth	1476	17.55	3.57	381	17.23	3.85	1.54	0.125
Sixth	1476	20.04	4.24	381	19.97	4.68	0.27	0.786
Total	1476	162.41	28.23	381	160.47	29.19	1.19	0.236

Note: *Significance at the level of (0.05) **Significance at the level of (0.01).

Table 6 indicates that there are statistically significant differences in the students' viewpoints regarding the quality of Moodle at SQU according to the variable of student's study via Moodle. It was in favor of the option "Yes" in the second and third domains. However, there are no statistically significant differences in any of the other domains or their total; a finding confirmed by Amer (2022). It is also worth mentioning that the final results for the second and third domains differ from the findings of Issan and Al-Ani (2007). The researchers believe that the trend of the differences in favor of those who deal with the Moodle system personally is consistent with the reality at SQU, especially since most of the respondents belong to the colleges of science, education, engineering, medicine, and economics, where a significant percentage of faculty members utilize and deal with the Moodle system, whether by uploading the whole course to the system or limiting their Moodle content to the course outline and some assignments to be carried out by the students. The researchers' beliefs are further supported and confirmed by the increase in the number of students from the above-mentioned colleges who register for the university's elective online "Study Skills" course compared to their counterparts from other colleges. This is also based on the researchers' observations made while teaching an online elective course for SQU students over a period of more than ten years.

7. Conclusion

The results of the study highlighted the significance of the LMS to students' learning from the students' perspective. Specifically, this study highlighted the importance of Moodle as an online learning platform at SQU, a higher education institution. This study confirms the considerable amount of previous literature on the quality evaluation of LMS that some variables play significant roles in creating a high-quality LMS. Providing quality feedback may play an additional role in this regard. The findings of the current study support the position of Moodle as one of the most popular LMS applications as it was found to be not only very appropriate for online learning but also to offer solutions to instructional problems; therefore, it may increase the quality of instruction as experienced by students.

8. Recommendations

The findings of the study, as discussed under each of the research questions above, lead us to provide the following recommendations. The university should:

- Boost the role of e-courses at university level by taking advantage of the services available on the internet.
- Increase the number of training programs and workshops on designing e-courses offered to faculty members by the Center for Educational Technology (CET) at SQU.
- Introduce training programs and workshops for students to disseminate the culture of e-learning management systems.

These recommendations, if implemented, may help to enhance the amount and quality of learning at Sultan Qaboos University.

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