European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.10, No.2, 2018

Impact of E- Learning on Students Performance in NCT

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Abstract
Online learning management systems are in use to facilitate the face to face learning process in many educational institutions to upgrade the learning skills of students and enhance their knowledge. There are many variables that form and influence a student's perception of an online learning management system. This study investigates whether there is a relationship between the perception of a student regarding the learning management system and their actual usage of such system. It is believed to help better understand the student usage of online learning management system. An online questionnaire was published on an e-learning management system for diploma students and the student participation was voluntary. Results indicate that different specialization students are comfortable in using computer and internet and also their learning scope has widened due to Moodle usage. Interestingly, different gender students are not equally comfortable using computer and internet and also their learning scope has not widened equally due to Moodle usage.
Keywords: Moodle, Specialization, educational institutions, learning management system.

1. Introduction

Technology plays a significant role in many aspects of day-to-day life and education is not different. Technology is rapidly changing in the education field. Computers have replaced chalkboards as they are used as an instrument in classrooms today. And it's not just happening in higher education; technology is part of education for children of all ages. It's also a part of their daily lives. The technology is influenced in the education of student that effect on curriculum and development of performance of students. The change in teaching and learning methodology and practices, the media application that needs in education and the development of media classification, quantitative and qualitative expansion of education.

A teaching method comprises the principles and methods used by teachers to enable student learning. These strategies are determined partly on subject matter to be taught and partly by the nature of the learner. For a particular teaching method to be appropriate and efficient it has to be in relation with the characteristic of the learner and the type of learning it is supposed to bring about. New methods of design and selection of teaching methods must take into account not only the nature of the subject matter but also how students learn. In today's education era the trend is that it encourages a lot of creativity. It is a known fact that human development comes through reasoning. This reasoning and original thought enhances creativity. There is no doubt that in this age of technology and speed we need to keep up with the development and take a new course of education in a different way from classroom education, in which the role of the teacher is the instruction of his students, so many institutions went to e-learning, which is one of the most important education because of its benefits in developing the educational process.

One of the innovative method of imparting education is E-learning. E-learning have many benefits for students like: Create dialogue rooms and gather students and teachers in them which gives the student greater opportunity to discuss and understand the material, the ease of communication between the teacher and the student at anytime and anywhere even outside the official working hours, and give the student enough opportunity to ask questions regarding the subjects, Use pictures, illustrations and video to explain the material to students....etc. E-learning is a learning tool that is in line with the age and its changes, to achieve the great benefit of the learner using modern methods to support the educational process. This method achieves a high degree of creativity and helps to develop the skills of the recipient and reduce the indoctrination. Educational, computers were the first basis, and then began to develop devices so easy access to information. E-learning enables the individual to learn according to his / her time, potential, energy and abilities. He will learn what he wants and will get the expertise he is looking for. To access e-learning, there must be a computer or a device with access to information and internet access updated. A key advantage to getting your learning online and multi-device is that it ensures you are in sync with modern learners - delivering the type of content they want, when they want it. Get learners on-side, and you're more likely to get the results you need. Plus, digital, self-paced learning can be accessed at point of need, not somewhere else - like a classroom far away - so students can apply what they've learnt straight away. By providing an alternative to the paper-based learning and testing of traditional classrooms, e-learning is an effective way for organizations to significantly reduce their carbon footprint.

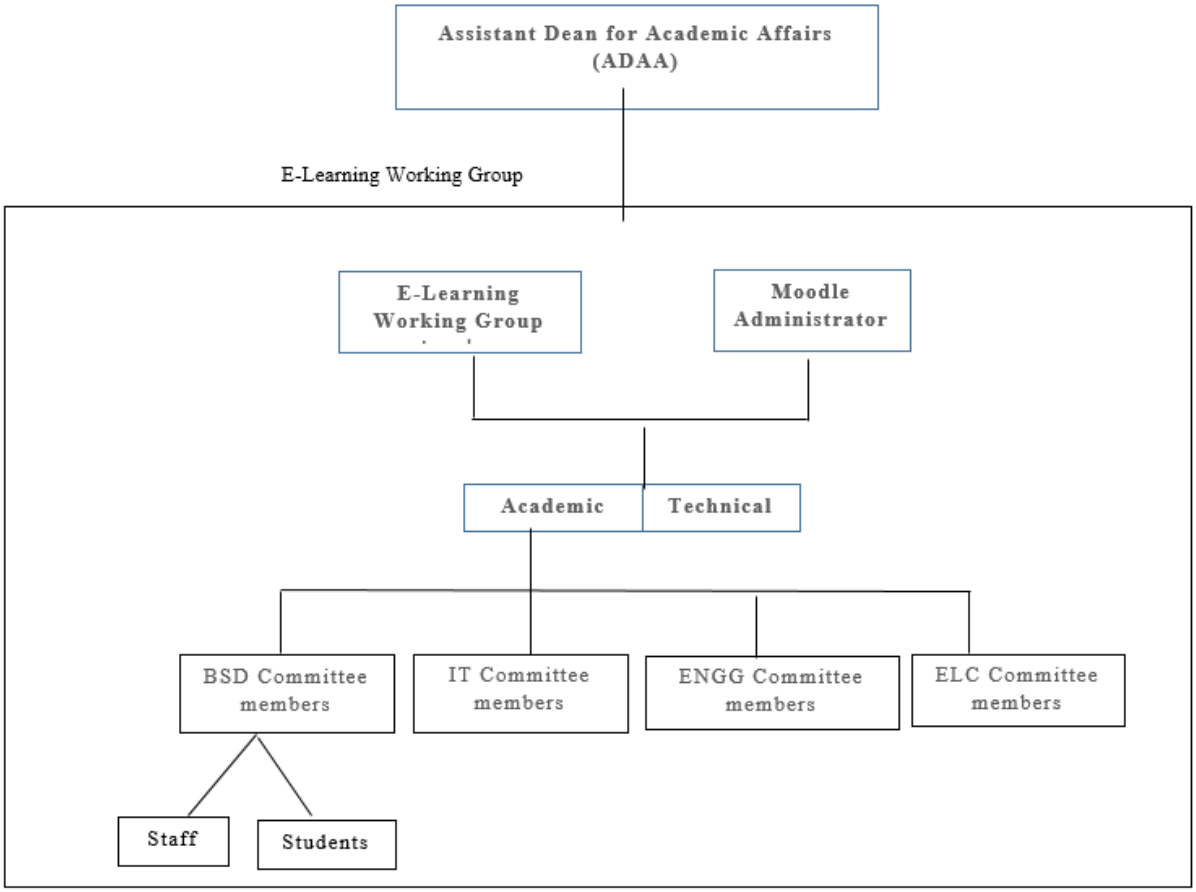
2. Background

With the rapidly increasing popularity of the Internet, the delivery of learning programs has gradually shifted

from local desktop to online based applications. Many educational institutes have tried to bring in learning management systems to facilitate the face to face learning process. At Nizwa College of technology, Moodle was started in 2007. Moodle is an Open Source course management system for online teaching and learning. The acronym MOODLE stands for Modular Object Oriented Dynamic Learning Environment. Moodle was developed from a social constructivist perspective by Martin Dougiamas at Curtin University in Western Australia. (Dougiamas & Taylor, 2003, Cited in Kennedy 2005). The acceptance and adoption of Moodle has been extremely successful and at the time of writing, in 196 countries there were more than 39000 registered Moodle sites and it was available in more than 70 languages.

Nizwa College of technology adopted to use Moodle for all academic and course related activities within a span of few years. The entire college consisting of Department of Engineering, Department of Information Technology and Department of Business uses Moodle to manage its diploma, advanced diploma and Bachelor courses and its user base has grown to about 5400. However, during the past few years it was observed that the students did not respond to the notices made through the Moodle regarding lecture schedules, additional reading material introduced and even assignments made available through this system. Every time an assignment or a new resource material was made available there would be only few students who would be aware of that. The details of the number of students who have visited a particular resource could be extracted from the system logs and these numbers were not encouraging. At Nizwa College of Technology few research were conducted in the past regarding the students skills, knowledge and attitude towards learning different courses etc. This study is a preliminary investigation attempting to ascertain a relationship between the perception of the system and the actual use of the system

Process of E-learning (MOODLE) at NCT



E-learning has become an integral part of NCT. It is also used as an instrument to implement SCL (Student Centered Learning) in the college. The college has formed an E-Learning working group. The group comprises of the following members:

Group leader: - The E-Learning group leader is responsible for conducting group meetings, ensuring effective implementation of Moodle, coordinating between academic and technical subgroups and also reporting to higher authorities.

Moodle administrator: The Moodle administrator is responsible for uploading new user's staff and students to Moodle. At the beginning of every semester the administrator uploads the courses as well as students and

teachers in each class, coordinates with e-learning technical group and assists the academic units.
E-learning academic group: Leads, directs and monitors teacher's Moodle usage in their respective departments, resolves Moodle issues, coordinates with Moodle administrator to solve Moodle related issues in respective departments.

3. Review of Literature

The development of the Internet and its applications determined an increase of the role of computer-based instruments in the learning process. This is the reason why educational institutions have an increasing need to use virtual learning environments (VLE), namely an electronic learning platform that accompanies the traditional teaching-learning-assessment process. As a result, a series of applications appeared, having the role to enable the integral management of the on-line learning process, as well as the blended learning-type applications (Popat, K, MacLean, H, Heppell, S., 2007) This type of platforms have two roles: on the one hand, they enable the content management (courses, homework), ensure synchronised collaboration (by chat, videoconferences), as well as non-synchronised collaboration (forum, messages, blog.) and, on the other hand, they can be used in managing the courses and the students that applied for these courses (Weller, M., 2007). According to Maikish (2006), online teaching and learning environment can be beneficial to both the students and teachers, which work well for the education goals in terms of curriculum. "E-learning is widely used in universities, other educational institutions and commercial organizations all over the world. It is growing more and more popular, and an increasingly large number of institutions are working on creating better tools for e-learning" (Hölbl The Online Journal of New Horizons in Education – April 2015 Volume 5, Issue 2 www.tojned.net Copyright © The Online Journal of New Horizons in Education 15 and Welzer, 2010). Hsu (2011) stated in her study that face to face learning grouped with E-learning, bridges the gap between students and instructors. According to Alkhanak and Azmi (2011), students like to take those courses, which include the use of Information Technology and point out that activities offered through e-learning systems are more useful and valuable as compared to traditional classroom activities. A study done in Oman on the use of MOODLE showed that those students who were introduced to online learning environment through MOODLE, had encouraging, optimistic and positive approaches and attitudes towards MOODLE. Their learning was improved and their understanding of the course material was better. Most students preferred a face-to-face approach, supported with online material and activities (like E-mails or chat sessions etc.), as a favourite mode of learning (Ahmad & Al-Khanjari, 2011). A study on the use of MOODLE in Higher Education reported from Saudi Arabia revealed that it is used mostly for sharing and distributing learning materials. Most of the participants found it easy to use and were highly satisfied. Teachers appreciated the possibility of an out-of-classroom communication with students, and the ease with which the resources could be managed digitally and provided to the students at all times. Respondents also noticed positive changes in their courses after the adoption of MOODLE though female students shied away from using the system or used fake names to conceal their identities and registered with male names (Daoud, 2007). A study done for an English language course in Slovenia showed that the MOODLE platform was helpful, useful and timesaving. Above all, it had a positive influence on the students' language learning. The results also showed that the learner type, i.e. whether a full-time or a part-time student, had no influence on a student's perceived usefulness of the virtual learning environment. Upon further examination of MOODLE, it was determined that all participants in the study downloaded lecture notes and homework activities (Zoran and Rozman, 2010). A study done in Hong Kong discusses the benefits and issues in using MOODLE for understanding the use of ICTs in education among the students and teachers there. The investigators observed that in times when the education budgets are very low, use of open-source systems instead of licensed ones substantially reduce the costs for schools and universities. MOODLE can provide a low cost solution in classrooms, particularly for schools (Kennedy, 2005).

4. Statement of the problem

Technological innovations are becoming very popular in the field of education throughout the world and is being used intensively to improve student performance. As we are witnessing a gap between implementation and learning of these innovative methods at the educational institutions. This study is focused on how to make students learn effectively and efficiently at Nizwa College of technology and to make them study according to their convenience from anywhere.

5. Objectives and Scope of the study

- To know the intentions of students on Moodle usage.
- To understand the level of usage of Moodle by the students at NCT.
- To analyze the improvements among students after using Moodle.

The scope of the study is confined to Nizwa College of technology covering various departments like Engineering, Information technology and Business and it is restricted to the e-learning method and the

respondents are limited to diploma year one and two only. The research has been conducted between September-December 2017.

6. Research Design and Methodology

It is a descriptive study, conducted to know the latent intentions of the respondents towards usage of Moodle. The area selected for this study are the students of Nizwa College of technology across three departments—Engineering, Business studies and IT. Out of a total population of students studying in three departments of NCT, a sample of 95 students were taken for our research which comprised a mix of Male and Female Students. The sampling method adopted for the collection of samples is simple random sampling method, wherein the students were contacted on random basis. Data is collected from primary and secondary sources. The supportive literature review and the conceptual framework are taken from secondary sources. Primary data is collected with the help of a structured questionnaire. The instrument consisted of closed ended questions which helps the respondents to give proper responses. A list of 17 questions are included that addresses the objectives of the study. Data is analyzed with the help of percentage method. Graphs and tables are presented that are relevant to the objectives of the study. Mean values were calculated for identifying the significant factors by using MS Excel and Chi-square test was used by using SPSS.

Hypotheses

1. Ho: Different specialization students agree that they are comfortable using computer and internet
   Ha: Different specialization students do not agree that they are comfortable using computer and internet
2. Ho: Different specialization students agree that their learning scope has widened due to Moodle usage
   Ha: Different specialization students do not agree that their learning scope has widened due to Moodle usage
3. Ho: Different gender students agree that they are comfortable using computer and internet
   Ha: Different gender students do not agree that they are comfortable using computer and internet
4. Ho: Different gender students agree that their learning scope has widened due to Moodle usage
   Ha: Different gender students do not agree that their learning scope has widened due to Moodle usage

7. Results

Likert scale was used to analyze the data. The analysis was done based on four parameters i.e. awareness, understandability, applicability and value addition (AUAPVA). We calculated the mean score of all the variables. Then we find out the most significant variable in each parameter. The following table indicates the mean scores for each variable and also the most significant variable.

Table no: 1 Mean score of all the variables (AUAPVA)

Sl.no	Questions	Mean
1.1	The college has provided proper training on usage of E-Learning	**2.70**
1.2	The college gives me enough information about Moodle.	2.69
1.3	The college encourages the student to use e-learning	2.09
1.4	The teacher contribution is remarkable in using E-Learning.	2.62
2.1	I am prepared to learn and study in E-Learning environment.	2.62
2.2	I am comfortable using computer and internet.	**2.75**
2.3	I am prepared to learn the necessary skills required to be successful in the E-course learning.	2.56
2.4	E-Learning is very effective in helping me reach the course objectives.	2.52
2.5	E-learning is easy to use and also beneficial for students.	2.59
2.6	I can use the college Moodle anytime and anywhere (24x7)	2.61
3.1	The online discussion makes me independent to express my opinion.	2.64
3.2	I am able to maintain a schedule and complete work without any delay.	**2.65**
3.3	E-Learning gives students motivation and ease of study.	2.59
3.4	I had enough time to complete all my online activities and assignments online.	2.64
4.1	My learning scope has widened due to Moodle usage.	2.61
4.2	By learning in both online and face to face environment, I can interact with the course content more frequently.	2.64
4.3	I am able to enhance my skills in managing time.	**2.65**
4.4	E-Learning develops my critical thinking ability.	2.54
4.5	Moodle (E-Learning) facilitates in problem solving.	2.56
4.6	I am satisfied by the technical support provided by the college for E-Learning.	2.55

From the awareness perspective it was observed that the students agreed that the college is providing necessary training on the usage of Moodle and also enough information about Moodle is provided. It is also relevant that the students require more encouragement on Moodle usage from college. Student understanding of Moodle indicates that most of the students agree that they are comfortable using computers, internet and they are ready to study in the E-Learning environment. However, more effort has to be made to make E-Learning

effective in helping the students to reach their course objectives. From the application perspective we have found out that most students agree that they are able to maintain a schedule and complete their work without any delay. It is also relevant that students need more motivation and simplicity in learning and using Moodle. The improvement factor indicates that students are be able to enhance their skills in time management, whereas more focus should be given developing critical thinking among students.

Testing of Hypothesis

We used Chi square test for testing the hypotheses in our research. It was gender and specialization wise with reference to the other variables.

Ho: Different specialization students agree that they are comfortable using computer and internet

Ha: Different specialization students do not agree that they are comfortable using computer and internet

Table no: 2 Specialization - I am comfortable using computer and internet.

			I am comfortable using computer and internet.				
			strongly agree	agree	disagree	strongly disagree	Total
	Business	Count	7	16	8	7	38
		Expected Count	11.2	13.2	8.4	5.2	38.0
	IT	Count	11	15	7	1	34
		Expected Count	10.0	11.8	7.5	4.7	34.0
	Engineering	Count	10	2	6	5	23
		Expected Count	6.8	8.0	5.1	3.1	23.0
Total		Count	28	33	21	13	95
		Expected Count	28.0	33.0	21.0	13.0	95.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.947[a]	6	.030
Likelihood Ratio	16.960	6	.009
Linear-by-Linear Association	.594	1	.441
N of Valid Cases	95		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.15.

We sampled 95 students and evaluated that the number of students agree that they are comfortable using computer and internet was equal to the students do not agree that they are comfortable using computer and internet. The data was analyzed using Chi-square test. The null hypothesis was accepted .X^2 (6) = 13.947, p = 030 ≥ .05

Ho: Different specialization students agree that their learning scope has widened due to Moodle usage

Ha: Different specialization students do not agree that their learning scope has widened due to Moodle usage

Table no: 3 Specialization - My learning scope has widened due to Moodle usage.

		My learning scope has widened due to Moodle usage.				
		strongly agree	agree	disagree	strongly disagree	Total
Business	Count	7	14	11	6	38
	Expected Count	7.2	15.2	12.8	2.8	38.0
IT	Count	4	19	10	1	34
	Expected Count	6.4	13.6	11.5	2.5	34.0
Engineering	Count	7	5	11	0	23
	Expected Count	4.4	9.2	7.7	1.7	23.0
Total	Count	18	38	32	7	95
	Expected Count	18.0	38.0	32.0	7.0	95.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.749[a]	6	.022
Likelihood Ratio	15.708	6	.015
Linear-by-Linear Association	1.320	1	.251
N of Valid Cases	95		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 1.69.

We sampled 95 students and evaluated that the number of different specialization students who agree that their learning scope has widened due to Moodle usage was equal to the students do not agree their learning scope has widened due to Moodle usage. The data was analyzed using Chi-square test. The null hypothesis was accepted .X^2 (6) = 14.749, p =022 ≥.05

Ho: Different gender students agree that they are comfortable using computer and internet

Ha: Different gender students do not agree that they are comfortable using computer and internet.

Table no: 4 Gender - I am comfortable using computer and internet.

			I am comfortable using computer and internet.				
			strongly agree	agree	disagree	strongly disagree	Total
Gender	Male	Count	13	8	6	4	31
		Expected Count	9.1	10.8	6.9	4.2	31.0
	Female	Count	15	25	15	9	64
		Expected Count	18.9	22.2	14.1	8.8	64.0
Total		Count	28	33	21	13	95
		Expected Count	28.0	33.0	21.0	13.0	95.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.659[a]	3	.301
Likelihood Ratio	3.589	3	.309
Linear-by-Linear Association	1.252	1	.263
N of Valid Cases	95		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.24.

We sampled 95 students and evaluated that the number of students agree that they are comfortable using computer and internet was equal to the students do not agree that they are comfortable using computer and internet. The data was analyzed using Chi-square test. The null hypothesis was rejected.X^2 (3) =3.659, p = .301≤ .05

Ho: Different gender students agree that their learning scope has widened due to Moodle usage

Ha: Different gender students do not agree that their learning scope has widened due to Moodle usage

Table no: 5 Gender -My learning scope has widened due to Moodle usage.

			My learning scope has widened due to Moodle usage.				
			strongly agree	agree	disagree	strongly disagree	Total
Gender	Male	Count	6	13	10	2	31
		Expected Count	5.9	12.4	10.4	2.3	31.0
	Female	Count	12	25	22	5	64
		Expected Count	12.1	25.6	21.6	4.7	64.0
Total		Count	18	38	32	7	95
		Expected Count	18.0	38.0	32.0	7.0	95.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.127[a]	3	.988
Likelihood Ratio	.128	3	.988
Linear-by-Linear Association	.083	1	.773
N of Valid Cases	95		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.28.

We sampled 95 students and evaluated whether the number of students who agree that their learning scope has widened due to Moodle usage was equal to the students do not agree that their learning scope has widened due to Moodle usage. The data was analyzed using Chi-square test. The null hypothesis was rejected.X^2 (3) =.127, p = .988 ≤ .05.

8. Discussions and Conclusion

E-learning is not just a change of technology. It is part of a redefinition of how we transmit knowledge, skills, and values to younger generations of students. E-Learning is not going to replace conventional methods and learning in classrooms, but it will create a better learning environment which is aimed to improve an individual's participation and achievement of goals in the learning process. On the completion of this research we can say that NCT is making adequate efforts towards making a complete E-Learning environment, still more efforts are needed towards few aspects. From the research it evident that students are able to understand and apply the online concepts. The learning scope of students has widened and they are also developing critical thinking ability. As this is the age of technology they want to use the technology in an efficient way.

Now a days the world tends to advance in technology and e-learning is one of that technologies which is growing fast. This research helped us to find out the students perspective towards E-learning and most of the student's aspects were covered. The results indicate that the college is providing necessary training on the usage of Moodle and also enough information about Moodle is provided. Student understanding of Moodle indicates that most of the students are comfortable using computers, internet and they are ready to study in the E-Learning environment. However, more effort has to be made to make E-Learning effective in helping the students to reach their course objectives. Students are able to maintain a schedule and complete their work without any delay and they are be able to enhance their skills in time management, Hence, students need more motivation and simplicity in learning and using Moodle. It is inferred that different gender and specialization students have difference of opinion in using computer, internet and their improvement in learning scope has widened due to Moodle usage.

9. Recommendations

Measures should be taken to increase the awareness among the students from various specializations by imparting induction programs. Improving the technical support will bring significant difference in students learning. The students and staff both are required to be trained extensively so that they can utilize the various features of Moodle. Few aspects are needed to be improved to make it more student friendly and easy.

10. Scope for further research

Present study can be extended to the different levels of students in various specializations at Nizwa College of technology and further it can be extended to all the colleges of technology in Oman to improve the e-learning effectiveness and enhance the knowledge of students in Oman.

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