INVOLVEMENT OF STUDENTS IN E-LEARNING

By

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ABSTRACT

The involvement of E-learning activities for students in the classroom play an important role in the teaching and learning process. In this paper, the authors describe how we collected information from 3-different Colleges/Universities in Oman forming an online study with regard to the use of internet, e-library, online book access, and familiarity with the college portal. Determination of traditional teaching methods and reimbursements of E-Learning methods are practiced. A number of interviews from students and teachers are presented. A software R that gives the p-value used to see significant (α-level) level in different groups. Students and teachers were interviewed in using of smart and normal board, size of the students in the class, learning-teaching-solving software, and online E-learning websites.

Keywords: Internet, Websites, E-books, College Portal, P-value.

INTRODUCTION

From the last century, great philosophers have shown an interest in bringing about change in the civilization of young people through education. Accordingly, many cognitive theories of education have evolved, plus new teaching methods, and student centered instructional materials have been established. Teachers were trained according to the needs of the time. During the 20th century considerable research was carried out in social learning, psychological and other dimensions of the learning process. Lorin Anderson in his Revised Blooms Taxonomy precisely gave impact on the E-learning. Hence, a curriculum was designed for different age groups to cope with the requirements of Analytic learners, Common sense learners, and Dynamic learners. Within this type of curriculum each topic would have something for everyone and hence a simple general education is provided for all.

In the traditional school system, students acquire facts (through rote learning) in order to understand and apply life skill concepts, all of which form the basic demands of society. Yet some students seem only interested in knowing how things work around them (common sense learners). Whereas dynamic learners go beyond the classroom into activities which are classed as a self-directed discovery method. Albert Einstein, for example, (did not care for rote learning) and resented the schools regimen and rote learning. He later learned both integral and differential calculus on his own. His theory of general relativity was developed from 1907 to 1915. Citing another example, Sir Isaac Newton could not perform well in school, and he completed his work on universal gravitation in (1679), Rizwan et al., (2008).

How human thinking can be improved, is often a mystery to the minds of curriculum planners, mathematicians, scientists, researchers, administrators, and teachers. American Psychological Association led by Benjamin S. Bloom (1948-1956), classified education goals and objectives. The framework was named as a taxonomy, and comprised 3-domains: known as the cognitive, the affective and the psychomotor domains.

- Cognitive domain is knowledge based
- Affective domain is attitudinal based

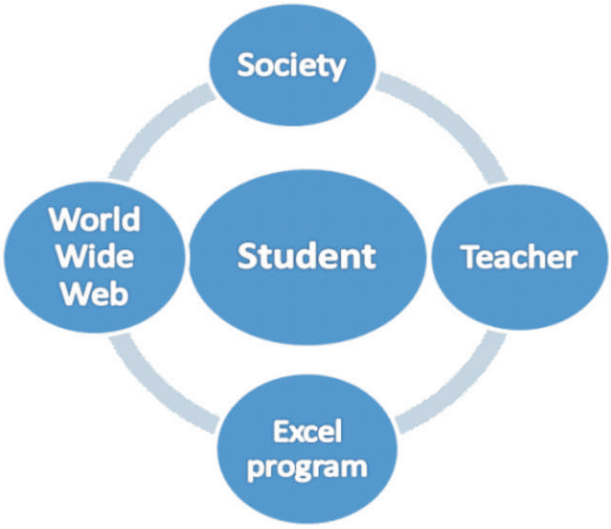

Figure 1. The Different Methods of E-Learning

- Psychomotor domain is based on skills.

Figure 1 shows the different methods of teaching and E-learning for student in terms of the 4-main domains. Within this framework, the learning of each student should be addressed differently and individually.

Traditional (rote learning) teaching methods are not able to address these problems effectively. E-learning can be used as a more effective and powerful tool for spanning the gap between the student and the taught knowledge. This concept has been explored by number of authors in the past. Bloom (1995) gave us the taxonomy of educational objectives to achieve a minimum level of learning. Wolfe (2000) put pen to paper about learning and teaching on the world web. Ebert and Thomas (2000) contributed by applying instructional design for a distant teacher. Gunn (2002) gave us the recommendations to flexible learning principles and practices. Some of the reference authors, including Freeman and Capper (1999) discussed the effects of the e-learning process in detail to providing a quality education. Recent authors, such as, S Hassan et al., (2017), Rizwan et al., (2006) and Rizwan et al., (2007) convey an optimum level of learning in Mathematics. Some referenced papers on learning in school and college are published by Brown (1993), Bush (2013), NCTL (2015), Smylie (1995).

Variations into the concept can be calculated, especially where the effectiveness of E–learning methods have been applied. The variations are then compared to traditional methods with reference to the patterns of study, such as, IQ levels and personality dimensions of the students.

This type of study was practiced on students studying in Oman with the objective of finding effective teaching ways, which are conducive to the specific desires of the students. Thus, most of the students had the benefit of advancement of technology and the process of learning technology [2]. Apart from all these activities, and using Bloom's Taxonomy (after making significant changes from Lorin, a student of Bloom) we see elementary reference to all the educators, researchers, and the class room teachers at all levels.

These include six levels:

- Remembering
- Understanding
- Applying
- Analyzing
- Evaluating
- Creating

1. What is E-Learning

E-learning is studying how to utilize electronic technology in order to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely online.

Many terms are used for learning online through the internet, from Distance Education, to computerized electronic learning, online learning, internet learning, and many others.

E-learning is the process of applying courses that are applied via the internet to somewhere other than the classroom where the professor is teaching. It is not a course that is via a DVD or CD-ROM, video tape or over a television channel. E-Learning is interactive in that you can also communicate with your teachers, professors, or other students in your class. Sometimes it is conveyed live, where you can "electronically" raise your hand and interact in real time and sometimes it is a lecture that has been prerecorded.

E-learning has brought a revolutionary change in the

business, such as e-banking, e-shopping, e-commerce. A worker sitting in one remote corner of the Globe and still be able to get an MBA from a world-renowned University/ College.

A large percentage of people (work-force) are already familiar with computers. The growth of WWW, Corporate networks, makes the learning available 24/7 to people around the clock all days in the year. E-learning is more dynamic as WWW keeps the content fresh and consistent, which can be retrieved as and when required. This makes the better learning effect than in the traditional system, where a student learns once and could be forgotten.

The nature of E-learning techniques enhances the retention rate of learners. Demonstration, simulation, learning experiences, discussion groups, chat-rooms, emails, and FAQs make the teaching-learning more communicative, and more dynamic. Students learn by eliminating the errors committed earlier in learning, without having them exposed in front of other students, unlike a traditional system.

The classification levels of intellectual behaviour is important in learning. The Registered Behaviour Technician (RBT) is a measurement tool for thinking at every level of learning. A student and the teacher are influenced by the innovations of science and technology. Within the traditional system, the classroom teacher is a resource person in providing all possible learning experiences to achieve the goals. The entire learning process is teacher centred. Unlike traditional system, in the e-learning, it is student oriented where he is influenced by RBT, WWW, teacher, and the society in which he/ she lives. E-learning plays an important role in bringing about change in teaching in teaching-learning process in making the learning environment dynamic.

Now, the authors discuss disadvantages of traditional methods of teaching, and advantages of E-Learning.

1.1 Detriments of Traditional Methods of Teaching

- Traditional teaching methods are more teacher focused than student centered.
- Traditional methods deal with the class as a whole. Therefore, it is hard for teachers to provide individual attention to their students.
- It fails to cater to a student's specific demands, especially students who have different types of learning ability i.e., visual, aural, reading, writing.
- Tutors are not available after the class.
- Writing on the board is the only activity during the class.
- Incapable to attend to the learning needs of different personality types i.e., reflective, impulsive, introvert, and extrovert.
- Difficult to handle students having different study practices and IQ levels.
- In a lecture, students are only captive inert listeners.
- Student's concentration might diminish during a class lecture.
- Internal and external factors might also create gap in the learning process.

1.2 Benefits of E- Learning Methods

- Incorporate regional, national, and international views on education.
- Support synchronous and asynchronous class rooms equally.
- Provide a variety of pedagogical strategies to the e-teacher.
- E- learning offers different types of learning style such as collaborative learning, learning communities, and project based learning.
- Provides skills in order to give versatile, customized, and dynamic learning.
- Build up the qualities among students so they become more involved in risk taking tasks, more responsible on the task given, more innovative, capable to speak, more task oriented, and more capable to see the gaps in the information provided.
- E- learning involves the student in the learning process completely and effectively.
- IT supported students can follow the non-linear approach to learning at their chosen step. This meets their individual needs.
- Excellent learning support is provided through e-

learning with broader focus on the student beyond class room.

- Easy to access the learning materials at any time convenient to them.
- An individual student performs very effectively.
- Turns lifelong learning into a practical reality.
- Is the exploratory tool in receiving the information.
- Offers a total learning experience for self-study.
- Initiate creative thinking and a sense of community.
- Makes the course materials easily available to the group of learners. For example, PPT slides.
- Enables personalization of the content.
- Allows an individual to choose his own best way to learn.
- Video lectures, it could help the student who have difficulties to attend the classes, or those who works in the desert or in remote areas.
- Video conferencing.
- Online software for Student-Teachers meeting

The E-learning can help us to go for the internet oriented learning by using software's and technology (See for instance, Figure 2).

2. Levels of E-Learning

A report was generated from a survey provided to the students at various levels of learning. The report was used to study the pros and cons of e-Learning (Figure 3 shows the significant levels of E-learning). A questionnaire was developed on providing information about the facilities, usage of web sites/internet, materials availability, technical

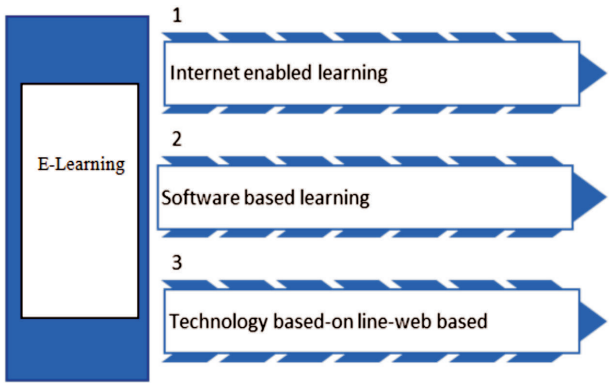

Figure 2. Internet Oriented Learning

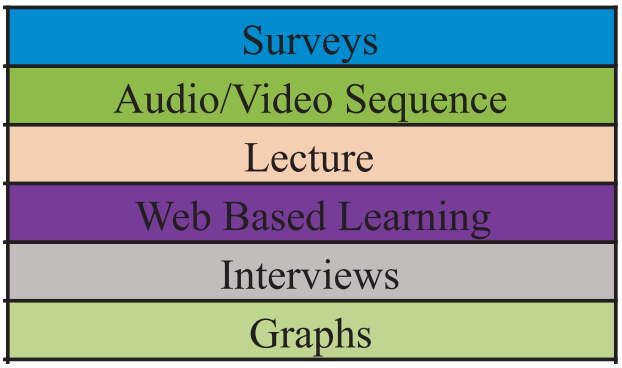

Figure 3. Levels of E-Learning

support, benefits of e-learning, and e-library.

From the questionnaire, the study was implemented and provided to three different Institutes of Oman regarding their E-learning activities, as they relate to the Internet, college portal, E-book, and interviews.

3. E-Learning Questionnaire

Statistics from all three Universities/Colleges was collated and is shown in the following data tables. The tables include Internet Survey, Websites, College Portals E-Library, and Teaching methods. Table 1 shows, data for the student's questionnaire for the Middle East College.

Figure 4 shows that almost all the students in the Middle East College agree with: the use of internet, internet is useful for E-learning, and the availability of E-learning in the University

	E-Learning Questions	Yes	No
1.	Do you use internet?	20	0
2.	Do you practice internet for more than 4 hours daily?	17	3
3.	Do you contemplate that internet is useful for E-learning?	20	0
4.	Do you feel that you can learn any topic from websites?	13	7
5.	Do you think that the websites information are 100% correct?	10	10
6.	Do you share website links with your colleagues for E-learning?	18	2
7.	Do you affirm website videos are more useful?	18	2
8.	Do you think that E-learning by internet is time saver?	17	3
9.	Do the College/University website has E-learning availability?	20	0
10.	Do you reflect that the college/university website is more useful than other websites?	6	14
11.	Do you use e-library as e-learning?	11	9
12.	Do you prefer teaching method more useful than the previous method?	18	2

Table 1. Questionnaire and Responses for the Middle East College

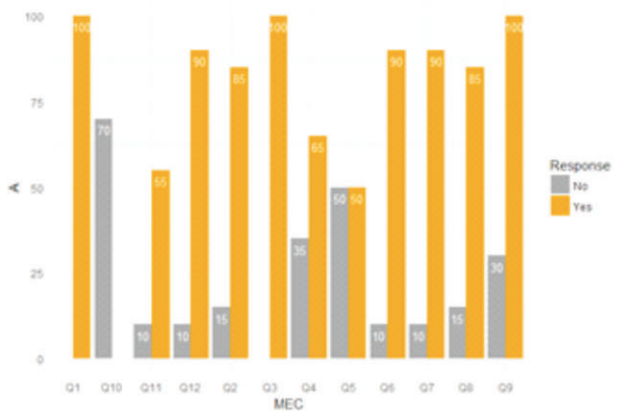

Figure 4. Data Collected from the Middle East College

/College website. On the other hand, between 60 to 70% of students do not agree that the University/College website is more useful for E-Learning than other websites. Table 2 shows the summary of students' responses from Caledonian College of Engineering. A bar chart was also produced to explore the main features of the data collected.

It is evident from Figure 5 that most of the students in the Caledonian College of Engineering agree with: the use of internet, and the availability of E-learning in the University/College website. On other hand, 60% of students think that website information is 100% not correct, also between 70-80% of the students do not use E-library as E-

	E-Learning Questions	Yes	No
1.	Do you use internet?	20	0
2.	Do you practice internet for more than 4 hours daily?	16	4
3.	Do you contemplate that internet is useful for E-learning?	17	3
4.	Do you feel that you can learn any topic from websites?	11	9
5.	Do you think that the websites information are 100% correct?	8	12
6.	Do you share website links with your colleagues for E-learning?	13	7
7.	Do you affirm website videos are more useful?	15	5
8.	Do you think that E-learning by internet is time saver?	16	4
9.	Do the College/University website has E-learning availability?	20	0
10.	Do you reflect that the college/university website is more useful than other websites?	16	4
11.	Do you use e-library as e-learning?	7	13
12.	Do you prefer teaching method more useful than the previous method?	18	2

Table 2. Questionnaire for the Caledonian College of Engineering

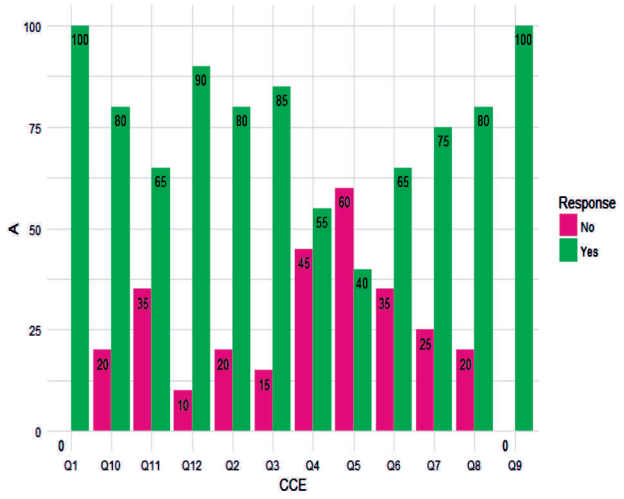

Figure 5. Data Collected from the Caledonian College of Engineering

	E-Learning Questions	Yes	No
1.	Do you use internet?	20	0
2.	Do you practice internet for more than 4 hours daily?	17	3
3.	Do you contemplate that internet is useful for E-learning?	20	0
4.	Do you feel that you can learn any topic from websites?	15	5
5.	Do you think that the websites information are 100% correct?	2	18
6.	Do you share website links with your colleagues for E-learning?	16	4
7.	Do you affirm website videos are more useful?	20	0
8.	Do you think that E-learning by internet is time saver?	14	6
9.	Do the College/University website has E-learning availability?	18	2
10.	Do you reflect that the college/university website is more useful than other websites?	17	3
11.	Do you use e-library as e-learning?	7	13
12.	Do you prefer teaching method more useful than the previous method?	16	4

Table 3. Questionnaire for Sultan Qaboos University

learning. Table 3 shows the summary of student's replies from Sultan Qaboos University.

Figure 6 shows a summary of the collected values from the Sultan Qaboos University. Similarly, it shows: that most of SQU students agree with: the use of the internet, and the internet is useful for E-learning, and websites videos are also useful. On other hand, 90% of students reason that the information provided in their University website is not 100% correct, and between 60-70% of students are against the statement that the University/College website is more useful than any other website and they do not use E-library as E-learning.

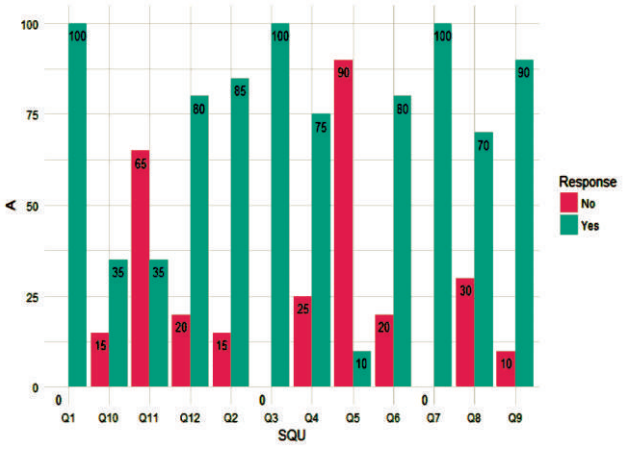

Figure 6. Data Collected from the Sultan Qaboos University

Question No.	P-value	Significant Level
4	0.01233	Not significant at alpha 1%
5	$3.398e^{-9}$	Significant
6	$8.8818e^{-5}$	Significant
7	0.03216	Not significant at alpha 1%
8	$5.398e^{-7}$	Significant
9	$2.2e^{-16}$	Significant
10	$5.22e^{-10}$	Significant
11	0.05588	Not significant at alpha 5%
12	$2.12e^{-7}$	Significant

Table 4. Significant Levels

3.1 Assessment

Evaluation of independence is used to see the two views: The Null assumption is that there is no significant difference between the student's response of the three different institutions and the alternative assumption is that the groups are dependent.

This was performed using software R, which gives the p-value. A p-value less than the level of significance, α indicates there is a significant difference among the reply of three groups. The values are summarised in Table 4. In question 4, 5, and 6 there is no significant difference between the responses of three groups. The remaining questions show that the outcomes are significant. This indicates that student replies and their level of satisfaction with E-learning sources were significantly different.

Some of the interviews were organised randomly from students and teachers. The interview questionnaire and their brief summary is given as follows.

The teachers Interview:

- What do you prefer normal board or smart board for teaching?, Why?
- In your opinion, how many students should be in each class for them to understand perfectly, and Why?
- In your opinion, what is the importance of E-learning?
- What type of E-learning you prefer?
- Do you think that one week for E-learning in each semester is enough?
- What kind of software would you suggest for E-learning?
- What are the advantages and disadvantages of E-learning?
- In your opinion, what can the collage do to improve E-learning?

The Student's Interviews:

- In which level are you?
- Do you think that E-learning is useful?
- What type of E-learning do you prefer, E-Learning website, E-Book, E-Library, college portal, or YouTube videos?
- Do you think that one week is enough for E-leaning?
- In your opinion, how long should be the E-learning period?
- In your opinion, do you prefer studying from E-learning or from teacher lecture?
- Does College portal provide E-learning?
- What do you expect that the College should provide to improve the E-learning for student?

3.2 Summary of Interviews

In general, teachers preferred to use a normal white marker board or a chalkboard because, they felt it was simple to use. On the other hand, some teachers felt that a smart board was much better to use when they compared to a normal board. Regarding the question of the number of students in each class, teachers preferred to have a class size of 20 students, as they felt that communication would be easier with a lower number of students in order to give them all equal attention. In addition, they felt that E-learning was important, and the college should allow one week for the management of E-learning. And that during

that period teachers could use different resources for E-learning. Although some teachers preferred to use video lecturing for the PT/SPT students when they are not available on campus. However, they did suggest that the college provide more software to improve learning abilities.

With reference to the interviews of students from level 1 and level 3, in general, they indicated their satisfaction with different sources of E-learning provided by the college. And they felt that one week was enough for E-learning. Plus students were satisfied with E-learning facilities, yet they preferred a more traditional method especially when the teacher provided an explanation in class. Students also realized that the college portal should provide enough E-learning, and it could be improved by the provision of more websites for students and a separate website for E-learning.

Conclusion

In this paper, the authors presented E-learning activities for three different Universities/Colleges with reference to an E-learning survey that contained internet website, E-library, teaching method and University/College portals and websites. It was seen that E-learning methods were more practical than different traditional teaching methods. In addition, a number of interviews from students and teachers (College/University) were conducted. An assessment was applied to the interviews to determine the independence of three college-collection answers. The survey was implemented using software R that provided a significant value among the three college groups of students. Random interviews were also implemented and data collected from both teachers and students, and it was used to understand the importance of E-learning. Finally, it was indicated that teachers preferred to use a normal white marker chalk or a chalk board, along with a class size of up to 20 students.

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