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Attitudes toward E-learning in Ferdowsi University of Mashhad: Case of English and Engineering Students

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Abstract
By growth of technology in the field of education, many virtual universities have been established and at a same time, using e-learning has been increased in the universities. In the present study, a mixed method was used as a methodology. In the quantitative phase it initially sought to empirically examine the students' attitudes toward e-learning in Ferdowsi university of Mashhad, virtual campus. Then, the attitudes of MA students' majoring in English translation and English teaching (English group) were compared to M.Sc. students' attitudes majoring in four engineering majors (Engineering group). A total 80 virtual students (37.5% English language group and 62.5% Engineering group) who were using e-learning and were in the last year of education participated in the study. A valid and reliable questionnaire which was adopted from Vatanparast, Royani and Ghasemi in 2009, was used to investigate students' overall attitude toward e-learning. In the qualitative phase, two open ended questions were added at the end to investigate students' views and experiences in using e-learning. According to statistics, the overall attitudes of students toward e-learning was positive and there was no significant difference between students' attitude majoring in English language and students' attitude majoring in Engineering. However, in qualitative section the students mentioned essential difficulties and gave challenging comments for more effective learning based on their experiences during these years.

Keywords
Attitudes, E-Learning, Engineering, English, virtual campus.

Introduction

These days, internet and computer has become a major part of our daily life. Developing this technology revolutionized the way we live, communicate, the way we do our business, also it has been used widely in the field of education. Developing internet has changed the world of education and helped to develop electronic learning (e-learning). Internet and computer play significant role in e-learning system. Students can stay even in their homes and receive lectures, share their ideas, watch teacher and other classmates just by use of internet and their personal computers, without being in a real physical classroom. According to Holmes and Gardner (2006) by using e-learning users can access the resources relating to learning on anyplace and any time basis [1] .

E-learning has a great presence in almost every field. Many students in developed and developing countries are using e-learning, however; increasing use of the current technology would not be successful without considering attitudes of its users. Triandis (1971) belived attitude consists of three parts. The first is affective which refers to like and dislike about a certain object. The second which refers to rational statements of teachers or students for the value of an object known as the cognitive aspect. And behavioral is the third part, it elaborates what students or teachers do or intend to do [2]. Woodrow (1991) claimed “awareness of students' attitudes towards com puters is a critical criterion in the evaluation of computer courses and in the development of computer-based curricula” [3]. According to Raaij and Schepers (2008) "the

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success of a virtual learning environment (VLE) depends to a considerable extent on student acceptance and use of such an e-learning system." [4].

Omidinia, Masrom and Selamat (2011) stated:

Every college and university in developed countries is discovering exciting new ways of using information technology to enhance the process of teaching and learning and to extend access to new populations of students. Long sides, many universities in developing countries like Iran are investing significant capital for developing virtual universities or virtual sections in the conventional campus [5].

Although the use of e- learning has been increasing in Iran these years and it has been using more than a decade, studies are still few and in their infancy stage in this area. Moreover, the public knowledge about e-learning is still limited. One of the most important factors affecting effective and efficient use of technology in education is the attitude of students about it. Therefore, the present study investigated students' attitudes toward e-learning, highlighted some useful ideas and experiences of its users, and aimed to compare students' attitudes in English and engineering group in Ferdowsi university of Iran, virtual campus.

- **Research questions**

The present study set the following questions :

- What is the overall attitudes of virtual students toward e-learning ?
- Is there a significant difference between English and engineering students' attitudes with respect to E-learning?

- **Hypothesis**

- There is no significant difference between students' attitude in English and engineering major.

Review of the Related Literature

- **E-learning**

E-learning environments have gained the world of higher education's attention, several researches aimed to focus on e-learning and tried to explain this environment. According to Banks (2011) electronic learning is a new educational alternative. Students no longer have to travel to campuses and attend the class in a specific time and place. Instead, they can receive their educational goals beside they have their ordinary lifestyle. This method in educational system not only help students to save their time but also, it helps them in the expenses associated with traveling to, or living on campus. He continued students usually can access online chats, recorded lectures, and other virtual opportunities to interact with instructors and other classmates. Some sessions require virtual attendance on specific days and times, and assignments have to be done in a specific date, but generally everything is available any time of day or night for the convenience of students [6]. By increasing the technology in educational system, tradition form of education has been revolutionized. It leads the education toward modern technological based learning and teaching process. Different kinds of technological tools have been developed because of a high demands of learners in higher education. E-learning is one of the most important innovation in educational system. E-learning can be defined as the application of broadband internet and computers in order to facilitate learning and teaching process [7]. Pop (2016) defined e-learning as an online interaction between students and teachers. Accordingly, the courses are taught online even if the teacher and students are at the building. There is students' and their teachers' choice for instruction. So he tried to illustrate e-learning as an online learning for every student in the same place or anywhere else. Furthermore, he defined distance learning and claimed although distance learning is often used as a synonym for the online learning term, it was established first to attract and gather students around the world. Many universities are now suggesting distance learning programs to every student. It is the possibility for students in a foreign country such as Europe to attend an American university without traveling to the U.S. [8].

Using e-learning has enabled universities to solve the geographical restriction. Universities have been expanded to the global level. Students are no limited in choosing universities they can educate in a university wherever they desire. According to Shaba (2000) e-learning initiatives will have direct impact on the future structure of universities on both strategic and technical levels [9]. O'Hearn (2000) stated that contemporary university structures must be changeable and adaptable, it must be able to embrace new technology in learning and expand learning process to the broaden sense [10]. Fry (2001) considered that e-learning environment will give universities a new channel of educational implementation, furthermore they will support strategic goals by assisting asynchronous discussion and networked communities. E-learning strategies within universities could be orientated around technological capabilities. He believed that if universities do not embrace the technological advancements and use them as a strategic tool, capable of transforming educational and business practices, they will be left behind the global higher education market, accordingly they have to use and develop technology in the learning process [11]. Omidian, et al. (2011) claimed in order to promote the process of teaching and learning plus access to new population of students, every university in developed countries have been discovering modern methods of using information technology. Also in developing countries such as Iran, there is a significant investment for developing several virtual universities (p.123) .

- **Attitude toward E-learning**

Students' perceptions and attitudes about e-learning have drawn a lot of attention from researchers. The attitude toward e-learning can be viewed as an umbrella for the methods of education supported by information communications technology (ICT), and specified with the consent or lack of consent of the students or lack of consent on the importance of technology and their special skills. Besides, their attitude towards E-learning can be affected by what students see as the advantages and disadvantages for this type of education. (Workman, 2005). He also argued that peoples' perception about a particular technology have an outstanding impact on their usage Which means one's like or dislike toward e-learning encourage or discourage them to use that technology [12]. Parker (2003) argued that the learners who are comfortable with technology and have a positive attitude towards it are more successful in using e- learning environment [13]. Liaw, Huang and Chen (2007) believed that when students have either positive or negative idea toward a different and new technology, it directly has influence on their behavior in using the technology [14]. According to Yaghoubi, Mohammadi, Iravani, Attaran, Gheidi (2008) if e-learning has a significant role in higher education, universities should focus on the students' attitudes toward e-learning, and furthermore their perceptions would be useful and beneficial to higher education experiences [15] .

studies have been published about e-learning and attitude toward it since its emersion. Seyede Naghavi (2007) worked on attitude of both students and teachers toward e-learning. According to him teachers have positive attitude toward E-learning as a teaching assisted tool. Usefulness and self-efficacy were the most important factors for teachers to use e-learning. They told that satisfaction of the system and multimedia training might have positive and meaningful on their attitude. Also, students believed that e-learning can be effective if their teachers help [16].

Shaikhi Fini (2008) aimed to survey the perception and attitudes of professors and students in Iran. According to results professors had the positive attitude toward virtual learning as an effective instructional tool. Students mentioned from four main variables in the study, the most important and effective ones in using virtual learning were independency, guidance of professors and multimedia instruction. Both professors and students believed that self-efficiency and self – acceptance were most important factor in e-learning [17]. Vatan parast, Royani and Ghasemi (2009), worked on nursing students' attitudes toward elearning. The result showed although e-learning known as a new concept in Iran, the students' overall attitude

toward it, was positive. They believed that e-learning environment is not effectively useful in their field of study [18]. Alobiedat (2010) aimed to investigate students' attitudes toward use

platform as learning resources at University of Granada. Positive attitude toward uses of platform as learning resources was indicated in the result. Also it was found that there was a significance difference, due to the gender, owning a personal computer [19]. Rhema and Miliszewska (2014) presented engineering students attitudes and beliefs toward e- learning and revealed students' positive attitudes and willingness toward e-learning. The effects of other factors such as student location (urban/rural), age, and year of study were not statistically significant in terms of their attitudes toward e-learning [20]. Hussein (2017) believed that understanding students' perspective about use of e-learning could be important and beneficial. Accordingly, his study was about university students' attitude toward e-learning based on the Technology Acceptance Model. Finding of the study indicated that attitude was a significant predictor towards student's intention to use e-learning and it had an important role in contributing to intention to use e-learning system [21] .

The use of e-learning has been increasing in Iran these years and it has been using more than a decade. Nevertheless, it seems there is a shortage of research on students' attitudes toward e-learning in Mashhad. Due to the dearth of study on students' attitudes toward e-learning, the author of the present study investigated the students' overall attitudes, advantages and disadvantages of using e-learning in two main groups of students at Ferdowsi university of Mashhad.

Methodology

• Participants and setting

The present mixed method study attempted to examine virtual student' perceptions and attitudes toward e-learning at Ferdowsi university of Mashhad. Almost all M.A. and M.Sc. virtual students (N=110) were asked to participate. Finally, the sample of 80 students (male and female) served as the participant in the current study. The students majored in six fields of study including: English translation, English teaching, Control engineering, Computer engineering, Mechanical engineering and Information Technology engineering participated in the study. They were all divided into two groups: English group (30 students) and Engineering group (50 students). All the students in both groups were in the second year of their education .

• Instruments

A mixed method using both qualitative and quantitative measures was utilized for the research. The instrument in this study was in the form of questionnaire and open ended questions. The questionnaire consisted of 20 questions, moreover; there were two open ended questions written at the end. These two questions were designed to explore students' overall experiences and views about virtual learning plus possible drawbacks and benefits according to their ideas. The 20 questions of five-point Likert scale format was adopted from the study named nursing students' attitude toward e-learning in Kerman. They were coded with: 1. strongly disagree 2. disagree 3. neutral 4. agree 5. strongly agree. The study was conducted by Vatanparast, Royani and Ghasemi in 2009. The questionnaire was valid and reliable. The validity of the questionnaire was 0.93 and the reliability was 0.85.

• Procedure

The questionnaires were distributed and students were respectively requested to rate the statements. Besides, the researcher asked the participants to answer the open ended questions voluntarily. The first question was exploring students' overall experiences and idea about using e-learning. Also they were requested to mention the advantages and disadvantages of educating virtually in the second question. After collecting the open ended questions data, the responses of 40 students were classified into main categories and written based on their frequency. The participants were ascertained that their personal information would be kept confidential. The quantitative data was computed by using SPSS. Firstly, the descriptive analysis including mean, maximum, minimum, sum and standard deviation was computed. Then, the attitudes of students

in English and engineering group were compared by using independent t-test to figure out whether there was a significant difference between the attitudes of students in the two groups.

Result

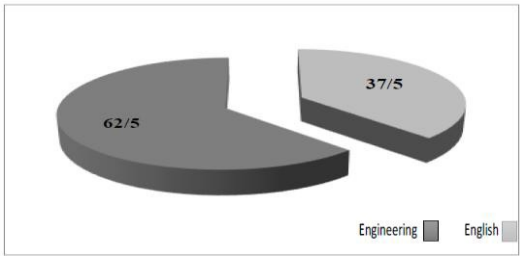
• **Quantitative phase**In this section descriptive statistics, test of normality, t-test were used in order to answer the research questions.

In the table and the figure below, the descriptive statistics of the respondents according to their field of study were indicated. According to the table, it is seen that 62.5% of the students were in engineering group and 37.5% of the respondents majored in English group.

Table 1. Descriptive Statistics for attitudes of student in different fields of study

	Frequency	Percent
English	30	37.5
Engineering	50	62.5
Total	80	100.0

Figure 1. Chart of Students' Numbers in Different Fields of Study



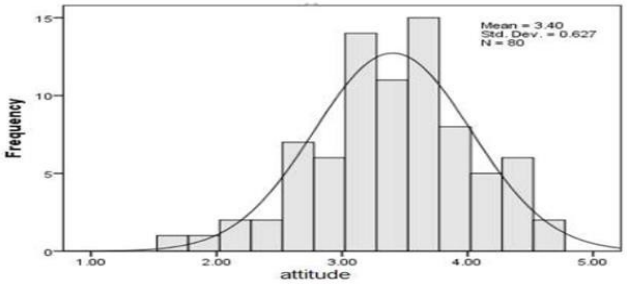
• **Students' Attitude Toward E-learning**

In the table and figure below the descriptive statistics of students' attitude was showed. According to the table, the minimum, maximum, sum, mean and standard deviation of students' attitudes are equal to 1.65, 4.75, 272.25, 3.40 and 0.627 respectively.

Table 2. Descriptive Statistics for Attitude Toward E-learning

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Attitude	80	1.65	4.75	272.25	3.40	.627

Figure 2. Histogram of Attitude



• **Test of normality**

In the current study the Kolmogorov-Smirnov tests have been used to test the normality of hypothesis. As indicated in the table below the normality of the data is accepted and

all variables distributed normally.

Table 3. One-Sample Kolmogorov-Smirnov Test for students' attitude

	Attitude
N	80
Kolmogorov-Smirnov Z	.49
Asymp. Sig. (2-tailed)	.96

• **Examining the First Research Question**

- What is the overall attitudes of virtual students toward e-learning?

The first question investigated the students' overall attitudes toward e-learning. Firstly, to investigate whether the students have positive or negative attitude, a questionnaire, in five-point Likert scale format, consisted of 20 questions was used. The answers were coded from st

rongly disagree to strongly agree, they were valued: strongly agree:5, agree:4, neutral:3, disagree:2, strongly disagree:1. Later, to examine what their attitudes were, an interview consisted of two open ended questions was utilized. It is discussed in the qualitative phase.

Regarding to the valuation of answers the assumed mean was 3. If the respondents' average response to questions is more than 3, the overall attitude of students toward virtual education will be at an optimal level (positive). According to result in table 4.2, the mean of students' attitudes toward e-learning was 3.40 which revealed positive attitudes toward e-learning.

• **Examining the Second Research Question**

- Is there a significant difference between students' attitude in English and Engineering major?

Considering the fact that students' attitude was a quantitative variable, students' field of study (English and Engineering) was a nominal variable with two levels. To test this hypothesis, Independent Sample t-test was used.

- There is no significant difference between students' attitudes in English and Engineering major.
- There is a significant difference between students' attitudes in English and Engineering major.

Table 4. Group Statistics and t-test for Equality of Means

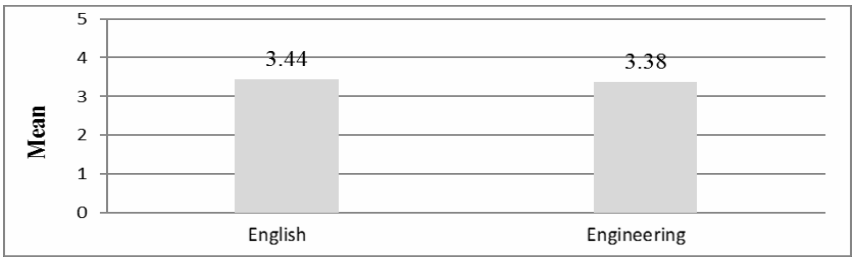
	Levene's Test for Equality of Variances		**t-test for Equality of Means**						
	F	**Sig.**	**group**	**N**	**Mean**	**Std. Deviation**	**Mean Difference**	**t**	**Sig.**
Equal variances assumed	.14	.709	English	30	3.44	0.62	.06	.38	.70
Equal variances not assumed			Engineering	50	3.38	0.34			

*significant at the 0.05 level.

According to the above table, the mean attitude of the students in English and Engineering were 3.44 and 3.38 respectively. The significance level of the test is 0.70 which was more than

0.05 (sig = 0.70 > 0.05). Therefore, with 95% confidence, the hypothesis is zero (H_0) was not rejected. So it can be claimed that there is no significant difference between students' attitudes in English and Engineering group.

Figure 3. Bar Chart of English and Engineering Students' Attitude



Qualitative phase: Examining the First Research Question

- what are the overall attitudes of virtual students toward e-learning?

In the end of the questionnaire there were two open ended questions. The first question was designed in order to examine virtual students' view and experiences in e-learning. And the second question aimed to find out advantages and disadvantages of using e-learning. The written qualitative information was collected and classified into main categories. The information in The second question regarding advantages and disadvantages of e-learning was classified into nine main parts. Order of given information is based on frequency of responses that participants mentioned in their answers.

- **Students' attitudes and experiences in e-learning**

According to students' view e-learning was quietly a new experience in educating. They never face online learning before, and they took a high risk to choose this way to continue their education. They claimed e-learning was an enjoyable experience in some parts and challenging in others which are going to be discussed below:

- For instance, they all mentioned the classified documents which were prepared for them before the class and using the recorded classes after the class was greatly pleased by students. They not only were able to participate in online classes but could repeatedly benefit these documents and recorded classes whenever they needed during the semester. This equipment was remarkably used by students.
- They also mentioned: Since the interaction is significantly decreased in e-learning process, students should not confine themselves to participate in online courses and have limited relationship with the professors. Trying to build an effective interaction can highly help them to reach their goals and learn more effectively. They should frequently go to university, make appointments with professors and faculty members, participate in various meetings, benefit the professors' useful information and let faculty members know and trust them better.
- According to the students' idea theoretical courses can be learnt better in e-learning rather than traditional learning. Technical and research based courses however, need more interaction. If students want more effective learning, they have to try to communicate more with their professors they should go to university and share their ideas, benefit professors' help.
- The students said the attraction and usefulness of classes highly depend on the professors. Since traditional and e-learning are completely different, the methods and strategies used by professors should also be different. Those professors who used the updated and appropriate techniques were more attractive for students in online courses. Some professors used dynamic strategies, they let students cooperate and share their ideas in different discussions. Instead of giving lecture and talking alone the class behind the microphone, professors asked students to share their ideas and wanted them to cooperate in different discussions, do research about the

related topics in order to have more effective and attractive classes .

- The challenge for today's student is to be able to have a job while studying at a university. The students strongly recommended e-learning for people who have full time or part time job. So that they not only benefit the job financially but that also reflects well on their chosen degree and career path.
- Furthermore, because of flexibility of e-learning, it is suitable for different type of students. There is no limitation for students, they are unbound by the restraints of place. Many of them prefer attending the classes with their own convenience wherever they are .
- Ultimately, almost every student wrote if all facilities and Infrastructures such as hardware and appropriate software for e-learning are provided and professors trust virtual students, E-learning can be even more effective than traditional learning .

• Advantages and disadvantages

The second question investigating advantages and disadvantages of e-learning according to the students' point of view.

• Advantages

- **Save money, time and energy**

  The first and foremost factor mentioned by almost every member of both English and Engineering group was saving a large amount of money, time and energy. Students do not have to use public transportation and saving fuel costs can be substantial if they do not have to commute. This factor was highlighted by non-native students. Students in virtual universities do not have to manage travel and transportation issues because online classes may be taken from the convenience of one's own home .

- **Educate and work at the same time**

  Since most MA students are employees and might lose the chance to continue their education. E-learning pave the way for them to continue education and do their career at the same time. Most students were satisfied to have their full time job while educating and noted it as an outstanding advantage of e-learning .

- **Recording of online classes**

  One of the most significant facilities of e-learning in Ferdowsi university which almost all students mentioned as an advantage, was recording all online classes and presenting to the students. Some students might miss the fortune to be online in the special time or might not fully understand the lecture, they can easily use the recorded of the classes for several times in order to learn effectively, while in traditional learning students can only benefit the classroom once and they do not have the second chance in their absence.

- **Convenience**

  Due to its convenience and flexibility, not only are the resources available, but also can students access the net and participate in the classroom from anywhere and at any time. By using e-learning students have freedom to learn at their own convenience and they can easily access the curriculum from the comfort of their home.

- **Theoretical courses**

  "E-learning is more effective and can be regarded as the best way to learn theoretical courses. In traditional learning there is no time to take note and listen to recorded files. Students might not fully understand the lecture for any reasons they do not have the second chance to benefit the course. Therefore, theoretical learning process in e-learning would be more beneficial for students." This is mentioned by some students in English and mechanical engineering major.

Disadvantages

Lack of effective interaction between professors and students

With the growth of e-learning, the interaction has been risen through the webcams, video conference, using speakers to listen and microphone to speak, although, nothing can replace face to face classroom and human contact. As a result, without meaningful interaction students might

feel disconnected and become demotivated. Due to the lack of interaction, several problems may happen. For instance, professors are not always available at need, this feeling of isolation can often demotivate students as they feel they don't have the support and reassurance that the physical presence in classrooms provides. A lot of questions can be instantly answered and professors can share their ideas in a real classrooms easier. Moreover, students need more interaction with their professors in practical and research based courses .

Inadequate teaching due to the lack of familiarity of professors with virtual teaching

Since technology has the key role in e-learning the use of new technology can be a barrier or disadvantage in e-learning. Professors and students are not familiar with using this new technology in their teaching and learning process. Thus students might be frustrated from the learning environment because of lack of familiarity, information and technological skills. For the effective teaching process, it is good to attend workshop for professors to get more familiar to use the technology best in e-learning .

Technology limitation

E-learning requires using the most updated technology devices, however students face technological issues such as using inappropriate software in the learning process. Engineering students announced: Some courses such as mathematics require special software which are not entirely supported by e-learning. Accordingly, lack of special or using outdated software can potentially pose problems for both professors and students. They added: lack of equipment for practical and courses related to math problems can be seen. The appropriate software was requested. Also few students complained about hardware issues such as internet connection speed, unstable internet connections which sometimes made them in trouble.

Generally, in both group students claimed e-learning was useful for theoretical courses and it could perfectly respond to their demand, however when it came to more practical courses they might face lack of suitable equipment and infrastructure.

professors' negative view about virtual learning

One factor that some students of English language group and few in Engineering group suffer is the negative view of a number of professors toward e-learning. Accordingly, professors might not trust the potential ability of virtual students. Students showed their honest gratitude to those professors who encouraged them and truly believed their capability. They believe if professors trust them they are able to be as perfect as traditional students.

Discussion and Conclusion

This study was an attempt to investigate and analyze virtual students' attitudes toward e-learning at Ferdowsi university of Mashhad, Iran. For this purpose, a total 80 virtual students (37.5% English students and 62.5% Engineering students) participated in the study. The students were all in the last year their education. Furthermore, the attitudes of students majored in English group were compared to students' attitudes in Engineering group to figure out whether there was a significant difference of students' attitudes in different majors in virtual branch of Ferdowsi university .

In quantitative part the mean of students' overall attitudes was estimated 3.40 which indicated the positive attitude. The mean attitude of the students in English and Engineering were 3.44 and 3.38 respectively. There was no significant difference between students' attitudes in English and Engineering group. For qualitative part, 40 students voluntarily answered the two open ended questions. The first open ended question in the questionnaire examined virtual students' attitudes experiences in e-learning. According to students (a) They strongly suggested recorded online classes (b) They gave the useful hints about building a good interaction with the professors and

faculty members.(c) the attraction and usefulness of online classes highly depend on professors (a) The students strongly recommended e-learning for people who have full time or part time job (b) There is no limitation for different types of student (f) if infrastructure for e-learning are provided and professors trust virtual students, e-learning can be even more effective than traditional learning. The second open ended question in the questionnaire investigated the advantages and disadvantages of using e-learning. According to students' responses the benefits of e-learning were: (a) saving money, time and energy, (b) Educating and working at the same time(c) Recording of online classes (d) Convenience (e) Effective learning (f) good for theoretical courses. The disadvantages of using e-learning were: (a) Lack of effective interaction between teachers and students, (b) inadequate teaching due to the lack of familiarity of professors with virtual teaching and using this new technology to teach. (c) Technology limitation (d) Professors' negative view about virtual learning.

Although there were many other studies that had been achieved the similar findings as the present study such as Rhema and Miliszewska (2014), Pilli, Fanaeian and Al-Momani (2014) [22], Liaw and Huang (2011) [23], Vatan parast, et.al (2009), Yaghoubi, et.al (2008), who announced the positive attitudes of students toward e-learning, this study also compared the attitudes of students in different fields of study toward e-learning. This comparison has not been seen in the previous studies. What made this study unique and attractive was the interview in the form of two open ended questions at the end of the questionnaire. These open ended questions investigated the users' opinions and suggestions about e-learning, which was not seen in the previous studies. Results of the study suggest some pedagogical implications with respect to e-learning development. They are considered as a source of information for students, professors, virtual universities' administrators, researchers and educational policy makers in planning, designing, implementation and promotion of e-learning. Further studies can be extended in others universities and compare the students' attitude in different fields of study. finding the differences and similarities of e-learning between virtual universities in developing countries and e-learning in developed countries would be useful to find out their shortages and supremacy in order to enhance the educational level in e-learning in developing countries.

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