

E-learning in Medical Education in Taibah University: Difference between Male and Female Medical Students

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ABSTRACT

Objective: This study investigates the importance and effectiveness of e-learning and explores the different Internet-use behavior among the undergraduate male and female students of Taibah university, KSA.

Materials and Methods: A cross sectional study was conducted by using a questionnaire for gathering informations about e-learning. 633 students (207 male and 426 female) of medical colleges in Taibah university volunteered to perform the questionnaire.

Results: The results of the study revealed that female students performed the questionnaire better than male; more interested in using the e-learning in their study and more frequently accessing the internet. There was no gender difference was a detected in using Google as search engine. Males use the internet more outdoors while females use it at home. Female have financial problems, internet illiteracy problems while male have problem of information overload. Both genders declared the beneficial effect of e-learning on the process of learning.

Conclusion : this study highlights the importance of e-learning, and advises the usage of e-learning especially among university students, families and the society members.

Keywords: E-learning, medical education, medical students, Taibah university.

INTRODUCTION

Nowadays there is a dramatic change in the way how informations are shared as networking and socializing take place in every society. No doubt that the Internet has become a powerful tool for communication purposes, to exchange ideas, and even used in participation in local, national and international networking. Internet use is spreading rapidly into daily life, and directly affecting people's ideas and behavior. Internet has an impact in many areas including the higher education system. Internet heralded the development and implementation of new and innovative teaching strategies in higher education institutions (1).

E-learning is the use of Internet technologies to enhance knowledge and performance. E-learning technologies offer learners control over content learning sequence, space of learning time, and often media allowing them to tailor their experiences to meet their personal learning objectives. E-learning offers an opportunity to disseminate the experience of clinicians to a wide audience. A developing infrastructure to support e-learning within medical education includes repositories, or digital libraries to manage access to e-learning materials, consensus on technical standardization, and methods for peer review of these resources (2).

Evidence suggests that e-learning is more efficient because learners gain knowledge, skills, and attitudes faster than through traditional methods. (3). E-learning requires that students and teachers must have adequate level of IT skills and access to Personal Computers (4). Traditional instructor centered teaching is

changing to a learner centered model that puts learners in control of their own learning. A recent shift toward competency-based curricula emphasizes the learning outcome, not the process of education (5, 6).

Gender differences in internet usage and web information seeking behaviors have attracted considerable interests of many researchers as there were numerous debates on the link between gender and Internet usage (7, 8, 9).

The goal of this study is to show the integration of e-learning into medical education by outlining key terms, the components of e-learning, the evidence for its effectiveness and how e-learning might be considered evidence of academic scholarship. Also, the study explores the different Internet-use behavior among the undergraduate male and female students of Taibah university.

MATERIALS AND METHODS

Study design

This cross sectional study was conducted through random sampling. The population was medical college male and female students of Taibah University in Al-Madinah Al-Munwwarah. The study protocol was approved by the Research and Ethical Committee at the study location. Students were provided with information on the study aims and methods. Verbal consent was got from each student who volunteered to participate.

The data obtained related to all undergraduate students currently within the college. To achieve the goal of the study a questionnaire survey was conducted; it was pre-tested with 10 students. The questionnaire was then modified based on the result of the pre-test. Later, the data was collected from 633 college students (male=207 and female= 426) during academic sessions. The data was collected with respect to tow demographics, i.e., gender and faculty. The questionnaire was administered personally to ensure the excellent response rate as well.

Statistical analysis

Descriptive and differential statistical measures were adapted for the analysis of the collected data. Chi-square test was used for comparison of two proportions. Also, unpaired Student's t-test was used as a test of significance for comparison between two arithmetic means of two different groups. The values are means \pm S.D for the students in each group. p value <0.05 was considered as significant.

RESULTS

1. Distribution of students by Gender

Table 1. demonstrates the gender distribution of students. As shown, out of the total 633 students, 33 % belong to the male group and the rest of them (67%) are females (**Fig.1**).

Table 1. Gender wise Distribution of students

Gender	No. of Respondents	Percentage
Male	207	33
Female	426	67
Total	633	100

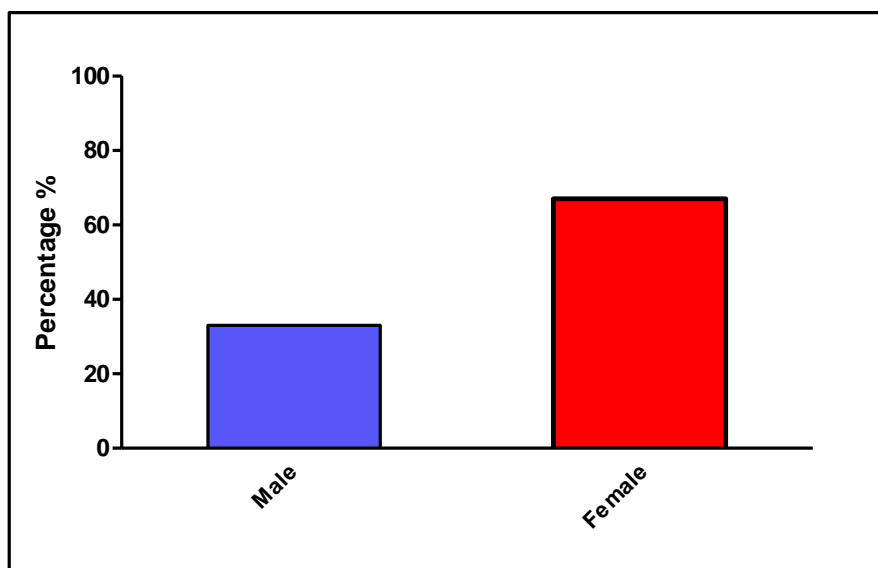
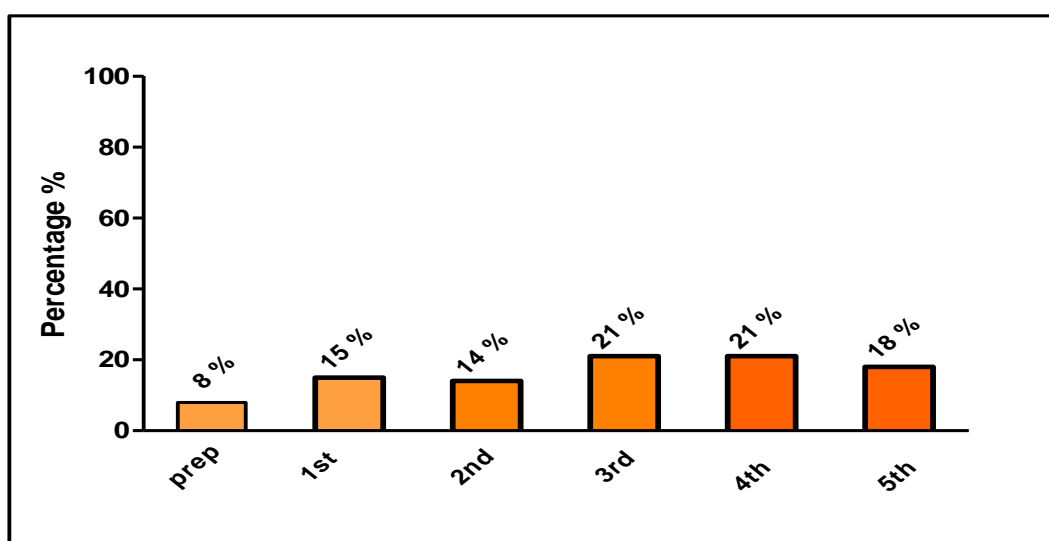


Figure 1. Gender distribution among participant students

2. The students' academic year

As shown in Fig. 2a, there was no significant difference among the students in different academic year.



As presented in Fig 2b., most of the students, about 53% started to use e-learning at the preparation year. However, there is a significant difference among students regarding the time of starting in e-learning.

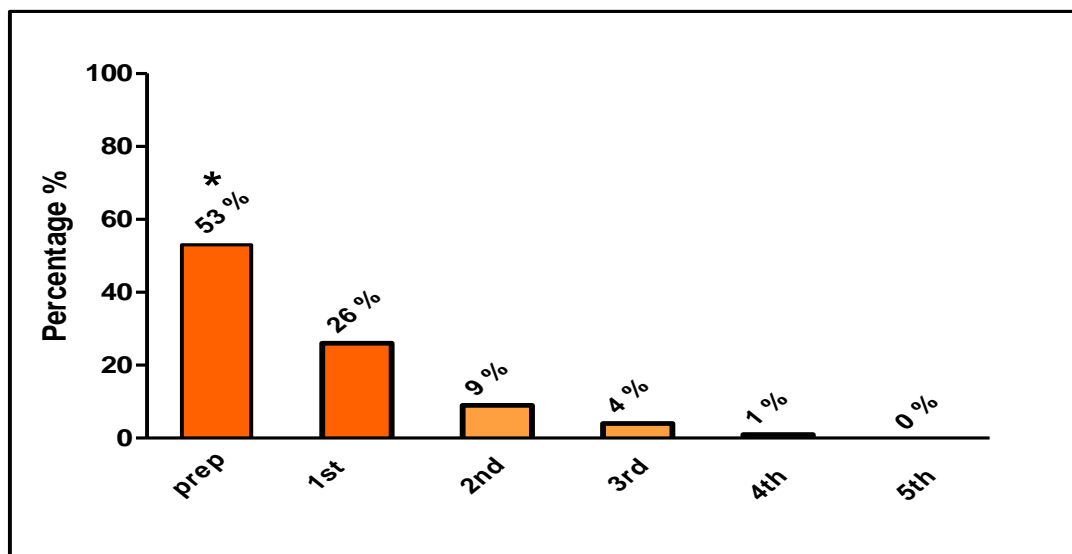


Figure 2. Effect of student academic year on e-learning.

3. Usage of e-learning in studying

Shown in table 2, there was a significant difference between the number of students who use e-learning and those students who do not use it. Furthermore, there was no significance difference between males and females in using e-learning for the purpose of studying (Fig 3).

Also, the students vary in the frequency of using e-learning (Table 3). It could be noted that majority of the male students have less than 2 hours of access to internet (49 %), whereas, majority of the female student respondents have less than 2 hours of access to internet (62 %). It could be seen clearly that majority of the male and female respondents (55 %) have less than 2 hours of access to internet.

Table 2. Usage of e-learning among students

	Students using e-learning (Yes= 88%)		Students do not use e-learning (No=12 %)		P value
	Males	Females	Males	Females	
Number	177 (28%)	381(60%)	30(4.7%)	45(7.3%)	
Total	558 (88%)		75 (12%) *		< 0.0001*

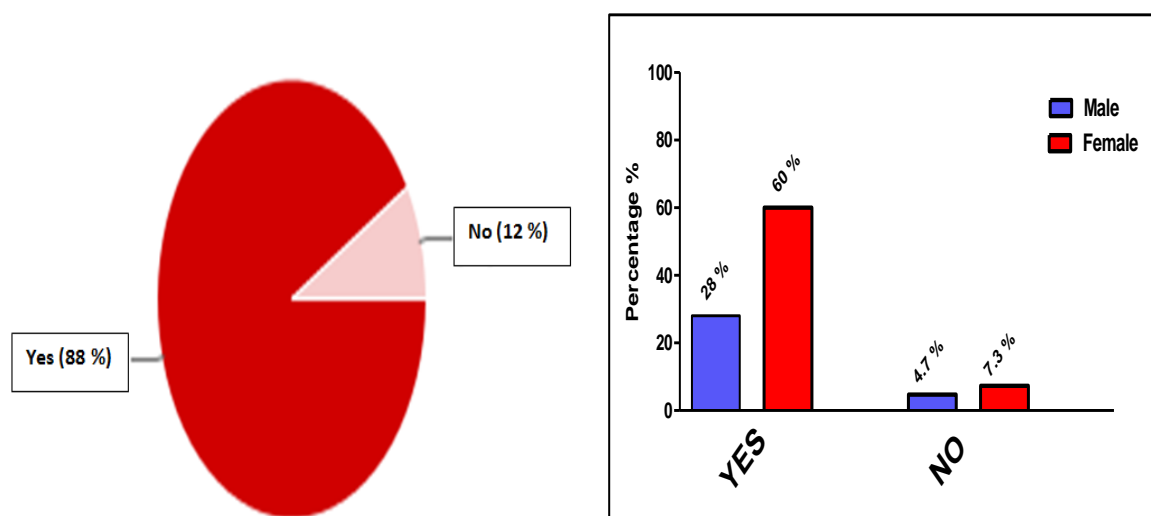


Figure 3. Usage of e-learning among participant students.

Table 3. Frequency of Access to Internet

	Daily	2-3 times weekly	twice/month	Once/ month
Male	68	76	15	11
Females	215	103	50	13
P-value	< 0.0001*	0.0014*	0.1081	0.2395

The advantages of e-learning mentioned by the students were presented in Fig. 4.

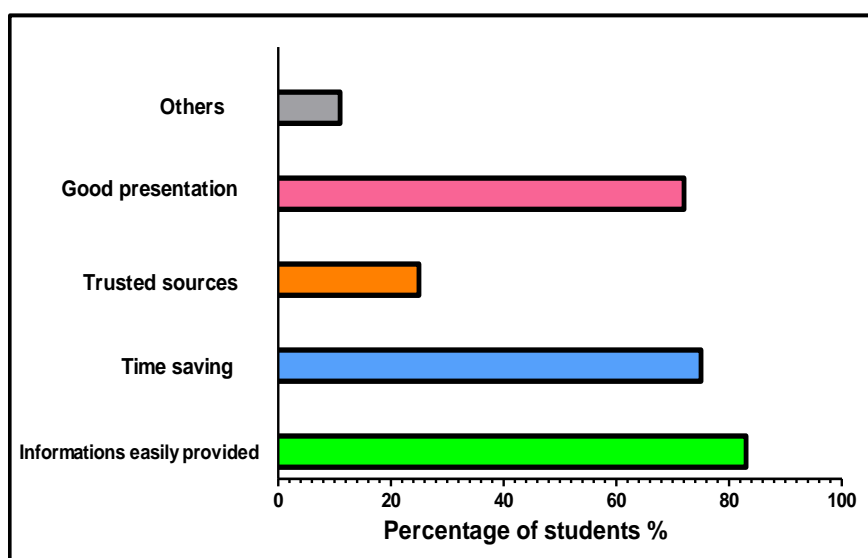


Figure 4. advantages of e-learning.

4. Use of Search Engines

The students predominately use Google as the main search site. There is a significant difference between male and female with respect to the use of search engines, Wikipedia and YouTube (Table 4). It could be seen clearly from the above discussion that female students take the first position in their overall use of search engines and male respondents take the second position (Fig.5).

Table 4. Difference between male and female students in using search engines.

Search Engines	Gender		P value	Total (out of 633 students)
	Males	Females		
Google	177	380	0.22	557 students (88 %)
Yahoo	16	21	0.21	27 students (4.2 %)
Wikipedia	46	266	< 0.0001 *	312 students (49 %)
YouTube	94	289	< 0.0001 *	383 students (61 %)
Others	21	43	0.21	64 students (10 %)

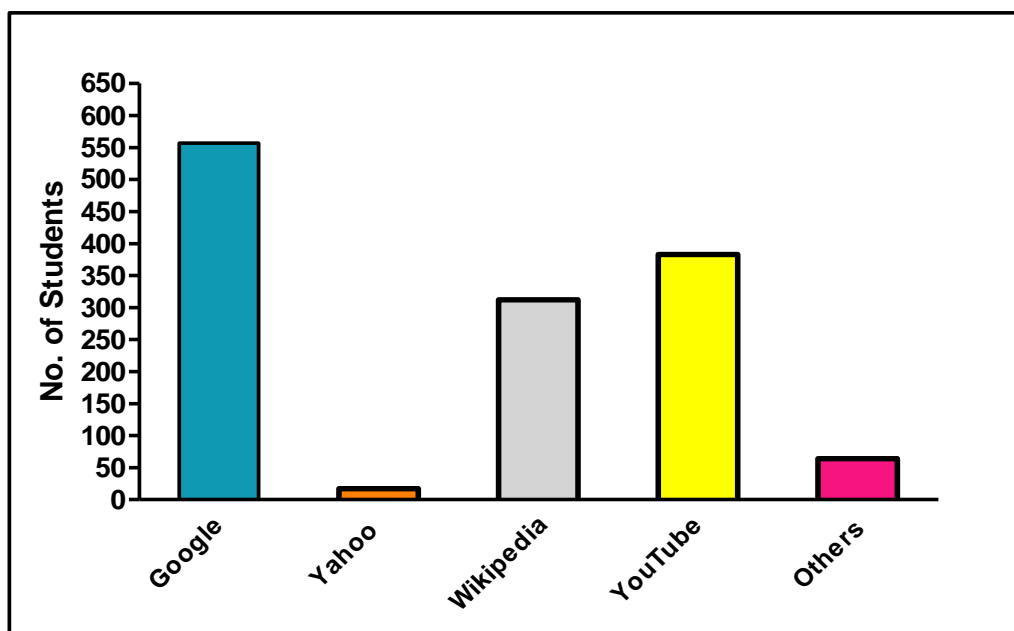


Figure 5. Different search engines used by participant students.

Many of the students (349, 55%) stated that they know and got used with the usage of e-learning search engines by self-experience wherever only (170 students, 27%) and (96 students, 15%) said that their colleagues and their staff teachers, respectively helped them, Figure 6.

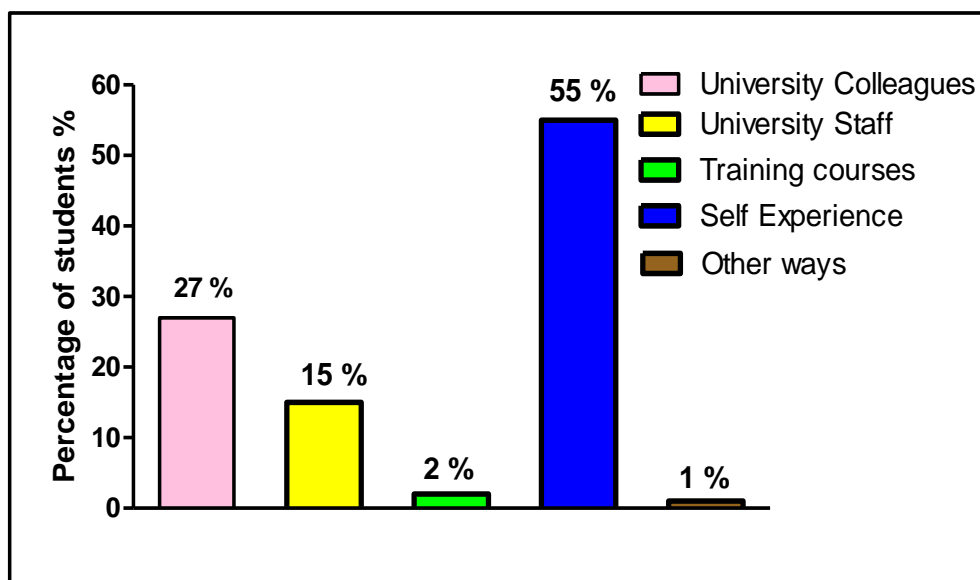


Figure 6. Shows how the participant students know about e-learning.

5. Places of Using Internet

There is a significant difference between males and females students with respect of their place of using internet (Table 5, figure 7).

Table 5. Place of using Internet

	Gender		P value	Total
	Males	Females		
College	37 (5.9%)	21(3.3%)	< 0.0001 *	58 (9.2%)
Home	146(34.6%)	380(51.8%)	< 0.0001 *	547 (86.5%)
Café	16(2.5%)	2(0.3%)	< 0.0001 *	18 (2.8%)
Others	8(1.2%)	2(0.3%)	< 0.0001 *	10 (1.5%)
Total	207	426		633

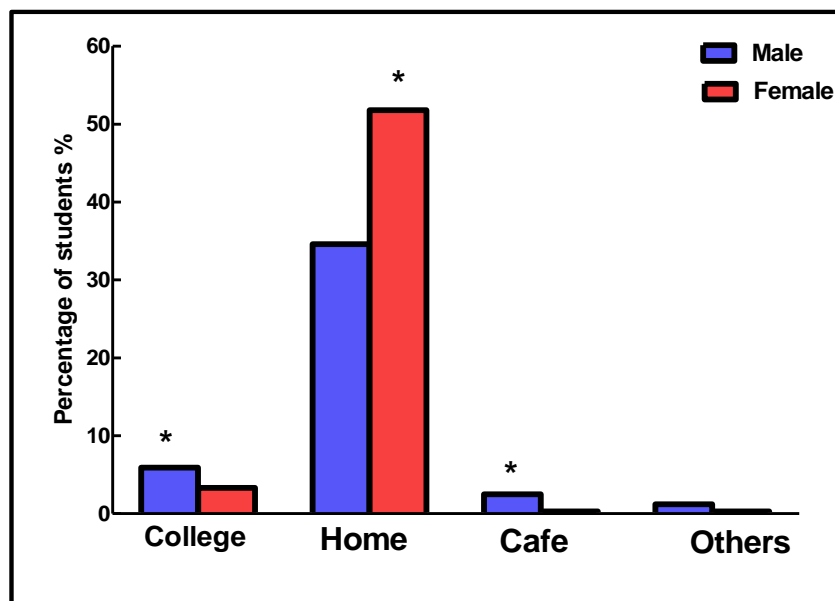


Figure 7. Place of using Internet

6. The scientific purpose for using such sites in e-learning.

The main purpose for using e-learning was significantly different among male and female students (Table 6, figure 8).

Table 6. Purpose of using Internet in e-learning

	Male	Female	P value
Information	64%	36%	< 0.0001 *
Audios and Videos	28%	72%	< 0.0001 *
Communication	68%	32%	< 0.0001 *
Education	62%	29%	< 0.0001 *

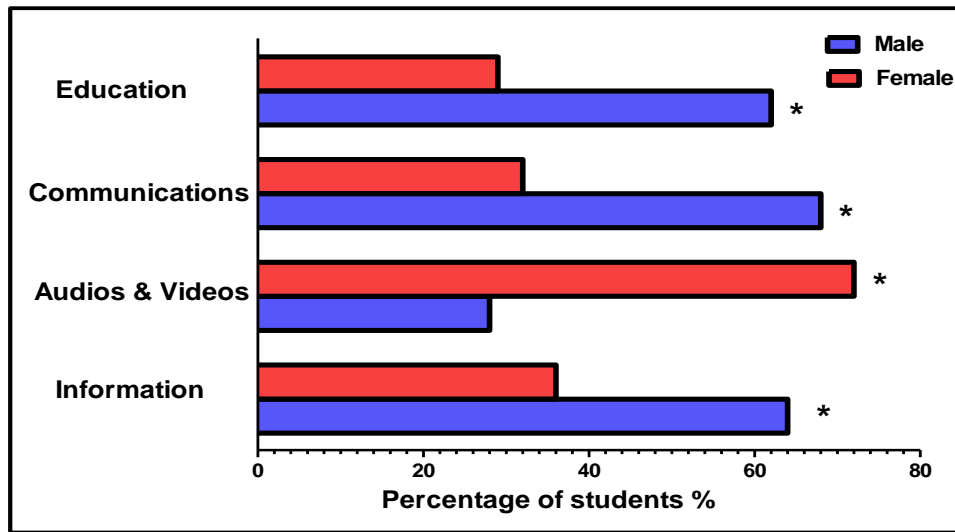


Figure 8. Purpose of using Internet among participant students.

7. Students opinion regarding the efficacy of e-learning

Most of the students agreed that e-learning is very beneficial (93 %), however there was not a significant difference between males and female students regarding this aspect (Table 7). Interestingly, most of the students refused that e-learning could replace text books in the learning process (77 %). About 80 % of females and 70 % of males see that text books cannot be replaced by any other mean.

Table 7. Students' opinion regarding the beneficiality of e-learning

	Gender		P value	Total
	Males	Females		
e-learning is beneficial	190 (92%)	396(92.5%)	0.7149	586 (93%)
e-learning is NOT beneficial	17(8%)	30(7.5%)		47 (7%)

8. Problems in Using e-learning

The results indicate that the students may have some problems in accessing Internet. The male students occupy the first position with respect to their overall problems in accessing Internet (Table 8).

Table 8. The students' Problems in Using e-learning:

Problems	Gender		P value	Total
	Males	Females		
Information overload	82(39.6%)	102(24%)	< 0.0001 *	184 (29%)
Information pollution	107(51.6%)	198(46%)	0.23	305 (48%)
Financial barrier	164(79%)	103(24%)	< 0.0001 *	267 (42%)
Internet illiteracy	89(43%)	125(29%)	0.09 *	214 (32%)

Finally, the majority of the students (92%) advised the usage of e-learning specially their colleagues, families and the other society members.

DISCUSSION

Increasing numbers of medical schools are using the internet. Students value online lecture notes to supplement their reading. New methods of instruction such as e-learning are being developed to augment traditional teaching (10). Like other developing nations, proliferation of the Internet is a new phenomenon in KSA. Its use has become common in academic quarters very recently.

The results of this study resemble those of many studies previously conducted in other countries. In this study we show a significant gap between male and female in number of responders, this agrees with a study done by link and Marz, 2006 (11) an in contrast to other studies (8, 9, 12)

This study in coordination with other studies finds that student prevalently uses the internet in their early years in the university education (13)

Heimrath and Goulding , 2001 found that students were happy to search the Internet for relevant information (9). This agrees with our study which stated that participant students use the e-learning to obtain their medical knowledge.

In this study the frequency of access to internet reveals that most of students use the internet on daily basis, which this disagree with a study done in Pakistan who stated that their students use the internet 2-3 days in a week, But agrees with it that the e-learning makes their work much easier (14).

The common search engine used by our participant students by both genders is Google. This trend is also in line with the international use (12, 14). While the students in our study rarely use Yahoo engine which is in contrast with other studies who uses Yahoo search engine as the first or second choice (15, 16).

In this study, the common source of participant students about e-learning is self experience by the student themselves and the second source for obtaining their medical knowledge is from their university colleagues, this comes in agreement of a study done by Bashir et al, 2008 (14).

As many studies proved that the students use internet commonly in university library (12, 14) but our study the most Place of using Internet is student's home. The purpose of using internet stated that males use internet mostly for getting information, education, communicational purposes while females commonly use it for audios and videos. This comes in concordance with a study done by Bimber, 2000 (17).

Most male students' problems in using e-learning is the financial barrier while most female students' Problems in Using e-learning is informational pollution. This opposes what is proved by Thanuskodi who showed that male students' Problems was the internet illiteracy and female students' Problems was the financial barrier (12) .

In conclusion, this study highlights the importance of e-learning and it is at least as good, if not better than, traditional instructor-led methods such as lectures in contributing to demonstrated learning. Also the students' opinion regarding e-learning is that it is so beneficial and the majority of them advised their colleagues, families and society members to use the e-learning sites.

REFERENCES

1. Asan, A., & Koca, N. (2006). An analysis of students' attitudes towards Internet. Fourth International conference on Multimedia and Information and Communication Technologies in Education, Seville, Spain. Retrieved from: <http://www.formatex.org/micte2006/pdf/2120-2124.pdf>.
2. Wentling, T., Waight, C., Gallaher, J., La Fleur, J., Wang, C., & Kanfer, A. (2000) E-Learning: A Review of Literature. University of Illinois National Center for Supercomputer Applications, Urbana-Champaign, IL.
3. Clark, D. (2002). Psychological myths in e-learning. *Med Teach*, 24:598-604.
4. Ozuah PO (2002). Undergraduate medical education: thoughts on future challenges. *BMC Med Educ*. 2:8–10.
5. Nair BR, Finucane PM (2003). Reforming medical education to enhance the management of chronic disease. *Med J Aust*. 179:257–59.
6. Leung WC (2002). Competency based medical training: review. *BMJ*. 325:693–96.
7. Moberg TF, Whitcomb ME (1999). Educational technology to facilitate medical students' learning: background paper 2 of the medical school objectives project. *Acad Med*. 74:1146–50.
8. Ward JP, Gordon J, Field MJ, Lehmann HP (2001). Communication and information technology in medical education. *Lancet*. 357:792–96.
9. Heimrath, R., & Goulding, A. (2001). Internet perception and use: a gender perspective, *Program*, 35 (2), 119-134.
10. Thakore H., McMahan T. (2006). Virtually there: e-learning in medical education. *The Clinical Teacher*. 3: 225–228.
11. Link T and Marz R (2006). Computer literacy and attitudes towards e-learning among first year medical students. *BMC Medical Education*. 6:34. doi:10.1186/1472-6920-6-34.
12. Thanuskodi, S (2013). Gender Differences in Internet Usage among College Students: A Comparative Study. *Library Philosophy and Practice (e-journal)*, Paper 1052.
13. Hoffman, D. L., Novak, T., & Schlosser, A. (2000). The evolution of the digital divide: How gaps in Internet access may impact electronic commerce. *Journal of Computer-Mediated Communication*, 55 (3).
14. Bashir S, Mahmood K and Shafiq F (2008). Internet Use Among University Students: A Survey in University of the Punjab, Lahore. *Pakistan journal of library & information science*, vol. 2008, n. 9.
15. Burns, E. (2007). Top ten search providers. Retrieved June 25, 2007, from <http://searchenginewatch.com/showPage.html?page=3626208>
17. Brownlow, M. (2007). Email and webmail statistics. Retrieved June 25, 2007, from <http://www.email-marketingreports>.
18. Bimber, B (2000). Measuring the gender gap on the Internet. *Social Science Quarterly*, 81(3), 868-876