



Impact of Emerging Web Technologies on Undergraduate Medical Education Process in the University of Tabuk

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Abstract

Background

In the past few years, it has been noticed an increasing use of new web technologies by medical students. Although these technologies were developed for other purposes, it has been adapted by medical students to exchange medical knowledge and information. In addition, faculty members started to interact with students using such technologies. Hence, the present study was developed to measure the extent of the use of these emerging new web technologies by medical students and to identify its impact on the process of medical education.

Methods

A semi structured questionnaire survey was developed to measure the different aspects of usage of new web technologies for medical education and was distributed to all undergraduate medical students in Faculty of Medicine in the University of Tabuk-Saudi Arabia.

Results

It has been found that the use of new web technologies in the field of medical education resulted in a significant increase in the learning and understanding process among undergraduate medical students by giving hands on some subjects. Also, it led to a significant increase in the degree of communication between students and staff members.

Conclusions

New emerging web technologies have a positive impact on the process of medical education for most of the students. Proper formulation and integration of such technologies in the medical education process is needed in order to maximize and measure its benefits.

Introduction

Over the last decade, it has been noticed an increasing use of new web technologies by the general population. The reason of such uptake is that they do not require much expertise and they allow users to create their own contents and to share information with others.[1]

The present Web-based technologies include: social networking, YouTube channels, forums and search engines. Although these technologies were developed for many purposes especially social ones, they have been adapted to exchange knowledge and information. Thus, their role in education is potentially increasing especially among university students.[2] In addition, faculty members started to interact with students using such technologies. [3]

The incorporation of web based technologies in medical education is progressively increasing among undergraduate students in order to facilitate their study tasks e.g. searching for information, submitting assignments and attending virtual classes.[3,4] Hence, the present study was developed to measure the extent of use of these emerging new web technologies by undergraduate medical students in the University of Tabuk and to identify its impact on the assimilation process of medical education.



Methods

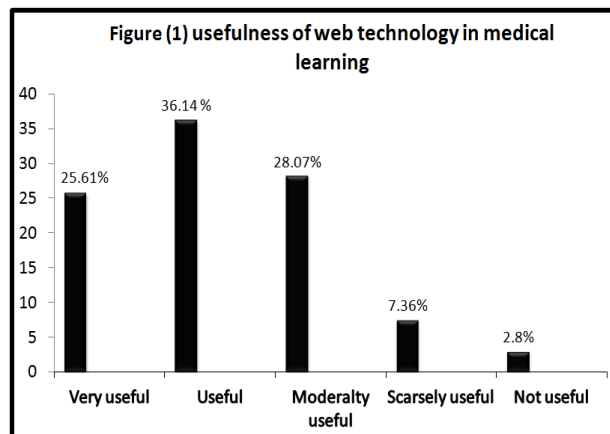
The present study included 285 undergraduate medical students in the Faculty of medicine in the University of Tabuk in both male and female campuses. The participants were asked to complete a semi-structured questionnaire that had been piloted and refined by the authors. Questionnaire to cover students prior experiences using web technologies for learning purposes and also to get students' perceptions of the usefulness of different web tools. Results from the questionnaire were analyzed using descriptive analysis.

Results

1 Usefulness of web technology tools in achieving medical learning according to students:

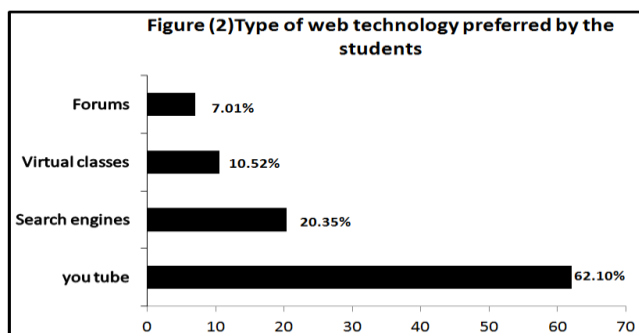
The majority of the 285 students included in the survey agreed that web technology tools are essential to achieve medical learning (Table 1, Figure 1)

Table (1)usefulness of web technology in medical learning Total n= 285	
Very useful	73 (25.61%)
Useful	103(36.14%)
Moderately useful	80(28.07%)
Scarcely useful	21(7.36%)
Not useful	8(2.80%)



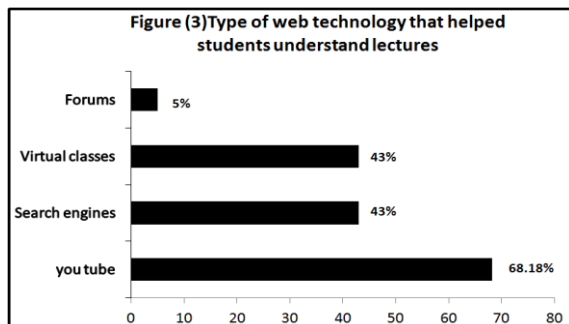
2 Type of web technology tool used medical students:

From this study it has been found that according to the students preference, we can order web technology tools as follows: YouTube, search engines, virtual classes and lastly forums. (Table 2,Figure 2)



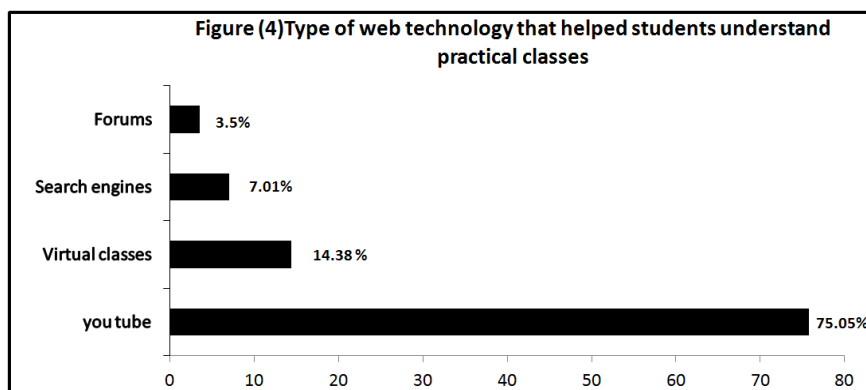
3 Type of web technology tool that help students in understanding lectures:

This study showed that according to the students preference, we can order type of web technology tool that helped in understanding their lectures as follows: You Tube, \search engines, virtual classes and lastly forums.(Table2,Figure 3)



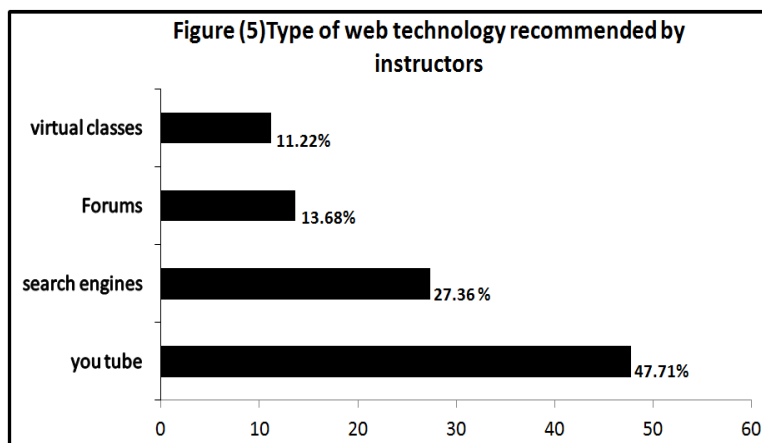
4 Type of web technology tool that help students in understanding practical lessons:

According to the present study, YouTube is the most web preferred tool for our students in order to understand their practical lessons and is followed by the other web technology tools respectively: search engines, virtual classes and forums.(Table 2,Figure 4)



5 Types of web technology tool recommended by instructors:

You Tube represent the preferred web technology tool for instructors followed by the other tools respectively: search engines, forums and virtual classes.(Table 2,Figure 5)

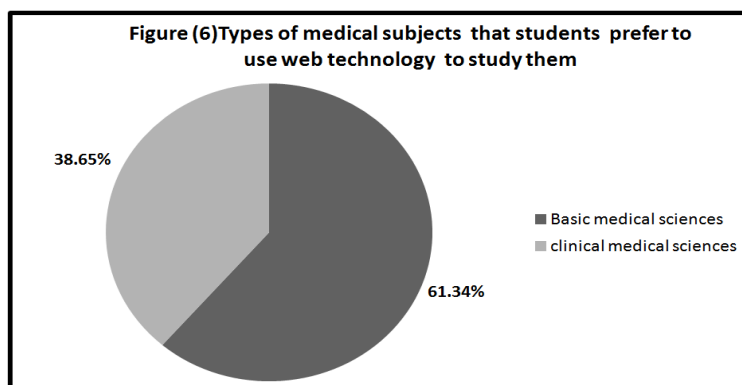




	Generally used, n=285	For lectures, n=285	For practical, n=285	Recommended by instructors, n=285
You Tube	177 (62.10%)	195 (68.18%)	214 (75.08%)	136 (47.71%)
Virtual classes	30(10.52%)	43 (15.3%)	41(14.38%)	32 (11.22%)
Search engines	58 (20.35%)	43 (15.3%)	20 (7.01%)	78 (27.36%)
Forums	20(7.01%)	5 (1.74%)	10 (3.50%)	39 (13.68%)

6 Types of medical subjects that students prefer to use web technology to study them:

From 285 participating students, 219(61.34%) preferred to use web technology tools for learning basic medical science while 138(38.65%) favored them for learning clinical sciences.(Figure 6)



7 Rank of Medical subjects:

Table 3 shows the rank of medical subjects that students use web technology to understand them.

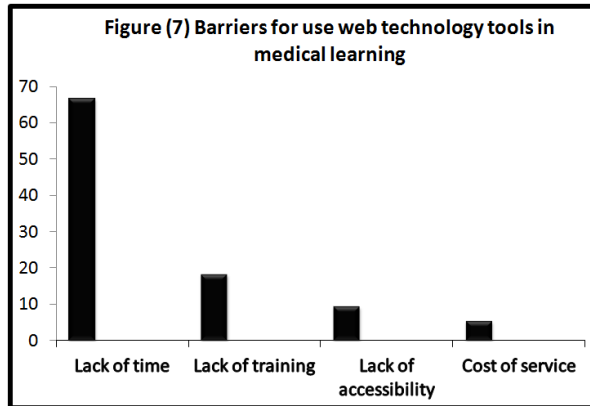
Anatomy	146 (51.22%)
Physiology	68 (23.68%)
Internal medicine	30 (10.52%)
Pharmacology	15 (5.26%)
Pathology	11(3.86%)
Biochemistry	6 (2.10%)
Surgery	6 (2.10%)
Bacteriology	1 (0.35%)
Pediatrics	1 (0.35%)
Obstetrics	1 (0.35%)

8 Barriers for use web technology tools in medical learning:

The current study demonstrated that according to 190 (66.66%) the main barrier to use web technology in medical learning is the lack of time while lack of training presented the barrier for 52



students(18.24%).in addition, lack of accessibility presented as a barrier for 28 (9.28%) students and the high cost of services was the barrier for 15 (5.26%) students.(Figure 7)



Discussion

Web based learning has become one of the most important tools to achieve medical education and everyday there is growing dependency on such technology worldwide. the present study has identified that medical students in the University of Tabuk have both greater familiarity regarding emerging web technologies, especially instant messaging, media sharing and social bookmarking. Similar results were also reported By Nurjahan et al, 2002. [5]

In addition, most of the students included in the survey agreed on the importance of using of Web technologies in order to achieve better medical knowledge and learning. Cook ,2007 stated that advantages of web-based learning in medical education include overcoming barriers of distance and time, economies of scale, and novel instructional method [6]. Nurjahan et al, 2002 suggested that formal inclusion of ICT instruction in the teaching of undergraduate medicine is needed to enhance medical students' ability to acquire, appraise, and use information to solve clinical and other problems.[5]

Our students have identified YouTube as their first web technology resources for acquiring knowledge and learning. In correlation with those results, Many studies demonstrated the importance of you tube in the process of medical education. Sami et al,2013 revealed that educational You Tube videos can be used by medical students for independent learning and by clinical teachers as learning resources.[7] moreover ,our students revealed that You tube videos helped them mostly in learning lectures and practical sessions especially in the field of anatomy. Also they stated that You Tube is the most recommended web technology tool by their tutors. Similar results were also reported by Jaffar, 2012 who concluded that You Tube can be considered as an effective tool to enhance anatomy instruction if the videos are diversified, and aimed toward course objectives. [8]

Finally, shortness of time was the most significant barriers facing our students in order to use emerging web technology for the process medical learning and is followed by the lack of training ending by difficulties in accessibility.

Conclusions

Emerging web technologies tools offer new opportunities for undergraduate medical education. It has been concluded from our study that about 90 % of our undergraduate medical students rely on web technology tools in order to achieve learning. You tube present the most preferable web technology tool by instructors and students especially for learning anatomy. Lack of time represents the barrier for about 70% of our students in order to maximize their benefit from web technology.



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