



**Universidad
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The Use Of Social Media By Dental Students As A Learning Resource

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Summery

Introduction: The world around us keeps changing and evolving, especially when it comes to the internet and all the benefit and negative outcomes that evolve with it. Social media have been a major factor on the internet. Its evolving in a very fast rate and new software and application are being created. These applications can have both education purpose or entertaining purpose.

Dentistry students are among one of the parts of the populations that area affected by it. In this study we will discuss the benefit of social media regarding their learning outcome, because now a day, social media are used to promote dental procedures videos and new techniques are being observed by students.

Objectives: Evaluating the positive impact of social media as a learning resource for dental students and Analysis of potential cost/benefit of the use of social media in dental education.

Material and methods: This study was performed by collecting scientific articles from different medical searching engines and using keywords that are related to our topic and objectives.

Medical searching engine: Pubmed, Research gate, Willey Online Library

Result and discussion: The positive impact of social media on dental students was observed in some of articles that were collected in this study. Undergraduates tend to use their smartphones for socializing and posting their daily life on social media but on the other hand most students use for example YouTube every time before they attemp to do a clinical procedure.

Conclusion: Dental students typically have positive perceptions toward mobile learning for various reasons. Regardless their negative impact, social media should be excluded as an educational instrument in dental education

Resumen

Introducción: El mundo que nos rodea sigue cambiando y evolucionando, especialmente cuando se trata de internet y de todos los beneficios, así como los resultados negativos que evolucionan con él. Las redes sociales son un factor importante en Internet. Está evolucionando a un ritmo muy rápido y se están creando nuevos programas y aplicaciones. Las aplicaciones pueden tener un objetivo educativo o divertido. Los estudiantes en Odontología hacen parte de los más afectados dentro de la población por ella. En este estudio discutiremos del beneficio de las redes sociales con respecto a su resultado de aprendizaje, porque actualmente, las redes sociales se utilizan para promover videos de procedimientos dentales y los estudiantes están observando nuevas técnicas.

Objetivos: Evaluar el impacto positivo de las redes sociales como recurso de aprendizaje para los estudiantes de Odontología y del análisis del costo / beneficio potencial del uso de las redes sociales en la educación Odontológica.

Material y métodos: Este estudio se realizó mediante la búsqueda de artículos científicos en diferentes fuentes médicas y del uso de palabras claves relacionadas con nuestro tema y objetivos.

Motor de búsqueda médica: Pubmed, Research gate, Willey Online Library.

Resultado y discusión: El impacto positivo de las redes sociales sobre los estudiantes en Odontología se observó en los artículos y se han demostrado en este estudio. Los estudiantes universitarios utilizan sus móviles para sociabilizar y publicar su vida diaria en las redes sociales, pero, por otro lado, la mayoría de los estudiantes usan, por ejemplo, YouTube cada vez que intentan realizar un procedimiento clínico.

Conclusión: Los estudiantes de Odontología suelen ser receptivos para aprender con el móvil por varias razones. Sin embargo, las redes sociales deben ser excluidas como instrumento educativo en la educación odontológica por sus aspectos negativos.

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Introduction

What is the definition of social media? They are a set of internet-based applications which can create a program that can let people and groups to communicate and assemble, allowing the population to share information, ideas, images and messages. Social media was firstly seen in the 1960s but, the expansive blowout of social media was between 2003-2008 with the growth of Myspace and Facebook and twitter which have increased enormously their popularity because they allow members to with a simple and stress-free way to communicate with friends, colleagues and families far away.(1)

On Facebook twitter, Google+, LinkedIn and additional social media programs, a great deal of profiles are created daily and million more actively use social media.(1) Following the advent of the TV, social media use has been one of the most exponentially rising practices globally. Radio gained 50 million listeners within 30 years although it took just thirteen years for television to achieve 50 million audiences. Remarkably, in just 4 years, the internet crossed 50 million.

However, Facebook reached that number in just 18 months. Facebook was developed for students at Harvard University in 2004. It had 100 million subscribers in 2009, and that figure grew to 500 million users globally by the end of 2010. The value of social media rises as social media expands at a quicker pace than other networking platforms, and it has become much more complicated since its growth. Over 800 million visit YouTube each month and at least 7000 videos are posted via Twitter er minute. Twitter is mainly used in Brazil, Japan and USA. Despite all the statistics, it is expected that social media will be an important aspect of the internet use in the near future.

In the past few years, it has evolved exponentially.(4) since the year 2018 it has been reported that 2.65 billion individuals worldwide use social media. In the fallow years it is estimated to reach 3 billion active social users. When it comes to adults in the US 80% or higher are estimated to use

monthly social media profiles and earlier reports have revealed that about 90% of US college undergraduates are using Facebook profiles and that they also spend 8 hours every day on it.(5)

Table 1 Commonly social media platforms that are used and their Academic usage (6)

Social Media	Explanation	Academic usage
Facebook	This platform is used by the majority of enrolled students.	<ul style="list-style-type: none"> • Development systems with less limitations. • shares best trainings, learning methods • Resource for career growth • transform educational obligation to the student • messages on the internet can be used as comments • focused conversations which are not acceptable in lectures. • keep relationships through connecting as “mate,” allowing personal data to be exchanged.
Twitter	Each tweet is limited to 150 words. There is no contact information saved. It may be open to the public or kept as a secret.	<ul style="list-style-type: none"> • Collect suggestions on social media policy from everyone else • “Searches” may help users identify individuals to have product feedback or tips • Makes quite students express themselves. • Question in real time in the lecture or in a meeting • Arrange for service/learning programs with training sessions to take place
LinkedIn	The web's biggest professional platform. Specialists allow workers to engage with one another for conversations and mutual interests.	<ul style="list-style-type: none"> • A fast method to find former and present coworkers • Working placement requirement for faculty • Find professionals in a variety of areas

Skype	Message, audio and videos are all included with the voiceover IP framework. Telephone plus video conferencing are also free utilities.	<ul style="list-style-type: none"> • Accessible via mobile, laptop or television • Enable individuals to be on the same call at the same time. • Telephone calls are among the utilities provided.
YouTube	User/generated video sharing. A channel may be created or subscribed to.	<ul style="list-style-type: none"> • A product, process or method is shown in a diverse way for the viewer. • Users can make their own content or they can share and use what others have made. • Uploaded films can be used in PowerPoint slideshows • Possibilities for learning or being taught a certain skill.
Flickr	Website for managing and uploading photos and videos.	<ul style="list-style-type: none"> • Possibility of viewing images or films • Photographs and films can be posted by making an account, as well as views and comments. • Could be linked to other platforms such as Facebook and Twitter.
Pinterest	A digital pinboard of images based on the visual preference of the members.	<ul style="list-style-type: none"> • Boards of community are used for group works. • Make a list of resources for faculty staff and students. • Works well for different social media websites; images are shared on platforms like Twitter and Facebook if desired.
Google+	Google's effort to compete with Facebook is sometimes characterized as an overall "layer" combined with additional Google items.	<ul style="list-style-type: none"> • Upload a link to an article or a query. Possibility of long conversations. • Have access to images, photographs, articles and other types of documents. • Working together on community ventures. • Options like video chat with up to 9 other users when sharing a laptop screen.

Now a days, mobile devices, tablets, smartphones and laptops are allowing members to look for facts and to be in contact with one another anytime. This technology wave have been introduced in universities for educational purposes (7). It is certainly possible to include smartphones and internet use as one of the essential criteria for measuring digital literacy.(8) Since 1995 they have grown extensively and have now become a vital part of our everyday lives. Usually, they are used to make calls, text, play music, watch movies, browse the internet etc. The software company Jadhav et al. claimed that Android is receiving more attention from costumers and is currently creating thousands of Android apps. The most popular messenger application among university students are WhatsApp, Skype and GO SMS PRO, which are all Android apps. As it has empowered users of all ages to access education and training programmers, the internet has had a more significant impact on education than any other prior technical breakthrough.(4)

Thus the measurement of digital literacy between dental undergraduates will represent both the extent of their field-related expertise and the need for technology to be incorporated in the existing dental education system.(8)

The incorporation of electronical approaches that complement the role of the professors with digital demonstration plus e-learning techniques is among the developments in the training of dentistry practitioners in the previous years. A digital breakthrough collaborative website, referred to as Web 2.0 materials, have been used since they allow academic institution to provide students with information in a simple manner with 24/7 connectivity. However, the usage of Web 2.0 for academic content is still in its development, but few colleges work with it besides science journals run their own YouTube channels.(2)

The current dental students, unlike the older generations of students, has grown up surrounded by advanced technology which is used for both studying and recreations.(3) Social network,

interactive medical and dental video websites are affected through individuals of the general public that can be unaware with libraries like the Cochrane library or additional specific outlets of health-related knowledge in the formulation of opinions. Social media platform like Wikipedia, YouTube or Facebook also provides a range of learning, entertaining and advertisement methods, although it is apparent in the expanded usage of these media by dental and medical practitioners to provide patients and the public with information. Since the formation of Health-related Web 2.0 materials are not limited for experts but could be done by practically anybody, it can be and certainly is accessible both true and false knowledge.(2)

A systemic review that was made by Hollinderbaumber al. found a different platforms of social media being used in medical learning, diaries, podcasts, wikis, sharing media and social network websites.(7)

Faculty and universities use social media resources as an instructional platform that complements educational processes to appreciate the content. Gamson and Chickering stated that students need to do more than just listen to lectures. To understand and absorb the information, students need to learn, write, debate or be involved in solving issues.(1)

Primary findings of a study among Australian dental students found the many undergraduates who had a smartphone in their possession tend to use and viewed them as a learning aid that enable them to approach opportunities for studying better.(8) There are few reviews currently available on educational developments using smartphones. While they frequently test the use of specific mobile apps or programs, nothing is understood when it comes to undergraduates interpret their smartphones like an instructional platform in their own project and beyond the context of specific application. However, as with all technology in order to direct the creation of effective educational advancement, recognizing the capabilities of the key users and their attitude towards the modern instrument is significance. Students are often reported to be unable to use smartphones for learning, they tend to use their smartphones for social and private activities.(9)

Currently this generation was very much part of their daily lives born into electronic technology, it does not actually mean that with no mobile device they can or choose to understand. It is necessary, therefore to understand the attitudes and opinions of dental students toward modern learning.(10)

Over the last few decades, developments in the dental education system have seen a transformation in the dental student learning patterns, along with an increased call for technological training approaches to be incorporated dental educators. As existing dental students are primarily of the younger generation, they have a high degree of experience with educational tools and e-learning. The concept of e-learning is “utilizing electronic technologies to access educational curriculum outside the traditional classroom”. A strength of e-learning is known to be visual demonstration of clinical procedures. After all, licensed dentists or dental instructors produce much of the accessible e-learning material on the internet.(11)

A 2018 research found that social media was helpful in preparing professors to teach more efficiently at ADEE/ADEA workshop in London. Alternative study revealed that there was substantial self-assessed improvement in the clinical practical abilities after Facebook was the teaching method on emergency cases in the everyday life of the dental office taken by Syrian dentistry students. In that same year another study found that most of dental students wanted to use social media to learn about oral pathologies. In central India with another study was performed with dental students showed that the most of them thought they can profit from including social media into their clinical program trainings. In the program of oral radiology, Twitter was used and a study that was established in the university of Taibah showed that students use of Twitter and Instagram accounts were reviewed in a survey, and 80 profiles were discovered to concentrate on the dental and medical anatomy, these profiles had huge numbers of followers between from 1 to 2 million.(12)

We will be able to easily link students to high quality education at lower costs by designing dental learning modules that can be delivered on a Mobile Multimedia Platform. It can be useful in providing an affordable instrument that can be used in developing countries by educational institutions to enhance their dental education. The access is limited in developing countries to education services, the integration of teaching methods into networking platform can help boost professional education.(12)

There are two arguments that have been discussed between individuals since the birth of social media, especially after students start using these platforms as a learning resource.

The first argument is whether the use of social network platforms can benefit dental student's learning abilities and communicating with others. As we know the internet community is helping students to endorse learning in education for health professionals. Teacher and professors have stated that their students were highly motivated by the materials and information that was collected from social media which leads to encouraging substantive behavior improvements.(1)

The second arguments are the potential problems with social media that can outweigh their benefits for dental education because some students found that they are learning more and understanding better than the actual material that are presented to them in the university lectures. This can lead to students asking for a mixed program that includes both virtual and face to face classes since they're satisfied with learning outcome from the social media. Another study also showed that there are a group of students that are using these platform and technology for non/academic purpose during lectures which leads to difficulties in focusing with the educator.(1)

All the social media platform are developing, and new platforms are arriving to the market. If we use them wisely, it will have a positive impact on our future and more interesting learning resources will be available for the educator to present for the students.

Objectives

Main objective

- Evaluating the positive impact of social media as a learning resource for dental students?
- Analysis of potential cost/benefit of the use of social media in dental education.

Secondary objectives

- Analysis of the instructor/clinician point of view on the use of social media.

Methodology

This study was performed by collecting scientific articles from different medical searching engines and using keywords that are related to our topic and objectives. By collecting different articles we were able to differentiate between different platform of social media and how dental and even medical students were using them regarding education or strictly social media use.

→ *Medical searching engine*

- Google scholar
- Pubmed
- Research gate
- NCBI
- Willey Online Library

→ *Key words*: Social media, Dental students, Dentistry, internet.

Result

4.1 General impact of Social media

In order to address the general impact of the use of social media, I have focused my first analysis on a previous report on dental and even medical students at the Jordan university of science and

technology. For evaluating the impact of social media on dentistry student, developing countries students were target by a survey study of which 225 students answered. Of that participants, 124(48.6%) chose traditional lectures paired with online courses, although 46(18%) preferred only the traditional form of lectures. YouTube, Bone Box, and Google were the three biggest technological resources/application that students viewed in having the best effect on their learning. The answers also showed that 76.5% gave high legitimacy to the electronic services suggested by the faculty. 60% off the students spend 1 to more than 4 hours on electronic academic performance services each day. "Organization and content logic" are the most significant consideration for web apps enhancing academic success (54%). E-learning has a major perceived influence on wordy comprehension (65%) and clinical understanding (71%). Students below the age of 50 were more likely to intergrade e-learning into classes (52%) and were more likely to use social media for communicating (41.6%)(13)

Table 2 The participants answers regarding which platform they use for enhancing their educational purpose (13)

Categories	Responses	Percentage of answers
YouTube	207	36.8
Bone Box	75	13.3
Google	57	10.1
Dental Anatomy Master	29	5.2
Lecture Podcasts	28	5
Wikipedia	23	4.1
Instagram	15	2.7
Quizlet	12	2.1

Table 3 The participants answers regarding how many hours a day they spent these networking platforms for their educational purpose (13)

Time spent daily	Number of answers	Percentage of answers
Less than 1 hour	102	40
1 to 2 hours	66	25.9
2 to 3 hours	34	13.3
3 to 4 hours	24	9.4
More than 4 hours	29	11.4
Total	255	100

4.2 The impact of YouTube

To analyze this matter, I focused on this study that was established by collecting data from 5 different dental schools across the USA year 2020. 479 students answered a questionnaire that was made to see the impact of YouTube as a learning resource for dentistry student.

Table 4 The answers from the questionnaire "YouTube as learning resource for clinical procedures"(11)

Questions	Answers	Percentage
<i>How long have you used YouTube?</i>		
• Less than 1 year	2	0.42
• 1-3 years	11	2.30
• 3-5 years	34	7.10
• Over 5 years	429	89.6
• I do not use YouTube	3	0.63
<i>How much do you go on Youtube?</i>		
• Every day	248	51.8
• Every week	11	36.3
• Every month	34	11.1
• Every year	429	0.63
• Never	3	0.21
<i>What is your main use of YouTube?</i>		
• Entertainment	356	74.4
• Tutorials (not academic)	39	8.14
• Education purpose	83	17.3
• I do not use YouTube	1	0.21
<i>I found YouTube videos on clinical procedures to be a helpful learning tool</i>		
• fully agree	250	52.3
• Agree	204	42.7
• Neither disagree nor agree	18	3.8
• Not agree	5	1.1
• fully disagree	1	0.2
<i>How do you use YouTube as a learning tool for clinical procedures (chose more than one)</i>		
• It is my main learning method	59	9.66

<ul style="list-style-type: none"> • Adjunctive to Labs or classes, it is a way for learning different methods • Learning a procedure after missing a lecture or a lab • My second language is English plus I depend on YouTube to understand the procedure better 	455 100 4	73.6 16.2 0.65
<p><i>How likely do you prefer to a YouTube video to prepare for a procedure which you've never done before?</i></p> <ul style="list-style-type: none"> • Very likely • Likely • Neither likely nor unlikely • Unlikely • Very unlikely 	223 164 56 25 11	46.6 34.2 11.7 5.2 2.3
<p><i>I watch YouTube videos as a learning resource before attempting a clinical procedure</i></p> <ul style="list-style-type: none"> • Every time before I prepare myself for a procedure in the clinic • Only when it is the first time doing a procedure that I have never done • When I rarely need a refresh on a clinical procedure I haven't done in a while • Never 	70 250 141 17	14.6 52.3 29.5 3.6
<p><i>Which type of dental procedure do you prepare for using YouTube? (chose more than one)</i></p> <ul style="list-style-type: none"> • Removable prosthodontics • Fixed prosthodontics • Restorative • Periodontics/prophylaxis • Oral Surgery; Extractions • Oral Surgery; Suturing • Radiographic imaging/radiographic interpretation 	309 359 318 147 298 267 285 80	15.0 17.4 15.4 7.13 14.4 13.0 13.8 3.9
<p><i>Which of the following element do you think that YouTube videos are most useful for?</i></p> <ul style="list-style-type: none"> • Concept understanding/visualization of abstract concept • Clinical demeanor/professionalism • Clinical procedure technique • Organization/planning 	186 5 277 7	39.2 1.1 58.3 1.5
<p><i>Would you recommend YouTube as a learning resource for clinical procedures to your classmates?</i></p> <ul style="list-style-type: none"> • Yes • No • Not unsure/applicable 	425 15 37	89.1 3.14 7.76
<p><i>Has your dental school ever recommended you to use YouTube as a learning resource or used it to explain a clinical procedure?</i></p> <ul style="list-style-type: none"> • Yes • No 	181 297	37.9 62.1
<p><i>To what degree do you find YouTube videos as a tool for learning clinical procedure to be reflected of what you are taught in dental school?</i></p> <ul style="list-style-type: none"> • Very much so 	124	26

<ul style="list-style-type: none"> • Somewhat • Unsure • No reflective 	308 34 11	64.6 7.13 2.31
<i>Would you want that your dental university share clinical practice tutorials on Social media or YouTube?</i>		
<ul style="list-style-type: none"> • Yes • No • No preference 	424 24 30	88.7 5.02 6.28

Six topics evaluated the usage of YouTube by students as a platform for studying dental clinical procedures. YouTube videos were considered to be beneficial method for studying clinical practices by 95% of students. No statistically substantial variations between dental institution or between dental students in the 3rd or 4th year were found. 73.6% of students indicated that when being asked if YouTube was used as a research aid for clinical measures, it also used as an adjunct to their dental school education to practice multiple approaches to procedures. 16.2% answered that they use YouTube videos when the class is skipped. (11)

With no statistically meaningful difference amongst dental school, the majority of student needed to refer to a YouTube videos to train for a treatment in the clinic that they never had done. A test showed a statistically important gap in whether 3rd and 4th year dental students used YouTube more often than 4th year students. The result indicates the types of procedures planned for the use of it by 3rd and 4th year students with an average of 4.3 different choices reported by each participant.(11)

Finally, when students were asked about which aspect of education participants felt that YouTube videos were most helpful, 58.3% selected clinical practice methodology, 39.2% selected concept visualizing or understanding or visualization of abstract concepts, 1.5% selected organization or preparation and 1.1% selected clinical attitude or professionalism. (11)

4.3 The impact of smartphones on dental students

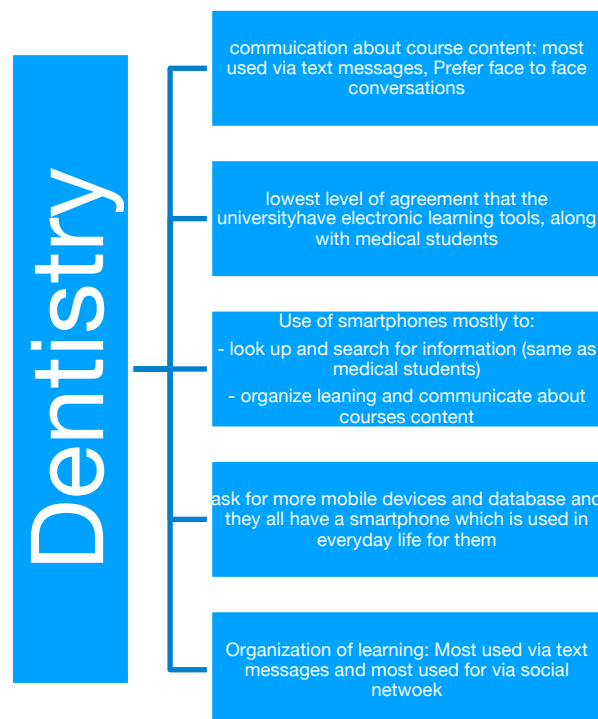
In this study that was published 2014 to see the influence of smart phones on Australian students. 204 (87.9%) of the 232 participants owned a smartphone, and 191 (82.3%) had connection to cellular carriers of the third generation (3G). The iPhone and Android were the most common smartphones. For a variety of learning tasks, most of the participants had advanced smartphone abilities. Just 75 (32.3%) had installed unique educational software, while 148 (63.7%) used smartphones to use social media and considered it useful for their learning. Students with their smartphones using social media have displayed slightly more developed smartphone capabilities than those who did not. There was a strong link between the abilities of smartphones and the behavior of students towards enhancing access to learning content helping to learn more independently and teaching staff personal use of smartphone.(8)

Table 5 Students answered questions regarding the use of their smartphones as a learning resource (8)

Activity	Number of students	Percentage
checking the class schedule	177	83.1
program announcements	175	82.2
Surf the internet for information	139	65.5
Work related pictures	132	62.0
Sending mails to colleagues or classmates	132	62.0
Read lectures notes	118	55.4
Share notes	86	40.4
Library or literature search	63	29.7
View instructional videos	52	24.5
View classes	48	22.7
creating a video of my work	19	9.0

The majority students believed that it was beneficial to use smartphones in the dental courses and their approaches when it comes to mobile learning were strong. For shopping online, relating to social media and interaction, students typically use the internet. They prefer to use smartphone in dentistry courses. In projecting the modification in the total score for the mobile-learning attitude scale according to the intention of the Web use, contact was considered important.(14)

Table 6 The characteristics of media use by students from the faculty of health and school of dentistry. (15)



4.4 The impact of Facebook

In 2008, Salaway et al. discovered that 49.7% of dental students interacted through social media sites with their classmates about their academic work. This high percentage made Grey et al. investigate areas in which Facebook could be utilized for educational purpose. Their result showed that in order to arrange and engage in study groups, more students switched to Facebook instead of university online learning sites. Dental undergraduates have used Facebook apps to train each other for the objective structured clinical examination (OSCEs). They recommended that teachers

should administer and monitor these groups because there is often little supervision or input in these informal online research groups.(16)

Even when it is regarding patient-student relationship via Facebook out of the 200 were 64 dental clinical undergraduates confessed to receiving an invitation from one or more patients for e Facebook friend, regardless of whether they approved it. A slightly increased number of fifth year undergraduates compared to fourth year undergraduates have received a friend invitation from their patients on Facebook. Also, when it comes to admitting to trying to locate the Facebook profile of their patients, 5th year students had a higher proportion compared to 4th year students. Even the proportion of students used Facebook for both entertainment and academic purpose was slightly increased in clinical than pre-clinical years, after being asked whether using Facebook to socialize, entertainment or even for academic reasons, for example details on class schedule. (17)

The incidence among undergraduate dental students of extreme Facebook usage and unnecessary texting found to be 33.2% and 33%, I both. Texting behaviors, such as the existence of day-time sleepiness after late at night and the existence of nervous episodes if undergraduates failed to receive a appropriate answer, were evaluated to be major predictors of extreme mobile texting, according to multivariate analysis. Three variables were found to be meaningfully linked to extreme Facebook usage: lower members of close friends, looking for news on their friends profiles, and the absence of active and strong feelings during the use of Facebook.(18)

In comparison for patients, the findings suggest that when choosing a dental clinic, when it comes to decision-making social media does not play a big factor. More importantly, patients appreciated friends and family feedback, services, user ratings and website content more than they did the social media presence of a dental office. Regarding the Facebook page of dentists, patients ranked credentials as the most significant material to be presented. Besides credentials, favorable

feedback, certificate and original material were also rated on the Facebook accounts of dentist for certain patients.(19)

Discussion

Web 2.0 technology will continue to provide enhanced and diverse, student-centered as well as intergraded, engaging learning experience. However, the introduction of certain Web 2.0 technologies into dental course is impeded by a large generation gap. In addition, some students assume that their seminars will no longer be attended, and a new research showed that 90% of students said that introducing E-learning techniques had a minor effect on whether or not they attended the classes. In reality it could improve student participation by integrating these technologies, for example 60% of student and 80% of non-native English speakers were feeling better about writing post or comment than speaking in class.(16)

The extraordinary ability to link large and geographically scattered communities of students is among Web 2.0 many advantages. Disatemas.net, for instance is a group of six dental school from around the world that publishes student blog. Students exchange portfolios, personal thoughts, connection to each other, post comments and ideas, creating a true sense of community if virtual. Furthermore, the average U.S. dental student spends a higher proportion of his or her dental education providing services at community sites and the Web 2.0 will allow them to keep in contact with their colleagues and universities on community websites.(16)

The disadvantages of Web 2.0 technology including the possibility that online activities are unacceptable and unprofessional, especially if student privacy is maintained. There has been problems with students uploading unprofessional media content which was reported by 60% of US medical deans, and 13% admitted to patient privacy vitiation such as posting of patient clinical data, X-rays and images to social media site, and this is forbidden according to the Health

Insurance Portability and Accountability Act (HIPAA) that protect patient's privacy and personal medical content. Therefore social media need to use rules to be written specifically so that acceptable standards of behavior and professionalism are maintained.(16)

Our interaction and knowledge collection are rapidly shifting away from paper and over to the internet as a result of technological advancements.(20) Due to their high school educational success and the social recognition that dental and medical students experience, they are rated the highest in educational performance in Jordan. Due to the magnitude of knowledge they need to learn which is needed by the excessive load of courses and long hours of studying, their time is reduced during their college education. Their time is also important and can be spent carefully to ensure the success of achieving the requirements of their degree. Although the result of this study revealed that the majority of students use two or more websites and spend a great deal of time in a day on Social media: (A) few of them have shared their trust in social media as source of medical knowledge (B) more than half of them have rarely or never used Social media to access medical information and (C) most of them have nor relied on social media advice to make their treatment decisions.(21)

Studies have demonstrated variations in the perceptions of students on the benefit of using social media in university. Some result demonstrated a positive effect on the student's successive progress, including higher grades and better community involvement. However, because of the misleading perception associated with social media effect on academic achievement and the portrayal of professionalism, some noticed a hesitation among students to use it for learning purposes. The benefit of it is not yet confirmed and several studies have shown a lack of a link or even negative connection between the use of social media and academic performance.(21)

An absence of certainty as to the quality and accuracy of the content is one of the prominent problems regarding simply accessible data. The findings of this study support the narrative of the

uncertainty about the quality of the information which is available. It is significant to mention that decreased levels of previous experience of a topic will adversely affect the search process as dental students check out their personal E-learning sources. In this analysis, several participants indicated a degree of confusion or absence of trust about the evidence base of the videos that they were viewing. It demonstrates that the accuracy of these information and quality is consistent with the pessimism of professors stated in the literature. The important usage should not be invalidated by concerns about the nature of the content. Our analysis showed that majority of undergraduates applied to YouTube videos for their education in dentistry. YouTube was mainly used to study various approaches to methods of clinical practice and to develop imagining and interpretation of intellectual ideas. (11)

It has shown that students approved the pre-class lecture videos well, and the students found the YouTube channel to be a powerful platform to share the lecture videos. Many students felt the video lecture were easier for understanding the content than face to face lectures. The features of YouTube platforms micro-reading recording such as pause, repeat, pace change and comment encouraged the comprehension of the students by the encouraging by adaptive learning and two-way feedback. In addition, the task of sharing and introducing students to similar videos on YouTube helped students evolve as learning topics by encouraging students to experience more interesting and customized learning. Finally, the purpose of these video lectures was to expose the students to the core principles of periodontology, but we also wanted to provide them with instructional resources sufficient for future review if they chose to refresh their memories. (22)

While a vast majority of students answers indicated that they prefer that their dental university to upload clinical procedures demonstrations to social media or YouTube, less than half stated that the university faculty had never suggested YouTube as a clinical procedure education method. On the other hand, another research showed that feedback from the faculty were an important factor

impacting the understanding of students of credibility about resources outside the campus university. Teachers must think about relating their education methods to their students' academic desires. While some faculty hesitate to adapt their way of teaching to integrate E-learning have been correlated with low observed gain, time, intensity, and observed complexity in creating these instruments. Future studies should investigate how to resolve the difference in the choice of the student and faculty to use YouTube as a study platform for dental procedures. For dental professors, it is important to follow one's author's point of view "the ultimate goal is to bridge the generations that are part of the education process and support the mission of dental schools to educate competent oral health care". (11)

As students of the 5th year reported substantially more patient friend request, as well as more searches for patient Facebook profiles than students of the 4th year, we believe the longer "exposure" in clinic of the dental school increase the potential dental student-patient relationship via Facebook. More than half of the students on Facebook who were friends with patients have mentioned online conversations with them about subjects that are related to their treatment, while 15 of them had personal or social conversations as well. However, this online contact may conflict with the professional relationships between the dentist and patient and will complicate it. On the other hand, in orthopedic doctors mentioned that it is not acceptable to have any relationship with the patient outside the clinic, it does not matter if it is social or medical conversations. (17)

The benefit is the omnipresent nature of smartphones, but it may also be a problem. The research reveals that marginally more than half of students frequently and sometimes use their smartphones in the lecture hall. While the use of connected devices during lectures is productive, it is a common controversy as such use can often be unrelated to learning practices. It seems though that his patterns here to continue and I likely indicate students typical "multitasking"

approach to learning. Although smartphones are banned from lectures, they do have the ability to include the involvement of students, for example by letting students develop their own content.(8)

Overtime and geographical location of the variety of mobile operating systems make it possible it use compatible learning apps. Web-based social media apps are a clear example. It was founding that 37% of dental students had an educational app and 58% had a university app versus 88.5% students that were using social media on their smartphones. This result was different when was made in a medical university. Perhaps it reflects that there are more medical apps available than dental ones. (8)

The use of smartphones without intervention or instructions from teaching personnel is an example of the academic potential of such devices. They open doors for new methods of studying and teaching. For teachers looking for new learning approaches, it is exciting to see that learning materials are available and engagement is achievable through smartphones regardless of interference by teaching staff. (8)

Dental professionals are expected to become more interested with social media and use it extensively for a variety of reasons, including marketing, communications and interacting with costumers given its wider view and the fact that is not used exclusively for personal purpose.(23)

The balance between life and work is essential for undergraduates and faculty, besides we have found that dentistry courses have begun to integrate instruction in instruments to better balance between work and life into their everyday academic time. The meaning of restricting monitor time also have to be a part of this guidance. maintaining the usage of social media should be handled in a way that would not invade the lives of students or the faculty as a secondary help in dental

education. Dr Farrior and Flake disagree when it comes to the dispute that social media use overshadow their positive outcome.(1)

Conclusion

The negative beliefs about the authenticity of information posted on social media may affect the limited use of it among dental students to ask about information regarding their academic learning. Evidence in the positive effect of the use of social media is not well established and other sources, for example on students intellectual, social growth, professional growth and improvement in dental teaching methods must be viewed with caution. Future studies need to be established in order to examine the impact of social media on the success of students and the willingness of teachers to enhance the teaching content is also required before instructional modification can take place.(21)

Dental students typically have positive perceptions toward mobile learning for various reasons and distinct preferences. It was found that the relationship between mobile learning and use of smart phones differed significantly. In order to use their particular use of technologies and leaning behavior, student increase awareness of the promises of m-learning. To improve the average success of student in dental courses, a smart device apps and designing instructional resources need to be performed. (14)

Most popular platform that has a positive impact on social media learning is YouTube. 3rd and 4th year dental students are more likely to use YouTube as a platform for studying and training for clinical dental procedures, while education may not be the primary reason for their use of this platform. The fact that was no statistically substantial variations in the answers that were sampled by the 5 different participating dental institutions. Predominantly, dental students recommend

YouTube to their peers as a learning platform and wished to see video tutorials shared on YouTube/social made by their dental school faculty. Moreover, most students indicated that their university had never recommended the use of YouTube for studying clinical procedures. Future studies could investigate the difference in the views of students and faculty on the usage of YouTube as a study platform for dental clinical procedures. (11)

Professional dentists agree that there might be certain advantages of dental education from social media, they firmly believe that there are too many potential consequences with the use of social media to facilitate rapid adoption. A single mistake of judgment will risk hurting the image of our profession, as well as that of dental student, even though instruction is provided on the correct use of social media, having adverse consequences on the potential of both. They also asked whether it is appropriate to take disciplinary action when media related bullying happens in a dental school and whether it should be used for private or educational purpose. For students, no educational dental institution should be confronted with such concern or behavior. Therefore, in the best interest of our potential students and to ensure healthy and ethical patient care in our educational settings, social media should be excluded as an educational instrument in dental education. (1)

A digital professionalism awareness training for students is also needed to avoid any negative outcome.(24) Global health organizations such as World Health Organization (WHO) and International Telecommunication technologies (ICT) are encouraging the usage of eHealth and other information and communications technology in health services.(25)

Responsability

This study aims on the impact that social media has on dental students in different part on the world. Social media platforms are more than just application that we share our daily life on, we can benefit from them if we use them in the right way.

We need to have a better understanding when it comes to using these different platforms. In this study we can see that social media can enhance our education system by sharing videos that demonstrate how a certain clinical procedure can be done which is a very vital part of the dental student life. This will boost the confident of the undergraduates before attempting any new procedures.

We are facing a challenging time with the pandemic of virus covid-19 around us which made social media even more needed in our daily lives. Meeting and lectures are conducted through virtual platforms that help all students connect from different areas at the same time. A bright future is granted if we use these networking platforms in an ethical and correct way.

Bibliography

1. de Peralta TL, Fariior OF, Flake NM, Gallagher D, Susin C, Valenza J. The Use of Social Media by Dental Students for Communication and Learning: Two Viewpoints. *J Dent Educ.* 2019;83(6):663–8.
2. Knösel M, Jung K, Bleckmann A. YouTube, Dentistry, and Dental Education. *J Dent Educ.* 2011;75(12):1558–68.
3. He K, Breitman L, Lee J, Van Doren E, Li A, Donoff RB. How US dental schools can better prepare their students to perform operative procedures. *J Dent Educ.* 2020;(October):1–8.

4. Deogade S, Saxena S, Mishra P. Adverse health effects and unhealthy behaviors among dental undergraduates surfing social networking sites. *Ind Psychiatry J*. 2017;26(2):207.
5. Arnett MR, Christensen HL, Nelson BA. A school-wide assessment of social media usage by students in a US dental school. *Br Dent J [Internet]*. 2014;217(9):531–5. Available from: <http://dx.doi.org/10.1038/sj.bdj.2014.956>
6. Arnett MR, Loewen JM, Romito LM. Use of Social Media by Dental Educators. *J Dent Educ*. 2013;77(11):1402–12.
7. Hollinderbäumer A, Hartz T. Lehre 2.0 -Wie werden Social Media und Web 2.0 in die medizinische Ausbildung eingebunden? Ein systematischer Literaturüberblick
Zusammenfassung Zielsetzung: Die Studierenden sind mit einem hohen multimedialen Bezug aufgewachsen. Die von ihnen genutzten K. 2013;30(1):1–12. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3589682/pdf/ZMA-30-14.pdf>
8. Rung A, Warnke F, Mattheos N. Investigating the Use of Smartphones for Learning Purposes by Australian Dental Students. *JMIR mHealth uHealth*. 2014;2(2):e20.
9. Spallek H, Turner SP, Donate-Bartfield E, Chambers D, McAndrew M, Zarkowski P, et al. Social Media in the Dental School Environment, Part A: Benefits, Challenges, and Recommendations for Use. *J Dent Educ*. 2015;79(10):1140–52.
10. Spallek H, Turner SP, Donate-Bartfield E, Chambers D, McAndrew M, Zarkowski P, et al. Social Media in the Dental School Environment, Part B: Curricular Considerations. *J Dent Educ*. 2015;79(10):1153–66.
11. Burns LE, Abbassi E, Qian X, Mecham A, Simateys P, Mays KA. YouTube use among dental students for learning clinical procedures: A multi-institutional study. *J Dent Educ*.

2020;84(10):1151–8.

12. Tsai R, Nguyễn CDB, Hồ ĐSM, Nguyễn YHT, Taylor RH. Using mobile multimedia platforms in teaching dental diagnosis. *J Taibah Univ Med Sci.* 2020;15(4):265–71.
13. Turkyilmaz I, Hariri NH, Jahangiri L. Student’s perception of the impact of E-learning on dental education. *J Contemp Dent Pract.* 2019;20(5):616–21.
14. Suner A, Yilmaz Y, Pişkin B. Mobile learning in dentistry: Usage habits, attitudes and perceptions of undergraduate students. *PeerJ.* 2019;2019(7).
15. Zupanic M, Rebacz P, Ehlers JP. Media Use Among Students From Different Health Curricula: Survey Study. *JMIR Med Educ.* 2019;5(2):e12809.
16. McAndrew M, Johnston AE. The Role of Social Media in Dental Education. *J Dent Educ.* 2012;76(11):1474–81.
17. Karveleas I, Kyriakouli A, Koukou M, Koufatzidou M, Kalogirou EM, Tosios KI. The relationship between Facebook behaviour and e-professionalism: A questionnaire-based cross-sectional study among Greek dental students. *Eur J Dent Educ.* 2020;(August 2020):151–8.
18. Lee YL, Verma RK, Yadav H, Barua A. Health impacts of Facebook usage and mobile texting among undergraduate dental students: it’s time to understand the difference between usage and an excessive use. *Eur J Dent Educ.* 2016;20(4):218–28.
19. Parmar N, Eisingerich AB, Dong L. Connecting with your dentist on facebook: Patients’ and dentists’ attitudes towards social media usage in dentistry. *J Med Internet Res.* 2021;20(6):1–12.

20. Oakley M, Spallek H. Social Media in Dental Education: A Call for Research and Action. *J Dent Educ.* 2012;76(3):279–87.
21. Saadeh RA, Saadeh NA, de la Torre MA. Determining the usage of social media for medical information by the medical and dental students in northern Jordan. *J Taibah Univ Med Sci* [Internet]. 2020;15(2):110–5. Available from: <https://doi.org/10.1016/j.jtumed.2020.02.003>
22. Seo CW, Cho AR, Park JC, Cho HY, Kim S. Dental students' learning attitudes and perceptions of YouTube as a lecture video hosting platform in a flipped classroom in Korea. *J Educ Eval Health Prof.* 2018;15:24.
23. Bahabri RH, Zaidan AB. The impact of social media on dental practice promotion and professionalism amongst general dental practitioners and specialists in KSA. *J Taibah Univ Med Sci* [Internet]. 2021;(xxxx):1–5. Available from: <https://doi.org/10.1016/j.jtumed.2020.12.017>
24. Gormley M, Collins L, Schofield S, Neville P. Exploring the impact of digital professionalism awareness training on dental undergraduate students. *Eur J Dent Educ.* 2020;(May):1–11.
25. Saxena P, Gupta SK, Mehrotra D, Kamthan S, Sabir H, Katiyar P, et al. Assessment of digital literacy and use of smart phones among Central Indian dental students. *J Oral Biol Craniofacial Res* [Internet]. 2018;8(1):40–3. Available from: <http://dx.doi.org/10.1016/j.jobcr.2017.10.001>

Point/Counterpoint

The Use of Social Media by Dental Students for Communication and Learning: Two Viewpoints

Viewpoint 1: Social Media Use Can Benefit Dental Students' Communication and Learning

Tracy L. de Peralta, O. Fields Farrior, Natasha M. Flake

Viewpoint 2: Potential Problems with Social Media Outweigh Their Benefits for Dental Education

Desmond Gallagher, Cristiano Susin, John Valenza

Abstract: Social media have become a major part of an interconnected society, impacting personal and professional lives. This Point/Counterpoint presents two opposing viewpoints on the question of whether social media should be used in dental education as a learning and communication tool for dental students. Viewpoint 1 argues that social media benefit student learning and should be used as a tool in dental education. This argument is based on evidence concerning use of social media and improved learning across health professions, improved peer-peer communication in clinical education, improved engagement in interprofessional education (IPE), and provision of a mechanism for safe and improved communication between practitioners and patients, as well as faculty and students. Viewpoint 2 argues that potential problems and risks in using social media outweigh any benefits found in learning and therefore social media should not be used as a tool in dental education. This viewpoint is supported by evidence of negative effects on learning, the establishment of a negative digital footprint in the public's view, risk of privacy violations when using social media, and the new phenomenon of Internet addiction with its negative physiological effects on social media users.

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Keywords: dental education, communication and interpersonal skills, professional behavior, social media, educational technologies

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Social media are defined by Ventola as a collection of Internet-based tools that create a platform for individuals and populations to assemble and communicate, enabling easy sharing of information, ideas, messages, and images and collaborating in real-time.¹ According to Parkinson and Turner, examples of social media were first seen in the late 1960s with the first major commercial Inter-

net server (CompuServe); however, the widespread adoption of social media occurred from 2003 to 2008 with the rise of MySpace and Facebook.² Hollinderbaumer et al.'s systematic review found a variety of examples of social media being used in medical education, including blogs, social messaging, audience response systems, location-based networks, podcasting, wikis, media sharing, and social networking sites.³ Reasons

YouTube, Dentistry, and Dental Education

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Abstract: The objective of this study was to systematically assess the informational value, intention, source, and bias of videos related to dentistry available on the video-sharing Internet platform YouTube. YouTube (www.youtube.com) was searched for videos related to dentistry, using the system-generated sorts "by relevance" and "most viewed" and two categories (All and Education). Each of the first thirty results was rated by two assessors filling out a questionnaire for each (total: 120). The data were subjected to statistical analysis using Cohen's kappa, Pearson's correlation coefficient tau, Mann-Whitney U-tests, and a nonparametric three-way ANOVA, including an analysis of the interaction between the sorting and category effect, with an α -level of 5 percent. The scan produced 279,000 results in the category All and 5,050 in the category Education. The analysis revealed a wide variety of information about dentistry available on YouTube. The purpose of these videos includes entertainment, advertising, and education. The videos classified under Education have a higher degree of usefulness and informational value for laypersons, dental students, and dental professionals than those found in a broader search category. YouTube and similar social media websites offer new educational possibilities that are currently both underdeveloped and underestimated in terms of their potential value. Dentists and dental educators should also recognize the importance of these websites in shaping public opinion about their profession.

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Keywords: dentistry, dental education, dentists, continuing information, information technology, computers in dentistry, public opinion, Web 2.0, YouTube

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Among changes in the education of dental professionals over the past decades¹⁻⁴ is the integration of electronic methods that support the role of lecturers with multimedia presentations and e-learning strategies.⁵ A related innovation has been the use of participatory Internet websites, referred to as Web 2.0 contents, as they allow academic institutions to provide information to students in a convenient manner with 24/7 availability.⁶⁻¹⁰ The use of Web 2.0 for academic content is, however, still in its infancy, although some schools make use of it and a few scientific journals run their own YouTube channels.¹¹

We are also interested in another aspect of such websites. Social networks and participatory video websites with medical and dental content are gaining influence in opinion formation by members of the general public,¹²⁻¹⁸ who are generally unfamiliar with such databases as the Cochrane Library or other specialized sources of health-related information. The Internet and, in particular, social media such as Wikipedia, YouTube, or Facebook also feature a variety of educational approaches, entertainment, and advertising—the latter being evident in the increasing use by dental and medical professionals of these media for providing information to patients and the

public.^{11,12,19} Since the development and uploading of health-related Web 2.0 information are not restricted to professionals but can be carried out by literally anyone, both valid and false information can be and surely is available.^{14,20-22}


With the wide availability and potential influence of YouTube videos regarding dentistry, the lack of research on this topic provided the stimulus for our research. Since YouTube footage with an educational-informative aim can be selectively searched using the system-internal query filter "Education," our study screened selected videos to assess the bias in and informative value of this source for dental students and the public. The null hypothesis was that there is no significant influence of the sorting of videos (by relevance or by most clicks) and a system-internal category ("All" or "Education") on the informational value of footage about dentistry found on YouTube.

Methods

On October 6 and 8, 2010, we searched YouTube (www.youtube.com) for videos related to dentistry using the search term "dentist OR dentists OR dentist's OR dental OR dentistry." There were two reasons for using such general search words. First,

ORIGINAL ARTICLE

How US dental schools can better prepare their students to perform operative procedures

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Abstract

Objective: The aim of this study was to characterize the curricular and supplemental resources used by dental students during their operative dentistry course, survey students' perception of each resource's "helpfulness," and assess students' perceptions of preparedness to perform operative dental procedures in clinical settings.

Methods: American Student Dental Association delegates at all accredited dental education programs in the United States were asked to forward an email to students enrolled at their respective institutions explaining the purpose of the study and asking them to fill out our survey. The response rate was calculated using the targeted enrollment data found in American Dental Education Association Official Guide to Dental Schools.

Results: A total of 715 qualified respondents completed our questionnaire for a response rate of 13.5%. 90% of students felt at least "moderately prepared" to perform operative procedures in the clinical environment. The 3 most common curricular resources provided to students were lecture slides ($n = 707$, 99%), live lectures ($n = 664$, 93%), and live faculty demonstrations ($n = 547$, 77%). YouTube was the most common supplemental resource utilized by students ($n = 575$, 80%). When asked to select which resources were the most helpful for their learning, 49% (270/547) selected live faculty demonstrations, 27% (153/575) selected YouTube videos, and 23% (155/664) selected lectures/lecture slides.

Conclusion: To best meet the expectations of the current generation of dental students and to prevent early-stage dental learners from being influenced by clinical misinformation online, dental schools should consider adapting and producing more online, video-based learning resources for their curricula.

KEYWORDS

educational technology, operative dentistry, teaching methods

1 | INTRODUCTION

Operative dental procedures are often students' first exposure to clinical dental practice and present a significant

psychomotor challenge to new dental learners.¹ Additionally, as operative procedures are confined to the oral cavity, they present unique pedagogical challenges for instructors who must teach students how to visualize procedures in

Adverse health effects and unhealthy behaviors among dental undergraduates surfing social networking sites

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Abstract

Introduction: Little is known about the relationships between adverse health effects and unhealthy behaviors among dental undergraduate students surfing social networking sites (SNSs). **Objectives:** The aim of this study was to determine the associations between adverse health effects and unhealthy behaviors with social networking usage among dental students. **Materials and Methods:** A cross-sectional study was conducted in a private university in Madhya Pradesh (India) among 300 dental undergraduate students. A self-administered questionnaire was used. It included questions on sociodemographical data, pattern of social networking use, social relationships, unhealthy behaviors, and health effects. **Results:** The mean age was 21.5 (±2.3) years. The average daily SNSs surfing hours were 3.5 (±1.8). Significant associations were found between average hours of social networking and the following factors: isolation from family members and society, refusing to answer calls, musculoskeletal pain, headache, and eye irritation ($P < 0.001$). The average hours spent on social networking were significantly associated with holding urination and defecation while online, surfing SNSs until midnight, and postponing, forgetting, or skipping meals ($P < 0.001$). Cohen's effect size value between adverse health effect and social networking hours were 0.70, 0.68, 0.82, 0.86, and 0.61 for back pain, shoulder pain, wrist pain, headache, and eye irritation, respectively. The effect size value between health-related behaviors and social networking hours were 0.72, 0.62, 0.72, 0.71, and 0.84 for holding urine, holding defecation, postponing meal, skipping meal, and social networking until midnight, respectively. Gender-wise comparison for social networking hours showed a low practical significance ($P = 0.89$). **Conclusions:** The average hours spent on social networking were associated with adverse health effects and unhealthy behaviors among dental undergraduate students, as well as social isolation from the family and society.

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Full Text
Introduction

Since 1985, mobile phones have been developing extensively and have become a crucial part of our daily life nowadays.[1] Mobile phones are used widely for making calls and messaging, for playing music, watching movies, accessing internet, and variety of applications. Jadhav et al.[2] reported that Android is grabbing more and more user attention and thousands of Android applications are currently being developed. These Android applications are WhatsApp (WA), Skype, and GO SMS Pro, which are also, the most popular messenger applications among the college-going students. Internet has had a more dramatic influence on education than any previous technological innovation because it has allowed individuals of all ages to access education and training programs.[3] Lorenzotti [4] noticed the most dramatic changes with the introduction of Web 2.0. The basic elements of Web 2.0 are communication and collaborative technologies that involve voice, video, social networking, and content sharing; the direction and content of these applications are established by their users. Web 2.0 technologies add a new dimension to online teaching and learning and provide opportunities for instructor-to-student as well as student-to-student real-time and time-delayed collaboration. Several authors [5][6][7] observed that these technologies have shifted the role of instructor from deliverer of instruction to that of facilitators of learning and have made learners the center of attention. Social media has become a preferred internet application and is the most important communication tool today. As the frequency of using the internet increases, the use of social media use has also increased.[8]

SNSs have become increasingly popular with the rise of Web 2.0, providing increased collaboration and sharing among users through applications such as blogs, podcasts, and RSS feeds. Cavetis [9] found that SNSs such as MySpace, Friendster, and most recently, Facebook (FB), are used by a great variety of people, both for social and professional purposes; youth, in particular, use these new technologies to communicate and stay connected. This popularity should help SNSs act as natural supports for educational activities if they are used effectively. Gabiri and Dari [10] reported that the FB is by far the biggest social network worldwide. Until December 2012, FB had one billion monthly active users. The adoption of FB among students increased over time. A recent study from the US showed that up to 98% of medical undergraduate students regularly use FB.[10]

Social media grows rapidly and is an indispensable part of every organization. In the last 2 years, social media use has become one of the most rapidly growing activities worldwide since the invention of television. Within 38 years, radio reached 50 million listeners, while it took only 13 years for television to reach 50 million viewers. Strikingly, the internet reached 50 million users in only 4 years; indeed, FB reached that figure in 11 years. Designed for students at Harvard University in 2004, FB is a single phenomenon. In 2008, FB had 100 million members, and by the end of 2010, that number increased to 500 million users worldwide. As social media goes at a faster rate than other communication programs, the importance of social media increases and following its development has become even more challenging.[11] By the year 2013, more than half of 2.4 billion internet users have become members of and use the services offered by a social network. Globally, each month, approximately 800 million users visit 'YouTube' and each minute, at least 7000 videos are shared through 'Twitter.' Twitter is used mostly in USA, Brazil, and Japan. Considering all these figures, it is predicted that in the near future, an important part of internet use will be through social media.[12]

SNS is a communication tool for members. This kind of platform was designed as a way for friends, family, or strangers to have discussions and interaction or be in contact with each other; it allows members to explore new opportunities and experiences. SNSs allow students to express themselves, communicate, and collect profiles that highlight their talents and experience. Students are increasingly utilizing these social networks for 'feeds' news feeds, personal updates, events and activities, notes, and messages. According to an extensive study by the Office of Communications (Ofcom) of the United Kingdom, almost half (49%) of children aged 8-17 who used the internet had set up their own profiles on SNSs.[13]

Hendrick et al.[14] noted that the use of SNSs is increasing extensively in the field of medical education and has gained substantial interest among educators and institutions. Bloor and Sinclair [15] showed that the institutions of higher education around the world began to focus on the benefits of FB for educational purposes. Vivian [16] searched several literatures and reported that these literatures have focused on the potential of FB as a learning tool in higher education. FB was reported to be useful for students in the social and the academic aspects.

A school-wide assessment of social media usage by students in a US dental school

M. R. Arnett,¹ H. L. Christensen² and B. A. Nelson²

IN BRIEF

- Better the understanding of privacy features on social media accounts.
- Explores the difference between the five most popular social media applications.
- Provides examples of how to use five of the most popular social media applications in a course.

EDUCATION

Social media sites have become an established means of communication due to the exponential growth in number of users across the world and the encouragement of interaction between users through site features. The purpose of this study was to determine the extent to which Loma Linda University School of Dentistry students use social media accounts, the types of accounts they prefer, their interest in incorporating social media into courses and their perceptions of the usefulness of social media in private practice. In addition, we wanted to determine the degree of student interest in the integration of these social tools into their instruction. One thousand one hundred and sixty-two students from Loma Linda University School of Dentistry were invited by e-mail to complete a confidential 18 item multiple choice survey through SurveyMonkey.com. The overall response rate was 30% ($n = 351$) from the pooled response periods; the first in 2011 and the second in 2013. Similar to other studies, Facebook was used by 91% of the School of Dentistry students, and less than half used Google+, Twitter and LinkedIn. Of the respondents, 68% of students reported communicating on social media daily and 80% saw value for practising dentists to operate accounts. Time and privacy concerns were the largest barriers to usage at 16% and 12% respectively. One third of respondents were in favour of the incorporation of social media in their courses.

INTRODUCTION

Every day, thousands of new accounts are created on Facebook, Twitter, Google+ (G+), LinkedIn and other social media networking sites, and millions more use social media with regularity. More than 80% of US adults reportedly use social media accounts monthly¹ and previous studies have shown approximately 90% of college students use Facebook accounts.²⁻⁴ Mashable, a media news blog, reported that Americans spend approximately 8 hours a month on Facebook.⁵ With over 900 million users, most of whom log in at least monthly,⁶ Facebook has experienced exponential growth for a 10-year-old company. As with social media applications and uses, the number of users increases daily. In 2011, social media usage became the number one activity on the web.⁶

Social media sites are engaging by nature and widely adopted by students. Brandtzaeg et al.⁷ queried 1,200 participants

about why they participated in social networking sites. The results indicated that 31% of users desired to contact new people with shared interests, 21% wanted to keep in touch with friends and 14% were interested in general socialising. Social media tools can be used by faculty and institutions as an educational resource that complements educational processes for better comprehension of the material.⁷ Chickering and Gamson suggest that students must do more than just listen to a lecture.⁸ Students must read, write, discuss or be engaged in solving problems to digest and understand the material.⁹⁻¹¹

Most colleges and universities utilise social media sites to increase communication with students, alumni, faculty, staff, fans, administration and potential students through a variety of activities. These activities include highlights of admission activities, a showcase for faculty and student research, announcements regarding athletic events, continuing education courses and other special events, as well as links to the university website, online magazine, other social media sites and RSS feeds.

While sites such as Facebook, G+ and Twitter are commonly used for socialising and networking, university faculty have also begun using these accounts in their courses.^{7,10-12} Pascarella et al.¹⁰ state that some of the most effective faculty members

use social media to create a more collegial relationship with their students. Social media can be used as a platform for active learning in dentistry by providing faculty with a simple and effective way to engage students online in real time, with minimal hindrances. However, professional boundaries, ethics and legal concerns surrounding complex issues can arise with the use of social media in a medical academic environment.¹³⁻¹⁵ Recent literature about established social media policies in the health professions and the appropriate use of social media in these settings yielded few results.^{15,16}

This article will present the results of a survey of Loma Linda University School of Dentistry (LLUSD) students, a discussion of the implications of the study findings, a brief description of several common social media networks and tips to incorporate these networks into a course. Loma Linda University School of Dentistry opened in 1953, and is a Seventh-day Adventist institution, located in Southern California. The average student was aged 24.8 years upon admission, therefore fitting the description of a millennial. Millennials are defined as the generation born from the early 1980s to 2000.

Social media applications

All social media sites discussed in this article are available free of charge to users. Facebook

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Use of Social Media by Dental Educators

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Abstract: Social networking applications have become an established means of communication; applications that did not exist ten years ago are now used daily. Social media can be used for a myriad of reasons including instructional tools to supplement learning. This project was designed to assess the usage of social media applications by dental school faculty members and identify the types of accounts they prefer. Four hundred forty-three full-time dental and dental hygiene faculty members from five U.S. dental schools were invited to complete a twelve-item online survey regarding their social media usage. The response rate was 50 percent (n=221). Of the respondents, nearly half were dentists, and 62 percent were ≥ 51 years of age. Facebook was the most popular social network, reportedly used by 111 respondents. The most often reported frequency of use was weekly (20.4 percent, n=221); users indicated utilizing a network primarily for personal rather than professional purposes. However, 37 percent of the respondents reported not using any social media. The most frequently cited barriers to the use of social media were time (48 percent) and privacy concerns (48 percent). Although few would dispute the influence social media has on today's students, the suitability and appropriateness of social media technology and its integration into dental curricula require further evaluation.

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Keywords: social media, dental faculty, dental education, educational technology, professional socialization

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Social media applications are a dynamic and evolving technology with hundreds of platforms and millions of users. Social media have been defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, that allow the creation and exchange of user-generated content."¹ Social media applications such as Facebook and Twitter have gained enormous popularity because they provide users with an easy way to connect with friends, family, and colleagues across the miles. The 2012 Pew Internet and American Life Project reported that 50 percent of adults have a presence on social media.² Social media applications are utilized extensively for business and professional communication worldwide.³

A recent review by Oakley and Spallek described the impact that social media is having on the provision of U.S. health care, as well as the opportunities and challenges associated with this burgeoning technology particularly in dentistry and dental education.⁴ Given the rapid growth in the popularity of social networking applications and the relative paucity of available information about their utility in dental education, those authors suggested that, to maximize the benefits and minimize the risks of uti-

lizing social media in academic dentistry, additional research is needed. An important factor to assess is dental educators' level of familiarity with these social networks. If dental educators are not accustomed or receptive to these new applications, the utility of social media to facilitate teaching and learning may be underrecognized and not fully explored. Additionally, any potential ethical or legal dilemmas associated with use of social media applications by educators or students may not be identified or addressed, which could pose negative consequences for the involved individuals, institutions, or the dental profession.

Therefore, the purpose of our study was to obtain a snapshot of the extent to which dental school faculty members use social media applications, the applications they prefer, the reasons for their use, and their perceived barriers to using social media applications. This article will present 1) a brief description of the popular social media applications addressed by the study, 2) a review of social media applications in health professions education, 3) the results of our survey of dental faculty members on their use of social media applications, and 4) a discussion of the implications of our findings and potential applications of social media by dental educators.

Lehre 2.0 - Wie werden Social Media und Web 2.0 in die medizinische Ausbildung eingebunden? Ein systematischer Literaturüberblick

Zusammenfassung

Zielsetzung: Die Studierenden sind mit einem hohen multimedialen Bezug aufgewachsen. Die von ihnen genutzten Kommunikationswege sind schneller, spontaner und unabhängig von Ort und Zeit geworden. Diese neuen webbasierten Informations- und Kommunikationswege werden von Studierenden, Lehrenden und Patienten in vielfältigen Weisen genutzt. Universitäten, die diese Tools in der Lehre einsetzen, berichten über viele positive Auswirkungen auf das Lernverhalten der Studierenden. In einer systematischen Literaturübersicht wird zusammengestellt, für welche Lehr- und Lernformen Social Media und Web 2.0 Tools in der derzeitigen medizinischen Ausbildung eingesetzt werden.

Methode: Es wurde eine systematische Literaturrecherche über die letzten 5 Jahre mit MeSH in PubMed durchgeführt.

Ergebnis: Unter den 20 identifizierten Publikationen konnte nur ein deutscher Artikel identifiziert werden. Mehrheitlich stammen die Artikel aus USA und England. Neuere Veröffentlichungen befassen sich mit dem konkreten Einsatz der Tools in der Lehre. Hierzu zählen Social Networking, Podcasts, Blogs, Wikis, YouTube, Twitter und Skype.

Schlussfolgerung: Die Einbindung von Web 2.0 und Social Media stellt die heutige Form des selbstbestimmten Lernens dar. Es stimuliert die Reflektion und bindet die Lernenden aktiv, ein Wissen zu konstruieren. Mit diesen neuen Tools lernen Studierende Fertigkeiten, die sie sowohl im sozialen als auch im beruflichen Kontext benötigen.

Schlüsselwörter: medizinische Ausbildung, Social Media, Web 2.0

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Einleitung

Für die heutigen Informations- und Kommunikationswege sind webbasierte Medien unerlässlich. Die schnelle Entwicklung des World Wide Web produzierte das „Web 2.0“. Die Bezeichnung „Web 2.0“ ist auf Tim O'Reilly (2005) zurückzuführen (<http://www.oreillynet.com/oreilly/tim/>). Er beschreibt Web 2.0 als „Architektur und Partizipation“. Im Gegensatz zu Web 1.0, das über statische Webseiten verfügt, deren Inhalte nur verändert werden, wenn die zuständigen Personen dieses veranlassen, erlauben die Techniken und Tools des Web 2.0 eine aktive Beteiligung. Die neuen Technologien wünschen das Engagement vieler. Auch Nutzer mit fehlendem oder wenig technischem Verständnis können auf einfache Weise eigene Beiträge erstellen und darüber aktiv Informationen und Meinungen einbringen. Man unterstützt sich gegenseitig ohne kommerzielle Ansprüche [1]. Die so entstehenden Gemeinschaften werden als Netzwerke oder Communities bezeichnet. Social Media – oder Soziale Medien – bündelt die Plattformen und Netzwerke, die soziale Interaktionen im Netz ermöglichen. Über die Sozialen Medien tauschen die Benutzer des Internet Erfahrungen und Meinungen

aus und bewerten sich gegenseitig. Im Folgenden werden einige der Haupttools des Webs 2.0 vorgestellt [2]:

- **Blogs:** Diese sind elektronische Tagebücher, die als Webseite geführt werden. Einträge, Kommentare und Notizen sind chronologisch geordnet. Themen werden von dem Autor vorgegeben. Weitere Nutzer, auch Blogger genannt, können Beiträge zu diesen Themen erstellen. Ein Blog endet, wenn der Autor es beschließt oder läuft endlos weiter. Beispiele hierfür sind Blogger (<http://www.blogger.com>) oder Typepad (<http://www.typepad.com>).
- **Twitter:** Hier handelt es sich um eine Anwendung zum so genannten Mikroblogging. Angemeldete Benutzer können eigene Textnachrichten mit maximal 140 Zeichen eingeben. Diese Nachrichten werden all denjenigen angezeigt, die diesem Benutzer folgen. Es sind aber auch Interaktionen möglich. Andere Nutzer können auf die Einträge antworten. Diskussionen können entstehen. Häufig wird es verwendet, um eine bestimmte Personengruppe über aktuelle Ereignisse zu informieren (<http://www.twitter.com>).
- **Instant Messaging:** Dies ermöglicht Echtzeit-Kommunikation zwischen zwei oder mehreren Teilnehmern. Meist erfolgt es schriftlich in Form von kurzen Nach-

Original Paper

Investigating the Use of Smartphones for Learning Purposes by Australian Dental Students

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Abstract

Background: Mobile Internet devices and smartphones have at present a significant potential as learning tools and the development of educational interventions based on smartphones have attracted increasing attention.

Objective: The objective of this study was to obtain a deeper insight in the nature of students' use of smartphones, as well as their attitudes towards educational use of mobile devices in order to design successful teaching interventions.

Method: A questionnaire was designed, aiming to investigate the actual daily habitual use, as well as the attitudes of dental students towards smartphones for their university education purposes. The survey was used to collect data from 232 dental students.

Results: Of the 232 respondents, 204 (87.9%) owned a smartphone, and 191 (82.3%) had access to third generation (3G) mobile carriers. The most popular devices were the iPhone and Android. Most of the respondents had intermediate smartphone skills and used smartphones for a number of learning activities. Only 75/232 (32.3%) had specific educational applications installed, while 148/232 (63.7%) used smartphones to access to social media and found it valuable for their education ($P<.05$). Students accessing social media with their smartphones also showed significantly more advanced skills with smartphones than those who did not ($P<.05$). There was no significant association between age group, gender, origin, and smartphone skills. There was positive correlation between smartphone skills and students' attitudes toward improving access to learning material ($r=.43$, $P<.05$), helping to learn more independently ($r=.44$, $P<.05$), and use of smartphones by teaching staff ($r=.45$, $P<.05$).

Conclusion: The results in this study suggest that students use smartphones and social media for their education even though this technology has not been formally included in the curriculum. This might present an opportunity for educators to design educational methods, activities, and material that are suitable for smartphones and allow students to use this technology, thereby accommodating students' current diverse learning approaches.

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KEYWORDS

health care education; smartphone; mobile technology; social media; computer literacy

Introduction

Educational methods must be dynamic and continuously adapt to an ever-changing social environment [1]. Information and communication technology (ICT) has been a critical component of teaching and learning in higher education over the last few

decades. One particularly important trend we have recently witnessed with regard to the use of ICT is the increasing reliance on mobile-connected devices not only in daily tasks, but also within professional and educational environments [2].

Without a doubt, the effective use of mobile devices today has become one significant parameter of "computer literacy."

Social Media in the Dental School Environment, Part A: Benefits, Challenges, and Recommendations for Use

Heiko Spallek, DMD, PhD, MSBA(CIS); Sharon P. Turner, DDS, JD; Evelyn Donate-Bartfield, PhD; David Chambers, PhD, MBA; Maureen McAndrew, DDS, MEd; Pamela Zarkowski, JD, MPH; Nadeem Karimbux, DMD, MMSc

Abstract: Social media consist of powerful tools that impact not only communication but relationships among people, thus posing an inherent challenge to the traditional standards of who we are as dental educators and what we can expect of each other. This article examines how the world of social media has changed dental education. Its goal is to outline the complex issues that social media use presents for academic dental institutions and to examine these issues from personal, professional, and legal perspectives. After providing an update on social media, the article considers the advantages and risks associated with the use of social media at the interpersonal, professional, and institutional levels. Policies and legal issues of which academic dental institutions need to be aware from a compliance perspective are examined, along with considerations and resources needed to develop effective social media policies. The challenge facing dental educators is how to capitalize on the benefits that social media offer, while minimizing risks and complying with the various forms of legal constraint.

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Keywords: dental education, professional ethics, educational technology, information management, legislation and jurisprudence, social media, privacy, Web 2.0

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Social media have a major impact on personal and professional relationships, including the way we work. In this article, we examine how the world of social media has changed dental education.¹ After discussing the impact of social media on communications in academic dental institutions, we will explore the legal and ethical considerations associated with building professional online relationships. The goal is to provide guidelines to encourage proper and effective social media use in dental education rather than enumerating abuses and proposing rules to stop them. This article is designed to help dental school administrators and educators develop guidelines on how students should interact with faculty, staff, patients, and peers when using digital tools. Our focus is not limited to the legal requirements of

the Health Insurance Portability and Accountability Act (HIPAA)² and other relevant laws and regulations that govern social media use, but rather concerns the appropriate use of these media and the ethical issues in dental education they trigger. A companion article proposes curricular topics and pedagogies related to e-professionalism that is designed to be useful for dental educators.³

Update on Social Media Tools

Web 1.0, referring to World Wide Web pages that are linked to each other, is a communications and publication medium that permits control over

Social Media in the Dental School Environment, Part B: Curricular Considerations

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Abstract: The goal of this article is to describe the broad curricular constructs surrounding teaching and learning about social media in dental education. This analysis takes into account timing, development, and assessment of the knowledge, skills, attitudes, and behaviors needed to effectively use social media tools as a contemporary dentist. Three developmental stages in a student's path to becoming a competent professional are described: from undergraduate to dental student, from the classroom and preclinical simulation laboratory to the clinical setting, and from dental student to licensed practitioner. Considerations for developing the dental curriculum and suggestions for effective instruction at each stage are offered. In all three stages in the future dentist's evolution, faculty members need to educate students about appropriate professional uses of social media. Faculty members should provide instruction on the beneficial aspects of this communication medium and help students recognize the potential pitfalls associated with its use. The authors provide guidelines for customizing instruction to complement each stage of development, recognizing that careful timing is not only important for optimal learning but can prevent inappropriate use of social media as students are introduced to novel situations.

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Keywords: dental education, professional ethics, educational technology, information management, legislation and jurisprudence, social media, privacy, Web 2.0

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In this article, we expand on issues related to social media use and professionalism that were outlined in the companion article¹ and suggest best practices for faculty members who are introducing social media education into their schools' curricula. We hope to assist in the development of a comprehensive set of educational offerings on professionalism and social media issues to be integrated into the overall curriculum,² with a focus on ethical considerations related to societal changes triggered by the advent of social media.

Although the transition from student to professional is continuous, for the purpose of this article, three major transitions are defined: 1) from undergraduate to dental student; 2) from the classroom and preclinical simulation laboratory to the clinical setting; and 3) from dental student to licensed practitioner. For each of these stages, we explore

dental education's role in teaching the appropriate professional use of social media, including modeling and articulating the aspects of which dental educators should be aware as well as what they should do in the wide domain of cyberspace. In these ways, we attempt to answer the call for development of "competencies in professionalism which must include instruction on the intersection of personal and professional identities."³

As explained in Part A of these paired articles,¹ Web 1.0 and 2.0 have had profound impacts on society, health care, education, dentistry, and dental education—the latter of which is the focus of this article. In the past, classroom time was dedicated to presenting information to students in a lecture format, in which learners are generally passive. Today, however, educational research has demonstrated that learning, including information transmission, is better

ORIGINAL ARTICLE

YouTube use among dental students for learning clinical procedures: A multi-institutional study

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Support: None.

Abstract

Introduction: The objective of this study was to evaluate the use of YouTube as a learning tool for clinical procedures among third- and fourth-year dental students.

Methods: A multiple choice survey was distributed through Qualtrics to third- and fourth-year dental students at 5 United States dental schools. Questions pertaining to YouTube use were asked related to the following categories: demographic information, general YouTube use, YouTube use as a tool to learn clinical procedures, YouTube video sharing, and validity. Descriptive and quantitative analyses were performed.

Results: Data were collected in 2019 and 2020 from 479 third- and fourth-year dental students (overall response rate 28.3%). Respondents ranged in age from under 23 to over age 50. Ninety-five percent of respondents considered YouTube videos on clinical procedures to be a helpful learning tool, and 89% would like for their dental school to post tutorials to YouTube/social media. No statistically significant differences were found between dental institutions; however, a statistically significant difference between third- and fourth-year students did exist regarding the frequency of YouTube use. While the use of YouTube as a learning tool for clinical procedures is high, 36% of students are uncertain about the evidence-base of the videos.

Conclusions: As dental students use publicly available resources as adjuncts to the dental curriculum, it is important to analyze the quality of the material accessed. These findings may suggest a need for dental institutions to increase the development of evidence-based instructional videos as a part of their clinical educational curriculums.

KEYWORDS

clinical skills, dental education, educational technology, social media

1 | INTRODUCTION

Changes in dental education over the past several decades have included a shift in the learning styles of dental stu-

dents, coupled with an increased call for the integration of technological teaching methods and an aging cohort of dental educators.¹⁻³ As current dental students are predominantly of the millennial generation, they have



Original Article

Using mobile multimedia platforms in teaching dental diagnosis

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المخلص

أهداف البحث: إن منصات الوسائط المتعددة المتحركة هي أدوات خصبة يستخدمها الأفراد والشركات لمشاركة المحتوى. ومع ذلك، فقد أظهرت بعض الدراسات فاعلية منصات الوسائط المتعددة كأدوات تعليمية. الغرض من هذه الدراسة هو تقييم فاعلية منصات الوسائط المتعددة المتحركة في تحسين مهارات التشخيص الأساسية لطب الأسنان. بالإضافة إلى ذلك، سجلنا ملاحظات الطلاب حول استخدام منصات الوسائط المتعددة المتحركة في مناهج طب الأسنان.

طرق البحث: في هذه الدراسة التداخلية الطولية على 89 من طلاب طب الأسنان في السنوات الأخيرة. أنشأنا وحدات تعليمية رائدة من خلال منصات الوسائط المتعددة المتحركة تسمى فحص استogram لتعليم تشخيص الأسنان. قمنا بتقييم فاعلية الوحدات من خلال الاختبارات التشخيصية التي أعطيت لطلاب طب الأسنان القريبين من التخرج.

النتائج: أظهر الطلاب زيادة كبيرة في درجات الاختبارات التشخيصية من 49% إلى 73% بعد استخدام منصات الوسائط المتعددة المتحركة. علاوة على ذلك، أشارت تعليقات الطلاب على منصات الوسائط المتعددة المتحركة إلى أن غالبية الطلاب وجدوا أنها سهلة وممتعة.

الاستنتاجات: تظهر بيانات دراستنا أن منصات الوسائط المتعددة المتحركة قد تستخدم لتحسين التدريب على مهارات التشخيص الأساسية للأسنان ويمكن أن تكون بمثابة أداة تعليمية مساعدة. علاوة على ذلك، يمكن للوحدات منصات الوسائط المتعددة المتحركة أن تثرى التعليم المهني في البلدان النامية حيث يكون الوصول إلى الموارد التعليمية محدوداً.

الكلمات المفتاحية: تعليم طب الأسنان؛ ردود الفعل؛ عالمي؛ منصات الوسائط المتعددة المتحركة؛ وسائل التواصل الاجتماعي.

Abstract

Objective: Mobile Multimedia Platforms (MMPs) are prolific tools that can be used by individuals and corporations to share content. However, few studies have shown the effectiveness of MMPs as educational tools. Through this study, we aimed to evaluate the effectiveness of MMPs in improving basic dental diagnostic skills. In addition, we captured student feedback on the use of MMPs in a dental curriculum.

Method: In this voluntary interventional study on 89 senior dental students, we created pilot learning modules through an MMP called Instagram Stories to teach dental diagnosis. We evaluated the efficacy of the modules through diagnostic tests that were given to dental students who were close to graduating.

Results: The students showed a significant increase in diagnostic test scores from 49% to 73% ($p < 0.05$) after the use of an MMP. Furthermore, the students' feedback on the MMP indicated that most students found it easy and enjoyable to use.

Conclusion: Our study data show that MMPs may be used to improve training in basic dental diagnostic skills and can serve as an adjunct teaching tool. Moreover, MMP modules can potentially enrich professional education in developing countries where access to educational resources is limited.

Keywords: Dental education; Feedback; Global; Mobile multimedia platforms; Social media

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Student's Perception of the Impact of E-learning on Dental Education

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ABSTRACT

Aims: The aim of this study is to assess the influence of e-learning on dental education as perceived by predoctoral dental students.

Materials and methods: In an institutional review board (IRB) approved protocol, a 14-question survey was created and electronically distributed to second-, third-, and fourth-year dental students. The participation was considered voluntary and all responses were anonymous.

Results: The survey targeted 1,130 predoctoral students, of which 255 (22.6%) responded. Of the respondents, 124 students (48.6%) preferred traditional lecture mixed with online learning, while 46 students (18%) preferred only the traditional lecture style. The top three electronic resources/applications, which students perceived as having the greatest impact on their learning, were YouTube, Bone Box, and Google. The responses also indicated that 76.5% of the students gave high credibility (scores of 4 and 5) to electronic resources recommended by faculties. Sixty percent of students spent 1 to more than 4 hours per day on electronic resources for academic performance. The most important factor for online applications influencing academic performance was "organization and logic of content" (54%). E-learning had a significant perceived effect (scores of 4/5) on didactic understanding (65.1%) and on clinical understanding (71.4%). Students observed that faculties estimated to be under 50 years of age were more likely to incorporate e-learning into courses (52.6%) and more likely to use social media for communication (41.6%).

Conclusion: The results indicate that e-learning may successfully be used in a dental school's curriculum to enhance students' perceptions of fundamental concepts and to enable students to apply this knowledge to clinical cases.

Clinical significance: E-learning has recently been proposed as a basic supplementary tool to enhance medical and dental education. It is crucial to determine dental students' preferences regarding social media, online applications, and databases in order to incorporate e-learning into dental school courses.

Keywords: Curriculum, Dental education, Dentistry, E-learning, Social media.

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INTRODUCTION

During the last decade, due to widespread use of smartphones, the Internet, and smart devices, the use of social media has greatly increased, has gained popularity, and has enhanced learning among students.¹⁻³ Social media applications such as Facebook, Twitter, Google+, LinkedIn, and Student Doctor network allow users to connect, collaborate, and communicate with one another on a global scale.¹⁻⁵ In 2015, it was reported that 88% of 16–24-year-olds used social media daily, compared to 60% aged 65 and older, which supports the ever-increasing popularity of social media.²

Students are digitally literate, social, team-workers, both visual and interactive.^{1,3} Thus, educators should match their teaching styles based on the learning needs of students.³⁻⁹ In the past, educators relied primarily on textbooks, handouts, and notes during lectures.⁵⁻⁹ These days, blended learning and e-learning are gaining popularity as successful and revolutionary teaching styles.^{1,3,4,10-13} More specifically, e-learning is defined as learning while "utilizing electronic technologies to access educational curriculum outside of a traditional classroom."¹³ Students are shifting more toward online applications, learning modules, and social media, such as YouTube, Facebook, Twitter, and Student Doctor network, to enhance their learning and supplement the information gathered from lectures by creating, sharing, and exchanging information with other users around the world. It has been suggested that blended learning, e-learning, and virtual learning environments, mixed with a traditional lecture style, improve competencies and core knowledge of students.^{2-5,14-16} Moreover, some studies highlight the fact that blended learning

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complements a traditional teaching style and enhances the overall learning experience of students by addressing differences that exist in learning styles among students.^{3,17-20} Thus, these interactive teaching strategies intensify students' focus, amplify their attention, and increase their long-term knowledge retention.^{3-5,14-16}

In addition, many of the courses in a professional education environment, such as a dental school, are team-taught and contain inconsistencies between lecturers and lecture styles. A key issue facing dental educators is the amount of material faculties wish to cover in terms of time, content, and depth, as compared with expectations of students.^{4,17} Faculty members teaching in dental schools, who are content experts (such as basic sciences), may have limited exposure to clinical dental concepts.^{4,17} Therefore, they may not be able to incorporate relevant clinical visual aids and animations into their lecture presentations, connecting concepts

Mobile learning in dentistry: usage habits, attitudes and perceptions of undergraduate students

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ABSTRACT

Introduction. The aim of this study was to evaluate usage habits, attitudes and perceptions towards mobile learning (m-learning), as well as to identify variables related to those attitudes amongst undergraduate dental students.

Materials and Methods. The study consists of 81 dental undergraduate students who volunteered to participate. The data collection tool consists of an m-learning attitude scale, a questionnaire, and open-ended questions. To compare the total scores and factors of m-learning attitude scale for demographic information and mobile technology usage habits of the students; the Mann–Whitney *U* test was used for two independent groups such as gender, presence of electronic devices, and places of Internet usage. The Kruskal–Wallis test was also used to compare the total scores and factors of m-learning attitude scale for more than two independent groups including internet usage purposes and opinions. Spearman's correlation coefficient was performed, and linear regression analysis was used to predict the change in total score according to the purposes of Internet usage.

Results. The majority of students thought that the use of mobile devices in dentistry courses was useful and their attitudes towards m-learning were high. The students generally use the Internet for online shopping, connecting to social networks, and communication. They tend to use mobile technologies for personal use, followed by educational purposes. There were significant differences found in the m-learning attitudes for gender, having a portable power supply and use of mobile devices in dentistry courses. Communication was found significant in predicting the change in total score for the m-learning attitude scale according to the purpose of Internet usage.

Conclusion. Dental students have generally positive attitudes towards m-learning. Students raise awareness towards the promise of m-learning in order to apply their individual technology use and learning behaviours. Designing learning materials and applications for mobile devices may increase students' performances.

Subjects Dentistry, Science and Medical Education, Statistics

Keywords Mobile learning, Dental students, Mobile technology use, Attitudes, Dental education

INTRODUCTION

Since *Mattheos et al. (2008)* first identified information technology (IT) related activities for use in dental education, technology has increasingly developed, both in terms of

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Original Paper

Media Use Among Students From Different Health Curricula: Survey Study

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Abstract

Background: Mobile devices such as smartphones, tablets, and laptop computers enable users to search for information and communicate with others at any place and any time. Such devices are increasingly being used at universities for teaching and learning. The use of mobile devices by students depends, among others, on the individual media literacy level and the curricular framework.

Objective: The objective of this study was to explore whether there were differences in media use in students from various curricula at the Faculty of Health, Witten/Herdecke University.

Methods: During the 2015-16 winter term, a survey was conducted at the Faculty of Health, Witten/Herdecke University, in which a total of 705 students (out of 1091 students; response rate: 705/1091, 64.61%) from 4 schools participated voluntarily: medicine (346/598), dentistry (171/204), psychology (142/243), and nursing science (46/46). The questionnaire developed for the study included 132 questions on 4 topics: (1) electronic and mobile devices (19 questions), (2) communication and organization of learning (45 questions), (3) apps/programs/websites/media (34 questions), and (4) media literacy (34 questions). The questionnaire was distributed and anonymously completed during in-class courses.

Results: Students from all 4 schools had at least two electronic devices, with smartphones (97.4%, 687/705) and laptops (94.8%, 669/705) being the most common ones. Students agreed that electronic devices enabled them to effectively structure the learning process (mean 3.16, SD 0.62) and shared the opinion that university teaching should include imparting media literacy (mean 2.84, SD 0.84). Electronic device ownership was the highest among medical students (mean 2.68, SD 0.86) and medical students were the only ones to use a tutorial (36.1%, 125/346). Dental students most widely used text messages (mean 3.41, SD 0.49) and social media (mean 2.57, SD 1.10) to organize learning. Psychology students considered mobile devices to be most ineffective (mean 2.81, SD 0.83). Nursing science students used emails (mean 3.47, SD 0.73) and desktop computers (39%, 18/46) most widely.

Conclusions: The results show that almost all students use electronic learning (e-learning) tools. At the same time, different profiles for different degree programs become apparent, which are to be attributed to not only the varying curricula and courses but also to the life circumstances of different age groups. Universities should, therefore, pay attention to the diverse user patterns and media literacy levels of students when planning courses to enable successful use of e-learning methods.

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KEYWORDS

social media; medical education; computers; interprofessional relations; distance education; health occupations

The Role of Social Media in Dental Education

Maureen McAndrew, D.D.S., M.S.Ed.; Amelia E. Johnston

Abstract: Social media, also known as Web 2.0, includes a set of web-based technologies in which users actively share and create content through open collaboration. The current students in dental school are Millennial learners who are comfortable using social media, such as Facebook and Twitter, for both socialization and learning. This article defines and explores the range of Web 2.0 technologies available for use in dental education, addresses their underlying pedagogy, and discusses potential problems and barriers to their implementation.

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Keywords: social media, Web 2.0, e-learning, Millennials, blogs, wikis, web-based learning, dental education, educational methodology

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Technology is revolutionizing dental education. Students can now access vast quantities of information from a variety of sources at their own convenience and from virtually any location. By utilizing DVDs containing hundreds of textbooks and websites with interactive video tutorials, today's dental student can learn in a way tailored to his or her individual learning style. However, this personalization does not mean that dental students prefer to learn alone. On the contrary, most dental students of the Millennial generation—those born after 1982—value collaborative learning, team-based projects, and social networking. They see their peers as an important learning resource.¹ Millennials are able to stay connected to their peers via handheld devices with wireless capabilities. This shift away from the individual learner to communities of practice is supported by social learning theories that extol collaborative education. Communities of practice are defined as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.”²

Social media, or Web 2.0 technologies, initially provided a means for socialization but are increasingly used for educational purposes. Recent studies have found that incorporating social media tools into traditional educational environments increases student learning and collaboration.³ The evolution

of web-based communities for learning has four key advantages: 1) it enables collaboration among different users, 2) it allows users to create personal content through different forms of media, 3) it permits users to publish individual works, and 4) it creates new approaches to research.⁴ This article defines and explores the range of Web 2.0 technologies available, addresses their underlying pedagogies, and discusses potential problems and barriers to their implementation in dental education.

Web 2.0 Defined

In 1989, access to information changed dramatically with the invention of the World Wide Web.⁵ The initial launch of the Internet, with relatively few “content creators,” can be classified as Web 1.0. Conversely, Web 2.0 websites depend on the collaborative work of many content creators. Web 2.0 includes social media such as Facebook and Twitter, video sharing such as YouTube, and interactive websites, such as blogs and wikis. Virtual environments, such as Second Life, are also considered social media because they enhance communication and learning through the use of simulated experiences and role playing via avatars (Figure 1).^{6,7} This exchange of information among larger groups of individuals not

The relationship between Facebook behaviour and e-professionalism: A questionnaire-based cross-sectional study among Greek dental students

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Abstract

Introduction: The social media attitude of health science students might affect patients' opinion about the health profession and have negative impact on e-professionalism. The aim of this study is to investigate the behaviour of Greek dental students on Facebook, focusing on potentially unprofessional posts and the online student-patient relationship.

Materials and methods: Five hundred and twelve dental students in Greece answered an anonymous, 23-item questionnaire including multiple-choice questions about various topics, including Facebook profile settings and content shared by dental students, student-patient relationship via Facebook; and students' perception about the impact of their online behaviour.

Results: 93.2% of responders had a Facebook profile and 80.5% admitted that their online attitude might affect patients' opinion about dental profession. However, 71.7% posted pictures from holidays, 41.5% from nightclubs, and 26.2% photographs wearing swimwear/underwear, while 12.8% expressed online political party predilection. One quarter of students in clinical years were Facebook friends with patients and 58% and 30% of them had online discussion about topics related or not to dentistry, respectively, while 6.8% of dental students had posted defamatory comments about the dental school, faculty members or academic staff on Facebook.

Discussion: In accordance with studies in other countries, most Greek dental students had a Facebook profile and, although the majority realised the impact of Facebook behaviour on e-professionalism, a considerable percentage posted unprofessional content.

Conclusion: Dental students might fall into pitfalls when it comes to e-professionalism. As social media are becoming an integral part of life, there is need to include e-professionalism in dental education curriculum.

KEYWORDS

dental student, dentistry, e-professionalism, Facebook, social media

Athina Kyriakouli, Melina Koukou and Marianna Koufatzidou: equal contribution

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Health impacts of Facebook usage and mobile texting among undergraduate dental students: it's time to understand the difference between usage and an excessive use

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Keywords

Facebook usage; excessive Facebook use; mobile texting; excessive mobile texting; dental students.

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Abstract

Background: Facebook and mobile texting are prevalent in the lives of almost every student. However, little is known about the relationship between Facebook usage or mobile texting and their impacts on health amongst undergraduate dental students. In this study, excessive Facebook use and excessive mobile texting were studied as they relate to impacts on health.

Materials and Methods: A cross-sectional study was conducted at a private university in Malaysia. A total of 188 undergraduate dental students were interviewed using a pre-tested and self-rated questionnaire. Data collected from participants were analysed using SPSS version 18.0. Chi-square test, Fisher's exact test and multiple logistic regression analyses were applied to study the relationship between explanatory variables and excessive Facebook use and excessive mobile texting.

Results: The prevalence of excessive Facebook use and excessive mobile texting amongst undergraduate dental students was found to be 33.2% and 33.0%, respectively. According to a multivariate analysis, texting habits, such as the presence of daytime sleepiness after texting late at night (aOR = 2.682, 95% CI = 1.142–6.301) and the presence of anxious feelings if students failed to receive a timely response (aOR = 3.819, 95% CI = 1.580–9.230), were determined to be significant predictors of excessive mobile texting. Excessive Facebook use was found to be significantly related to three variables as follows: fewer numbers of close friends (aOR = 2.275, 95% CI = 1.057–4.898), the checking of updates on the Facebook walls of their friends (aOR = 2.582, 95% CI = 1.189–5.665) and the absence of active and vigorous feelings during Facebook use (aOR = 3.401, 95% CI = 1.253–9.454).

Conclusions: Approximately one-third of undergraduate dental students in this study experienced excessive Facebook use and/or excessive mobile texting. Health education and promotion should be instituted to create awareness, whilst students should be advised to practise self-control with respect to both mobile texting and Facebook usage.

Background

Currently, online social networking (OSN) has become the most popular method of communication amongst students and is used mainly for the sharing of personal and professional

information, texts and videos. It also provides a platform for students to learn, improve their knowledge and improve their social networking skills (1). OSN use is tremendously higher amongst emerging medical professionals, and medical schools have even reported disciplinary student expulsion as a result (2).

Original Paper

Connecting With Your Dentist on Facebook: Patients' and Dentists' Attitudes Towards Social Media Usage in Dentistry

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Abstract

Background: Social media has begun to proliferate across medical areas and transformed how medical professionals serve and interact with their patients. It offers a new communication avenue that has the potential to engage patients and, hence, may be used to create value for both medical professionals and patients. In dentistry, even though patients and dentists frequently use social media in their personal lives, little is known about their attitudes and expectations toward using social media for professional interactions.

Objective: In this paper, we focus on the role of social media in dentistry. Specifically, we explore patients' and dentists' attitudes toward social media usage and their current online behaviors in this context. Furthermore, we examine potential challenges and opportunities regarding dentists' adoption of social media practices.

Methods: This research employed a large-scale online survey of 588 patients and 532 dental professionals. We assessed the attitudes, expectations, and social media behaviors from both patients' and dentists' perspectives.

Results: We found that more than 55% (290/532) of dentists in our sample have accounts for their dental practice on various social media platforms. Interestingly, while 73% (374/511) of patients did not expect their dental practice to have a social media presence, and 44% (207/468) thought that establishing a friendship with their dentists is not appropriate, the findings show that 36% (164/460) of patients had searched for their dentists, and 44% (207/470) of them were happy to establish contacts with dentists on social media. Furthermore, the findings highlight that patients were interested in exploring additional information such as online reviews and the qualifications of their dentists on Facebook pages. For dentists, more than half (375/432, 83%) of them in our sample thought that social media marketing is more efficient compared to traditional marketing.

Conclusions: Our findings revealed some key challenges and opportunities to utilize social media in dentistry. For both patients and dentists, the role of social media in dental services remains vague, and both parties still share concerns about connecting with each other on social media platforms. However, there also exists a sizeable number of patients who are already comfortable to connect with their dentists on social media sites such as Facebook. The current findings show that there is an opportunity for dental practices to trade upon a more active social media presence for enhanced patient interaction and engagement.

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KEYWORDS

social media, medical communication, dental practices, dental anxiety, Facebook, Twitter

Social Media in Dental Education: A Call for Research and Action

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Abstract: Social media are part of the fabric of today's world, from which health care is not excluded. Based on its distribution capacity, a single individual can cause an amount of damage to an institution that only a few decades ago required access to a mainstream news media outlet. Despite the obvious parallels in professional standards in the medical and dental communities, the scholarly activity and resulting collegial discourse observed among medical professionals remain unmatched in the dental education literature. As a result, a rigorous research agenda on the topic is indicated. Once these results are evaluated and thoroughly vetted, actions should be tailored to address the needs, minimize the threats, and maximize the opportunities that have been already noted by the medical profession. Regardless of input, albeit internal or external, a cadre of individuals who are willing to develop philosophy, policy, and procedure related to the use of social media policies in dental education can then be identified to evaluate the issues unique to the institution and perhaps the profession.

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Keywords: social media, Internet, blogging, dental students, dental education, Web 2.0, Twitter messaging, World Wide Web

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In today's connected Web 2.0 world, the use of technology increasingly shifts our communication and information-gathering efforts away from paper and toward the Internet. Everyone seems to be logged-in, online, and connected as much as their schedules permit. We are developing new cognitive habits as "the only viable approach to navigating the age of constant connectivity."¹ We are eager to search for information snippets and, at times, casually interact with others on topics that relate to anything and everything fusing our professional and social lives. Thanks to a multitude of Web 2.0 and social media applications including blogs, LinkedIn, Flickr, Twitter, Delicious, Wikipedia, and Facebook, we can not only read news, but interact with others about this news. Web 2.0 technologies refer to applications that facilitate interactive information sharing, interoperability, user-centered design,² and collaboration. Examples of Web 2.0 include e-communities, hosted image and video services, social-networking sites, wikis, blogs, RSS feeds, mashups, semantic Web applications, and folksonomies.³ The phrase "Web 2.0" is often used interchangeably with "social media" or "user-generated content."⁴ Some people define social media sites as places that take instruments of communication and make them "social."⁵ For some, the use of social media appears to define how they now use the traditional Web; in 2010, for example, Facebook pushed Google out of the number one ranking

as "most visited" website.⁶ Thanks to the Internet and specifically because of new social media services like Twitter, we can inform friends about our latest news (no matter how trivial or seminal) or network with colleagues or total strangers and discuss any topic in an instant. With little effort, almost no cost, and one click of the mouse, dental schools and their students/faculty/staff can join this trend and open their doors by instantly communicating with thousands—potentially millions—of users, who could be patients, colleagues, or prospective students following their schools of interest on Twitter or connecting to them via Facebook.

This article will describe the impact social media has in today's health care setting while highlighting some opportunities and challenges that exist. We will expound on the challenges that arise when material posted with the use of social media is inappropriate or accessible to an audience who may question the motives or misinterpret the content (given guidelines and expectations in place regarding the doctor/patient relationship). Based on the lack of professional discourse in the dental education literature regarding the use of social media, this article will suggest a need to initiate a close examination of the uses of social media in the dental education community. After these outcomes are examined, we will suggest how these data may affect dental schools' professionalism curricula and ask whether



Original Article

Determining the usage of social media for medical information by the medical and dental students in northern Jordan

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المخلص

أهداف البحث: استخدام وسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية وطب الأسنان يمكن أن يكون له تأثير كبير على الأداء الأكاديمي للطلاب وتطوير الوظيفي. لذلك قمنا بتقييم استخدام طلاب الطب وطب الأسنان لوسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية.

طرق البحث: تم توزيع استبانة ذاتية لجمع دراسة مقطعية على طلاب الطب وطب الأسنان في جامعة العلوم والتكنولوجيا الأردنية.

النتائج: أكمل 856 طالباً الاستبانة، ثلثهم من طلاب الطب ومعظم الطلاب لا يعتبرون وسائل التواصل الاجتماعي مصدراً موثوقاً للمعلومات الطبية، وكان مصدر قرارات العلاج للأغلبية (79.6%) هو الطبيب المتخصص وليس التصالح المنشورة على وسائل التواصل الاجتماعي. استخدم الإناث عدد أكبر من تطبيقات وسائل التواصل الاجتماعي، وقضين وقتاً أطول على وسائل التواصل الاجتماعي، من الذكور. ارتبط مستوى التعليم بشكل كبير مع الوقت الذي يقضيه يوماً على وسائل التواصل الاجتماعي. أولئك الذين أكملوا سنوات أكثر من تعليمهم الطبي أو طب الأسنان كانوا أقل استخداماً لوسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية ولكنهم كانوا أكثر متابعة للمواقع الطبية أو المنتديات الطبية.

الاستنتاجات: كان هناك تدرج علمي بين طلاب الطب وطب الأسنان في استخدام وسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية، وهو ما يمكن تفسيره من خلال المعتقدات الثقافية بأن وسائل التواصل الاجتماعي تهدف أساساً إلى التواصل الاجتماعي والترفيه. ومع ذلك، يلزم إجراء مزيد من البحوث لتقدير

أثر استخدام وسائل التواصل الاجتماعي على الأداء الأكاديمي، وبالتالي، تحديد ما إذا كان سيتم تشجيع الطلاب على استخدام وسائل التواصل الاجتماعي للتعليم وتطوير برامج تدريبية لذلك أم لا.

الكلمات المفتاحية: الطب، الأسنان، وسائل التواصل الاجتماعي، الاستعلام، الأردن.

Abstract

Objectives: Using social media to gain medical and dental information may have significant effects on the students' academic performance and career development. Therefore, we assessed the usage of social media for medical information among medical and dental students.

Methods: In this cross-sectional study, we administered a self-reported questionnaire to medical and dental students at the Jordan University of Science and Technology.

Results: A total of 856 students completed the questionnaire; two-thirds of them were medical students. Most students did not consider social media as a trusted source for medical information. In contrast, the source for treatment decisions for the majority (96.6%) was speciality physicians and not the management plans posted on social media. Females used more social media applications ($p = .05$) and spent more time on social media ($p = .001$) than males. The amount of educational information gained was directly associated with time spent on social media ($p < .001$). Those who completed more years of their medical or dental education were less likely to use social media for medical information and were more likely to follow medical online sites or forums.

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Dental students' learning attitudes and perceptions of YouTube as a lecture video hosting platform in a flipped classroom in Korea

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Purpose: The aim of this study was to confirm the applicability of YouTube as a delivery platform of lecture videos for dental students and to assess their learning attitudes towards the flipped classroom model. **Methods:** Learning experiences after using the YouTube platform to deliver preliminary video lectures in a flipped classroom were assessed by 69 second-year students (52 males, 17 females) at Dankook University College of Dentistry, Korea, who attended periodontology lectures during 2 consecutive semesters of the 2016 academic year. The instructor uploaded the lecture videos to YouTube before each class. At the end of the second semester, the students were surveyed using a questionnaire devised by the authors. **Results:** Of the students, 53 (76.8%) always watched the lecture before the class, 48 (69.6%) used their smartphones, and 66 (95.7%) stated that they watched the lectures at home. The majority of the students replied that the video lectures were easier to understand than face to face lectures (82.6%) and that they would like to view the videos again after graduation (73.9%). **Conclusion:** Our results indicate that YouTube is an applicable platform to deliver video lectures and to expose students to increased learning opportunities.

Keywords: Flipped learning; Dental education; Educational technology; Smartphone; Republic of Korea

Introduction

Dental education has undergone unprecedented changes to more directly involve students in learning by focusing on critical thinking, problem-solving skills, and student-centered learning [1]. These innovations became possible due to refinements in information and communication technology and the increased prevalence of e-learning or online learning platforms [2]. One result has been the emergence of the 'flipped classroom' model as an alternative to conventional one-to-many lecture-based teaching. The flipped classroom is a teaching method that promotes the learning of basic concepts through pre-learning and concentrates on in-depth learning activities in class through actual problem-solving and clinical exposure. It is a type of blended learning in which in-class learning is integrated

with online learning experiences, and students watch pre-recorded lecture videos prior to attending the class [3]. It is critical to provide a flexible environment that is free from time and space constraints to operate a flipped classroom successfully [4]. With this background, we aimed to confirm the applicability of YouTube as a delivery platform of micro-lecture videos to provide the flexible learning environment that is necessary for the flipped classroom.

Case presentation

Ethics statement

This study was approved by the Institutional Review Board of Dankook University Dental Hospital after receiving informed consent from the subjects (IRB approval no., DKU DH 2017-10-002).

Case

The participants were 69 second-year students of Dankook University College of Dentistry who attended a clinical periodontology course (52 males, 17 females). The periodontology course ran from March 2 to December 16, 2016. This course contained 1-hour weekly sessions, comprising a total of 14 hours. The instructor re-

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Original Article

The impact of social media on dental practice promotion and professionalism amongst general dental practitioners and specialists in KSA

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المخلص

أهداف البحث: تقيم هذه الدراسة في المقام الأول أنماط استخدام وسائل التواصل الاجتماعي بين ممارسي طب الأسنان العامين والمتخصصين في المملكة العربية السعودية. والهدف الثاني من هذه الدراسة هو تقييم تفضيلات وسائل التواصل الاجتماعي من المجموعة المختارة للترويج لممارستهم ومدى الإحتراف المهني لديهم أثناء استخدام وسائل التواصل الاجتماعي.

طرق البحث: تم تطوير استبانة إلكترونية وتوزيعها على أطباء الأسنان والمتخصصين المسجلين في المملكة العربية السعودية من خلال منصة الجمعية السعودية لطب الأسنان. وتلقف الاستبانة من أسئلة مغلقة مع اختيار إجابات محددة مسبقاً وتشمل التركيبة السكانية، وأغراض استخدام شبكات التواصل الاجتماعي، والطرق التي قد تؤثر بها شبكات التواصل الاجتماعي على الإحتراف المهني.

النتائج: استجاب 238 من ممارسي طب الأسنان العامين والمتخصصين طب الأسنان من مختلف الأعمار. وأظهرت البيانات أن 41% من المستجيبين يستخدمون وسائل التواصل الاجتماعي بالتساوي للأغراض الشخصية، المهنية، والأهلي، وكان برنامج الإنستغرام هو الأكثر استخداماً على منصة وسائل التواصل الاجتماعي للإعلان حيث يعتبر من أقوى وسائل الإعلام بين المستجيبين. نادراً ما نشر 43% من المشاركين الحالات المرضية على وسائل التواصل الاجتماعي. ومع ذلك، لوحظ تباين كبير بين التخصصات.

الاستنتاجات: الاستخدام غير الملائم لوسائل التواصل الاجتماعي يمكن أن يؤدي إلى قضايا أخلاقية تتعلق بخصوصية المرضى وحماية البيانات التي قد تؤثر سلباً

على مهنة طب الأسنان. لذلك، يجب وضع إرشادات وسياسات يمكن أن تنظم استخدام وسائل التواصل الاجتماعي لتبادل البيانات السريرية من قبل المتخصصين في طب الأسنان.

الكلمات المفتاحية: ممارسو طب الأسنان، الترويج المهني، وسائل التواصل الاجتماعي، المتخصصين

Abstract

Objective: This study primarily assesses the social media use patterns of general dental practitioners and specialists in KSA. To fulfill its secondary objective, the study evaluates the social media preferences of the selected cohort for promoting their practice, and their extent of professionalism while using social media.

Method: An electronic questionnaire was developed and administered to all registered dentists and specialists in KSA through the Saudi Dental Association platform. The questionnaire comprised closed-ended items with a choice of predefined answers that covered demographics, reasons for using social media, and the ways in which social networking might affect professionalism.

Results: A total of 238 general dental practitioners and specialists from various age groups answered the questionnaire. The data revealed that 41% of the respondents used social media equally for personal, professional, and business purposes. Instagram was the most commonly used social media platform for dental practice promotion, and also regarded as the most powerful platform by all respondents ($p = 0.0009$). Thirty-four percent of the respondents rarely posted their own clinical cases on social media. However, a significant difference was observed amongst the specialities ($p = 0.01$).

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Exploring the impact of digital professionalism awareness training on dental undergraduate students

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Abstract

Introduction: Since the publication of GDC guidance, there have been small, but rising numbers of Fitness to Practise (FTP) cases made against qualified dentists, relating to the use of social media. Prior to graduation, dental students currently receive training in the appropriate use of social media, but more work is needed to determine the most effective methods do this. The aim of this study is to explore the impact of the digital professionalism awareness training provided at one UK-based institution.

Materials and Methods: In year 2, a "brown envelope" is compiled using an online publicly available Facebook profile search for every student. All year 2 to 5 dental undergraduate students at one UK dental school who had completed the "brown envelope" were invited to participate in focus groups to examine its impact on behaviour change. A qualitative framework analysis method was applied to the transcripts.

Results: Eleven dental undergraduate students participated in two focus groups. All students had experienced the "brown envelope" intervention. Four main themes emerged, including: a clear expression of dental student autonomy and rejection of regulation; that online activity in dentistry is different to medicine; that the intervention is useful and changed online behaviour; and constructive suggestions for improving training.

Conclusion: The interactive "brown envelope" intervention for digital professionalism awareness training was well received and appeared to result in actionable behavioural change on student profiles (eg alterations in privacy settings or restricting access to their own "friends lists").

KEYWORDS

dental, digital, internet-based intervention, professionalism, social media, undergraduate

1 | INTRODUCTION

Professionalism can be difficult to define,¹ but dentists are expected to obtain a high level of professional competency in order to act ethically and effectively.² This expectation comes from dental trainers, patients and in the UK, the General Dental Council (GDC)

alike. Fricker, Kiley, Townsend & Trevitt³ claim "professionalism refers to the conduct and/or behaviour of the individual in upholding the social contract between society and the profession." However, over the past 30 years perhaps as a result of the large-scale media focus on health care, traditional values such as vocation, integrity and altruism have been added to, with a call for more transparency,

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Original article

Assessment of digital literacy and use of smart phones among Central Indian dental students

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ABSTRACT

Objectives: Education has largely been digitalized. More so, for professional education, keeping updated in this fast paced world has become a necessary requisite and dentistry has not been left untouched. This cross sectional questionnaire based study aimed to assess the digital literacy and smartphone usage amongst the 260 Central Indian dental students including their perspicacity about smartphone/internet usage for learning purposes. The students' attitude for implementation of digital technology in study programs/education system was also evaluated.

Methods: The questionnaire was distributed among total 260 dental students from different dental institutes of Central India. The data was collected and analyzed using SPSS software.

Results: Out of 260 students, 250 were internet users, out of which 96% had internet access all time. 94.23% students owned a smartphone. 46.53% (114/245) students had some app related to the dentistry in their smartphone device. The commonest site for surfing related to knowledge seeking was google scholar (72%) followed by Pubmed and others. Nearly 80% dental students believed that social media helps them in their professional course studies. Post graduate students showed statistically significant difference from undergraduates and interns in terms of knowledge of keywords, dental apps and reading research journals. 89.23% students were keen for implementation of e-learning in their curriculum.

Conclusion: This study reflects willingness of dental students to adopt digital revolution in dental education which in turn may present an opportunity for educators and policy makers to modify educational methods and thereby advance student's current learning approaches.

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1. Introduction

Education system plays a critical role in development of any society. It should be continuously adaptive and dynamic to keep pace with growing trends.¹ In recent times, information/digital and communication technology has become an integrated part of every educational and professional field including dentistry. Most of the improvements and breakthroughs are compiled and presented in digital medium much before their hard copy is available and inclusion of such advancements take months or even years to get incorporated into standard text books. Undoubtedly mobile and

internet use can be considered as one of the significant parameter to evaluate digital literacy. Thus appraisal of digital literacy among dental students can reflect the standard of their knowledge related to the field as well as the need of implementation of technology in the present dental education system.

Very scanty literature is available on incorporation of digital technologies in dental educational systems. Usage of smartphone and technology has been investigated among medical students of Canada² and United Kingdom,³ both studies have expected the usage of smartphones to be beneficial for educational purposes and likely to increase in the future. A recent study among Kenyan⁴ medical students concluded that mobile learning is increasingly popular among medical students and should be leveraged in promoting access and quality of medical education. Little is known about perspicacity of dental students about their smartphones as a

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