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Social media use in medical education: current perceptions and future potential

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Abstract

Introduction. The increasing use of social media in medical education makes it important to understand how educators and students use social media and perceive its benefits. **Methods.** A prospective, multi-site, survey of medical students and educators was conducted. A 16-item questionnaire was evaluated, including multiple item options and open-ended questions. **Results.** 867 students from 23 medical schools and 197 staff from 16 participating institutions across the globe took part in this study. Facebook was the most used social media site, with 87% students using it for browsing. The majority of staff (57.0%) used this site largely for social interaction (67.3%). With regards to medical studies, students mostly use Facebook to communicate with peers (81.0%). 40.9% of students thought that social media can be used for discussion or sharing of information, however 6.1% thought that confidentiality issues and sharing inappropriate information is of concern. Respondents saw potential, but had confidentiality and misinformation concerns. **Conclusion.** Understanding the perceptions of medical schools' use of social media is essential for both educators and students who wish to embrace its benefits in the current technology enhanced teaching environment.

Key words: social media; medical education.

Introduction

Australians have some of the highest social media usage in the world (1) and continue to embrace technology for various purposes. The use of social media has become a part of our daily routine – 24% of Australians access a form of social media more than five times a day (2). Using social media platforms like Facebook™, Twitter™, and Instagram™, has transformed the way we communicate and share knowledge amongst ourselves. The University of Queensland (UQ), Faculty of Medicine, Rural Clinical School participated in a large-scale, international, multi-cohort study (3) that evaluated the use and influence of social media by medical students and teaching staff. The study conducted by Bryne-Davis *et al.* (3) aimed to identify patterns of use of social media for both medical school staff and students, perceptions of the potential uses of social media, and the effectiveness of social media for medical education. Using the methodologies of Byrne-Davis *et al.* (3), the outcomes specifically for participating Australian universities are explored in this study.

The medical profession has been no exception in witnessing the rise of the integration of social media (4) within institutions. Many medical teaching and learning institutions have adopted the use of social media tools for various purposes (4, 5), including its use for communication (6), instruction (7), and assessment (8). Numerous studies have investigated how implementing the use of social media can potentially benefit, and have great advantage for medical professionals (4, 9, 10). With an increase in social media usage for professional reasons, the possibility of un-professionalism can also be of concern (11, 12).

A recent systematic review reported an increase in academic performance, improved professional attitudes, better learning engagement, and greater collaboration between students and medical professionals, with the use of social media tools (5). Despite the increase in the use of social media and associations with its potential benefits, it is still not clear what Australian medical schools, need or expect to achieve, with their use of social media for medical education. Understanding how, and for what

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purposes Australian medical schools use social media is the first step in determining how to maximise the use of social media to maximise positive and minimise negative outcomes of its use. By gaining this information a better understanding on how social media can be integrated into medical education can be attained.

Methods

Participants

Participants were medical students, in any year of study, as well as academic and professional staff members, from participating medical schools across Australia.

Study design

All medical schools that took part in this international study utilised the study design developed by researchers at the University of Manchester (3). Questionnaires were developed to evaluate the current use of social media, perceptions of potential uses of social media, perceptions of usefulness of social media, and comparisons between traditional methods of communication and social media. The 16-item questionnaire was developed based on existing literature reviews (3). Questions were validated with a small sample of United Kingdom medical school students before wide-scale implementation with the participating medical schools. Questions focused on multiple item options or were open-ended questions. Three main themes of data were collected as part of the questionnaire: 1) participant demographics; 2) everyday use of social media; 3) learning with social media (3). Participants were recruited through the use of various learning interfaces, such as the UQ BlackBoard – an informative platform for students, with information about the study and a link to the anonymous online survey. Academic staff members were invited to complete the survey through email correspondence. Participants provided informed consent before undertaking the survey, and had to be above 18 years of age to participate.

Analyses

Quantitative analyses of data was summarised using descriptive statistics and presented as percentages. Statistical significance tests (T-tests and ANOVA) were performed based on the data. Qualitative

open-ended questions were analysed using thematic analysis (13, 14) to look for specific themes, perceptions, and barriers or facilitators to the use of social media.

Ethical clearances

Ethical clearances were obtained by The University Of Manchester Ethics Of Research on Human Beings Committee, United Kingdom (Ref. No. 14100) and The University of Queensland Behavioural and Social Sciences Ethical Review Committee (Approval No.: 2014001170).

Results

From the 23 participating medical schools, and after removing incomplete or incorrect data, a total of 867 students participated in the student survey. From UQ, all 1983 students, in 2013, from Yrs. 1-4, were invited to participate in the study. Similarly an estimated 434 current teaching focused staff (includes Clinical, Academic, and Administrative and eLearning staff) were invited to take part in this study. Overall, 3.7% of students and 6.3% of staff responded. Demographic characteristics for both student and staff respondents is described in *Table 1*. There was no significant differences for age ($P=0.02$, CI: 0.19-2.51) or gender ($P=0.49$, CI: 0.07-0.80) between UQ and non-UQ universities. Other Australian and international universities had a significant difference for age ($P < 0.00$, CI: 0.55-1.56) but not for gender ($P=0.82$, CI: 0.06-0.08); and international and UQ had a significant difference for age ($P < 0.00$, CI: 1.62-3.19), but not for gender ($P=0.56$, CI: 0.16-0.85).

Student responses

Specific reasons for how various social media sites are used by students and the frequencies of its usages are described in *Table 2*. *Table 3* highlights the frequencies of different social media platforms used by students. Reasons for social media site uses based on the Universities surveyed are further highlighted in *Table 4*.

Overall, 63.2% of students believe social media has a place on the medical curriculum, including 60.8% of UQ students. From other questions asked in the survey, 34.3% of students indicated that their medical school had an official social media account, whereas the majority were unsure (40.5%). UQ

Student participants	The University of Queensland (n=74)	Other Australian Universities (n=342)	International Universities (n=451)
Age (Mean (SD))	24.49 (5.08)	22.08 (2.74)	23.13 (4.48)
Age group - Freq (%)			
18-25	49 (66.2)	413 (92.0)	288 (84.2)
26-35	23 (31.1)	35 (7.8)	46 (13.5)
36-45	1 (1.4)	1 (0.2)	5 (1.5)
45+	1 (1.4)	0 (0)	3 (0.9)
Gender - Freq (%)			
Male	32 (43.2)	179 (39.7)	133 (38.9)
Female	42 (56.8)	272 (60.3)	209 (61.1)
Faculty of Medicine Yr - Freq (%)			
Yr 1	32 (43.2)	55 (12.2)	57 (16.7)
Yr 2	20 (27.0)	94 (20.8)	59 (17.3)
Yr 3	9 (12.2)	120 (26.6)	95 (27.8)
Yr 4	12 (16.2)	93 (20.6)	62 (18.1)
Yr 5	0 (0.0)	50 (11.1)	35 (10.2)
Yr 6	0 (0.0)	29 (6.4)	34 (9.9)
Yr 7	0 (0.0)	5 (1.1)	0 (0.0)
Graduate level - Freq (%)			
Undergraduate	22 (29.7)	424 (94.0)	232 (67.8)
Postgraduate	52 (70.3)	27 (6.0)	110 (32.2)
Staff participants	The University of Queensland (n = 27)	Other Australian Universities (n = 31)	International Universities (n = 139)
Age (Mean (SD))	44.59 (12.57)	49.52 (51.00)	46.26 (45.00)
Age group - Freq (%)			
18-25	1 (3.7)	1 (3.2)	2 (1.4)
26-35	7 (25.9)	3 (9.7)	8 (5.8)
36-45	6 (22.2)	5 (16.1)	62 (44.6)
45+	13 (48.1)	22 (71.0)	65 (46.8)
Staff position - Freq (%)			
Academic/research	15 (55.6)	15 (48.4)	45 (32.4)
Clinical/professional	2 (7.4)	3 (9.7)	91 (65.5)
Teaching/education	0 (0.0)	2 (6.5)	1 (0.7)
Academic/clinical	1 (3.7)	2 (6.5)	1 (0.7)
Administrative	9 (33.3)	9 (29.0)	1 (0.7)
Social media role - Freq (%)			
eLearning	1 (3.7)	4 (12.9)	6 (4.3)
Information updates	0 (0.0)	2 (6.5)	4 (2.9)
No role	26 (96.3)	25 (80.6)	129 (92.8)

Table 1. Participant demographics (no gender data collected for staff participants).

	Reason for use (%)								
	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Comment/discussion	Following posts from friends/contacts	Networking & career advancement	
Social media site	Facebook (n=823)	591 (71.8)	493 (59.9)	674 (81.9)	637 (77.4)	470 (57.1)	379 (46.1)	584 (71.0)	163 (19.8)
	Twitter (n= 419)	296 (70.6)	250 (59.7)	359 (85.7)	327 (78.0)	237 (56.6)	193 (46.1)	302 (72.1)	77 (18.4)
	LinkedIn (n=76)	54 (71.1)	46 (60.5)	58 (76.3)	56 (73.7)	45 (59.2)	37 (48.7)	57 (75.0)	15 (19.7)
	Tumblr (n=151)	116 (76.8)	93 (61.6)	120 (79.5)	128 (84.8)	89 (58.9)	68 (45.0)	112 (74.2)	36 (23.8)
	Google+ (n=57)	44 (77.2)	33 (57.9)	51 (89.5)	47 (82.5)	39 (68.4)	35 (61.4)	42 (73.7)	13 (22.8)
	Instagram (n=554)	396 (71.5)	332 (59.9)	464 (83.8)	426 (76.9)	312 (56.3)	257 (46.4)	413 (74.5)	99 (17.9)
	Pinterest (n=135)	98 (72.6)	82 (60.7)	116 (85.9)	105 (77.8)	73 (54.1)	58 (43.0)	99 (73.3)	20 (14.8)
	YouTube (n=664)	467 (70.3)	388 (58.4)	534 (80.4)	509 (76.7)	383 (57.7)	299 (45.0)	461 (69.4)	121 (18.2)

Table 2. Student's reasons for use of social media.

Social media use in medical education

	Facebook	Twitter	LinkedIn	Tumblr	Google +	Instagram	Pinterest	YouTube
University of Queensland (n=74)	33 (44.6)	27 (36.5)	3 (4.1)	0 (0.0)	0 (0.0)	7 (9.5)	0 (0.0)	8 (10.8)
Other Australian Universities (n=342)	154 (45.0)	115 (33.6)	13 (3.8)	2 (0.6)	3 (0.9)	21 (6.1)	0 (0.0)	36 (10.5)
International Universities (n= 451)	221 (49.0)	166 (36.8)	8 (1.8)	0 (0.0)	4 (0.9)	30 (6.7)	0 (0.0)	50 (11.1)

Table 3. Social media platforms used by medical schools (Freq (%)).

	Communicate with peers	Communicate with lecturers	Discussion	Seek information	Share information	Feedback to school	Reflect on events	Networking & career advancement	Do not use for studies
University of Queensland (n=74)	62 (83.8)	4 (5.4)	39 (52.7)	41 (55.4)	39 (52.7)	3 (4.1)	4 (5.4)	15 (20.3)	10 (13.5)
Other Australian Universities (n=342)	277 (81.0)	27 (7.9)	222 (64.9)	188 (55.0)	144 (42.1)	19 (5.6)	12 (3.5)	68 (19.9)	47 (13.7)
International Universities (n=451)	363 (80.5)	18 (4.0)	288 (63.9)	254 (56.3)	177 (39.2)	17 (3.8)	19 (4.2)	79 (17.5)	69 (15.3)

Table 4. Medical studies and the use of Facebook (Freq (%)).

medical schools used Facebook (44.6%) and Twitter (36.5%) the most frequently, and similar trends were seen for other Australian (45.0 and 33.6%) and International universities (49.0 and 36.8% respectively). A majority of students (74.3%) did not reply to posts from their medical schools on social media, including 70.3% of UQ students.

Qualitative analysis for the reasons why students believe social media does or does not have a place in the medical curriculum indicated that 40.9% of students think that social media can be used for discussion or sharing of information. Nevertheless, 6.1% also indicated that even though social media can be used for sharing useful information, confidentially issues and sharing inappropriate information is of concern. Students indicated that social media platforms can be used for interactive learning and curriculum revision (4.5%), however this may be a distraction from traditional teaching

methods; 3.0% of respondents indicated that social media has no place in the medical curriculum. Other responses indicated that medical schools should keep up with current trends in social media, however there were also concerns that not everyone knows how to, or is willing, to use social media for medical studies. Students indicated that social media posts are often not taken seriously and this may hinder its use as an effective learning and teaching tool.

Staff responses

The reasons for using various social media platforms by all participating staff respondents is detailed in Table 5. The Use of social media platforms according to the participating institutions is explained in Table 6. Descriptive questions included in the survey also questioned staff respondents about the target audience for the institutions social media accounts. Participation rate levels are explained in Table 7.

Social media site	Reason for use (%)								
	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Comment/discussion	Following posts from friends/	Networking & career advancement	
Facebook (n=113)	72 (63.7)	71 (62.8)	76 (67.3)	54 (47.8)	32 (28.3)	40 (35.4)	71 (62.8)	33 (29.2)	
Twitter (n=68)	67 (77.9)	64 (74.4)	64 (74.4)	44 (51.2)	25 (29.1)	32 (37.2)	59 (68.6)	31 (36.0)	
LinkedIn (n=81)	49 (60.5)	46 (56.8)	47 (58.0)	34 (42.0)	17 (21.0)	30 (37.0)	45 (55.6)	40 (49.4)	
Tumblr (n=4)	3 (75.0)	4 (100.0)	4 (100.0)	4 (100.0)	1 (25.0)	1 (25.0)	3 (75.0)	2 (50.0)	
Google+ (n=46)	34 (73.9)	34 (73.9)	32 (69.6)	23 (50.0)	12 (26.1)	16 (34.8)	28 (60.9)	18 (39.1)	
Instagram (n=56)	42 (75.0)	35 (62.5)	43 (76.8)	33 (58.9)	13 (23.2)	17 (30.4)	37 (66.1)	21 (37.5)	
Pinterest (n=17)	15 (88.2)	13 (76.5)	13 (76.5)	14 (82.4)	5 (29.4)	7 (41.2)	16 (94.1)	9 (52.9)	
YouTube (n=44)	35 (79.5)	31 (70.5)	33 (75.0)	26 (59.1)	17 (38.6)	19 (43.2)	32 (72.7)	19 (43.2)	

Table 5. Social media platforms used by staff respondents.

	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Discussion/comment	Follow friends/family	Networking & career advancement
University of Queensland (n=27)	15 (55.6)	16 (59.3)	15 (55.6)	13 (48.1)	7 (25.9)	8 (29.6)	16 (59.3)	9 (33.3)
Other Australian Universities (n=31)	10 (32.3)	16 (51.6)	13 (41.9)	8 (25.8)	5 (16.1)	5 (16.1)	16 (51.6)	11 (35.5)
International Universities (n=139)	80 (57.6)	62 (44.6)	67 (48.2)	51 (36.7)	27 (19.4)	33 (23.7)	60 (43.2)	36 (25.9)

Table 6. Use of social media platforms according to the participating institutions (Freq (%)).

	Average	Excellent	Good	Poor	Unsure	Very poor
University of Queensland (n=27)	4 (14.8)	1 (3.7)	1 (3.7)	1 (3.7)	12 (44.4)	1 (3.7)
Other Australian Universities (n=31)	3 (9.7)	1 (3.2)	3 (9.7)	2 (6.5)	17 (54.8)	0 (0.0)
International Universities (n=139)	23 (16.5)	1 (0.7)	18 (12.9)	4 (2.9)	63 (45.3)	2 (1.4)

Table 7. Level of participation rates from target audience to the institutions activities on social media (Freq (%)).

Qualitative analyses revealed that the reasons for these participation rate levels was due to being too busy, and social media being not interesting or interactive enough. Staff indicated institutional social media accounts were mostly used for information updates or as a communication method, as well as to attract new students. A small portion of staff specified the use of institutional social media accounts for discussion, to maintain a social presence, for teaching purposes, and also because it was currently necessary for the digital age (“everyone else was doing it”). Some staff members also expressed that their institutions were not involved with social media, and that the institutions had no reason to have any social media accounts. A total of 25.9% of UQ staff noted that their institution intended to continue to use social media in the future, most however (59.3%) were unsure. When respondents were questioned about how their institution intended to expand on its use of social media, most staff respondents indicated that it would be for communication and providing up-to-date information. Some staff elaborated on how the use of eLearning/flipped classroom approaches, blogs, updating policies, as well as providing more financial contributions towards social media use, could improve expansion of social media usage within their institutions.

Discussion

The use of social media sites among both staff and students within all participating universities is

similar. Even though most sites were used largely for social interaction and entertainment, responders also specified that social media can be “a particularly useful source for both networking and discussing learning points or clinical experiences with other medical students”. A majority of students were unsure if their medical school had an official social media account, but specified that “It is a very easy way to communicate with our peers about work and an easy, and quick way for the medical school to reach us” and therefore should be integrated within the medical school in future.

Medical educators are also still not convinced of the importance and role of social media sites as part of medical education, even though evidence shows improved learning from the integration of social media within medical education (15). Though uncertain responses from staff on levels and reasons of participation on social media sites were described, the advantageous integration of social media for teaching and learning purposes was highlighted throughout the staff responses. Staff presented its potential benefits, where social media platforms have “moved on from revision videos to an eLearning format and flipping the classroom; the eventual plan would be to have a whole series of videos around pre-learning, learning through short lectures, and revision for [OSCEs] examinations”. On the other hand, some staff respondents were reluctant to move away from traditional teaching methods due to issues such as confidentiality and inappropriate information sharing, however this may

be due to a lack of knowhow. Flynn, Jalali *et al.* (2015) “recommend formal faculty development around learning theory” would provide the necessary credence/credibility for its scholarly value in teaching.

Despite the worldwide increase of the use of social media for medical education, its usefulness for enhancing medical education learning and teaching, remains poorly understood. If steps to educate students and staff to embrace the use of social media, are not undertaken, and social media is left as an unstructured entity, it may end up causing a negative impact on medical learning (16). More importantly, educators need to learn and lead effective ways to implement social media tools in student learning. Educators have piloted the use of social media through integration of its use in the medical curriculum (17) and have shown that social media can enhance learning, problem solving, networking and partnership (18). The use of social media in medical education also maps well to concepts of connectivism (19), social development theory and community of practice (15). When we explore the use of social media, these learning theories provide credence for our scholarly educators. After ensuring that effective policies and training are present (20), the use of social media can significantly benefit both educators and students of medical education.

Conclusion

The use of social media in medical education is integral for educators who wish to embrace its benefits in the current technology enhanced teaching environment. With the use of current technology and interactive digital platforms, social media sites promote discussion, interactions and increased sharing of information between both individuals and communities (21). Its use promotes pervasive and profound communication methods, further encouraging medical educators and administrators to incorporate the use of social media technology in various instructional and teaching or learning strategies. As a result, social media tools foster learning and improved medical student learning styles, as well as connecting them with medical experts, enhancing collaborations and increasing creativity (21).

Although educators and students still hold

reservations regarding ethical responsibilities with the use of social media tools, medical schools need to step up and provide appropriate policies and procedures for their institutions. Developing such policies will help educators and students' awareness of appropriate behaviours, and guide them through their use of social media sites for medical education, while also encouraging the necessity to maintain essential codes of conduct on social media sites (21). These findings may lead to opportunities for successful integration of social media to the benefit of all those involved in medical education. The future success of our students relies on educators/medical schools equipping them with the skills to learn in a digital and social world.

Declaration of interests

The authors declare that they have no competing interests.

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