Identifying Opportunities to Integrate Digital Professionalism into Curriculum: A Comparison of Social Media Use by Health Profession Students at an Australian University in 2013 and 2016

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Abstract: Social media has become ubiquitous to modern life. Consequently, embedding digital professionalism into undergraduate health profession courses is now imperative and augmenting learning and teaching with mobile technology and social media on and off campus is a current curriculum focus. The aim of this study was to explore whether patterns of social media use for personal or informal learning by undergraduate health profession students enrolled at an Australian university across four campuses has changed over time. A previously validated online survey was administered in 2013 to a cohort of health profession students as part of an Australian survey. In 2016, the same survey was distributed to a later cohort of health profession students. Three open-ended questions to elicit descriptive information regarding the use of social media for study purposes were added to the later survey. A comparative analysis of both cohorts was undertaken and social media acceptance and penetration was shown to increase. Health profession students are now more interactive users of Facebook and Twitter, and they have become more familiar with career development sites, such as LinkedIn. The maturation of social media platforms within a three-year period has created realistic opportunities to integrate social media for personal and study purposes into the health profession education curriculum to ensure student understanding of the necessity for maintaining digital professionalism in the workplace.

Keywords: connected learning; curriculum; digital professionalism; education; health profession; mobile technology; social media

1. Introduction

If the tertiary health profession curriculum is to remain responsive to changing healthcare environments, there is an imperative to meet the needs of current and future students. Development, monitoring and evaluation of the usefulness of emerging technologies within tertiary learning and teaching environments, to ensure best practice is embedded within curricula, is necessary [1–3]. Concurrently, social media use for collaboration, networking and information sharing is being explored to prepare students and educate health professionals to work effectively in healthcare settings [4–7]. The Free Open Access Medical Education online community is an example where a range of social media platforms have been used to effectively link informal groups of health professionals [4]. Similarly, integrating social media into the learning process supports students to develop capabilities in different learning platforms for personal and study purposes [6,8]. Through learning and teaching activities and researching for information, students can increase their familiarisation with social media. This supported learning can improve confidence and reduce fear of inappropriate professional

behaviour, if students are guided in learning how to use social media, prior to going into the workplace [9,10]. Facebook, in particular, is popular and familiar globally to many students, creating a potential to be utilised within the curriculum, to facilitate active learning and critical thinking [11]. The introduction of social media platforms as tools for learning, provides a constructivist and scaffolded approach, enabling opportunities for positive educational experiences and promotes modelling of professional behaviour when using digital media, known as digital professionalism [12,13].

In Australia, the advent of National social media guidelines for the registered health professions [14] provides a consistent approach and direction for its use by health professionals. The ubiquity of social media in everyday life provides opportunity for design of higher education curricula to prepare, guide and model digitally appropriate behaviour associated with using social media before students graduate [6,10,15]. Currently, social media use is generally ad hoc on and off campus for personal and study purposes [1,16,17]. This lack of a standardised approach demonstrates there is a need to embed safe and appropriate use of social media to promote digital professionalism into courses to ensure positive professional identity formation with regard to using digital technology can occur. A study of pharmacy students in 2009 indicated that although there was high social media use among the students, many did not fully comprehend the issues that arise from transparency in online settings, highlighting the need for training in digital professionalism [18]. Ensuring positive professional identity development that includes digital professionalism for work-readiness will also ensure that the entrustability of the health professions remains high [19,20]. Furthermore, students will be able to develop or expand on existing expertise in Internet information seeking [16,21] while developing networks to improve employability [22]. Competency in informatics and digital professionalism can be developed and practised within the undergraduate curriculum prior to students entering the workplace [23,24]. Integrating digital professionalism into medical education using a framework structured around the concepts of proficiency, reputation and responsibility has been shown to have a positive effect on medical students and medical practitioners [12].

A previously validated online survey was administered in 2013 and 2016 to all health profession students enrolled at an Australian university [25]. This survey had previously been administered for the same purpose to health profession students in the United States of America [25]. The survey tool was distributed to health profession students at this University as part of an Australia-wide survey [22] in 2013. To enable a comparison over time of social media preferences at this University, the survey was administered again in 2016 to a later cohort. To elicit further descriptive information regarding the use of social media for study purposes, three additional open-ended questions were included in the 2016 version of the questionnaire. The purpose of repeating this survey was to explore changes in social media use by health profession students, as knowledge of current use and preferences is fundamental in guiding innovation within the curriculum renewal process [11,26,27], and to ensure digital professionalism of students at graduation.

2. Materials and Methods

Ethics approval was obtained prior to distributing the survey link to students (H0015800). Consent to participate was implied if the online questionnaire was completed. The first and final year health profession students who were invited to respond to the survey were enrolled at an Australian university (2013 and 2016 cohorts). A link to LimeSurvey[TM] [28] was emailed with an invitation to participate in the study. At two weekly intervals, a reminder that the survey was still open was emailed until three reminders were sent. The first page of the questionnaire was an information sheet. The study design was cross-sectional and convenience sampling was employed in both cohorts. There were 310 respondents in the 2013 cohort and 430 respondents in the 2016 cohort, enrolled in various undergraduate health courses at this University.

Categorical data were summarized using frequency distributions and group comparisons between the 2013 and 2016 cohorts were made using x^2 or Fisher's exact tests, as appropriate. As age was a continuous variable in the 2013 cohort and a categorical variable in the 2016 cohort, the 2013 age

data was recoded as a categorical variable. Data were analysed using SPSS [29]. *p*-values < 0.05 were considered statistically significant.

The survey instrument [22,25] was modified with the addition of three open-ended questions (See Supplementary Material) to further explore:

- Which social media sites do students deem suitable for study purposes? Why?
- How students determined the credibility of any social media or website for study purposes?
- What is a student's favourite type of social media or website?

The additional questions were added to the original survey instrument [22,25] in 2016 to allow students to elaborate on the above criteria in order to add richness to contextualize the findings.

After reading and reflecting on the responses, a thematic approach was employed to analyse the data [30]. For questions 1 and 3, open-ended statements ranged from 3 to 600 characters and coding terms were listed prior to commencement of the analysis. Coding was undertaken manually by searching for the pre-determined key words to quantify responses and additional responses to 'why' for each question were collated into groups. Reduction of the data for display and comparison occurred next as quantifying was the purpose, rather than exploring responses in-depth.

Conversely, due to the exploratory nature of question 2, once coding and sorting the data into categories was completed, the focus of analysis was different. The codes were determined, assigned to statement segments, sorting of statements into categories and then review and further collapse of the data into fewer categories was undertaken. Further refinement of the categories occurred, which then enabled the relational statements to reveal the theme. Understanding this data was key to identifying the content and meaning. Discussion with team members to validate findings occurred during the analysis.

3. Results

In the 2013 cohort, 310 students responded; the majority were between the ages of 25 and 34 years old and 75% were female. In 2016, 430 students responded; the majority were between the ages of 25 and 34 years old and 83% were female (Table 1). There was no difference in the first and final year student ratios between the cohorts (*p* = 0.970). There were statistical differences between the cohorts for gender (*p* = 0.005), age (*p* = 0.001) and the types of health profession courses students were studying (*p* = 0.0001) (Table 1). On further exploration of age, 49% of students were 35 years or older in 2016 compared to 25% of students in 2013 (*p* = 0.001).

Table 1. Demographics and health profession courses of students enrolled in 2013 and 2016.

	Cohort			
	2013 *n* = 310	2016 *n* = 430		
	n (%)	*n* (%)	*F*	*p*
First/Final Year Ratio			1.0	0.970
First year students 176 (57)		134 (31)		
Final year students 243 (43)		186 (69)		
Age				
16–20	94 (30)	66 (15)	61.37	0.001 **
21–24	83 (27)	76 (18)		
25–34	55 (18)	78 (19)		
35–44	35 (11)	69 (16)		
45–54	34 (11)	80 (18)		
55–64	9 (3)	42 (10)		
65 or older	0	19 (4)		
Age Categories				
<35	232 (75)	220 (51)	42.48	0.01 **
≥35	78 (25)	210 (49)		

Table 1. *Cont.*

	Cohort			
	2013 *n* = 310	2016 *n* = 430		
	n (%)	*n* (%)	*F*	*p*
Gender				
Male	79 (25)	73 (17)	7.987	0.005 *
Female	231 (75)	357 (83)		
Health Profession Course				
Nursing	130 (42)	96 (23)	220.9	0.001 **,a
Medicine	42 (14)	19 (4)		
Paramedicine	29 (4)	39 (4)		
Pharmacy	32 (10)	14 (3)		
Social work	6 (2)	-		
Psychology	31 (10)	40 (9)		
Dementia care	0	183 (43)		
Other	40 (13)	39 (9)		

* Significant $p < 0.05$, ** Significant $p < 0.01$, [a] 13 cells (43.3%) have expected count less than 5.

Students were asked: Which of the following media is your preferred primary source of information (Table 2). The majority of students in both the 2013 and 2016 cohorts preferred online media; 47% and 57% respectively. Journals were the second most preferred source for both cohorts in time at 23% and 15% respectively.

Table 2. Preferred source of information for health students in 2013 and 2016.

	Cohort	
Preferred Source of Information	2013 *n* = 310	2016 *n* = 430
	n (%)	*n* (%)
Radio	26 (8)	31(7)
Newspaper	18 (5)	20 (5)
Journals	70 (23)	65 (15)
Online media	141 (47)	244 (57)
Television	47 (15)	62 (14)
Other	0	8 (2)
Missing	8 (2)	
Total	310	430

Students were asked about their usage of specific social media sites such as Facebook, Twitter and LinkedIn (Table 3). Facebook was used by 91% of students in 2013 and 88% of students in 2016. Comparison of the usage of specific social media sites showed a significant change between the cohorts in the use of LinkedIn ($p = 0.002$), but no significant changes in the use of Facebook ($p = 0.057$), or Twitter ($p = 0.620$), with a high proportion of students (87% and 88%) of students reporting no use of Twitter at all.

Table 3. Facebook/Twitter and LinkedIn usage for health students in 2013 and 2016.

	2013		2016			
	Yes	No	Yes	No		
	n (%)	*n* (%)	*n* (%)	*n* (%)	*F*	*p*
Do you use Facebook	274 (91)	28 (9)	381 (88)	42 (12)	5.739	0.06
Do you use Twitter	41 (13)	261 (87)	53 (12)	377 (88)	0.248	0.62
Do you use LinkedIn	8 (2)	124 (98)	74 (17)	356 (83)	10.07	0.002 *

* Significant $p < 0.05$, ** Significant $p < 0.01$.

Students were asked: Have you ever clicked on a Facebook/Twitter add to learn more about something, e.g., an education program (Table 4). Comparison of the cohorts showed a significant difference in the proportions of students following up a link on a Facebook site, 36% in 2013 compared

to 88% in 2016. (p = 0.001). A significant difference was also observed between cohorts who followed up a tweet (p = 0.011).

Table 4. Facebook/Twitter and follow-up for health students in 2013 and 2016

	2013		2016		*F*	*p*
	Yes *n* (%)	No *n* (%)	Yes *n* (%)	No *n* (%)		
Have you ever followed up on a Facebook ad?	111 (36)	191 (64)	381 (88)	49 (12)	216.422	0.001 **
Have you ever followed up on a Tweet?	20 (6)	282 (94)	53 (12)	377 (88)	6.427	0.011 **

* Significant p < 0.05, ** Significant p <0.01.

Open-Ended Questions

The previously validated survey tool [25] provided no opportunity for further explanation of responses by students. Therefore, open-ended questions were added to elucidate and quantify the different platforms used by respondents in 2016. This provided an opportunity to capture descriptive evidence of student preferences of social media use for personal or study purposes.

Respondents were provided opportunity to expand on their responses by completing three open-ended questions. Responses to the first part of the first question "Which social media sites do you think are suitable for study purposes" are shown in Table 5. It depicts the range of platforms that students suggested as suitable for study purposes. Further analysis of responses to the 'why' part of the question elicited two key themes; (1) the unsuitability of social media for study purposes and (2) the collaborative opportunities provided by social media. This is illustrated by comments that typically stated views such as:

"no social media site was suitable for study purposes" (Respondent 204) and

"social media is suitable for collaboration with other students for group work, study and to discuss assessment tasks" (Respondent 237).

Furthermore, students who indicated that social media platforms such as Facebook (24%), YouTube (5%) and Twitter (5%) were useful for study purposes believed that there was merit in collaboration and information sharing as demonstrated by:

"Facebook, groups and like-minded students with no distance barriers and is also culturally safe as you are in control" (Respondent 8) and

"Facebook—good for private messaging for communication for group work, private Facebook groups for peers are really good for sharing information and news with each other" (Respondent 25).

In addition to the advantages of collaboration, comprehension of content using visual media was enhanced according to respondents. For example, one student stated:

"YouTube is a medium I use regularly as it is a clear way for me to understand" (Respondent 421).

Although Facebook was reported as suitable for study by 55% of respondents, participants also suggested that other Internet sites were suitable as digital options for study purposes. These included the Google suite of software such as Google Scholar, Plus, Drive and Chrome, (17%), journal sites (6%) and sites recommended by the University (4%) as shown in Table 5. Approximately a quarter (26%) of respondents stated that social media should not be used for study purposes:

"None, because many are uneducated in the medical science field and social media sites (i.e. Facebook) are only good for scientific updates rather than for study" (Respondent 61).

Seven percent of respondents suggested that employment or professional sites such as LinkedIn, Academia and ResearchGate were useful for accessing resources for study purposes:

"LinkedIn and Research. Information is cited and peer reviewed on ResearchGate. Information posted on LinkedIn is often from leaders in the field who can provide valuable links to web sites/information" (Respondent 425).

However, 2% of respondents also indicated that they did not know what social media sites were useful for study purposes.

Responses to question 3: "What is your favourite social media platform or website?" are also shown in Table 5. Responses to this question indicated that Facebook was overwhelmingly the preferred social media platform used (55%). Respondents reported why it was their favourite typically as:

"versatile easy to use and wide participation" (Respondent 5) and

"Because it keeps me connected with a wide group of people and keeps me open to a wider range of views and opinions" (Respondent 19).

Table 5. Proportion of social media sites suitable for study purposes and favourite platforms.

Platforms	Question 1 Which Social Media Sites do You Think are Suitable for Study Purposes		Question 3 What is Your Favourite Social Media Platform or Website	
	n	*(%)*	*n*	*(%)*
Nil	85	(26)	33	10)
Social media				
Facebook	80	(24)	175	(55)
YouTube	15	(5)	6	(2)
Twitter	12	(5)	6	(2)
Instagram	0	(0)	25	(8)
Imgur	1	(<1)	1	(<1)
Pinterest	2	(1)	6	(2)
Reddit	1	(<1)	3	(1)
Snapchat	1	(<1)	8	(3)
Trello	1	(<1)	1	(<1)
Other Internet sites				
Google (non-specific)	30	(9)	22	(7)
Google Scholar	18	(5)	6	(2)
Google Plus	6	(2)	1	(<1)
Google Drive	2	(1)	0	(0)
Google Chrome	1	(<1)	0	(0)
Professional ResearchGate	9	(3)	0	(0)
Professional LinkedIn	7	(2)	3	(1)
Professional Academia	6	(2	1	(<1)
Journal sites	22	(7)	1	(<1)
Recommended by University	14	(4)	7	(2)
OtherNewspaper	1	(<1)	0	(0)
Radio	0	(0)	1	(<1)
Australian Broadcasting Commission websites	0	(0)	8	(3)
Other	12	(4)	2	(<1)
Don't know	7	(2)	0	(0)
total	**333**	**100 ***	**316**	**100 ***

* May not equal 100% due to rounding.

Other platforms such as Instagram were preferred by individuals, who embraced visual mediums. One student stated:

"Instagram because I like looking at pictures more than reading text" (Respondent 144).

Snapchat (3%), Twitter (2%), Pinterest (2%), YouTube (2%) were used by low numbers of respondents, as were professional or employment sites (2%). Some respondents reported using other Internet platforms such as the Google suite of software were also popular as *"I can just about find anything"* (Respondent 441). Other respondents reported using the Australian Broadcasting Commission (3%) and University websites (2%) were of value for study purposes.

Responses to the second question: "How do you determine the credibility of any social media or website for study purposes?" indicated human–computer interaction factors were the main influence. The key theme that emerged was related to *trust*. Participants stated they did not use social media due to lack of trust or they used a range of indicators to determine trust. Respondents that lacked trust stated cross-checking sources with multiple other sites and also checking the source provided by the social media site. Comments from respondents included:

> *"be a skeptic and check, check, check!"* (Respondent 8) and

> *"No social media website is credible, if you want to know if something is true that you read you must check other sources"* (Respondent 324).

Respondents used a range of behaviours to validate information. These included seeking peer review status, authorship, owner and publisher of websites. Referencing within a website was also an important consideration about whether the site was trustworthy. Respondents also scrutinised whether the site extension was a *.gov, .edu* or *.org.* indicating:

> *"Websites that are government websites (e.g., '.gov') or websites that belong to well-known reputable organisations (e.g., the Australian resuscitation council)"* (Respondent 68) were more likely to be credible.

For some, appearance of the website, amount of content and presence or absence of advertisements determined whether or not, a site was deemed to be credible. Opinion from family members; recommendation by others; or how many of their peers used particular platforms or sites was also a gauge of trustworthiness of social media or websites. There were participants who did not check for credibility and others that due to a lack of trust, did not use social media at all for study purposes:

> *"I do not see any social media or websites as credible. Any research I do for assignments or study comes from academic journals that are peer reviewed"* (Respondent 101).

4. Discussion

This discussion examines the results within the learning and teaching framework of higher education, specifically curriculum design and informal learning opportunities. In addition, with reference to this study, social media as a resource for learning and teaching is explored. Understanding patterns of social media use by students to enable embedding into the curriculum is currently a focus in learning and teaching, therefore, opportunities are examined. Lastly, due to the ubiquity of social media use by respondents, this discussion emphasises the need for developing digital professionalism within the health profession curricula. Students need support within the formal curriculum to understand how to manage using social media for informal learning and collaboration with others before they undertake workplace learning.

4.1. The Nexus of Social Media and Higher Education

The use of social and other Internet sites is popular in society. Increasingly, higher education institutions are exploring the validity and effective use of these platforms through research and/or trial and error [16,21]. Student experiences, perceptions and preferences about learning are an integral aspect of determining how digital platforms can be successfully integrated into curricula [7]. This study aimed to compare students' perceptions of digital media use in 2013 and 2016 cohorts. The results from this study will be used to determine whether introducing social media can enhance learning within the curriculum of courses offered by the Faculty of Health in an Australian university. Seventy-four percent of Respondents in the study indicated that they would accept integration of platforms such as Facebook, the Google suite of software, YouTube and Twitter into their curriculum as they found these platforms useful for study purposes. These digital platforms can supplement the resources provided by educators as students indicate a high degree of familiarity, confidence and comfort in

using them. Research suggests that students' web-based information searching performance is highly correlated with problem-solving competences [31], which has been identified as a necessary skill for critical thinking [32]. Although 26% of respondents indicated that no current social media sites were suitable for study purposes, the validity of utilising digital media to enhance professional education cannot be discounted. As stated in previous studies, negative consequences of the use of digital media can be avoided by effective planning of the integration of digital media for educational purposes [12].

The findings of this study indicate that most respondents in both the 2013 and 2016 cohorts reported high use of digital media as their preferred source of information (47% of respondents in 2013 and 57% of respondents in 2016). Printed information in the form of journals was also relatively popular in 2013 and 2016 (23% and 15% respectively), which, in the context of an academic institution, is reassuring. Availability of information through digital mediums needs to be adopted as students, as shown in this study, are increasingly indicating that online rather than printed forms of information are their preference. Given the advent of technology in recent years to augment easily accessible online information, it is not surprising that students are utilising mobile devices and other forms of technology to seek and retrieve information. However, continuance of availability of both printed and online information sources suggests that both platforms are currently still required.

Health professionals are required to be digitally connected in the workplace. Ellaway and colleagues [12] argue that "training and assessing the digitally enhanced learner in preparation for their future digitally-enhanced practice" is necessary. A review of curriculum design informed by the results of this study and previous studies can guide planning and integration of digital professionalism into undergraduate health profession curricula.

4.2. Perceptions of Social Media Use in Curriculum Design and Learning

Blaschke [13] indicated that social media alone will not develop learners, rather it is a combination of course design and delivery with the technology that creates an environment for learning. Incorporating social media into an assignment can also positively reinforce student engagement [33]. In 2013, 91% of respondents preferred Facebook as an online site compared to 88% of respondents in 2016. However, students in 2016 reported they were more likely to click on a Facebook advertisement or follow-up on a tweet than students in 2013. This indicates that students may be becoming increasingly immersed in the interactive opportunities provided with social media such as Facebook. In response to the open-ended questions, participants indicated they found social media (Facebook, YouTube, Twitter) to be collaborative and provided a platform for peer learning and support [34]. This enhances the opportunities for digital professionalism to be embedded into the curriculum to promote active learning.

Familiarity and confidence in using social media promotes opportunities to augment learning, as the platform does not distract from the content and facilitates learning. Effective integration of social media can enhance learning in medical courses [27] and encourage an active learning environment. As social media is an increasingly inherent component of current students' lives, opportunities for higher educationalists to complement and enhance learning management systems with social media platforms exist [35] to produce a fully integrated modern curriculum. This will enhance curriculum content and delivery, and facilitate student learning. Although a quarter of the respondents in this study did not identify that social media could be linked to study purposes, this may be due to a lack of experience in searching or retrieving information using a social media environment. In addition, students may believe that social media is an untrustworthy source of information as indicated by a number of respondents in this study commenting that they neglect to utilise social media for study purposes due to a lack of trust. Generally, however, respondents indicated they rely heavily on digital media to enable them to seek or retrieve information and that they do, generally, confirm credibility of online information. Social media platforms, along with learning management systems, can facilitate this within a well-structured curriculum as shown by previous studies [11,27,34]. Trust of platforms and information hosted within social media sites is an important issue that must be considered

when planning or implementing digital media into the curriculum. Concurrently, ensuring students understand the need for developing digital professionalism and modelling of appropriate behaviour through curriculum design on campus is warranted before students experience workplace learning.

4.3. Informal Learning Opportunities

Social media through collaborative or reflective tools enables opportunities for creating new knowledge. Platforms such as YouTube that suit visual and audio learning styles may augment learning as identified by 5% of respondents in this study who used YouTube and commented on the benefits to their learning. Moorhead and colleagues [9] found the benefits of social media to learning included options to increase interactions and enabled more shared availability of tailored information. Furthermore, incorporating social media into the curriculum can invite students to become active co-producers of content rather than passive learners [35]. Although not clearly identified as a specific need by respondents in this study, this change enables a shift from a teacher-centred to a learner-centred paradigm. This ultimately supports the development of independent learners who will become work ready graduates; a desirable graduate outcome for this University. A significant increase in the use of click-throughs on banners in Facebook or follow-up on tweets in this study (from 36% of respondents in 2013 to 88% of respondents in 2016), indicates that students have increased their confidence and/or curiosity in directing their own learning, promoting a learner-centric approach. The creation of information repositories (such as blogs/wikis) incorporated in the curriculum can further increase access to information and promote information sharing as the respondents indicated familiarity with Wikipedia and the use of blogs in some contexts. According to Nemeth and co-workers [5], blogs can reduce information overload by curating content. These strategies are worthy of consideration to enhance informal learning in higher education.

4.4. Social Media as a Resource for Learning

According to Lea and Jones [36], students are immersed in a digital world where they are familiar with web-based technologies. However, they still rely on the institution for accessing and utilising web-based resources for their studies. Four percent of respondents in this study utilised websites obtained through the University portal to ensure validity of the information being retrieved, highlighting the theme of needing to trust information retrieved using digital platforms. The majority of respondents, however, reported checking validity prior to incorporating information from websites into their learning materials. This reported behaviour indicates that students are able to separate their personal and professional use of social media to maintain and model professionalism, and retain their privacy [37]. Peer connection through social media was also reported by some respondents as enhancing opportunities for peer learning. Integrating social media to support student learning therefore has merit in higher education learning and teaching, especially if it provides a safe space for interaction and promotes validity of information utilised.

Incorporating social media can be challenging for educators as technical issues, variable learner participation and privacy concerns are shown to thwart efforts to incorporate it into health profession education [27]. An Italian study has shown that cultural resistance, pedagogical issues and institutional constraints can also limit or restrict the integration of social media into higher education learning and teaching [38]. Furthermore, academics are often reluctant to embed social media into their curriculum, preferring traditional technologies such as learning management systems and email, despite students embracing the use of Facebook and other social media for their learning [39]. This is an obstacle that needs to be overcome in academia, if modern contemporary curriculum is to be developed and implemented to produce graduates for today's world.

4.5. Opportunities to Embed Social Media into Curriculum

Davis III and colleagues [40] argue that there is a need to move beyond paradigms involving student success and think about how educational institutions can incorporate the dynamics of social

media into social relationships within the institution. Utilising social and other Internet sites in a variety of educational and community contexts, also needs to be considered. At this University, Twitter, Facebook and YouTube channels are utilised centrally in a range of contexts to connect with students and support student transition and learning. However, the uptake and impact of these initiatives is not clear. A number of University faculties utilise online platforms including games, blogs, wikis, Facebook, and Instagram in a variety of ways to enhance connected student learning [41]. Salminen and colleagues [6] found that using social media for collaboration, increased familiarity, and the use of social media, enhanced learning. Cheston and co-workers [27] reviewed the use of social media in medical education and reported significant improvements in learner engagement and feedback. Feedback is an area of the curriculum where students seek more information from academics [42] and so the use of social media is worthy of consideration in this context, especially as this study indicates that students are increasingly utilising online information to inform their learning.

Facebook continued to be a familiar social media site amongst students (regardless of gender or age) in both 2013 and 2016 cohorts, highlighting consideration for curriculum use. Respondents in 2013 and 2016 reported Facebook was the most useful site for study purposes and was also the favoured social media platform. This familiarity with Facebook cannot be overlooked when considering social media platforms in educational settings as Barczyk and Duncan [11] also found that students perceive a sense of learning and connectedness to Facebook in an educational context. Today's students seek active learning experiences and expect to be able to engage in learning '24/7'; Facebook is an ideal vehicle to enable such an experience [43]. Students are known to clearly distinguish between personal and professional use of social media [2,44,45]. This is a recent development among cohorts as previously, students could only see a need for social media within their day-to-day life, as a social networking medium separate to their studies [46,47]. A number of respondents indicated they could identify with Facebook and other social media as study platform opportunities they currently utilise or would perceive as useful. Indeed, Facebook has been shown to enhance learning in a number of different disciplines in which it has been integrated to fulfil both social and educational needs [26,48,49]. According to Manca and Ranieri [50] from 2012 to 2015, Facebook still posed cultural issues for curriculum inclusion although pedagogical advantages are evident. Cultural, trust and other issues need to be carefully considered as a component of any curriculum development and renewal process, however, the perceptions of students in this study, and in the literature, warrant the active investigation of Facebook integration, in particular.

4.6. Digital Professionalism

The development of Australian social media guidelines for the registered health professions [14] has provided direction for health profession students regarding expectations of professional behaviour when using social media [14]. Development of digital professionalism during their undergraduate program, and at graduation is necessary to ensure health profession students understand the need for safe and appropriate use of digital technologies while in the workplace [12]. The inception of a University social media policy [3] at this University has enabled modelling of appropriate behaviour to be included in curricula and implemented in on-campus classes [23,24] prior to students going into the workplace as a consequence of these policy developments. There are perceived barriers to the implementation of the use of mobile or portable devices for learning into the curricula. These include distraction and inappropriate use of digital technology by health profession students within healthcare settings [51]. This study shows that students do understand the need for differentiation of digital media use for personal and study purposes, with some students preferring not to link both through sharing the same platforms. These developing skills can be harnessed by teaching the need for segregating personal and professional purposes, to ensure students develop and maintain digital professionalism, in the workplace. Similarly, students have indicated that they comprehend the need to verify any information they receive when using social media for seeking and retrieving information. Importantly, current students need to be guided to continue to use credible sites for

information seeking as part of their workplace learning curriculum. The theme of trust was highlighted in this study when students commented on their lack of social media use due to lack of trust or, that they used a range of indicators to determine trust when seeking information from an online source. As mentioned previously, respondents commonly cross-check social media sources with multiple other sites to determine validity of information. The capability to confirm or refute validity of information is an important skill for developing critical thinking needed in preparation of work-readiness of health profession graduates.

Hamm and colleagues [10] suggested that further research was required to determine or realise the potential of social media for professional and educational purposes. Such research is now available, indicating that social medial platforms do augment the development of learning and professional identity [2,5,16]. Within this Australian University, professional identity is an important graduate attribute. This is evident in the results, which demonstrate that LinkedIn became more popular as a social media platform over the three-year period and is expected to increase in subsequent years. This behaviour indicates that students are increasingly aware of the professional platforms and potential connections that they can establish, in order to be work ready graduates. Within the curriculum, academics need to investigate how to utilise LinkedIn and other collaborative professional sites, particularly in capstone or work-based units, to enhance student use of social media for professional use. This will also increase the employability opportunities for graduates.

5. Limitations

Limitations of this study include surveying of students from one university, which reduces generalisability of the findings Additionally, due to the differences with data collection using Likert scales for the demographic information of the two surveys, this has limited reporting of the data. For example, the original format used continuous variables for age, whereas the 2016 survey used grouped categories. This difference is a limitation for comparison of the fields within the dataset. Furthermore, although the inclusion of three unvalidated open-ended questions provides rich description, these findings also cannot be compared with the 2013 information. A final limitation to note is that, although the survey was anonymous, respondent bias inherent with this type of survey may also have occurred.

6. Future Directions

This study has provided a snapshot of student perceptions of information seeking and retrieval using social media for personal and study purposes. Findings have provided evidence for considering the possibility of utilising social media for informal learning within the health profession student curriculum. Additionally, student use of digital platforms indicates that digital professionalism should be embedded in undergraduate health profession curricula. Enabling students to develop safe and appropriate use of digital media prior to entering healthcare environments is necessary. Increasing student awareness of professional social media platforms provides opportunity for integration into the curriculum to enhance the development of professional identity and promote developing connections early in their career. As a result of this study's outcomes, the implementation of social media into the curricula for learning and teaching of health profession courses and evaluation of the subsequent impact on student learning and work-readiness of graduates is warranted. Student perceptions of social media use, particularly with respect to the collaborative opportunities and the trust issues that students are aware of or, identify with, needs to inform curriculum redesign.

As the digital world is continually evolving, future cohorts of students need to be surveyed to capture their needs and capabilities. The survey tool used in this study needs to be updated to reflect the current and evolving use of social media by future respondents. Distribution of an updated survey tool would enable further studies of health profession students across a number of institutions to be undertaken. This would capture continuing maturation of platforms and provide direction for higher education institutions in potential acceptance or refuting of social media for study purposes.

Further research of health profession student cohorts will enable workplaces to remain abreast of developments in social media, and enable disciplines to be responsive rather than reactive to change, thereby averting potential digital professionalism issues in healthcare settings.

7. Conclusions

Social media penetration and acceptance by health profession students has increased in Australia since the initial survey was undertaken in 2013, and is reflected by the findings, with Facebook positioned as the preferred and most useful social media site in current time. Maturation of guidance in use of social media by higher education institutions, implementation of social media training and development of policy by health profession bodies, has resulted in health profession students being more prepared or confident to use social media for personal and study purposes than they were three years ago. Embedding social media use into curricula across the health profession disciplines to promote modelling of digital professionalism on and off campus will support safe and appropriate use of these platforms both at, and away from current or future workplaces. Integration of social media platforms within curricula enables a shift from teacher-focussed to student-focussed learning as students actively contribute to course content, and benefit from collaboration and peer learning. Increased use of professional social media in recent years indicates that health profession students are potentially positioning themselves to enhance their employment opportunities at graduation. With curriculum renewal, higher education institutions can support students in this quest as relevant social media sites can be embedded within the curriculum to promote digital professionalism. This, coupled with their own developing digital professionalism, can enable opportunities for health profession students to engage with their future career preferences.

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