

Elsevier required licence: © <2018>. This manuscript version is made available under the CC-BY-NC-ND 4.0 license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Title: Australian Health Professions Student Use of Social Media

Authors:

Kim Usher RN, RPN, A/DipNEd, BA, BHSc, MNSt, PhD, FACN, FACMHN

Professor and Head of School of Health

University of New England

Email: kim.usher@une.edu.au

Telephone: 02 67732975

Cindy Woods BEd(Hons), PhD

Senior Research Officer

School of Nursing, Midwifery & Nutrition/

School of Medicine & Dentistry

James Cook University, Cairns

Cindy.woods@jcu.edu.au

Evan Casella

Nursing student

School of Nursing, Midwifery & Nutrition

James Cook University, Cairns

Evan.casella@my.jcu.edu.au

Nel Glass RN, BA, MHPed, PhD

Research Professor of Nursing

School of Nursing, Midwifery and Paramedicine,

Australian Catholic University

Nel.Glass@acu.edu.au

[Phone 03 9953 3478](tel:0399533478)

Rhonda Wilson RN MHN (Credentialed) BNSc MNurs(Hons) PhD Candidate
Lecturer Mental Health Nursing
School of Health
University of New England
rhonda.wilson@une.edu.au

Lidia Mayner BScHons, RN, PhD
Associate Professor
School of Nursing and Midwifery
Flinders University, Adelaide
lidia.mayner@flinders.edu.au

[Phone: +61 8 82013377](tel:+61882013377)

Debra Jackson RN, MN, PhD
Professor of Nursing
Faculty of Health
University of Technology, Sydney (UTS).
Debra.Jackson@uts.edu.au

Janie Brown RN, BN, IC Cert, MEd(Adult), PhD Candidate (submitted)
Director of Teaching and Learning
School of Nursing and Midwifery
Curtin University
Janie.Brown@curtin.edu.au

Elaine Duffy RN, RM, BAppSc, MN, PhD
Professor and Head of School

School of Nursing & Midwifery

Griffith University

e.duffy@griffith.edu.au

Carey Mather RN, BSc, Grad Cert Univ L&T, Grad Cert Creative Media Tech, PGrad Hlth
Prom, MPH

Lecturer

School of Nursing and Midwifery

University of Tasmania

Carey.Mather@utas.edu.au

Elizabeth Cummings RN, RM, BA, BIS(Hons), PhD

Senior Lecturer and Co-Ordinator UTAS eHealth Research Centre

School of Nursing and Midwifery

University of Tasmania

Elizabeth.Cummings@utas.edu.au

Pauletta Irwin RN, MPed&T, PhD Candidate

Lecturer in Nursing

School of Health and Human Sciences

Southern Cross University

pauletta.irwin@scu.edu.au

Word count: 3186

Abstract

Increased bandwidth, broadband network availability and improved functionality have enhanced the accessibility and attractiveness of social media. The use of the internet by higher education students has markedly increased. Social media are already used widely across the health sector but little is currently known of the use of social media by health profession students in Australia. A cross-sectional study was undertaken to explore health profession students' use of social media and their media preferences for sourcing information. An electronic survey was made available to health profession students at ten participating universities across most Australian states and territories. Respondents were 637 first year students and 451 final year students. The results for first and final year health profession students indicate that online media is the preferred source of information with only 20% of students nominating traditional peer-reviewed journals as a preferred information source. In addition, the results indicate that Facebook® usage was high among all students while use of other types of social media such as Twitter® remains comparatively low.

As health profession students engage regularly with social media, and this use is likely to grow rather than diminish, educational institutions are challenged to consider the use of social media as a validated platform for learning and teaching.

Key words: Facebook; health profession; internet; networking; social media; student; Twitter

Introduction

Growing availability of the internet and smart devices has enhanced the accessibility and attractiveness of social media (Kellerman, 2010; Redfern, Ingles, Neubeck, Johnston, & Semsarian, 2013). Social media refers to the collection of internet websites and services that support collaboration, participation and sharing (Junco, Helbergert, & Lokent, 2011). Social media differ from more traditional forms of broadcast media as they offer opportunities for group interaction, discussion, or co-production, anytime and anywhere (Coiera & Tombs, 1998). The forms in which social media are available are extensive including social networking, web publishing, content sharing, and tools for collaboration (Kaplan & Haenlein, 2010). Facebook, Twitter, Skype™, YouTube™, blogs, Instagram™ and Flickr™, are commonly used examples of social media platforms (Mangold & Faulds, 2009). In 2013, Facebook had over 1.19 billion active monthly users, Twitter had over 218 million active monthly users, and YouTube and Instagram each had 1 billion active monthly users worldwide (Cowling, 2013).

The use of the internet by higher education students has increased to such an extent that it has been asserted the question is no longer whether students are using the Internet, but how often and in what capacity (Giordano & Giordano, 2011). Numerous studies indicate that social media and social networking forms an important part of students' lives (Fox & Jones, 2009; Junco & Mastrodicasa, 2007; Mastrodicasa & Kepic, 2005; Matney & Borland, 2009). A number of studies have identified relationships between the use of technology and student engagement in higher education (Annetta, Minogue, Holmes, & Cheng, 2009; Chen, Lambert, & Guidry, 2010; King & Robinson, 2009). As a result, educators have begun to investigate different ways of integrating social media techniques into the learning process (Grosbeck & Holotescu, 2010; Rankin, 2009; Schroeder, Minocha, & Schneider, 2010). Junco, Heibergert and Loken (2011) explored the effect of Twitter on higher education student engagement and grades. They found the incorporation of Twitter into educational programs improved

cooperation and contact among students, promoted active learning, and allowed for prompt feedback by educators.

Social media are already used widely across the health sector (Coiera & Tombs, 1998). For example, mHealth has been used to send and receive information about clients (Speciale & Freytsis, 2013), applications (apps) have been developed and used for consumers with ongoing health conditions such as adolescents with diabetes (Larkin, 2011), hospitals are using wikis to upload, critique, and edit evidence-based information to better plan patient care (Thielst, 2011a), and school nurses use social media to keep in contact with students who require ongoing treatment (Chilvers, 2011). However, concern about confidentiality and privacy has limited the use of social media among the health professions to some degree and led to the development of social media guidelines by professional bodies including the Australian Health Practitioner Regulation Agency and Australian College of Nursing and Australian Nursing and Midwifery Federation (Coiera, 2013; Mansfield et al., 2011). Progressive universities have also developed social media guidelines for use by their students (UTAS, 2011). These guidelines provide direction about the appropriate use of social media by health care professionals and students. It is imperative that students understand the implications of using social media whilst at work and while studying.

There is a paucity of information about the use of social media by health profession students. The study aimed to determine first and final year health profession students' use of social media and their media preferences for sourcing information. As far as we are aware, this is the first survey of the issue with health profession students in Australia. A better understanding of the use of social media by health profession students in Australia has implications for education, research, and professional development (Mather, Marlow, & Cummings, 2013a).

Methods

An online survey developed by Giordano and Giordano (2011) was used to investigate:

1. health profession students' media preferences,
2. student activity on social media sites, and
3. student utilisation of links as a source of information or learning.

The Giordano and Giordano survey instrument was selected because it was particularly relevant to the study and no other surveys were located that addressed a range of social media usage. Ethics approval from each university was obtained prior to distributing the survey link to students. Consent to participate was implied by completion of the questionnaire. A link to the online Survey Monkey questionnaire was emailed with an invitation to participate in the study to first year and final year health profession students enrolled in the ten participating universities. Each university administered the survey at their site. Two or three reminder emails containing the survey link were sent to students at fortnightly intervals.

Questionnaires were completed by 637 first year students and 451 final year students in second semester between July 2013 and November 2013. A snowball effect occurred whereby students from two additional universities and students not enrolled in a health profession course also completed the online questionnaire. The responses from students not enrolled in a health profession course were excluded from the analysis, but responses from students from the two additional universities were included in the analysis.

The survey questions included:

- Do you use Facebook or Twitter?
- Do you make decisions based on ads you hear or read in the media?
- Have you ever clicked on a Facebook or Twitter ad to learn more about something, e.g., an educational program?

- Which of the following (radio, newspaper, magazines, journals, online media, television) is your primary source of information?

Final year students were also asked about their use of LinkedIn.

Results

Respondents were enrolled at 12 Universities (snowball effect) across Australia (Table 1). The Universities represent each Australian State and excludes the Northern Territory. Of the 637 first year students surveyed, 521 (82%) were females and 116 (18%) were males (Table 2). The mean age was 27 years and range was 16 to 62. Of the 451 final year students, 369 (82%) were females and 82 (18%) were males. The mean age was 28 years and range was 19 to 67. There were no statistical difference for gender between the two groups, but as would be expected, final year student mean age was greater than first year students' mean age ($p = 0.023$). There was no difference in the mean age of male and female first year students (Table 2), however male final year students (mean age = 32 years) were overall older than female final year students (mean age = 28 years), $p = 0.003$.

Students were studying a range of health profession courses including: Nursing (54.9%), Medicine (8.6%), Midwifery (8.5%), Paramedicine (4.4%), Psychology (4.4%), Pharmacy (3.7%), Social Work (2.3%), Physiotherapy (1.9%) and Dentistry (1.7%).

Students were asked: Which of the following media is your preferred primary source of information? Of the 616 first year students who responded, 52% nominated online media as their as their primary source of information, followed by 17% who identified journals and 16% who responded that television is their primary source of information (Table 3). Peer-reviewed journals are considered useful for information for university assignments and evidenced-based practice; however, for everyday topical information online media was identified as the

preferred source. Very few students reported radio, newspapers or magazines as their primary source of information. Of the 442 final year students who answered this question, 50% identified online media as their primary source of information, followed by 23% who identified journals and 14% who nominated television as their preferred source of information. No final year students identified magazines as a primary source of information. When disaggregated by age, online media remained the preferred primary source of information for all age groups (Table 3).

Students were asked about usage of specific social media sites Facebook and Twitter. Facebook was used by 93% of first year students; 97% of students aged 16 to 25, 92% of students aged 26 to 35, 94% of students aged 36 to 45, and 74% of students aged above 45. The results show that first year students' Facebook usage is lower in those aged 45 and over. Facebook was used by 91% of final year students; 97% of students aged 16 to 25, 90% of students aged 26 to 35, 74% of students aged 36 to 45, and 77% of students aged above 45. Similarly to first year students, the results show as age increases final year students' Facebook usage is lower.

Most first year students (86%) reported they do not use Twitter. Of those students who reported Twitter usage, the majority (64/88, 73%) are in the 16 to 25 year age group. Similarly, 84% of final year students do not use Twitter. Final year students who do use Twitter are also predominantly in the 16 to 25 year age group (41/71, 58%). Around one-third of first year students (36%) reported clicking on a Facebook advertisement to learn more about a topic, while few students (7%) reported following up on a Tweet to learn more about an issue. Final year students had almost identical responses for following up on Facebook banner advertising (38%) or tweets (8%).

Students were asked if they make decisions based on marketing they hear or read in the media. A majority of first year student (64%) responded 'yes' to online media, again the highest of the

types of media listed, followed by television (54%), and journals (51%). Final year students' responses followed a similar pattern; 63% responded positively to online media, followed by journals (63%) and television (53%).

Final year students were asked if they use LinkedIn and the reasons they use LinkedIn. Eleven percent of students ($n = 50$) reported they used LinkedIn, and the main reason students used this platform was to increase network opportunities ($n = 36$, 72%).

Discussion

This study was undertaken to investigate health professions students' use of social media and their media preferences for sourcing information. An overwhelming majority of both first and final year students' preferred source of information was online media, which includes online newspapers and media channels. Media consumption habits appear to be evolving with increased internet usage. News is distributed via the internet and assists with shaping this rapid evolution. Recent research by Pew Internet provided insight into how people are accessing information in the 21st century (Purcell, Rainie, Mitchell, Rosenstiel, & Olmstead, 2010). Media is becoming portable, personalised and participatory (Purcell, et al., 2010). News is accessed by a range of mobile devices including smart phones and tablets. Home pages often include news from multiple sources and on topics of interest. News is commented on and disseminated by social media platforms such as Facebook and Twitter (Purcell, et al., 2010). Purcell et al. (2010) claim news is becoming a "shared social experience" with people posting links to news stories in emails or Facebook, posting news stories on their social networking sites, and disseminating the impact of events in discussion threads (Purcell, et al., 2010). Participation occurs by sharing and disseminating information rather than contributing new ideas or critiques. A majority of participants (55%) in Purcell et al.'s study claim it is easier to keep up with news today compared with five years ago (Purcell, et al., 2010).

Only around 20% of first and final year health profession students nominated traditional peer-reviewed journals as a preferred source of information. While this possibly reflects the different uses for different media, there are clear implications for research dissemination in this finding. Television is preferred over newspapers and radio as a source of information, indicating ease of access is likely to be a factor in preferred information sources (Mather, Marlow, & Cummings, 2013b).

Facebook usage is high among all students while use of other types of social media such as Twitter remained low. This finding is similar to previous studies with similar cohorts (Giordano & Giordano, 2011; Jones & Fox, 2009; Junco & Mastrodicasa, 2007; Mastrodicasa & Kepic, 2005; Matney & Borland, 2009). Knowing that health professions students engage regularly with Facebook provides an opportunity for universities to consider making better use of Facebook for student engagement. The social acceptance of social media such as Facebook has pre-empted any pedagogical consideration though it is easy to envisage its use in the tertiary sector. For example, it is a cost effective way to advertise events, inform students of timetable changes, special lectures, university holidays and emergency notices (Giordano & Giordano, 2011). Over 90% of first and final students use Facebook and of those students, nearly 40% have clicked on advertising banners to learn more about a topic. Given these results and the growing usage of social media, Facebook has the potential to be used as a marketing tool by universities to attract new enrolments by promoting various unique aspects of the university or its courses, and using Facebook as a platform to draw people to the university website (Giordano & Giordano, 2011). Giordano and Giordano (2011) argue that universities may be hesitant to adopt social media due to the inability to measure usage. However it is now possible to accurately measure social media usage with NCapture, an NVivo add-on which gathers social media usage information. Additionally, Facebook has an events interface whereby people can create events, invite people, receive RSVPs, update event information, provide

mapped directions, and add weather information. This could provide an indication of the potential effectiveness of such an interface.

While Facebook has been supported as a popular networking site for communicating with friends and colleagues, some educators are interested in getting students to increase their usage of platforms such as Twitter (Ebner, Lienhardt, Rohs, & Meyer, 2010; Grosseck & Holotescu, 2010; Junco, Heibergert, & Loken, 2011; Mather, et al., 2013a; Rankin, 2009; Schroeder, et al., 2010). Twitter is a microblogging platform suited to ongoing public dialogue (Ebner, et al., 2010). In an educational study conducted by Junco et al. (2010), increasing the use of Twitter by students led to an increase in engagement scores, improved contact between students and staff, encouraged co-operation between students, and improved student grades. These benefits have also been demonstrated in previous research where the development of communities of practice was an additional benefit of the use of social media in learning (Mather, et al., 2013a; Schroeder, et al., 2010; Wakefield, Warren, & Alsobrook, 2011). Although Twitter has been successfully used as an enhancement to learning experiences and communication amongst students and lecturers, it was not supported as a preferred primary source of information in this study.

Twitter is already widely used by health consumers who use it to share information related to many aspects of their health (Scanfeld, Scanfeld, & Larson, 2010). This shared information has become a public source relevant for the surveillance of diseases that can impact public health, which operates on a broad scale and at a small cost (Paul & Dredze, 2011). Twitter has been used to detect outbreaks and track the rate and spread of seasonal influenza (Culotta, 2010; Lamos & Cristianini, 2010; Lamos, De Bie, & Cristianini, 2010), to collect information about the outbreak of H1N1 swine flu pandemic (de Quincey & Kostkova, 2010; Ritterman, Osborne, & Klein, 2009), and to evaluate public understanding of antibiotics (Scanfeld, et al.,

2010). Twitter has been considered as a means to spread public health information, communicate risk, and coordinate emergency responses (Paul & Dredze, 2011).

Health professionals currently use Twitter in health care contexts. For example, community and web based resources can be accessed by following specific hash tags on topics or trends of interest, such as postnatal depression (#PND). By following hash tags, health professionals can track worldwide conversations on a given subject, leading to better understandings and wider perspectives (Wilson, Ransie, Cashin, & McNamara, 2013). Twitter is also used by health professionals to connect with patients and monitor ongoing health matters, such as youths' diabetes management (Larkin, 2011), cardiovascular health promotion (Redfern et al., 2013) and rescheduling appointments (Thielst, 2011b). Moreover, Twitter has become a prominent facilitator of communication with colleagues (Mather, et al., 2013a, 2013b), and to conduct marketing exercises (Antheunis, Tates, & Nieboer, 2013).

To maximise the potential afforded by technology, final year students may find opportunities within social media platforms (such as LinkedIn) that offer potential exponential network growth, potential global visibility, and a professional focused multi-field search engine (von Rosen, 2012). LinkedIn is a popular social media platform which is used for professional networking (Wilson, et al., 2013). A small percentage of final year students (11%; n= 50) reported using LinkedIn. The reason only a relatively small proportion of students reported using this platform may be because they have not yet developed a professional network and so the potential value of this type of networking using a social media platform is not yet relevant to them. Further research needs to be conducted to understand transition from student to health professional use of social media for health profession networking.

An opportunity exists for health students and health profession educators to prepare students for professional practice. Inclusion of an introduction to developing a professional social media

profile across a range of social media to promote information sharing and engagement in professional conversations has the potential to assist new health practitioners to connect with international colleagues and health leaders. Additionally, this form of networking may facilitate peer learning, sharing of contemporary information, employment, conference and professional development opportunities in the future (Wilson, et al., 2013).

Limitations

The study was limited by self-report data and by the social desirability inherent in all self-report measures. Self-report questionnaires may contain responder bias because individuals tend to endorse socially desirable knowledge, skills and attitudes and under-report socially undesirable knowledge, skills and attitudes. Thus, the extent of social media usage may have been either under or overstated. Self-report bias is also possible as students interested in social media may have been more likely to complete the questionnaire. Nursing students (55%) were overrepresented in the study as were female participants (82%). Moreover, the response rate of students from some participating universities was low which may reduce the generalisability of the results at those institutions. However, the pooled data from participants in the study nationally provides some valuable insights of the use of social media by health profession students in Australia; an area of limited knowledge.

Conclusion

The results of this research indicate that health profession students are engaging with social media platforms. It is clear that the majority of health profession students already have skills in the usage of a variety of social media platforms. Universities could maximise the opportunity to draw on these skills and prepare students in appropriate use of social media by engaging

learning using these platforms. However, given the fast pace of change in information and communication technologies, decisions to engage students via social media should be considered regardless of the specific platform. Universities that approach online student engagement from a flexible and responsive perspective and utilise evolving platforms as they emerge will position themselves to engage their student cohort. Furthermore, the development of guidance, support, and professional conversations with student cohorts, prospective student cohorts and alumni can contribute to graduate attributes in regard to professional and ongoing communication among health profession graduates which has the capacity over time to enhance the collegiality of the profession nationally and globally.

References

- Annetta, L. A., Minogue, J., Holmes, S. Y., & Cheng, M.-T. (2009). Investigating the impact of video games on high school students' engagement and learning about genetics. *Computers & Education, 53*(1), 74-85.
- Antheunis, M. L., Tates, K., & Nieboer, T. E. (2013). Patients' and health professionals' use of Social Media in health care: Motives, barriers and expectations. *Patient Education and Counseling, 92*(3), 426-431.
- Chen, P-S. D., Lambert, A. D., & Guidry, K. R. (2010). Engaging online learners: The impact of Web-based learning technology on college student engagement. *Computers & Education, 54*(4), 1222-1232.
- Chilvers, J. (2011). Implementation of a Facebook page by school nurses. *Community Practitioner, 84*(4), 33-35.
- Coiera, E. (2013). Social networks, Social Media, and social diseases. *BMJ: British Medical Journal, 346*(7912), 22-24.
- Coiera, E., & Tombs, V. (1998). Communication behaviours in a hospital setting: An observational study. *BMJ: British Medical Journal, 316*(7132), 673-676.
- Cowling, D. (2013). Social media statistics Australia – April 2013. Retrieved January 6, 2014, from <http://www.socialmedianews.com.au/social-media-statistics-australia-april-2013/>
- Culotta, A. (2010). Detecting influenza outbreaks by analyzing Twitter messages. *arXiv preprint arXiv:1007.4748*.
- de Quincey, E., & Kostkova, P. (2010). Early warning and outbreak detection using social networking websites: The potential of Twitter. *Electronic Healthcare, 20*, 21-24.

- Ebner, M., Lienhardt, C., Rohs, M., & Meyer, I. (2010). Microblogs in higher education—A chance to facilitate informal and process-oriented learning? *Computers & Education*, 55(1), 92-100.
- Fox, S., & Jones, S. (2009). The social life of health information. *Washington, DC: Pew Internet & American Life Project, 2009-2012.*
- Giordano, C., & Giordano, C. (2011). Health professions students' use of Social Media. *Journal of Allied Health*, 40(2), 78-81.
- Grosseck, G., & Holotescu, C. (2010). Microblogging multimedia-based teaching methods best practices with Cirip.eu. *Procedia-Social and Behavioral Sciences*, 2(2), 2151-2155.
- Jones S., & Fox S. (2009). Generations online in 2009. Data memo Retrieved October 7, 2013, from http://www.pewinternet.org/~media/Files/Reports/2009/PIP_Generations_2009.pdf
- Junco, R., Heibergert, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning*, 27, 119-132.
- Junco, R., & Mastrodicasa, J. (2007). *Connecting to the net. generation: What higher education professionals need to know about today's students*: NASPA: Washington, DC.
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59-68.
- Kellerman, A. (2010). Mobile broadband services and the availability of instant access to cyberspace. *Environment and Planning A*, 42(12), 2990-3005.

- King, S. O., & Robinson, C. L. (2009). 'Pretty Lights' and Maths! Increasing student engagement and enhancing learning through the use of electronic voting systems. *Computers & Education*, 53(1), 189-199.
- Lamos, V., & Cristianini, N. (2010). *Tracking the flu pandemic by monitoring the social web*. IAPR 2nd Workshop on Cognitive Information Processing (CIP 2010), 14-16 June 2010, Elba Island, Tuscany, Italy.
- Lamos, V., De Bie, T., & Cristianini, N. (2010). Flu detector-tracking epidemics on Twitter *Machine Learning and Knowledge Discovery in Databases: Lecture Notes in Computer Science*, 6323, 599-602.
- Larkin, H. (2011). mHealth. *Hospitals & Health Networks/AHA*, 85(4), 22-26.
- Mangold, W. G., & Faulds, D. J. (2009). Social Media: The new hybrid element of the promotion mix. *Business Horizons*, 52(4), 357-365.
- Mansfield, S. J., Morrison, S. G., Stephens, H. O., Bonning, M. A., Wang, S.-H., Withers, A. H., . . . Perry, A. W. (2011). Social Media and the medical profession. *Medical Journal of Australia*, 194(12), 642-644.
- Mastrodicasa, J., & Kepic, G. (2005). *Parents gone wild*. Paper presented at the National Meeting of the National Academic Advising Association, Las Vegas, NV.
- Mather, C., Marlow, A., & Cummings, E. (2013b). *Digital communication to support clinical supervision: Considering the human factors*. Context Sensitive Health Informatics: Human & Sociotechnical Approaches, pp. 160-165. ISSN 0926-9630.
- Mather, C., Marlow, A., & Cummings, E. (2013a). *Web 2.0 Strategies to Enhance Support of Clinical Supervisors of Undergraduate Nursing Students: An Australian Experience*.

EDULEARN13 Proceedings, 1-3 July, 2013, Barcelona, Spain, pp. 3520-3527. ISSN 2340-1117.

Matney, M., & Borland, K. (2009). *Facebook, blogs, tweets: How staff and units can use social networking to enhance student learning*. Presentation at the annual meeting of the National Association for Student Personnel Administrators, Seattle, WA.

Paul, M. J., & Dredze, M. (2011). *You are what you Tweet: Analyzing Twitter for public health*. In proceedings of the Fifth International AAAI Conference on Weblogs and Social Media (ICWSM).

Purcell, K., Rainie, L., Mitchell, A., Rosenstiel, T., & Olmstead, K. (2010). Understanding the participatory news consumer. *Pew Internet and American Life Project*. Retrieved October 6, 2013, from <http://www.pewinternet.org/Reports/2010/Online-News.aspx>.

Rankin, M. (2009). Some general comments on the 'Twitter experiment'. Retrieved from <http://www.utdallas.edu/~mrankin/usweb/twitterconclusions.htm>

Redfern, J., Ingles, J., Neubeck, L., Johnston, S., & Semsarian, C. (2013). Tweeting our way to cardiovascular health. *Journal of the American College of Cardiology*, *61*(15), 1657-1658.

Ritterman, J., Osborne, M., & Klein, E. (2009). *Using prediction markets and Twitter to predict a swine flu pandemic*. Paper presented at the 1st International Workshop on Mining Social Media.

Scanfeld, D., Scanfeld, V., & Larson, E. L. (2010). Dissemination of health information through social networks: Twitter and antibiotics. *American Journal of Infection Control*, *38*(3), 182-188.

- Schroeder, A., Minocha, S., & Schneider, C. (2010). The strengths, weaknesses, opportunities and threats of using social software in higher and further education teaching and learning. *Journal of Computer Assisted Learning*, 26(3), 159-174.
- Speciale, A. M., & Freytsis, M. (2013). mHealth for Midwives: A Call to Action. *Journal of Midwifery & Women's Health*, 58(1), 76-82.
- Thielst, C. (2011a). Engaging staff with social media: using these tools can help increase customer, physician and employee satisfaction. *Healthcare Executive*, 26(6), 52, 54.
- Thielst, C. (2011b). Social media: Ubiquitous community and patient engagement. *Frontiers of health services management*, 28(2), 3-14.
- University of Tasmania (UTAS). *UTAS social media guidelines December 2010*. Retrieved from UTAS website:
http://www.utas.edu.au/__data/assets/pdf_file/0007/82843/Social-Media-Guidelines.pdf
- von Rosen, V. (2012). *LinkedIn marketing: An hour a day*. Indianapolis, Indiana: John Wiley & Sons.
- Wakefield, J. S., Warren, S. J., & Alsobrook, M. (2011). Learning and teaching as communicative actions: A mixed-methods Twitter study. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 3(4), 563-584.
- Wilson, R., Ranse, J., Cashin, A., & McNamara, P. (2013). Nurses and Twitter: The good, the bad, and the reluctant. *Collegian*. <http://dx.doi.org/10.1016/j.colegn.2013.09.003>

