

Challenges and Opportunities for use of Social Media in Higher Education

Terry Anderson

Professor Emeritus, Athabasca University, Canada

Abstract: Likely the most significant and life changing technologies of the 21st Century is the adoption of social media as major components of commercial, entertainment and educational activities. In this article, I overview the supposed benefits of the application of these tools within formal higher education programs. I then discuss the disadvantages and challenges, with a focus on the paradox that accompanies convenience and value in use, with loss of data control. It is likely that we will continue to see both authorized and unauthorized use of data that we have created for both personal and institutional use. I conclude by examining some of the solutions proposed and tested to resolve this challenge. I then overview two possible solutions - the first focused on institutions creating and managing their own social media and the second an emergent technical solution whereby users keep control of their data, while sharing and growing in multiple social contexts.

Keywords: social media, higher education.

Introduction

Education does not exist outside of the social or technological contexts in which it is located. Thus, it is little surprise that both users and developers are proposing and exposing teachers and students to new affordances of social networking tools. In addition, researchers are beginning to understand and appreciate the learning designs and value that integrating informal social media tools adds to formal education (Czerkowski, 2016). As a long-time advocate for technologically based innovation in education, I am pleased, but apprehensive, about the pervasive and increasing use of these tools in education. As with the introduction of any tool in education, we need to examine the evidence for both its effectiveness and the challenges and problems associated with its use. I hope to add to the discussion by drawing upon both formal educational research and the wisdom acquired through reflective use by myself and others in campus and online classrooms.

Educational Affordances of Social Media

I use the term social media to describe the use of networked tools by individuals, groups and sets of people to consume, produce and share content. Thus, it includes large platforms such as Facebook, Skype, Wiebo, WeChat, and WhatsApp as well as individual web and blog sites.

During these last two decades of the “social media era”, researchers have discovered and, in many cases, argued for the advantage that social media can or could bring to higher education. The research also shows continuing and expanding use in campus based, distance and blended learning contexts and, at least, preliminary results suggesting significant educational benefit including:

- Opportunities and support for collaborative and cooperative learning (Bilandzic & Foth, 2013)



- Awareness of and potential interaction with others, especially affording multicultural exposure and learning opportunities (Hu, Gu, Liu, & Huang, 2017)
- Enhanced media/digital literacy, including development of critical literacy (Pangrazio, 2016)
- Motivational increases (de-Marcos, Garcia-Lopez, & Garcia-Cabot, 2016)
- Increased informal participation in institutional, social and political activities (Ranieri, Rosa, & Manca, 2016)
- Academic and personal identity growth and social capital acquisition (Davis III, Deil-Amen, Rios-Aguilar, & González Canché, 2015)
- Training in attention management and self-organization (Kimmerle, Moskaliuk, Oeberst, & Cress, 2015)
- Increase in course participation enabled by push and mobile features of social media (Pimmer, Mateescu, & Gröhbiel, 2016)
- Integration of formal with informal learning (Greenhow & Lewin, 2016)
- Potential creation of ‘generative learning communities’ (Lewis, Pea, & Rosen, 2010)
- Opportunity for multimedia communication skill development (Brown, Czerniewicz, & Noakes, 2016)
- Resource discovery, annotation and curation (Antonio & Tuffley, 2015)
- Research study dissemination and collaborator recruitment (Khatri et al., 2015)
- Support for continuing relationship between institutions and graduates in support of life-long learning and alumni support (Carter, 2018).

This list of benefits is long and growing, thus providing evidence of increasing use and the benefits to teaching and learning and also showing benefit to the teachers and the educational institutions themselves.

It is important to note that social media add more than just “going online” to formal education. Adding blended or online components to a programme through the use of an LMS certainly adds time and place mobility to a course. Such use also results in modest opportunities for gains in digital literacy. However, adding social media components increases the potential value by enabling “the personalization of their learning experiences to their own interests, their own learning goals, and their own preferences in terms of participation, online communities, and social media platforms” (Gruzd, Paulin, & Haythornthwaite, 2016).

Beyond their role in teaching and learning, social media may also have a number of positive attributes related to the professional development and network literacy of teachers and researchers. For example, in a study of benefits of social media for health care professionals Moorhead et al. (2013) list six overarching benefits: (1) increased interactions with others, (2) more available, shared, and tailored information, (3) increased accessibility and widening access to health information, (4) peer/social/emotional support, (5) public health surveillance, and (6) potential to influence health policy. These same benefits are potentially and indeed likely to transfer to other professions –

including those in education. An interesting Italian study (n = 6139) found that frequency of use of social media by higher education teachers was associated more with personal use than with their use in their teaching. This likely indicates both a greater reluctance to 'share' with students than with colleagues (Manca & Ranieri, 2016b) and lack of knowledge of the value and designs to integrate social media in their formal teaching programs. Nonetheless, widespread use of social media indicates that exposure to the technology itself is high, while awareness of how and, as importantly, why to use social media in formal education is much lower.

A common idiom amongst education technology advocates is that, "it ain't what you got it's what you do with it". The onslaught of social media provides many tools that have inspired a host of innovative educational activities and models. As these tools are emergent and regularly adding new capacities it is nearly impossible to generalize effects across multiple tools and contexts in which they are used. However, it is easily seen that social media affords continuing opportunity for teachers to experiment both within and outside of the pedagogy that inspired the tools' developers. The learning activities that teachers choose, design and implement are also varied and emergent. These choices reflect and support the teachers' institutional and discipline language and culture. For example, a science teacher will likely design different ways to use social media tools than those chosen by a history teacher. However, designing and building online takes time and energy. It further relies on the technical expertise of teachers. Research tends to show that the expertise the teacher brings to the tool inspires different applications (Chen & Bryer, 2012).

Complex technological innovations in education are always accompanied by challenges and problems. Not all technical innovations turn out to be useful in either the short or the long term. Indeed, there are examples of technology that was at first used and adopted and later found to be ineffective or even dangerous. In the next section I discuss these potential and existing challenges.

Challenges of Social Media Use in Higher Education

Just as variation in tools and their application makes it challenging to assess the general effectiveness and value of social media, so, too, is identifying and assessing the problems that use brings. There are many types of social media and many ways in which they are used. Notwithstanding this variance, researchers find much to be concerned about (Regan, Jesse, & TalatKhwaja, 2018).

Critical thinkers have long suspected that the inherent commercial bias of social media, with a business model based upon promoting the consumption of advertised goods and services, is anathema to educational use. This claim is perhaps unfairly attributed to social media, given the predominance of advertising revenue in all mass media used in education — from many academic journals to newspapers and television. However, no one wants to see the data trails created by ourselves and our students exploited in ways that lack informed consent and in addition are little understood by teachers or students. On the other hand, we may find the exchange of our time and our data is a small cost for an obvious educational benefit.

Users consciously or unconsciously engage in an exchange when consuming commercial media. We give our attention to promoted goods or services and in return we receive some value — perhaps a social or educational connection or access to desired entertainment, news or learning opportunity. As researcher Yuwei Lin summarizes, the terabytes of data we generate in our interactions on these

platforms allows companies to “datafy”, quantify, track, monitor, profile us and sell target adverts to haunt us. “(Lin, 2018).

As a personal example, I am tempted to eliminate my use of both Facebook and Twitter. However, I value the insights from others that are shared on particular Facebook groups and the resources and ideas shared by those I follow on Twitter. As a student, I appreciate the notifications that prompt my participation and engagement in learning. Thus, value is created at the cost of my attention. What value can be extracted from the resulting data in the future is currently unknown and of concern both for civil discourse and personal and institutional privacy.

Some critical reviewers suggest that social media is not conducive to education as it contains an explicit bias towards conviviality and homogeneity and lacks the critical components of disagreement and discourse. The phenomena of social media filtering out opposing views (living in a filter bubble (Pariser, 2011)) has been documented in many applications of social media. Critics point out that social media use and information flow is self-segregated into interaction amongst sets of people with similar political and social views (Friesen & Lowe, 2012). Nagle (2018) argues “the social media sites are inherently designed for conviviality. To stay in these spaces in this way is to inhabit a space devoid of the abuse witnessed and experienced by others outside of that community, and one that is at risk of understanding itself as a cyber utopia”. These views seem to be both true and false at once. The effects of living in a filter bubble of like minds is well documented but equally notorious are the often heated and occasionally abusive disagreements aired in these media.

The large, centralized social media companies use proprietary algorithms to select content to which individual users are uniquely exposed. It is not possible for a user to understand, much less directly control how the algorithm works to create their unique feed of information. The content served to me is selected by the algorithm. Previous to the development of large centralized social media, I was presented with a host of personal and independent blogs, feeds and emails from which to choose my own web presence. We are now reduced to both consuming and creating content that is then owned by the media companies and served to myself and those who follow the topic in order to influence your purchasing or political activities. Blogger Ryan Pelton (2018) notes that “The cemetery of neglected blogs is growing and growing with every new social media platform”. Instead of picking our news feed, the algorithm mysteriously and perhaps nefariously picks yours for you.

In 2019 New Year’s reflections many commentators noted the increasing number of privacy breaches, thefts, and commercial misuse and associated calls for social media to get its act together or see drastic new government control (see, for example, (Bullock, 2018) It seems that Internet media firms are not only not protecting our data as well as they could but they are using the data created about me for purposes that even they seem unaware. Among these headlines are studies and media exposure of inappropriate release (or even sale) of personal and private data, excessive promotion of commercial products, and use of techniques designed to addict users to the medium.

The biggest reason that persons stay active users of social media is not because they feel secure and comfortable but, rather, they appreciate the value or service that the media provides. As a personal example, I continue to toy with the idea of dumping Facebook. Yet I know of no other current way to learn from and with members of the hammer dulcimer community or my local neighbourhood community association. Thus, the value created justifies (for now at least) the cost and risk of

commercial exploitation and/or misuse of data. Of course, this model only succeeds because I have no other alternative. The value created to me, doesn't depend on my own contribution, but rather more so on the contribution of others – each of whom is, as well, constrained by the data ownership model.

In an earlier review of the literature on social media use, Nadkarni & Hofmann, (2012) conclude that use and continuing use is driven by two primary needs – the need to belong and the need for self-presentation. In recent years however, social media has also become a primary source for local and international news and a way to “stay in touch” with political, social, and economic issues. These are all compelling reasons that are fanned by the design features of the software itself contributing to addictive use of social media (Andersson, 2018).

Marshall McLuhan (1964) amongst others, noted that media are first used to replicate tasks previously undertaken with older media. This is readily seen in the predominate use of LMS systems for traditional tasks of content dissemination and assignment control. This rather old-time use of the tool does little to exploit the potential pedagogical value noted earlier. Social media is designed first to make money for its investors but secondly to enhance social connectivity, sharing and collaborative interest. It is interesting to note that collaborative tools such as blogs and wikis have been incorporated into many LMS systems, yet are little used (Cantabella, López, Caballero, & Muñoz, 2018).

Some students and teachers argue that social media has a place in informal learning, but that formal learning (with both its institutional constraints and its benefits) is best left to media that can be more effectively monitored and controlled by the formal learning institution. However both Czerkowski (2016) and Greenhow & Lewin (2016) show that learning is not strictly divided into formal and informal learning camps but, rather, that learning in formal contexts often and usually flows into informal activity. Further Greenhow and Lewin theorize that “students may practise learning with formal, informal, and non-formal attributes across a wide range of contexts and exercise considerable authority over how they learn, when they learn and with whom”. Thus, the case is made for developing tools that work to expand formal learning into these more public domains.

Actual Social Media Use in Formal Education

Despite the many potential advantages of incorporating social media into higher education and the amount of use by both teachers and students for non-formal education use, there is a large “disparity between the extent of positive perceptions of social media and the amount of practical usage” (Keenan, Slater, & Matthan, 2018).

A large-scale (n = 6139) Italian study of university teachers found that “Social Media use is still rather limited and restricted and that academics are not much inclined to integrate these devices into their practices for several reasons. These include cultural resistance, pedagogical issues, privacy concerns and institutional constraints.” (Manca & Ranieri, 2016a).

In a small UK study of medical faculty (Keenan et al., 2018), used a survey (n = 67) to discover that the largest barriers to use included instructors' concerns for “student professionalism”, social media being a distraction, changes to student-teacher relationships and a lack of time for instructors to learn to use social media effectively. They also report little knowledge of the potential benefits of social media that

are not met using existing online and institutionally controlled media. Thus, the barriers to adoption seem as large as the potential benefits.

As one would expect most of the research on social media use in education has focussed on campus-based education. But what of the special application and needs of distance education teachers and learners? Distance education has long been associated with the “loneliness of the long-distance learner”. In addition, most distance education teachers are part-time workers who are geographically distributed with large potential for professional isolation and a reduced chance for collegial support. Thus, one might assume that despite barriers, potential benefit to distance education institutions, learners and teachers would propel more social media use than in campus-based organisations. Though there is little evidence to support differential use among institutions using various modes of delivery, my own experience building and assisting faculty in adopting social media in a single-mode distance education university was not without significant challenges.

Since use is often an individual choice by teachers, it is likely conditioned by the disposition of the teacher towards social media use in general and especially as a learning tool in education. Welch, Napoleon, Hill and Rommell (2014) suggest that certain teaching dispositions instigate and maintain effective teaching in a virtual environment. Dispositions are “those principles, commitments, values and professional ethics that influence the attitudes and behaviour of educators” (Martins & Ungerer, 2015). Welch et al note that dispositions are slightly different from attitudes or preferences and argue that “one’s disposition is manifested in one’s behaviour. It is behaviour that is used to quantify the disposition.” Dispositions are changeable based on experiences and environment – thus different from learning styles or personalities, which are usually considered to be more or less permanent. After scouring the literature and a validation T sort, Welch et al, (2014) developed a 25-item Virtual Teaching Dispositions Scale (VTDS) assuming that there were three major dispositions that were important for successful online teaching. These included pedagogical presence – related to competence and effectiveness of the teacher in the normal acts of presenting, organizing and assessing; expert/cognitive presence related to knowledge of and competence in the subject domain being taught, and social presence – interest in being a visible, active and a caring member of the class. Factor analysis of the first study (n = 165) of online teachers revealed a fourth factor. This disposition, labelled as Virtual Tech, assessed the degree to which the teachers were personally interested in and actively exploring the tools of the online educational context.

Martins & Ungerer (2015) used this Virtual Teaching Dispositions Scale with distance education teachers (n = 314) in South Africa (UNISA) and found that the lowest scores were found at the virtual/tech disposition, leading them to argue that the focus of professional development and policy should be on exposure and competence development using online tools. Many distance education teachers are not disposed to making extensive use of social media in education, partially due to lack of exposure to the technology, the learning activities afforded and the benefits of use. In addition, some are drawn to the teaching profession in order to engage with students face-to-face, or at least in real time and do not experience this same connection when the interaction is mediated.

Table 1 from Martins & Ungerer (2015) lists indicators for each disposition and makes the unsubstantiated claim (at least in the 2015 article) that some dispositions are easier to change than others.

Table 1. Indicators of Teachers' Dispositions Towards Online Teaching (Martins & Ungerer, (2015).



Expert/Cognitive Presence	Social Presence	Pedagogical Presence	Virtual/Tech. Presence
<ul style="list-style-type: none"> • Passion for education • Commitment to profession • Exhibits humour 	<ul style="list-style-type: none"> • Shares personal information and experience • Communicates care and interest towards others • Acknowledges individual participants • Expresses agreement 	<ul style="list-style-type: none"> • Punctuality • Creates meaningful assessments • Organisation 	<ul style="list-style-type: none"> • Incorporates a variety of technologies • Maintains a meaningful online presence • Seeks out opportunities for continual improvement

These findings lead me to consider the complexity of the adoption process but also provide a pathway for professional development activities that are designed to enhance the disposition of distance education teachers towards effective use of the media.

Privacy and Ownership Concerns

Harari (2018) in his third book in a series on *Homo sapiens* evolution describes the increasing value of data collected from social media tools and the use of artificial intelligence (AI) based tools to analyze and act upon this data. Harari contends that the day is fast approaching when algorithms will know more about the factors that guide our decision making (our health, our wealth, our aspirations and our limitations) than we know ourselves. The increasing complexity of these algorithms coupled with the aggregation of data into large central repositories places us as both beneficiaries and victims of decision-making by forces outside of individual control – a challenge that strikes at the very foundation of our liberal democracies.

In addition, Harari shows the increasing value of this data collection, which seems especially relevant to “free use” of educational tools. He writes, “A popular APP may lack a business model and may even lose money in the short term, but as long as it sucks data, it could be worth billions” (Harari, 2018, p. 78). We see today the emergence of a large networked applications (i.e., Facebook, WeChat, Twitter, Google, etc.) that are providing free services to us, at the cost of sharing our data with them. This data can and is used for multiple purposes – none of which are transparent to those who have contributed the data and who are used to owning their personal data. Verborgh (2019) notes that giving informed consent for the use of our data (either to institutions or to platforms) is becoming increasingly irrelevant as nobody can say with certainty in what ways and by whom this data will be used.

In her 2015 article and especially in her 2019 book, *The age of surveillance capitalism: The fight for a human future at the new frontier of power*, Shoshana Zuboff, helps us to understand the economic value of this data in the era of ‘Attention Economy’. She points out that some of this collected data is used to

improve the product and the user experience, but large amounts are gathered and stored to create a 'behavioural surplus'. This surplus data is aggregated and analyzed, then sold to a host of purchasers wishing to influence our behavior – and especially our purchasing, consumption and political decision-making. It is easy to become outraged at this “theft” of our data, but we do well to remember that we are not the product being sold but rather we are the raw material. As Canadians well know from natural resource extraction, we are not very successful at retaining the value of “our raw materials”. In this attention economy, we are once again selling our resources to early capitalist firms at a very low return to the public good.

As the efficacy of the algorithms working on this data increases through machine learning and artificial intelligence, we become more and more accustomed to the benefits of the service and, through use, contribute yet more data to these companies. The value of this data increases as it is aggregated with other data – both personal and network generated, such that decision-making by individuals is increasingly influenced or even usurped by the algorithms. But at what cost?

Reining in Social Media for Educational Use

We've seen a series of scandals emerge in the past year related to both hacking breaches and commercial abuse of privacy of social media users (Wall, 2018; Yar, 2018). Can we honestly say that we trust these companies to act in our best interest (as users) especially if these interests compete with the company's own interest – as business operators?

During 2018, I led a qualitative research study on online use in complex K-12 classrooms for the Alberta Teachers' Association (Anderson & McPherson, 2018). The results were not unexpected, with many innovative teachers using online tools in a wide variety of classroom, distance and hybrid educational contexts. For me, the most challenging result was observation of the 'Google-ization' of Alberta classrooms. Google Chromebooks, Google Classroom and Google analytics, Google productivity tools and Google professional development seminars for teachers are ubiquitous and in use in well over 90% of Alberta school districts. And why this overwhelming use? These tools are reliable, highly functional and most importantly are provided free of charge by Google.

To what end is this gift giving? At one level, both teachers and a continuing flow of students learn to become competent users of Google cloud-based services – this alone may create a lucrative business model for Google. But perhaps even more compelling is the data that is generated by students. Though Google has (with most other major suppliers) pledged not to sell personal information from K-12 schools to others (see The Student Privacy Pledge <https://studentprivacypledge.org/privacy-pledge/>), there is little protection from authorized or unauthorized use in higher education or control of the use of aggregated data.

We see that the large potential benefit to social media use is coupled with deep threats to our privacy and control over our own activity and thought. Obviously, using these commercial products, with their questionable ethical practices, are not the type of learning product or environment that public higher education institutions have traditionally used. Is the pedagogical and motivational value sufficient to allow institutions to hold their collective noses and use the product anyway?

Despite these justifiable concerns, is the benefit to the higher education institution of such value that they are willing to give away the control over their data as well as that generated by their staff and

students? Are there any alternatives? I conclude this article with a brief discussion of two possible solutions. The first being the operation of social media services owned by the institution itself, thus retaining control and ensuring educational (and not commercial or political) use of data. The second, looks more to the future and the development of tools that allow a user to retain control over the data that they generate as they use select, modify and enhance their learning experiences.

Institutionally-Owned Social Media

In 2012 Jon Dron and I created an “in-house” media suite running on the open source ELGG environment. The tool set is described at length elsewhere (Anderson & Dron, 2017; Dron & Anderson, 2014). In summary, the *Athabasca Landing* featured a variety of social and productivity tools including blogging, micro blogging, groups and network creation and support tools, curation, recommendations, likes and a variety of communication tools. This system has the obvious advantage of securing data from exploitation by commercial or political interests. However, though “full featured” this platform could hardly compete with the small army of programmers and user interface designers employed by organizations such as Facebook and Google. Though still operating today, the system has never earned institutional support such that it became an integrated component of the institutional delivery platform and perhaps more importantly was not incorporated by teachers or designers into the learning designs of most courses and programs. It seems that the added value of security and network features was not of sufficient value over and above the institutional LMS system for a critical mass of either students or teachers to utilize the system. Our system, like other social media, only becomes useful when it is used and is only used when it becomes useful.

In education data becomes more useful when it is linked with other personal and institutional data to create learning profiles that guide the development of individualized learning scenarios and plans (the Holy Grail of learning analytics!). We were not allowed, nor did we wish to link to other external feeds of personal data, thus simplifying, but at the same time limiting the capability of our in-house social media system. Thus, the challenges of adoption, both by faculty and by the institution, coupled with the challenges of building and supporting in-house systems, have relegated the *Athabasca Landing* to a boutique research product, rather than a competitive social media enhancement to the institution, its staff and most importantly for its students.

Decentralized Social Media Applications

One of the few proposed solutions to this challenge was made by Tim Berners-Lee, (2018) the inventor of the World Wide Web. He now oversees the development of the *Solid platform* to provide individual control and ownership of data. With individual ownership, data remains capable of distribution and aggregation with other data, however the user (and generator) retains control of how the data is to be used, sold or traded by any number of applications. Verborgh (2019) shows how this individual ownership of data, stored in personal owned data pods is differentiated from the current model (Fig. 1).

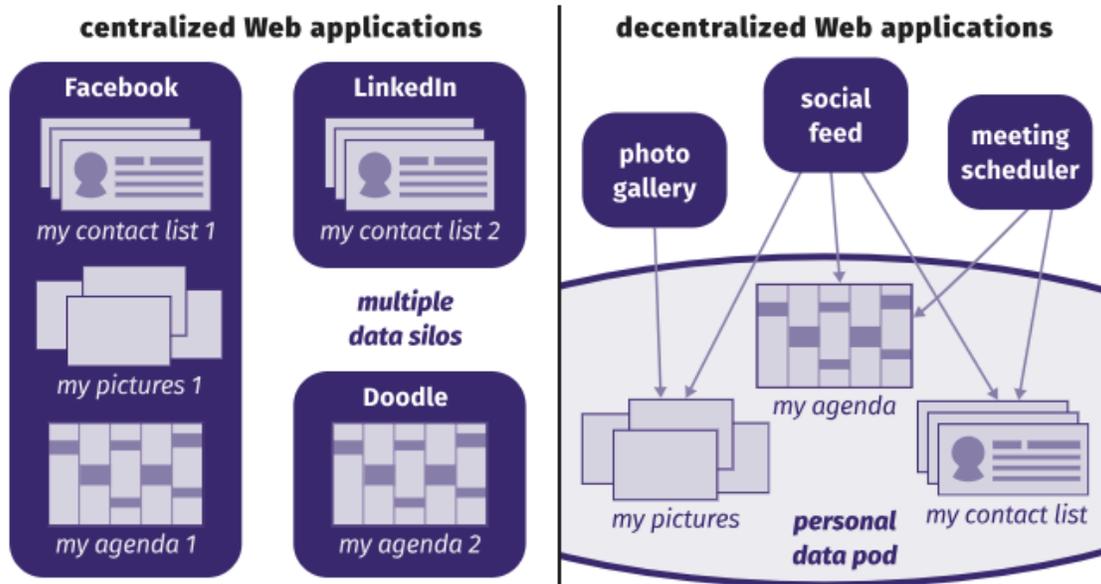


Figure 1. Centralized versus decentralized models for web-based services
(Verborgh, 2019).

Obviously the two solutions I outline above, are far from a solution to the challenges posed by social media use in higher education. Harari (2018) notes we have thousands of years' experience in owning and selling land, hundreds of years owning and selling companies, but are only a few years into figuring out how to own and sell data. Are we therefore willing to exchange school-generated data – both personal and collective, in exchange for cool apps and no fees!

Problems and Opportunities in Social Media Research

Given the large number of unknowns that mark the use of social media that are described above, what can we expect from formal educational research? When one critically examines the research literature on social media, we come to a number of unfortunate and somewhat discouraging results. Far too much of the research literature is based on case studies and descriptions of use – with a paucity of empirical data – especially as regards to educational outcomes. In a 2017 systematic review of ten years of social media use in K-12 education Greenhow & Askari (2017) found “the most prevalent type of study conducted related to our focal topic was research on common uses. The least common type of study conducted was research that established the technology’s effectiveness at improving student learning”. Research relating to “common use” has some exposure value when new tools are being introduced into classrooms but provides very little evidence related to cost or learning effectiveness.

During my ten years as editor of *IRRODL*, I continued to be disappointed at how many (usually unsuccessful) submissions could be described “here is what I’ve done, isn’t it wonderful?” There are many reasons for this paucity of evidence-based research and these inadequacies are shared with many other interventions in formal education systems. Over ten years ago I compared the funding available for Canadian research in health (with a goal of 3% of funding allocated to research) compared to .01% currently allocated for educational research as compared to expenditure. There seems little public or private faith in the efficacy and cost return of education research.

I also note the over-representation of research in which the samples are drawn from education students generally and especially those enrolled in graduate educational technology programs. Can we honestly assume that the early adopters drawn to education technology studies are representative of all students or teachers? Finally, as I detail above, the data generated by students and teachers using social media is owned (and zealously guarded) by the social media companies. Researchers are constrained or not allowed to examine and analyse this data – such analysis is left to the media company, always hidden and most often used for commercial advantage and external sales.

Despite the challenges of low funding, lack of data availability and extensive convenience sampling, I have hope that the continuing increase in power and capability of research tools themselves (notably social network analysis tools and automated data collection and analysis tools), will continue to provide us with at least a trickle of openly accessible research results.

Conclusion

The creation of this paper has focused my attention on both the challenges and the opportunities provided by social media and likely to continue to develop in the near and long-term future. Education has unparalleled opportunity to monitor and improve its own practices. Teachers have new ways to connect with students and, as importantly, means to monitor and intervene in student learning so as to increase the efficacy of both teaching and learning. Students have new ways to find, retrieve and share their learning products and opportunities. However, the cost of these benefits currently is reduction in privacy and user control. Continuous monitoring, research and surveillance of the surveillers is of critical importance to the development of educational quality and opportunity.

References

- Anderson, T., & Dron, J. (2017). Integrating learning management and social networking systems. *Italian Journal of Educational Technology*, 25(3). <http://ijet.itd.cnr.it/article/view/950>.
- Anderson, T., & McPherson, D. (2018). Online learning initiatives. In *Alberta schools*. Edmonton: Alberta Teachers' Association.
<https://www.teachers.ab.ca/SiteCollectionDocuments/ATA/Publications/Research/COOR-101-19 Online Learning Initiatives.pdf>
- Andersson, H. (2018). *Social media apps are 'deliberately' addictive to users*. BBC. Retrieved from <https://www.bbc.com/news/technology-44640959>
- Antonio, A. B., & Tuffley, D. (2015). Promoting information literacy in higher education through digital curation. *M/C Journal*, 18(4).
- Berners-Lee, T. (2018). One small step for the Web.... *Medium*. https://medium.com/@timberners_lee/one-small-step-for-the-web-87f92217d085
- Bilandzic, M., & Foth, M. (2013). Libraries as coworking spaces: Understanding user motivations and perceived barriers to social learning. *Library Hi Tech*, 31(2), 254-273.
- Brown, C., Czerniewicz, L., & Noakes, T. (2016). Online content creation: Looking at students' social media practices through a connected learning lens. *Learning, Media and Technology*, 41(1), 140-159.
- Bullock, L. (2018). The biggest social media fails of 2018. *Forbes*.
- Cantabella, M., López, B., Caballero, A., & Muñoz, A. (2018). Analysis and evaluation of lecturers' activity in Learning Management Systems: Subjective and objective perceptions. *Interactive Learning Environments*, 1-13.

- Carter, W. (2018). *Media marketing strategies university leaders use to increase alumni financial support*. Walden University.
- Chen, B., & Bryer, T. (2012). Investigating instructional strategies for using social media in formal and informal learning. *The International Review of Research in Open and Distributed Learning*, 13(1), 87-104.
- Czerkawski, B. (2016). Blending formal and informal learning networks for online learning. *The International Review Of Research In Open And Distributed Learning*, 17(3).
- Davis III, C. H., Deil-Amen, R., Rios-Aguilar, C., & González Canché, M. S. (2015). Social media, higher education, and community colleges: A research synthesis and implications for the study of two-year institutions. *Community College Journal of Research and Practice*, 39(5), 409-422.
- de-Marcos, L., Garcia-Lopez, E., & Garcia-Cabot, A. (2016). On the effectiveness of game-like and social approaches in learning: Comparing educational gaming, gamification & social networking. *Computers & Education*, 95, 99-113.
- Dron, J., & Anderson, T. (2014). *Teaching crowds: Learning and social media*. Edmonton, Canada: Athabasca University Press. <http://www.aupress.ca/index.php/books/120235>
- Friesen, N., & Lowe, S. (2012). The questionable promise of social media for education: Connective learning and the commercial imperative. *Journal of Computer Assisted Learning*, 28(3), 183-194. <https://doi.org/10.1111/j.1365-2729.2011.00426.x>
- Greenhow, C., & Askari, E. (2017). Learning and teaching with social network sites: A decade of research in K-12 related education. *Education and Information Technologies*, 22(2), 623-645.
- Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology*, 41(1), 6-30.
- Gruzd, A., Paulin, D., & Haythornthwaite, C. (2016). Analyzing social media and learning through content and social network analysis: A faceted methodological approach. *Journal of Learning Analytics*, 3(3), 46-71.
- Harari, Y. N. (2018). *21 Lessons for the 21st century*. Toronto: Random House.
- Hu, S., Gu, J., Liu, H., & Huang, Q. (2017). The moderating role of social media usage in the relationship among multicultural experiences, cultural intelligence, and individual creativity. *Information Technology & People*, 30(2), 265-281.
- Keenan, I. D., Slater, J. D., & Matthan, J. (2018). Social media: Insights for medical education from instructor perceptions and usage. *MedEdPublish*, 7.
- Khatri, C., et al (2015). Social media and internet driven study recruitment: Evaluating a new model for promoting collaborator engagement and participation. *PloS One*, 10(3), e0118899.
- Kimmerle, J., Moskaliuk, J., Oeberst, A., & Cress, U. (2015). Learning and collective knowledge construction with social media: A process-oriented perspective. *Educational Psychologist*, 50(2), 120-137.
- Lewis, S., Pea, R., & Rosen, J. (2010). Beyond participation to co-creation of meaning: Mobile social media in generative learning communities. *Social Science Information*, 49(3), 351-369.
- Lin, Y.-W. (2018). # DeleteFacebook is still feeding the beast—but there are ways to overcome surveillance capitalism. <https://dspace.stir.ac.uk/bitstream/1893/26880/1/Lin-Conversation-2018.pdf>
- Manca, S., & Ranieri, M. (2016a). Facebook and the others. Potentials and obstacles of social media for teaching in higher education. *Computers & Education*, 95, 216-230.
- Manca, S., & Ranieri, M. (2016b). "Yes for sharing, no for teaching!": Social Media in academic practices. *The Internet and Higher Education*, 29, 63-74.
- Martins, N., & Ungerer, L. M. (2015). Virtual teaching dispositions at a South African open distance learning university. *Procedia-Social and Behavioral Sciences*, 171, 929-936.

- McLuhan, M. (1964). *Understanding media: The extensions of man*. Toronto: McGraw-Hill.
- Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of Medical Internet Research*, 15(4).
- Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences*, 52(3), 243-249.
- Nagle, J. (2018). Twitter, cyber-violence, and the need for a critical social media literacy in teacher education: A review of the literature. *Teaching and Teacher Education*, 76, 86-94.
- Pangrazio, L. (2016). Reconceptualising critical digital literacy. *Discourse: Studies in the cultural politics of education*, 37(2), 163-174.
- Pariser, E. (2011). *The filter bubble. What the Internet is hiding from you*. New York: Penguin Group.
- Pelton, R. (2018). Say no to the algorithm gods. *Medium*. <https://medium.com/@ryanjpelton/say-no-to-the-algorithm-gods-747b5a8cebd0>
- Pimmer, C., Mateescu, M., & Gröbriel, U. (2016). Mobile and ubiquitous learning in higher education settings. A systematic review of empirical studies. *Computers in Human Behavior*, 63, 490-501.
- Ranieri, M., Rosa, A., & Manca, S. (2016). Unlocking the potential of social media for participation, content creation and e-engagement. Students' perspectives and empowerment. In E. Brown, A. Krastiva & M. Ranieri (Eds.), *E-learning and social media: Education and citizenship for the digital 21st century* pp. 223-248). Charlotte, NC USA: IAP.
- Regan, P., Jesse, J., & TalatKhwaja, E. (2018). *Big data in education: Developing policy or ethical implementation in the US and Canada*. Ottawa: eQuality Project. <http://www.equalityproject.ca/wp-content/uploads/2017/05/9-Big-Data-in-Education-Developing-Policy-for-Ethical-Implementation-in-the-US-and-Canada.pdf>
- Verborgh, R. (2019). Re-centralizing the Web, for good this time. In O. Seneviratne & J. Hendler (Eds.), *Linking the world's information: Tim Berners-Lee's invention of the World Wide Web*: ACM. Retrieved from <https://ruben.verborgh.org/articles/redcentralizing-the-web/>
- Wall, D. S. (2018). How big data feeds big crime. *Current History*, 117(795), 29-34.
- Welch, A. G., Napoleon, L., Hill, B., & Roumell, E. (2014). Virtual Teaching Dispositions Scale (VTDS): A multi-dimensional instrument to assess teaching dispositions in virtual classrooms. *Journal of Online Learning and Teaching*, 10(3), 446.
- Yar, M. (2018). A failure to regulate? The demands and dilemmas of tackling illegal content and behaviour on social media. *International Journal of Cybersecurity Intelligence & Cybercrime*, 1(1), 5-20.
- Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30(1), 75-89.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York: PublicAffairs.

Author:

Terry Anderson is Professor Emeritus at the Athabasca University, Canada. He is the former Editor of the *International Review of Research in Open and Distributed Learning* and formerly Canada Research Chair in Distance Education. Email: terrydanderson2@gmail.com

Cite this paper as: Anderson, T. (2019). Challenges and Opportunities for use of Social Media in Higher Education. *Journal of Learning for Development*, 6(1), 6-19.