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"A Real Double-Edged Sword:" Undergraduate Perceptions of Social Media in their Learning

Abstract

This study investigates undergraduate perceptions of the social media technologies (SMTs) they use in their learning. This mixed methods inquiry employed 30 semi-structured interviews and an online survey (N = 679) to explore why and how undergraduates from across disciplines view SMTs to be a meaningful part of their university learning. Findings shed new insights into student perspectives on and uses of social media, and the variety of ways in which undergraduates intentionally choose (or, choose not) to incorporate social media into their university learning in meaningful ways. Student perceptions formed an overarching theme of social media as a double-edged sword that both informs and distracts, having the potential to both help and hinder learning. Together, the interviews and the open-ended survey results demonstrate that several contextual relationships exist, underscoring the importance of considering affordances of social media for learning. Rather than taking an approach founded upon technological determinism, learning context and social media affordances become key. Undergraduate perceptions of educational interactions via social media illustrate the prominence of student-student and student-content, rather than faculty-student, interactions via social media in their learning, allowing for an updated understanding of previous educational interactions models.

Keywords: computer-mediated communication, post-secondary education, media in education

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Introduction

This research study investigates both why and how undergraduate learners view social media as a double-edged sword that both helps and hinders their learning. When analyzing the nature and form of the claims comprising key arguments regarding Millennial students' use of technology, it becomes clear that technological determinism is a foundational undercurrent of this discourse (C. Jones, 2011; Oliver, 2011; Selwyn, 2012), including essentialists view in the literature surrounding social media in higher education (Brown, 2012). To move beyond these tropes, several thinkers propose finding the nuances within a more balanced discussion, avoiding the problematic rhetoric underlying some earlier discussions of young people and technology (Buckingham, 2011, Smith, 2016).

Since many recent research studies focus on particular aspects of claims about Millennial students who are often characterized as digital natives (Smith, 2012), this study aims to address calls to move *beyond* the current discourse by examining learner perceptions and uses of specific social media in the context of their learning. Newly published research continues to emphasize a need for studies that build further understanding of students' perspectives and uses of social media in their learning. For example, in their recent article, Hamid, Waycott, Kurnia, and Chang (2015) illustrate the importance of student perspectives in relation to continued gaps in the literature: "…detailed analyses of student perspectives covering a range of learning settings are less common.…little is known about how students feel about the interactivity benefits of social technologies" (p. 2). By providing detailed analysis of student perspectives of social media in different contexts, this study aims to address several current gaps in the literature.

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Literature Review

Despite documented student and faculty reluctance to using social media in formal academic learning, many still view SMTs (e.g., Facebook) as holding great promise for student-faculty interactions (Hurt et al., 2012; Sarapin & Morris, 2015), as resources in the learning process (Sánchez, Cortijo, & Javed, 2014), and for wider communication with departments (Vrocharidou & Efthymiou, 2012), and academic advising (Amador & Amador, 2014). For example, Hurt et al. (2012) articulated a Facebook effect with college students in their study, noting that while students were reluctant to use Facebook at the beginning of the semester, after having Facebook formally implemented as a part of a course they had significantly more positive perceptions. However, Mathieson and Leafman's (2014) study showed that, when asked about their willingness to use social media outside of the LMS, a majority of students and instructors indicated that they are still uncertain or disagree/strongly disagree, and students also indicated having less time for social interactions than instructors. Likewise, Deng and Tavares' (2013) study showed that pre-service teachers viewed the LMS as formal, serious, and for homework, versus Facebook as a space to learn from their friends or peers, and expressed reluctance at including the instructor in this space as it "would spoil the free and spontaneous interaction within the group" (p. 172). Additionally, Nkhoma et al.'s (2015) study brought to light Facebook's "negative impact when it comes to the students' perceptions of the quality of the content of student-instructor interaction on their perceived performance" (p. 88). Gettman and Cortijo's (2015) recent article, vividly entitled with a student's plea to "Leave Me and My Facebook Alone!" further demonstrated such student resistance: "There appears to be a direct negative relationship: the more the professor is involved with them on Facebook, the less comfortable they [students] are" (p. 6). These results call into question Hurt et al.'s (2012)

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Facebook effect. Reluctance from students and faculty to using Facebook in teaching and learning is a recurring theme in the literature, though researchers often explained or made recommendations regarding either accepting or overcoming this reluctance in many different ways.

This study provides an anti-determinist approach to the research problems at hand by providing an updated model of educational interactions via social media, and focusing on the affordances of social media technologies, shedding light on "what people perceive and signify during their actual interaction" (Selwyn, 2012, p. 89) with technologies, including their possibilities, enablements, limitations, and constraints. An affordance can be understood as a characteristic allowing one to carry out possible (inter)actions via an object or within an environment (physical or virtual); for example, an on-screen button that the user can click or press when using a mouse, trackpad, or touchscreen, whereby the button affords clicking (Hayman & Smith, 2015). In connecting emerging technologies to educational practice, Willcockson and Phelps (2010) define an affordance as "the way a technology or software can be used and what it allows the user to do or not to do" (para. 9). As such, there is merit in anti-determinist approaches that focus on affordances, which should be brought to the fore of academic analyses of young people, education, and digital technology (Buckingham, 2011; Selwyn, 2012). The value in such alternative approaches to e-learning research is their contribution to understanding the wider relational interactions and contexts within which such technologies are ascribed meaning, a main the goal of this study.

This study focuses on social media (also known as social media technologies, Web 2.0, or social networking technologies) that are increasingly used in academic learning environments. Kennedy et al. (2009) noted that "[m]any emerging Internet technologies can be broadly grouped

together under the label 'Web 2.0,' an umbrella term used to describe web-based applications, including social software tools" (p. 10). Here, social media is the broader umbrella term, whereas social media technologies (SMTs) is the term used to describe specific platforms or tools. Describing social media categories in detail, Valtonen, Dillon, Hacklin, and Vaisanen (2010) have also demonstrated that specific SMTs can include blogs, microblogs, wikis, social networks, instant messaging, social bookmarking, and collaborative file sharing. Based on the interview phase, thirteen validated and updated categories of social media were developed and utilized, as follows:

- Blogs (e.g., Blogger, WordPress)
- Wikis (e.g., Wikipedia, Wikimedia)
- Google Apps (e.g., Google Calendar, Google Docs)
- Image sharing (e.g., Flickr, Instagram, Pinterest)
- Social bookmarking (e.g., Delicious)
- Social networking (e.g., Facebook, Google+)
- Social news sites (e.g., Reddit)
- VOIP and Instant messaging (e.g., Skype, Google talk/chat)
- Do-it-yourself networks (e.g., Ning)
- File sharing (e.g., Dropbox, Google Drive, BitTorrent)
- Video sharing (e.g., YouTube, Vine)
- Location-based applications (e.g., Foursquare, Google Maps)
- Microblogs (e.g., Twitter) (Smith, 2016)

As Herrington, Reeves, and Oliver (2010) have outlined, as emerging technologies and cognitive tools, social media "allow the creation of collaborative, shared knowledge…and the development

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of participatory cultures" (p. 9). As such, the following definition was used in the study: Social media include applications and websites that allow users to create and share content. Social media also enable users to connect via web technologies or to participate in social networks. These key definitions informed the research project.

Methodology

This study employed a mixed methods research methodology (MMR), a methodological approach where a combination of methods is intentionally used to best address the research questions (Creswell, 2014). This exploratory MMR design involved a first phase qualitative component comprised of 30 semi-structured interviews, followed by a second phase quantitative component using an online survey (N = 679) of undergraduates across disciplines. The study received institutional Research Ethics Board (REB) approval. In recognition of their time, participants could choose to be entered in a draw for one of four iTunes gift cards valued at $25 each (two gift cards available for the interview group, and two for the survey group), following their participation.

Theoretical Framework

This study takes a constructivist approach founded upon two main premises: 1) learners actively construct their own knowledge, and 2) social interactions are an important part of knowledge construction (Woolfolk, Winne, Perry, & Shapka, 2010, pp. 343-344). Constructivist theory understands knowledge to be "constructed by learners as they attempt to make sense of their experiences" (Driscoll, 2005, p. 387). Specifically, this study employs a social constructivist approach, which understands knowledge to be constructed via social negotiation that engages multiple perspectives and experiences (Driscoll, 2005; Woolfolk et al., 2010). In this way, learning is understood as occurring when a person constructs meaning through broader social interactions and contexts (Bakhurst, 2007; Daniels, 2007). As such, alignment between the

affordances of social media and the premises of social constructivist learning theories are well established (e.g., Dron & Anderson, 2014). Within social constructivist research frameworks an emphasis is placed upon "meanings [which] are varied and multiple" (Creswell, 2014, p. 8). The participants' meanings, views, and perspectives are this study's focus of inquiry.

Research Methods

For the first phase of the study, generic qualitative strategies (Merriam, 2009) and constructivist grounded theory (Charmaz, 2014) techniques informed data collection and analysis of the semi-structured interviews (the full interview guide is available in Smith, 2016). Qualitative techniques included intensive interviewing, constant comparison methods (e.g., comparing data at each stage of analysis), coding techniques (e.g., incident-with-incident, focused, and thematic coding), memo-writing, and member checks with interview participants. Audio from the interviews was transcribed electronically, with qualitative analysis within the NVivo software application. The interview results formed a rich description, also known as thick description (Cohen, Manion, & Morrison, 2011), of the themes and patterns of the undergraduate students' perceptions of meaning making and social media in their learning.

For the second phase, an online survey with a cross-sectional design was employed, enabling macro-level analysis while also comparing different groups (Cohen et al., 2011). Responses were collected electronically via SurveyMonkey, and analyzed using statistical procedures via the Statistical Package for Social Sciences (SPSS) software. Validity and reliability were ensured throughout, including thorough consideration of first phase interviews and analysis of the extant research literature; for example, using modified and updated components from Valtonen et al.'s (2010) categories of social software. To ensure quality of the survey instrument, two pilots were conducted prior to the final survey distribution. The first pilot

survey (N = 22, Cronbach's alpha of 0.88) was conducted with volunteer qualitative participants following their interview, while the second pilot survey (N = 15, Cronbach's alpha of 0.90) was conducted with volunteer undergraduates outside of the qualitative sample. The final survey (N = 679, Cronbach's alpha of 0.92) included primarily closed but also open-ended questions, and the instrument is provided in Appendix A. Analysis of the second phase data aligns with the survey format, and descriptive analysis has been conducted to analyze the survey responses, in alignment with the nature of the sample. While the focus of this article is on the interviews and the open-ended, rather than closed, survey responses, further details on the quantitative analysis of the survey are available in Author (2016). Open-ended string responses were analyzed using the generic qualitative and CGT techniques (e.g., coding, constant comparison) as outlined for the interview analysis. Overall, analysis of the second phase survey focused on the presence or absence of certain descriptions or characteristics of social media indicated by participants, as well as any differences, relationships, or patterns that occur within or between groups (e.g., disciplines).

Sample. The qualitative sample was purposeful and homogenous in nature in order to achieve saturation of participants in undergraduate programs in different disciplines, with 30 undergraduates aged 18-25 years old and enrolled full-time at the University of Alberta, a large Canadian research-intensive university. To include perspectives across disciplines, ten students were interviewed from each of the following disciplinary groups: 1) social sciences and humanities, 2) health sciences, and 3) natural sciences and engineering. For the second phase, the online survey was distributed via a university email list, therefore using a convenience sample. As Cohen et al. (2011) note, "[c]aptive audiences such as students or student teachers often serve as respondents based on convenience sampling" (p. 156). Sampling approaches undertaken

proved successful for gaining saturation of data for the interview phase, and in gathering a robust number of responses from the population of interest for the survey phase.

Limitations

Since this study examines the research questions within the context of a large Canadian research-intensive institution, as reflected in the nature of the samples, results should be considered in this context and should not be viewed as directly transferrable or generalizable in other post-secondary contexts, such as those institutions of a different size, structure, or mandate. Additionally, it should be noted that the participation of females (N = 442, 68.6%) in the survey is slightly higher than the overall percentage of females (59% in 2011) in the Canadian undergraduate population generally (Statistics Canada, 2011).

Results

Together, the interview and survey findings present a rich picture of why and how undergraduates' choose (or, choose not) to use social media in their learning. The interview and open-ended survey data provide a detailed picture of undergraduate perspectives regarding the specific ways in which social media can help and hinder learning.

"A Real Double-Edged Sword:" Student Perceptions of Social Media

Throughout the interviews, students spoke of balancing a tension between the aspects of social media that are helpful and beneficial in their learning, and those that hinder and are of concern. Across disciplines, students described this tension as a "real double-edged sword" with which they grapple when making choices about social media in their own university learning:

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> …there's a lot of misinformation. So it's, it can be a really, a real double-edged sword so it's, it's gonna be important for students if they do want to use social media um, to know what's important. And maybe that'd be a good skill to teach students, too.
>
> – Greg, fourth year student, Faculty of Arts

Geoffrey, a third year Arts student, also described SMTs use as a double-edged sword having the potential "to both inform and…to distract." For the majority of students interviewed, while they underscored this two-sidedness of social media as having the potential to both inform and distract, they often indicated that the pros of using social media for their own learning often outweighed the cons. Even while articulating the benefits of social media for their learning, students described certain aspects of social media as having the potential to hinder their learning, noting several concerns (e.g., distraction, privacy, etc.) of which they are continually cognizant, revealing several core categories of helping and hindering (see Table 1 below).

Table 1

Social Media as a Double-Edged Sword: Helping and Hindering Categories

Helping	Hindering
• Time and Organization • Communicating and Connecting • Keeping Up-to-Date • Information and Help Seeking • Sharing and Application • Building Understanding	• Distraction and Focus • Preference to Learn Other Ways • Lack of Credibility • Privacy and Anonymity

Reasons to use social media in learning. Reinforcing these interview themes, in response to an open-ended survey question regarding why they use social media in university

learning (see Q17 in Appendix A), students articulated several reasons for using social media in university learning, including: "Building relationships with classmates and colleagues, sharing materials like articles and Google docs, and managing a crazy schedule!" In total, six core categories emerged from the open-ended survey responses:

- **Time and organization** (e.g., efficiency), for example: "Facilitates my learning, makes things more efficient. Allows me to be more organized and manage my time better."
- **Communicating and connecting** (e.g., collaborating with peers), for example: "Easy way to connect and communicate."
- **Keeping up-to-date** (e.g., news, events), for example: "On Facebook I like pages related to my field of study and they keep me up to date on the latest advances of the subject."
- **Information and help seeking** (e.g., finding resources), for example: "…find resources to help with study."
- **Sharing and application** (e.g., other perspectives, program or career, real life), for example: "It's another way of interacting and sharing idea[s] with not just my own peers, but others in the same field."
- **Building understanding** (e.g., concepts), for example: "…Wikis are especially helpful for grasping basic concepts when you aren't able to understand from class."

These themes are illustrative of the reasons why students who use social media in their learning do so, and closely reflect the helping categories that emerged during the qualitative interview phase.

Reasons not to use social media in learning. In response to an open-ended survey question regarding why they do not use social media in university learning (see Q18 in Appendix A), there are also several reasons why one would not use social media in university learning. One

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student indicated: "I use social media for interacting with friends in my down time. It is too distracting to use for school purposes. If I want to discuss a concept with someone I talk about it face to face." Alongside this statement, a total of five themes emerged from the open-ended survey responses:

- **Distraction and focus** (e.g., takes time away from learning), for example: "Social media is often distracting, and takes away from the focus required to actually reach proper understanding of a topic."
- **Preference to learn other ways** (e.g., individually, face-to-face, print), for example: "I prefer to discuss topics with other students in person and I study well on my own as well."
- **Lack of credibility** (e.g., reliability of information), for example: "You have to be careful whether or not it is a reliable source."
- **Privacy and anonymity**, for example: "It's irrelevant and unnecessary. I prefer to keep my social and academic life separate."
- **Lack of awareness or need** (e.g., no want or need to use, access), for example: "I didn't know it was an option."

These themes provide important insights into the reasons why students choose *not* to use social media in their university learning, and closely align with the hindering categories that emerged from the qualitative interviews. Since this question (Q18) focused broadly on reasons for not using social media, in addition to seeing the hindering aspects reported in the interviews, the survey presented one additional aspect related to *lack of awareness or need*, showing that students themselves recognized that they are not always aware of SMTs or the ways in which social media can be used in learning.

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Managing the Double-Edged Sword:

Separating Academic and Social Spheres

To manage the helping-and-hindering double-edged sword, students often described intentionally separating academic and social spheres of their social media lives. As student comments about public versus private social media presence demonstrate, students often also see a line between the social and academic. These descriptions detail the many ways in which social and academic interactions can overlap or be separated via social media.

Determining the Dividing Line

Many students articulated clear reasons for ultimately drawing a line to separate certain academic and social uses of social media, ranging from managing distraction to maintaining privacy and professionalism to organization. For example, first year Arts student Anne stated "I also think it's good to separate social and academic…. It's just easier to separate them, to be more organized and um it's also like less distracting…" In terms of organization, separation can range from using folders (e.g., in Google Drive) and settings to creating completely separate accounts. Although many students interviewed indicated using social media for learning, a few students described managing distraction by not using particular SMTs at all for learning, thereby completely separating academic and social spheres in intentional ways. For example, second year Science student George described using Wikipedia for school, but keeping Facebook and Twitter separate: "I know it exists but personally I don't like to use social media with my educa- I like to keep it separate, for me it's more distracting rather than a helpful situation."

To manage the line between personal and professional use of social media, several students indicated that they would create separate accounts or use group settings (e.g., in Facebook) to ensure professionalism and privacy between their personal lives and their

volunteer, work, or academic activities. Third year student Kim in the Faculty of Medicine and Dentistry noted that she has three separate Facebook groups for communicating with her own cohort as well as those junior and senior to her year: "They're [the Facebook groups are] separate. So it'd be three [Facebook groups] 'cause we would communicate with our seniors, and then one [Facebook group] with the juniors, and then one [Facebook group] with ourselves. [Chuckles]." First year student Deborah in the Faculty of Medicine and Dentistry also described how students in previous cohort years had set up a Facebook group for her cohort year, to help "survive" the first year transition in their program: "I think it's partly because the previous year set it up to be that way…and partly just a need to survive." As such, students in cohort-learning programs indicated using Facebook groups as a way to separate and combine different kinds of student-student interactions, both within and across a class, a program, or different cohort years.

Regarding distraction, in terms of separation, students also viewed certain SMTs as more suited to academic versus social purposes. For example, since this university has an institutional version of Google Apps for Education, Google Drive is understood to be a common university-supported platform for students, often as a temporary forum for collaboration, whereas other SMTs (e.g., Facebook) are commonly seen to be for lasting connections. As second year Arts student Erin described: "…Google Docs is that temporary uh forum that we needed and Facebook is a bit…more extensive." Some students, particularly those *not* within cohort-learning programs, articulated discomfort with using Facebook for university. In this way, SMTs such as the institutionally supported Google Apps platform can be used for academic collaboration that is more targeted and temporary, and also separate from more ubiquitous, personal SMTs, such as Facebook.

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Boundaries Between Faculty and Students

In separating certain social and academic uses of social media, students often indicated that there is a line or boundary to be respected between student and faculty. Indeed, many students indicated that it would be uncomfortable to interact with faculty on social media. As second year Science student George stated, "for me it would be awkward" to see the personal aspects of a faculty member's life. Jennifer, also a Science student, echoed a similar example related to her life: "I would still feel a little bit weird if my Prof was like, 'I'm gonna follow you on Instagram,''cause I'd be like that's awkward, like those are my pictures and my life." Several students described drawing a line or boundary separating interactions between faculty and their current students on social media, as first year Nursing student Jessica stated: "I think there's that professional boundary that you should kind of have as a student and a professor… I wouldn't feel professional doing it. I'd feel uncomfortable." Whereas students most often articulated using social media for student-student and student-content educational interactions, with few exceptions students described having a boundary with faculty that generally made social media use seem inappropriate or awkward.

Separating Faculty-Student Interactions from Social Media

An important distinction between student perceptions of social media and other educational technologies occurs in student-student and student-content interactions versus faculty-student interactions via SMTs. In other words, while students generally indicated using social media in their own learning, many students described intentionally choosing not to use certain social media with faculty for what Moore (1989) called "learner-instructor interaction" (p. 2), which Anderson (2008) subsequently called "teacher-student educational interactions" (p. 58), and hereafter referred to as faculty-student interactions. By and large, rather than posting

questions in an online forum (e.g., on social media or in the institutional learning management system (LMS)), students indicated that they would ask questions in a face-to-face meeting or email to the professor or teaching assistant (TA) as a preferred means of communication. Even when working in groups, many students indicated compiling and sending questions (e.g., via a group or class representative) to TAs or professors via email, rather than using other online systems. Second year Pharmacy and Pharmaceutical Sciences student Danielle described this separation as follows: "[I use the LMS] and e-mail for professors, and then usually Facebook or um, like Google Drive if I'm with students." Generally, email was seen as more professional and formal for contacting faculty or potentially experts, whereas social media were more casual, informal, and for working with other students.

Indeed, when students described situations where faculty did integrate social media in their formal curriculum, those students often created work-arounds to avoid these interactions. Deborah's description of a situation where one student would copy and paste the content from a course-based Twitter feed into their cohort's Facebook group because "not most of us have Twitter or bother following it" is an excellent example of this. Furthermore, faculty-selected technologies such as the LMS and online textbook resources, typically initiated and managed by a faculty member, were commonly seen as a way for students to simply access and download information posted, rather than a way to interact or engage. For example, fourth year Pharmacy and Pharmaceutical Sciences student Caroline noted that the LMS is to "draw things off of, right? Like I just pull off lectures, I just download them and then use them for class. So I don't actually do anything on [the LMS]." On the other hand, several students, especially those in cohort-learning programs, indicated that SMTs such as Facebook provided an easy-to-use forum for students to interact and share with each other, specifically without faculty present:

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> And Facebook, it's just set up so easy to access 'cause if we wanted to use the chat for [the LMS] on the University site, it's just so difficult to get into, like people, there so many links, and it's not clearly like outlined, and then on top of that the professor sees everything, so it's kind of like oh [Laughs] we- it's hard to ask questions there.
>
> – Mina, first year student, Faculty of Nursing

Students expressed the specific ways in which they used social media for student-student and student-content interactions, often intentionally separating faculty-student interactions from social media in their learning. Like Mina, several students described the LMS as more difficult to use than SMTs like Facebook. Many students, particularly those in cohort-learning programs, described the value of a student-student connection. As Pharmacy and Pharmaceutical Sciences student Danielle stated, interactions via SMTs like Facebook were viewed to be for "students helping students."

Indeed, students often expressed the value of having a students-only space for educational interactions, separate from their faculty-student interactions. These student-led spaces in social media were seen to be more personal (e.g., use of personal photos, etc.) with more "freedom" and fewer restrictions than the more formal, surveilled spaces in the LMS:

> [On Facebook] you can take more liberties uh to whatever, you know, be inappropriate or be off topic or, you know, challenge people more…. In my experience, too, people are more rude on [the LMS]. Because um their pedagogy depends on people uh participating in those things and if people leave them then uh then that comes down on them. It's like you're doing them a disservice. Whereas Facebook it doesn't matter if you post or not post.
>
> – Joseph, third year student, Faculty of Arts

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For students like Joseph, Facebook is seen as an informal space with less structure and more freedom. Unlike the LMS, photos and comments on Facebook are not shared for extrinsic academic reasons, such as evaluation or grades, instead allowing for greater exploration and "liberties." Conversely, the LMS is a space that is surveilled by what Joseph goes on to describe as "Big Brother" – the professor is an authority figure, and interactions are defined by specific topics and activities often related to evaluation and grades. Many other students noted these differences between social media and other online educational spaces. Social media spaces, such as those within Facebook, are where students choose to communicate with each other, whereas spaces like the LMS are meant, as one student phrased it, for "teachers to see my work."

Summary of Results

Together, the interview and open-ended survey findings provide new insights into student perspectives and uses of social media, and the variety of ways in which they intentionally choose, or choose not, to meaningfully incorporate social media into their university learning. The interviews detail the specific ways in which social media can help and hinder learning as what students call a double-edged sword. Students from professionalized and cohort-based programs (in this study, found primarily in the health sciences) articulating important ways that SMTs can create student–led learning communities (e.g., Facebook groups). The interview phase provided a critical foundation for the development of a new survey instrument (provided in Appendix A) to further explore the student perspectives and uses of social media in meaningful ways, and the open-ended survey responses further echoed and illustrated the interview data.

Discussion

Overall, when asked whether they believe that the use of social media is successful in supporting their learning in a meaningful way, the majority of students replied with affirmative

statements, such as "oh yes," "yeah for sure," "yeah definitely" and "definitely, yes." This was echoed in more detailed descriptions of social media in university learning, where many students (particularly those in cohort-learning programs) noted that being connected via social media is a necessity in their learning and in their day-to-day lives, as the following illustrates:

> I would say [social media] helps me make sense of my learning, 'cause honestly, like throughout junior high to now, I've been using the Internet and technology for so long and social media as well…. And on top of that, like I wouldn't know [Short pause] what I would do without- without it, [laughs] sad as that sounds.
>
> – Jessica, first year student, Faculty of Nursing

Like Jessica, other health sciences students such as Danielle noted that learning would be harder without social media: "…every day I use it, and I just don't even realize how important that [social media] is now." Justin, a third year student also in health sciences, noted that "It would be definitely a lot harder if I didn't have Facebook, if I didn't have Google.… [I]t's almost impossible really to go through this program without having, being connected, like that." However, even though many students indicated that social media does support their learning in meaningful ways, they often added that whether it supports learning meaningfully often "depends," reiterating the double-edged nature of social media in having the potential to both help and hinder their learning for the reasons outlined above.

Student Social Media Choices: Implications

The many ways in which social media can be used for university learning are illustrated in the specific contexts of the educational interactions presented within the findings. The results have important theoretical implications for understanding a number of issues connected to the literature review and research problems framing this study, including the implications of these

findings for building research-informed approaches that move beyond tropes within current the discourse by instead examining meaningful educational interactions (Anderson, 2008; Woo & Reeves, 2007) and focusing on affordances as an alternative to technological determinism (Buckingham, 2011; Selwyn, 2012).

Social Media as a Double-Edged Sword:

Amplification/Reduction in the Human-Technology Experience

Within the qualitative interviews and the open-ended survey results, there is an overarching theme of social media as a double-edged sword that both informs and distracts, having the potential to both help and hinder learning. It is fascinating to see reflexivity in students' complex descriptions of choosing to use or not to use SMTs in their learning. Indeed, while not overtly identified as a philosophy, these descriptions do often reflect a philosophical approach to technology. As Kanuka (2008) notes, whether tacitly held or explicitly pronounced, both educational (e.g., liberal, progressive, behavioural, etc.) and technological (e.g., uses determinism, technological determinism, social determinism, etc.) philosophies can and do inform choices to use or not to use technologies in educational practice. While not explicitly described by students as a philosophy, this metaphor of social media as a double-edged sword in learning nonetheless presents important philosophical implications, particularly those related to technological determinism within discussions of young people and technology. This metaphor illustrates not only what is gained but also what is lost when using these SMTs in educational interactions, reflecting an underlying philosophy of technology that recognizes the importance of context and articulating what is afforded, rather than employing reductionism and technological determinism.

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In their responses, many students indicated that whether using social media can help or hinder learning depends on the context, purpose, or intention of the interaction – what can be afforded by the technology in question. Indeed, such affordances represent what Selwyn (2012) described as what is perceived and signified during interactions with technologies. This description of social media as double-edged sword having the potential to help and hinder, to inform and distract, illustrates what Ihde (1990) termed the "amplification/reduction structure of the human-technology experience" (p. 78). In using technologies, particular aspects of our experience are amplified, while others are reduced. This amplification/reduction structure in the human-technology experience necessarily asserts the non-neutrality of such interactions and exchanges. Ruse (2005) summarized the key aspects of Ihde's philosophy of technology, as follows:

> As Ihde has pointed out, technology is context-dependent in that it is embedded in the culture's world-view as a set of practices with more or less definite meanings for that culture…. an interface between the products of one culture and another form a conduit between the world-views which characterize one cultural form of human activity as opposed to another….although technology is non-neutral (it transforms "humans and humans-in-culture"), it does not have one specific trajectory. In other words, it is structurally ambiguous. (p. 10)

Understanding technologies in this way, the metaphor of social media as a double-edged sword represents the amplification and reduction of particular aspects of students' human-technology experience. Overall, student descriptions illustrate the context-dependent nature of technological interactions and exchanges that are embedded within their academic and social cultures, world-views, and practices. These descriptions illustrate what Jonassen and Reeves (1996) have

described as meaningful learning with technologies as cognitive tools "that amplify, extend, and even reorganize human mental powers to help learners construct their own realities and complete challenging tasks" (p. 697). The definite meanings and contexts of these exchanges and interactions are clearly articulated in student descriptions of why and how they choose to use or not to use social media for learning, as well as the specific ways in which they make meaning via social media.

The importance of world-views and practices when considering social media in learning comes to light in student descriptions of the particular educational interactions and disciplinary practices related to (and, mediated by) their human-technology experience. While recognizing that there is neither one trajectory nor one defined structure for human-technology experiences, student descriptions reveal a number of meanings and affordances that comprise the many diverse trajectories of university learning, based on learning practices that are embedded within cultures and contexts, such as disciplinary area and other contextual factors.

Meaningful Educational Interactions

This study's findings also provide insights into the educational interactions that students themselves view to be meaningful in their university learning. Recognizing that social media both helps and hinders their learning, students often indicate making intentional choices regarding whether and how educational interactions with peers or content occur via social media or through other means (i.e., in face-to-face interactions or via print media). In particular, the results of this research demonstrate two of the three educational interactions in Moore (1989) and Anderson's (2008) model, as shown in Figure 1 below.

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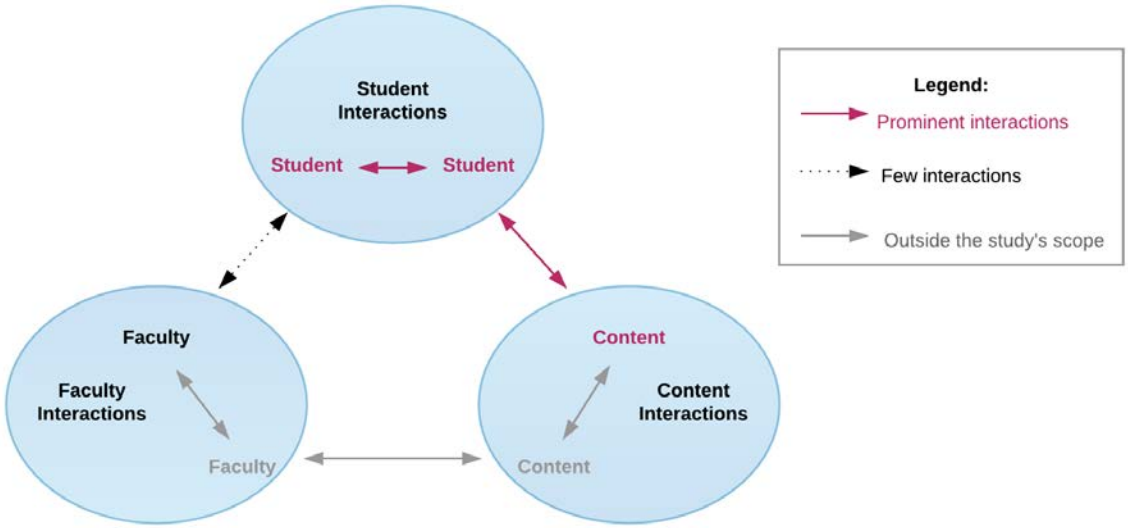

Figure 1. Undergraduate perceptions of educational interactions via social media. This figure illustrates the prominence of student-student and student-content, rather than faculty-student, interactions via social media in undergraduate learning, revising and adapting an educational interactions model from Moore (1989) and Anderson (2008).

In his work on the theory and practice of online learning, Anderson (2008) noted that "[t]he greatest affordance of the Web for education use is the profound and multifaceted increase in communication and interaction capability…. Interaction has long been a defining and critical component of the educational process and context" (p. 54). Noting that interactions are a key component of constructivist learning theories, Anderson presented six types of educational interactions: student-student, student-content, student-teacher, teacher-content, teacher-teacher, and content-content interactions. Notably, in his equivalency theorem Anderson has asserted that "deep and meaningful learning can be developed as long as one of the three forms of interaction (student-teacher; student-student; student-content) is at very high levels" (p. 67). According to Anderson, having strong educational interaction in one of these forms allows elimination of the other two without degradation of the educational experience.

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Addressing Anderson's equivalency theorem. The results of this study show a high degree of importance for and usage of social media in undergraduates' learning for student-student and student-content interactions, but much less so (or, in some cases, not at all) for faculty-student interactions. Though Moore's (1989) earlier articulation of three types of interaction helped to shape this discussion, I engage here with Anderson's (2008) more recent and updated articulation of these types of interactions, a widely-referenced work with over 730 citations in Google Scholar as of September 2016. It is clear from this study's findings that students use social media for what Anderson (2008) has defined as collaborative learning (student-student) and independent study (student-content). Does this mean that deep and meaningful learning can occur via social media? According to Anderson's equivalency theorem, wherein strong student-student or student-content interaction can provide meaningful learning, the answer is yes.

Indeed, in their recent publication *Teaching Crowds: Learning and Social Media* (2014), Dron and Anderson state this clearly: "We believe that these [social media] tools are too important and powerful to be excluded from the formal curriculum, that they can be used to support and encourage learning in all subject domains" (p. 26). It is important to note that the findings of this study *do not* demonstrate that adding social media more formally in higher education curriculum would be so broadly beneficial, especially with student (and, faculty) resistance to particular faculty-student interactions on social media. While meaningful educational interactions can and do occur via social media, the decision whether or not to use social media in formal curriculum depends again on careful consideration of what is afforded, of what is lost or gained, particularly noting the concerns that students presented and their desire to separate many parts of their social and academic lives, and to maintain their own online social

spaces for students helping students without authority figures, such as professors, present. Though Dron and Anderson (2014) discussed at length the many benefits of social media, further discussion is needed to fully consider the challenges of social media (e.g., privacy), and a limitation of such work is that several key hindrances noted in this study (such as distraction) are often absent or not discussed in detail. If engaging in debate and interacting with conflicting opinions and perspectives are critical to learning, as social constructivist learning theorists and undergraduate students alike have affirmed, then student concerns about the absence of a dislike button and the limitations of SMTs for addressing conflict need to be considered further.

Given that students overwhelmingly recognized the ways in which social media both help and hinder (or, amplifies/reduces) their learning, broad recommendations such as Dron and Anderson's (2014) to include social media in the formal curriculum should be met with caution. Here, a response from second year Arts student Hillary regarding whether or not to use social media in learning summarizes this point well: "depends on what you're learning, right?" Coupled with recurring undergraduate descriptions of the importance of preserving other (face-to-face, print, etc.) ways of learning, students clearly articulated that social media is simply *one* of many ways in which they make meaning of their university learning, and that they want to the ability to avoid certain (e.g., faculty-student) educational interactions on social media.

While the findings of this study show that meaningful interactions in university learning can and do occur via social media, and should not unnecessarily be excluded from learning, the characteristics of and relationships between *specific* ways of making meaning and *specific* SMTs (Smith, 2016) illustrate critical affordances and contexts. According to students meaningful learning is already occurring via social media for student-student and student-content interactions, rather than via faculty-student interactions, and so it becomes important to question

the roles educators and administrators may have regarding social media in their institutions. The recommendations provided in the conclusion suggest ways in which educators and administrators can understand their roles in fostering the helpful aspects of social media while limiting the hindrances. This evidence aims to support careful, research-informed decision-making in practice (whether as faculty working with undergraduates, or as a student) regarding whether to use – or equally to not use – SMTs in post-secondary learning.

Separating social and academic spheres. These findings demonstrate the different ways in which students engage – and, at times, separate – social media for academic or social purposes. This separation is further highlighted by undergraduates' use of social media for student-student and student-content, rather than faculty-student, educational interactions. Findings in this study reveal a range of ways that students typically separate at least some parts of their academic and social lives, even if they are large users of social media in parts of their learning, reinforcing N. Jones, Blackey, Fitzgibbon, and Chew's (2010) appropriately entitled article "Get Out of MySpace!" highlighting the benefits and the challenges of social media. The results of this study agree with N. Jones et al.'s assertion that "online learning and social personas may overlap but that learning needs to be *designed so that it addresses the individual preferences to combine or separate the two domains*" (emphasis in original, p. 781).

Recommendations

Following the results and the implications of these findings as outlined in the discussion, several recommendations and areas for future research emerge.

Awareness building. Based on this study's findings, a primary recommendation is to build educators' and administrators' research-informed understandings of undergraduate perspectives and uses of social media in their university learning, in order to enable evidence

based decision-making in higher education policy and practice. This includes further developing evidence based approaches to decisions for using (or, not using) SMTs in university learning, as well as recognizing that there is a need to move beyond ideas of young people as digital natives by instead focusing on why and how students view social media not as simply a potential benefit but also a potential hindrance to their learning. As such, decisions about social media in undergraduate learning need to be intentionally and thoughtfully considered in post-secondary settings.

Given that the findings of this study demonstrate why and how students choose to use SMTs for student-student and student-content educational interactions, rather than faculty-student educational interactions, questions remain about the role of educators and administrators in social media for university learning. While students described the value of all three kinds of educational interactions (e.g., student-student, student-content, and faculty-student), they indicated using social media mainly for the first two, but oftentimes they actively separated their educational interactions with faculty from social media, preferring their faculty-student learning interactions to instead happen face-to-face or via email. A key recommendation of this study is that administrators and educators must plan for and enable an appropriate separation between social and academic uses of social media in university that does not require or force undergraduate students (or faculty) to combine these domains.

Explore digital literacies with SMTs. This study demonstrates that students are already meaningfully engaging via social media through intentional choices to use (or, to not use) SMTs in their learning, specifically for student-student and student-content interactions. However, rather than making social media itself a part of the formal curriculum, as Dron and Anderson (2014) recommend, this study instead shows the need for building digital literacies with the

SMTs students are already using in their day-to-day lives. While some social media (e.g., YouTube, Google Apps, etc.) naturally fit and are already used within the formal curriculum beneficially, there are concerns from students in this study and from researchers (e.g., Friesen & Lowe, 2012) about integrating other social platforms such as Facebook into the formal curriculum that should be heeded. As such, another recommendation emerging from this study is to recognize that some social media can be well-integrated and blended with the formal curriculum, especially for student-content interactions, but that institutions should endeavor to teach students the digital literacies needed for navigating the parts of their learning that support but are separate from the formal curriculum rather than simply integrating social networking technologies (such as Facebook) into the curriculum for student-student or faculty-student interactions.

As such, a secondary recommendation is to explore opportunities for comprehensive undergraduate education developing digital literacies for social media in university learning, particularly in first year where many students noted a difficult transition with SMTs in their learning. Throughout this study, reference to a range of literacies, including information, media, and digital literacies, have come to the fore, and the overlap between these concepts is not surprising since these terms are at times used interchangeably. Indeed, as Koltay has argued, "[m]edia literacy, information literacy and digital literacy are the three most prevailing concepts that focus on a critical approach towards media messages" (2011, p. 211). The term *digital literacies* has been intentionally selected as an overarching definition for "the ability to find, evaluate, utilize, share, and create content using information technologies and the Internet," (Cornell University, 2009, para 1). As such, digital literacies relate to valuable information and media literacies, as well.

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Just as many institutions recognize the importance of teaching students essential meta-cognitive and information literacy knowledge and skills, the findings in this study demonstrate the prevalence and importance of issues surrounding appropriate use ICT and SMTs both within and outside of the formal curriculum. Digital literacy should be recognized, treated, and included as a part of a comprehensive undergraduate education. Based on evidence in this study, developing students' knowledge and skills with regard to wider digital literacies can foster their abilities for integrating beneficial aspects of social media (helping categories) and mitigating the drawbacks (hindering categories). Students in this study themselves expressed a need to further understand specifically why and how certain SMTs should (or, can be) used for learning in meaningful ways, and future research connected to practice will help to build understandings of meaningful use of SMTs and effective ways to teach undergraduates in these areas.

Models for such digital literacy initiatives are emerging. For example, following research confronting myths of digital natives (Hargittai, 2010), professor Eszter Hargittai implemented a 13-week course at Northwestern University that builds undergraduate students' digital literacies, subsequently featured in *The Chronicle of Higher Education* (O'Neil, 2014). Littlejohn, Beetham, and McGill (2012) also emphasized that higher education "institutions need to place greater value on 'literacies of the digital,' and better prepare their students and their own organizational processes to thrive in an age of digital knowledge practices" (p. 547). This is echoed by recent findings from the EDUCAUSE Center for Applied Research (ECAR) showing that undergraduates today do not feel better prepared to use technologies than in previous years, and that students indicated they could be more effective if they were better skilled at using technologies, including SMTs, for learning (Dahlstrom, Brooks, Grajek, & Reeves, 2015).

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Conclusions

Newly published research continues to emphasize a need for studies that build further understanding of students' perspectives and uses of social media in their learning. By providing detailed analysis of student perspectives regarding social media in different learning settings (i.e., different disciplines), this study addresses several existing gaps in the literature. Indeed, much research on these issues focuses on SMTs used formally as a part of a course (i.e., incorporated into formal curriculum by instructors), rather than on student perspectives of SMTs that they themselves choose to use (or not to use) for their own learning. Notably, undergraduate perceptions of educational interactions via social media illustrate the prominence of student-student and student-content, rather than faculty-student, interactions via social media in their learning, as illustrated in the updated model of educational interactions provided. Rather than primarily outlining the benefits of social technologies, this study presents a more nuanced and complex picture of the benefits and limitations of social media as a double-edged sword that potentially helps and hinders university learning, and provides key recommendations that aim to foster the helpful and mitigate the hindering aspects of social media in learning.

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Appendix A: Survey Instrument

Q1. Consent

- ○ I agree
- ○ I do not agree *(branching – ends survey)*

Q2. Are you an undergraduate student?

- ○ Yes
- ○ No *(branching – ends survey)*

Q3. Are you enrolled as a full-time student at the University of Alberta?

- ○ Yes
- ○ No

Q4. What Faculty are you enrolled in?

- ○ Agricultural, Life and Environmental Sciences
- ○ Alberta School of Business
- ○ Arts
- ○ Education
- ○ Engineering
- ○ Law
- ○ Medicine & Dentistry
- ○ Native Studies
- ○ Nursing
- ○ Pharmacy and Pharmaceutical Sciences
- ○ Physical Education and Recreation
- ○ Rehabilitation Medicine
- ○ Science
- ○ School of Public Health

Other (please specify)

[ ]

Q5. What program (e.g., department) are you enrolled in?

[ ]

Q6. What year of study are you in?

- ○ (1) First Year
- ○ (2) Second Year
- ○ (3) Third Year
- ○ (4) Fourth Year

Other (please specify)

[ ]

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Q7. What is your year of birth?

- 1989
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996

Other (please specify)

Q8. Do you identify yourself as:

- Male
- Female

Other (please specify)

Q9. Are you an international student?

- Yes
- No

Q10. How do you make meaning ("make sense") of your university learning? Please check all that apply:

a) gaining your own deep understanding (e.g., of a concept)
b) saying something in your own words
c) interacting with different perspectives
d) discussing with other people
e) applying your experience to real life (e.g., your career)
f) putting your learning into context
g) researching information
h) seeking help from others
i) working through the process of figuring something out (e.g., solving a problem)

Other (please specify)

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Q11. How do you most often make meaning ("make sense") of your university learning?

- ○ individually (personally)
- ○ with others (socially)
- ○ both individually (personally) and with others (socially)

Perceptions of Social Media

Social media include applications and websites that allow users to create and share content. Social media also enable users to connect via web technologies or to participate in social networks.

Q12. Do you use social media in your own university learning?

- ○ Yes *(branching – goes to questions 13-17)*
- ○ No *(branching – goes to question 18)*

Q13. In your own university learning, do you use any of the following? Please check all that apply:

- a) ☐ Blogs (e.g., Blogger, WordPress)
- b) ☐ Wikis (e.g., Wikimedia)
- c) ☐ Google Apps (e.g., Google Calendar, Google Docs)
- d) ☐ Image sharing (e.g., Flickr, Instagram, Pintrest)
- e) ☐ Social bookmarking (e.g., Delicious)
- f) ☐ Social networking (e.g., Facebook, Google+)
- g) ☐ Social news sites (e.g., reddit)
- h) ☐ VOIP and Instant messaging (e.g., Skype, Google Talk/Chat, WhatsApp)
- i) ☐ Do-it-yourself networks (e.g., Ning)
- j) ☐ File sharing (e.g., Dropbox, Google drive, BitTorrent)
- k) ☐ Video sharing (e.g., YouTube, Vine)
- l) ☐ Location-based applications (e.g., Foursquare, Google Maps)
- m) ☐ Microblogs (e.g., Twitter)

Other (please specify)

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Q14. In your opinion, do you see these social media as an important part of your university learning?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) Blogs (e.g., Blogger, WordPress)	○	○	○	○	○
b) Wikis (e.g., Wikimedia)	○	○	○	○	○
c) Google Apps (e.g., Google Calendar, Google Docs)	○	○	○	○	○
d) Image sharing (e.g., Flickr, Instagram, Pinterest)	○	○	○	○	○
e) Social bookmarking (e.g., Delicious)	○	○	○	○	○
f) Social networking (e.g., Facebook, Google+)	○	○	○	○	○
g) Social news sites (e.g., reddit)	○	○	○	○	○
h) VOIP and Instant messaging (e.g., Skype, Google Talk/Chat, WhatsApp)	○	○	○	○	○
i) Do-it-yourself networks (e.g., Ning)	○	○	○	○	○
j) File sharing (e.g., Dropbox, Google Drive, BitTorrent)	○	○	○	○	○
k) Video sharing (e.g., YouTube, Vine)	○	○	○	○	○
l) Location-based applications (e.g., Foursquare, Google Maps)	○	○	○	○	○
m) Microblogs (e.g., Twitter)	○	○	○	○	○

Other (please specify)

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Q15. In your opinion, are the following characteristics of social media useful for your university learning?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) Building relationships with peers (e.g., Facebook, LinkedIn)	○	○	○	○	○
b) Building relationships with instructors (e.g., Facebook, LinkedIn)	○	○	○	○	○
c) Creating media to share online (e.g., pictures, videos, music)	○	○	○	○	○
d) Sharing information online (e.g., links to websites, articles)	○	○	○	○	○
e) Posting/Re-posting media or information found online (e.g., re-tweeting, sharing links)	○	○	○	○	○
f) Commenting on media or information found online	○	○	○	○	○
g) Collaborating to create documents online (e.g., Google docs)	○	○	○	○	○
h) Tracking and managing your academic schedule	○	○	○	○	○

Other (please specify)

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Q16. In your opinion, do the following characteristics of social media help you to make meaning (make sense) of your university learning?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) Building relationships with peers (e.g., Facebook, LinkedIn)	○	○	○	○	○
b) Building relationships with instructors (e.g., Facebook, LinkedIn)	○	○	○	○	○
c) Creating media to share online (e.g., pictures, videos, music)	○	○	○	○	○
d) Sharing information online (e.g., links to websites, articles)	○	○	○	○	○
e) Posting/Re-posting media or information found online (e.g., re-tweeting, sharing links)	○	○	○	○	○
f) Commenting on media or information found online	○	○	○	○	○
g) Collaborating to create documents online (e.g., Google docs)	○	○	○	○	○
h) Tracking and managing your academic schedule	○	○	○	○	○

Other (please specify)

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Q17. Please take a moment to tell us why you use social media in your university learning.

Q18. Please take a moment to tell us why you do not use social media in your university learning.

Thank you for completing this survey!

You can choose to be entered in a draw to win a $25 iTunes gift cards by following this link to a Google form that is separate from SurveyMonkey: Click here to enter your name into the iTunes gift card draw

Q19. Other comments or questions about this study? Please list them here:

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