

# **SOCIAL TECHNOLOGY AFFORDANCE AND DIGITAL INCLUSION: FROM THE PERSPECTIVES OF FIRST-GENERATION COLLEGE STUDENTS**

*Completed Research Paper*

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## **Abstract**

*In response to a high dropout rate and low graduation rate among first-generation college students (FGCS), higher education institutions are turning to social media (SM) as the medium to provide resource and enhance digital inclusion for this population. Because little is known about how SM facilitates digital inclusion, we conduct a case study to investigate how SM usage impacts FGCS. We employ the technology affordance lens to uncover the affordances of the SM and the outcomes experienced by the users. Analyzing qualitative data of 73 FGCS from an economically-diverse urban university in the U.S., our study revealed that SM use by FGCS led to the benefits of maintaining and strengthening the family bonding relationship over the temporal and physical barriers; enhancing psychological well-being (e.g., feeling less stressful); and gaining access to more informational resources. In particular, four major themes from social media usage were identified: (1) personal empowerment; (2) a portfolio of affordances; (3) psychological well-being, and (4) complexities of affordances. Our results provide insights into understanding how SM affect college experience outcomes as well as the affordances provided to FGCS by the SM tool that may lead to academic success.*

*Keywords: Social media; Affordance; Digital inclusion; First-Generation Students; Underserved population.*

## **1 Introduction**

In recent years, higher education institutions continue to face the challenges to retain and graduate incoming underserved students. An underserved student population is one that lacks resources that facilitates digital inclusiveness of low-income students, racial and ethnic minority students, and first-generation college students. First-generation college students (FGCS) are undergraduates whose parents' highest education ranges from an elementary grade level to a high school diploma (Nunez & Cuccaro-Alamin, 1998). As FGCS pursue a higher education with little resources, they face various types of challenges consisting of economic, social and cultural dimensions. One particular challenge is the risk of attrition during freshman year and a low graduation rate at college. According to Engle and Tinto (2008) only 11 percent of low-income, first-generation college students have earned bachelor's degrees during a 6 year period compared to 55 percent of their more advantaged peers in the United States. Similarly, Lauff and Ingels (2013) found that, among 2002 high school sophomores in the U.S., only 17 percent of FGCS obtained a bachelor's degree or higher by 2012. This number is significantly lower when compared to the 46 percent of students in the same cohort with parents who had earned a bachelor's degree or the 59 percent of peers who had a parent with a master's degree or higher.

Social technologies, including social media (SM) applications such as Wikipedia, Twitter, Facebook, YouTube, Instagram and others, have become pervasive in our work and daily life. Not surprisingly both governments and scholars have shown an interest in understanding the role of such technologies in promoting social inclusion in underserved communities. For example, in 2004, government research committees and non-government agencies in the United Kingdom (UK) urged the government to consider designing a comprehensive national digital inclusion strategy (Bradbrook & Fisher, 2004). Because SM tools provide new ways for people to achieve work or purposeful related tasks, it becomes important to understand how such tools can help FGCSs experience positive social interactions and academic success.

Yet, little is known how SM tools changes the way people interact with such technologies. Information Systems (IS) research has made use of the affordance lens when investigating technology use outcomes (e.g., Hutchby, 2001; Kane et al., 2011). The concept of affordances allows us to uncover the outcomes experienced by individuals using features embedded in a technology tool (Volkof & Strong, 2013). While some benefits of SM on businesses and enterprises have been reported (e.g., Koch et al., 2013), the effects of SM on underserved communities, such as FGCS, are less clear. SM has the potential to afford these students an opportunity for digital inclusion that will serve them as a resource.

Thus, in this article, we will adopt the affordance lens to view the first-generation college students' use of social media with their ability to participate in their college academic work and student life. We argue that meaningful use of SM to enhance their engagement into college learning environment contributes to digital inclusion, a concept defined by the UK government-funded project in 2005 to focus on technology use rather than on technology access. Consistent with Notley (2009) and Sen (2000), we view digital inclusion as the SM capabilities that people require to participate in society in ways they have most reason to value.

We will focus exclusively on investigating whether first-generation students perceive any social values from their use of social technology such as blogs, Instagram, online social networks (e.g., Facebooks and Twitter), as well as possible associations between the social values and sense of digital inclusion. In particular, the research seeks to address the following two questions:

- (1) How are social media applications used by first-generation college students?
- (2) How does SM use contribute to digital inclusion of first-generation college students?

## **2 Theoretical Background**

Our investigation draws from the social media literature, from the digital inclusion literature (Notley, 2009; Sen, 2000) and from the technology affordance lens of information systems (Majchrzak et al., 2013; Treem & Leonardi, 2012). The research on digital inclusion and social media informs our understanding of how the ease of access to various information and communication technologies impact individuals and communities. We then apply the technology affordance lens as the theoretical foundation for understanding how and why social media may assist in building digital inclusive communities.

### **2.1 Social Media Use**

Social media technologies are commonly defined as web-based services (Koroleva & Kane, 2017). Users of social media can create, edit and share content (Kaplan & Haenlein, 2010), which allow individuals to construct a public profile, make connections, and view connections between others (Koroleva & Kane, 2017), thereby enabling users to foster relationships, share knowledge and collaborate (Boyd & Ellison, 2007). In addition, social media has given users new tools that go beyond supporting interpersonal connections by providing them with various features and platforms that can be used for various purposes (Koroleva & Kane, 2017). With over 1 billion users on Facebook, SM technologies offer users a new source of information, a resource for the unknown, connections with others, and sharing of new ideas (Leidner, Gonzalez, and Koch, 2018). In their study, Ali-Hassan, Nevo, and Wade (2015) differentiated three dimensions of SM use --social use, cognitive use, and hedonic use.

Because research on SM has gained attention (Viol & Hess, 2016; Wehner et al., 2017), organizations have begun implementing SM tools for various organizational purposes (Leidner et al., 2018). SM has been known for facilitating visible and transparent communication between people (Treem & Leonardi, 2012), making SM users creators of content (Majchrzak et al., 2013), and enabling people to be involved in collaboration and innovation efforts (Majchrzak et al., 2009). Although social media tools can be viewed as sources of valuable information (Ransbotham & Kane, 2011), the level of usage does not necessarily yield the expected outcomes (Savoli & Barki, 2013). The conditions under which SM use drives or hinders expected outcomes (e.g., academic success, social capital, productivity, and engagement) are not well understood. Thus, the affordance lens will guide the data analysis in this research in order to understand its impact on enabling digital inclusion.

### **2.2 Digital Inclusion**

Digital inclusion is a broad concept that concerns individuals' ability to access and use information and communication technologies (ICT). According to Sen (2000), digital inclusion can be interpreted as the utilization of SM capabilities by people to participate in society via valuable activities. Similarly, Notley (2009) defines digital inclusion as the direct or indirect use of technology to improve the lives and life chances of disadvantaged people and the places where they live. Access to such information and communication technologies is critical for high risk and underserved populations. Without such technologies, individuals and communities could be hindered and impacted negatively.

The concept of digital inclusion differs from that of digital divide in two ways: 1) it focuses on technology use instead of technology access, and 2) it is specifically concerned with ICT use that supports meaningful participation in society, instead of more general use (Notley, 2009). In Europe, the digital inclusion has generated an ongoing discussion and debate about its meaning and policy implications among EU researchers, policymakers and civil society organizations (Notley, 2009). In the U.S., a non-profit organization called "The National Digital Inclusion Alliance" serves as a bridge to policymakers

and the general public to identify and disseminate financial and operational resources for digital inclusion programs. According to NDIA (<https://www.digitalinclusion.org/>), digital inclusion refers to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies (ICTs). The major activities of digital inclusion are on affordable, robust broadband internet service, digital literacy training, and the design of online content and applications. As NDIA emphasizes, digital inclusion requires “intentional strategies and investments to reduce and eliminate historical, institutional and structural barriers to access and use technology.” In order to fully understand how the access and use of various technologies influence digital inclusion, we draw from the technology affordance literature.

### 2.3 Technology Affordances

The concept of affordances was first introduced by Gibson (1966) as a way to describe the relationships between humans or animals and objects. In this view, affordances primarily refer to the possibilities of action provided by the environment. According to Gibson (1986), objects are not perceived for what objects are, but rather the type of uses they afford. Consequently, people do not interact with an object without having a perception of what the object is good for.

The notion of affordances is also related to differences in perspectives, making it possible for an object to be assigned a variety of diverse affordances (Gibson, 1986). For example, a tree may be perceived as a form of cover on a rainy or sunny day for an individual seeking shelter, but nothing more than a tree for an individual with an umbrella. For a child, a tree may be an adventurous climbing activity and for a parent, the tree may be a reason for fear when faced with the potential of their child falling. Although the features of an object may be the same for each person, the affordances of that object are not (Treem & Leonardi, 2012): affordances are unique in the specific ways that an actor perceives and uses the object.

In IS research, the term *affordances* has been used as described by Norman (1988) to refer to the uses of an object as perceived by a user. This view considers an object’s intended uses or “real” affordances (Norman, 1999) and the perceived affordances by the user (Sadler & Given, 2007). A key concept of an affordance refers to the action potential that can be taken given a technology (Gibson, 1986; Leonardi, 2011; Majchrzak & Markus, 2013). As described in other IS papers (e.g., Kane et al, 2011; Markus & Silver, 2008), the word affordance refers to what is provided or offered to someone or something by an object. For example, a SM system may afford the opportunity to make connections to an individual who desires to create a social network. But the same system may afford nothing to an individual who is more introverted and does not care to “friend” anyone that he or she does not know.

In spite of the affordances research stream becoming prevalent in IS studies, IS researchers have not agreed on how to separate or distinguish between features, use, and action (Leidner et al., 2018). For example, Treem and Leonardi (2012) identified four distinct affordances in one of their studies: persistence, visibility, editability and association. Yet, other affordances have been identified by Majchrzak et al. (2013) inclusive of: metavoicing, triggered attending, generative role-taking, and network-informed associating. Although these IS research on affordances demonstrate the inconsistent views of affordances, the affordance lens is a powerful tool for helping IS researchers understand what choices can be made about a technology and the outcomes of these choices (Leidner et. al., 2018).

In addition, affordances in the extant IS literature do not necessarily capture social media use in organizations in various contexts. Studies (e.g., Majchrzak et al., 2013; Treem & Leonardi, 2012) have focused on social media affordances within the context of communication and knowledge sharing. Research has suggested that people’s perception of a technology and its utility varies based on the type of

usage (O'Mahony & Barley, 1999; Wellman et al., 1996). Thus, more research is needed to examine the impact of high levels of social media usage and engagement (Majchrzak et al., 2013). It is possible the aforementioned affordances may not always emerge in SM use outside of the context of communication, thus leading to the discovery of new affordances specific to different populations and outcomes.

In order to move forward, it is important to further investigate affordances. SM technologies can trigger individuals to discover meanings of the system that provides an opportunity for action. SM have been described as tools for “engaging,” “communicating,” “building relationships,” “collaborating,” “generating ideas,” and “information sharing” (Gonzalez et al., 2015; Leidner et al., 2010; Majchrzak et al., 2009). Since SM affords individuals with actions that go beyond the embedded functions, we suggest that delving deeper into SM use will help us to understand how the type of SM use provides affordances to individuals and the outcomes experienced by the user. Individuals have actualized affordances with cognitive, social, and hedonic purposes that either facilitate or hinder a variety of experiences or outcomes. Because there is a limited number of IS studies that have identified specific SM affordances in the context of an academic setting, applying the affordance lens to our context of SM use and digital inclusion will allow us to further investigate the interactions between the SM and the manner in which the type of use impacts the user. Specifically, there is a need to better understand how technological affordances impact SM users for academic outcomes (e.g., digital inclusion for academic success).

### 3 Research Method

Our research objective was to investigate how human actors engaged with SM technologies in the academic learning environment. We did not intend to hypothesize or test cause-and-effect relationships. Thus, qualitative data analysis is appropriate for our research investigation as it provides a useful way to understand research participants' (e.g. first-generation college students) attitudes and behaviors toward social technology use and its potential effect on digital inclusion. This is consistent with interpretive approaches to IS research outlined by Galliers and Land (1987) and Orlikowski and Barouli (1991).

#### 3.1 Research Site & Data Collection

The research site is a four-year public, urban university within a state university system in the western United States. Founded in 1960, this university received a total a total enrollment of 14,731 students in fall 2016, comprising 12,632 undergraduates (85.8%) and 2,099 post baccalaureates (14.2%). According to the latest data, sixty-one percent of the student population identify themselves as the first in their families to go to college. According to the *US News and World Report*, this university is one of the most ethnically and economically diverse universities in the western United States. Given the diversity of the student population and the high percentage of first-generation college students, this university campus has become an ideal research site for us to study the notion of digital inclusion and the use of social media technologies by first-generation college students.

Data collection consisted of a semi-structured online survey, which participants responded to open-ended questions about their use of SM. We collected additional data regarding academic work and demographic background. To elicit individual narratives, we created and posted a survey on Survey Monkey. A pilot study was conducted in April 2017 from 19 students to test the survey instrument. Based on the feedback from the pilot study, we revised two questions and clarified the term of first-generation college students by adding a definition in the question. We then administered the revised survey on Survey Monkey in the spring and fall semesters, and collected data from a total of 73 first generation students from five classes. In the five classes, instructors offered extra course credits to motivate students to complete the survey, and the students were assured that their identity will be strictly confidential.

In the survey, students were first asked to identify themselves as “first-generation college students” or not. They were then invited to share their social media usage behavior, such as time spent on social media, frequency of using social media, and the list of social media they’ve used. In particular, the survey focused on their experiences and opinions about social media use in college, including questions such as “Do you think social media (Snapchat, Twitter, Instagram, Facebook, etc) help you academically? Why or why not?” “Who do you go to for help on your academic help? Please explain.” In answering the questions, participants were asked to reflect upon their daily activities in college and provide examples to illustrate their points. The intent was to both describe and understand their purpose of using social media and the sources of support they sought after to help their academic work.

Because our aim was to understand how affordances were actualized from the SM through the type of SM usage, we adopted the qualitative research approach. As explained by Miles and Huberman (1994), the well-accepted qualitative research methods helps researchers analyze the detailed, written narratives by respondents. In the process of analyzing data from a qualitative perspective, we undertook various steps. First, we used the three types of SM use found in the IS research - social use, cognitive use, and hedonic use (Ali-Hassan et al., 2015) in order to identify the type of use. Second, we identified the affordances being noted by the participants. This process was iterative in that we began with a base of affordances according to the literature (e.g., Majchrzak et al, 2013; Treem & Leonardi, 2012), but then revised the codes as we allowed the affordances to emerge from the data. Allowing the affordances to emerge from the data gave us the ability to refine and clarify the affordances based on the participants’ SM use. Lastly, we looked for insights into how individuals’ use of SM led to digital inclusion and other outcomes.

### 3.2 Sample Characteristics

The data sample contains 73 first-generation college students. Of the 73 FGCS in our sample, 62% were females and 38% were males. The average age of the participants in our study was 28 years (median age: 26 years), with the youngest being 19 and the oldest, 59. Participants in their senior year of college accounted for 52% and those with Hispanic or Latino ethnicity accounted for 73% of the total FGCS in the sample. The characteristics of the sample is summarized in the table below.

	<b>Frequencies</b>
<b>Major</b>	General business administration 22%; Graduate Program-Education 14%; Liberal Studies 11%; Global Logistics and Supply Chain 11%; Criminal Justice 10%; Accounting 7%; HR Management 5%; Entrepreneurship 4%; Sports Entertainment & Hospitality 4%; Sociology 4%; Psychology 3%; Marketing 3%; Others 2%.
<b>Academic Standing</b>	Seniors 52%; Graduate 29%; Juniors 19%.
<b>Employment Status</b>	Employed Full-time 45%; Employed Part-time 40%; Not Employed (Students Only) 15%.
<b>Ethnicity</b>	Hispanic or Latino 73%; Asian or Pacific Islander 15%; Black or African American 8%; White/Caucasian 4%.

Table 1: Sample Characteristics (n=73)

Participants in our study often use multiple social media. When asked to list one major social media account they’ve used, they frequently indicated Instagram (38%) and Facebook (36%), followed by Snapchat (10%), LinkedIn (8%), Twitter (5%), and Pinterest (3%). In addition to the main social media

account, students frequently indicated that they used at least three social media platforms at the same time, including Facebook, Instagram, and Snapchat.

Moreover, participants have shown different patterns in their social media use behavior. Answering the question “*In a typical day, how often do you use the social media?*” respondents provided information on the frequency of using social media. Overall, respondents reported using social media every 2-3 hours (32.9%). This usage frequency was most observed among those are in their junior year (50.0%) and those who are just students (no employment) (63.6%). The distribution of usage frequency by gender, school year, and employment status is summarized in the table below.

	Every 30 minutes	Every 1 hour	Every 2-3 hours	Every 4-6 hours	Every 7 hours +	Not at all
By Gender						
Female	4.4%	22.2%	33.3%	13.3%	20%	6.7%
Male	17.9%	17.9%	32.1%	25.0%	3.6%	3.6%
By School Year						
Junior	14.3%	14.3%	50.0%	7.1%	14.3%	0%
Senior	13.2%	18.4%	28.9%	18.4%	13.2%	7.9%
Graduate	0%	28.6%	28.6%	23.8%	14.3%	4.8%
By Employment Status						
Employed full-time	12.1%	18.2%	27.3%	15.2%	18.2%	9.1%
Employed part-time	6.9%	31.0%	27.6%	20.7%	10.3%	3.4%
Not Employed (Students Only)	9.1%	0%	63.6%	18.2%	9.1%	0.0%
Total	9.6%	20.5%	32.9%	17.8%	13.7%	5.5%

Table 2: Frequency of Social Media Use on a Daily Basis (n=73)

Similarly, respondents answered the “*In a typical day, how much time do you spend on the social media?*” Overall, the time spent on SM was reported as between 1-2 hours (32.9%), followed by 3-4 hours (19.2%), less than 1 hour (15.1%), and 5-6 hours (12.3%). In particular, the usage pattern of using 1-2 hours was most observed by juniors (71.4%) and those employed full-time (63.6%). Majority of those respondents who don’t have employment reported using social media 3-4 hours daily. The distribution of usage time by gender, school year, and employment status is summarized in the table below.

	None	< 1 hour	1-2 hours	3-4 hours	5-6 hours	7 hours or more
By Gender						
Female	4.4%	11.1%	46.7%	26.7%	6.7%	4.4%
Male	0%	21.4%	46.4%	7.1%	21.4%	3.6%
By School Year						
Junior	0.0%	7.1%	71.4%	0.0%	21.4%	0.0%
Senior	5.3%	18.4%	34.2%	18.4%	15.8%	7.9%
Graduate	0.0%	14.3%	52.4%	33.3%	0.0%	0.0%
By Employment Status						
Employed full-time	3.0%	18.2%	63.6%	3.0%	9.1%	3.0%
Employed part-time	3.4%	17.2%	34.5%	20.7%	17.2%	6.9%
Not Employed (Students Only)	0.0%	0.0%	27.3%	63.6%	9.1%	0.0%
Total	2.7%	15.1%	46.6%	19.2%	12.3%	4.1%

Table 3: Time of Social Media Use on a Daily Basis (n=73)

## 4 Findings: Interplays between Types of Social Media Use, Technology Affordances, and Psychological Well-Being

The analysis of qualitative data have shown the linkages between social media use and meaningful participation activities in the college academics and college environment. In particular, our analysis identified four major themes in the social technology use and affordances experienced by the group of FGCS: (1) *three types of social media use contributed to personal empowerment*; (2) *a portfolio of affordances were revealed from the use behaviors*; (3) *social media affordances led to the outcome of users' psychological well-being*; (4) *complexities arose in the interplay between technology affordances and impacts*. The key themes are presented in the table below, followed by detailed findings.

Themes	Findings
(1) Social media use contributed to personal empowerment	Three types of social media: social use, cognitive use, and hedonic use
(2) A portfolio of affordances	Three types of affordances—communication, Internet ubiquity, and visibility—were perceived by individual users of the social media technology.
(3) Social media affordances led to the outcome of users' psychological well-beings	Four outcomes of users' psychological well-beings, including: positive relationship with others, personal growth, environment mastery, and stress relief.
(4) Complexities arose in the interplay between technology affordances and impacts	Same affordance was valued differently; Same affordance led to different outcomes.

Table 4: Major Themes Revealed from Data Analysis

### 4.1 Three Types of Social Media Use and Personal Empowerment

As social technologies provide a variety of technical capabilities, it is important to differentiate the purposes of SM use in order to better understand its effects on college students. In this study, we adopt the three dimensions of SM use: social use, cognitive use, and hedonic use (Ali-Hassan et al., 2015).

First, we define *social use* of social media as using social media to build new social relations (i.e. making new friends), identify individuals with shared interests, and stay in touch with existing friends and acquaintances, consistent with Ali-Hassan et al. (2015). Our data analysis shows that most respondents engaged in the *social use* of social media, which afforded their relationship building with family and friends, and enhanced their networking and socializing opportunities in college. These benefits of SM use were evidenced in the two remarks below:

“I think it (social media) helps with keeping in touch with people. It's great to have people find you, or you find people that you haven't seen in such a long time. If it weren't for some of this social media, I feel like I would have lost touch with a lot more people. Things can happen to a phone and contacts get lose, but social media stays the same.” (30-years old; Female; Graduate student; Liberal studies major; Not employed)

“I think social media does help with social interactions to a certain extent. I can use it to contact family members that live far or in other countries.” (25-years old; Female; Graduate student; Education major; Employed part-time)

As shown above, the distance barrier, weather temporal or physical, made it difficult for the college students to keep communicating with family and friends. Social media technologies afford them the ability to maintain the communication and sustain the relationship, which are *personally meaningful* to the users of the technology (Thomas & Velthouse, 1990).



Second, **cognitive use** of social media focuses on creating and sharing content and accessing content produced by other individuals, including sharing opinions, stories, ratings, debates, personal photos and videos (Ali-Hassan et al., 2015). The access to a variety of information sources via the social media platforms allowed the users to seek and acquire new information and knowledge to promote their personal growth in the academic environment. This benefit is reflected below:

“(On social media) I can browse teaching videos, get planning ideas, and look at pictures of projects teachers have tried.” (25-years old; Female; Graduate student; Liberal studies major; Employed full-time)

“Social media does help me academically because it has a lot of news outlets that use social media. I have used information from the sites to help with a paper that I had to write.” (29-years old; Female; Senior; Criminal justice major; Not employed).

The cognitive use of social media allowed the first-generation college students to additional, new information resources, which may not be readily available in the college dorms, immediate family or local community. In this regard, this type of social media use becomes **cognitively meaningful** to the users of the technology (Thomas & Velthouse, 1990).

Third, we define **hedonic use** as using social media for fun, passing time, relaxing and escaping and entertainment (Ali-Hassan et al., 2015). Most of our informants considered the hedonic use causing a distraction to their academic work, as reflected below:

“I don't think social media helps you academically. I actually think social media can be a big distraction to student with the exception of LinkedIn.” (26-years old; Female; Senior; Human resource management major; Not employed)

“I think social media is more of a distraction instead of helping you academically. For example, I use it to take a break when I am doing work instead of using it as a support.” (25-years old; Female; Graduate student; Educations major; Employed part-time)

However, in some instances, the distraction effect of **hedonic use of social media** is perceived positively, when using the social media provided relaxation and enjoyment, which is **experientially meaningful** to the users. This is reflected in the remarks below:

“Social media gives us a quick break so that we can get away from the stressful student life.” (25-years old; Male; Senior; Criminal justice major; Not employed; Employed full-time)

The psychological feeling of personal meanings described above represents a kind of personal empowerment (Thomas & Velthouse, 1990). Although each type of social media use was perceived to entail different kinds of meanings – personal, cognitive, and experiential –together the social media technology contributed to the psychological empowerment of the users.

## 4.2 A Portfolio of Affordances by Social Technologies

Three types of affordances—communication, Internet ubiquity, and visibility—were perceived by individual users of the social media technology. We discuss these technology affordances in greater detail below.

First, social media enabled users to **communicate** with family members and friends in different ways, regardless of time and location. For example, users appreciated the various platforms of communication afforded by social media in the following remarks:

“Social media allows me to reach out to them in a more casual way than texting or calling. Sending photos is faster and friendlier on said platforms at times too.” (24-years old; Male; Senior; Business major; Employed part-time)

“I connect with more friends and family and sometimes it’s easier to text or send a snap and then a conversation is started.” (22-years old; Male; Psychology major; Employed part-time)

The above instances have shown different patterns of usage. While the first user emphasized the variety of content (e.g., photos and informal messages) delivered on online platforms for communication, the second user appreciated the convenience of using a portfolio of communication channels, e.g., texting and snap chat. This communication affordance is consistent to social media affordance of communicating and building relationships revealed in prior studies (e.g., Gonzalez et al., 2015; Leidner et al., 2010; Majchrzak et al., 2009). However, our study has uncovered the specific manners that social media afforded communication.

The second affordance is **Internet ubiquity**, which enabled people to connect with each other from various locations in the networked world. The ubiquity of the Internet (Yoo, 2012; Yoo et al., 2010) provide users access to different family members and friends from the users’ social networks. This affordance is evidenced in the remark below:

“I have kept in contact with my family from Mexico and Germany that I would most likely not talk to if it was not for social media. I am also able to share pictures and see their pictures of what they are doing. It is a way to communicate with my nieces and nephews who are digital natives to technology.” (41years old; Female; Graduate student; Education major; Employed full-time)

In addition, social media allowed people to view the content created and displayed by others in the network. This technology affordance of **visibility** (Treem & Leonardi, 2012) is helpful for relationship building, as reflected below:

“Social media helps my academic work because everyone has different opinions so seeing people post their opinions helps me see how different perspectives everyone has.” (21-years old; Female; Senior; Psychology major; Employed part-time)

### 4.3 Impacts of Social Media Use on Psychological Well-being

Our data analysis revealed four outcomes of users’ psychological well-beings, including: *positive relationship with others, personal growth, environment mastery, and stress relief*. However, the types of social media use that led to a specific well-being varied.

First, the psychological well-being of **positive relationship with others** is referred to as having warm, satisfying, trusting relationships with others, and being concerned about the welfare of others (Ryff, 1989; p.1072). In our study, the psychological well-being was resulted from the social use of social media, as shown below:

“Social media helps us to keep connected, support, and encourage one another outside of the classroom meeting times.” (23-years old; Female; Graduate student; Liberal studies major; Not employed)

“Yes, I agree it does help my social interactions with friends. The people you meet through social media, you are able connect with them on the long run.” (24-years old; Male; Senior; Business major; Employed full-time)

Second, the social use of social media was associated with the psychological well-being of **personal growth**. Consistent with Ryff (1989), we define personal growth as having a feeling of continued development and seeing improvement in self and behavior over time (p. 1072). Our data analysis shows that the psychological well-being was achieved through two pathways --social use and cognitive use – as shown below:

“Social media does help academically because for example if you miss a day, it can serve as communication between classmates to get the work you missed.” (19-years old; Male; Junior; Business major; Not employed)

“I use social media to search articles and news online. It can keep me informed of event, and that can benefit me academically.” (31-years old; Female; Graduate student; Psychology major; Not employed)

Although both instances suggest an outcome of personal growth, the pathways varied. In the first instance, the social use provided access to the information source, the classmates who attended the class and were able to share the class materials. In the second instance, the cognitive use of the social media provided users to information online to help him improve his academic performance.

**Environmental mastery** refers to having a sense of mastery and competence in managing the environment, controlling complex array of external activities, making effective use of surrounding opportunities, and being able to choose or create contexts suitable to personal needs and values (Ryff, 1989; p.1072). Social use and cognitive use afforded the access to a variety of information sources, thus contributing to the psychological well-being of environmental mastery, as reflected below:

“Social media is what keeps everyone informed on day to day information. Without it, we can go months without knowing about certain news worldwide.” (19-years old; Male; Junior; Business major; Not employed)

“At this point, in this generation we live, yes, social media helps my academic work. Maybe not 10-15 years ago. But now, 100% yes. It has become a networking tool, eCommerce tool, branding, etc.” (24-years old; Male; Senior; Business major; Employed full-time)

Finally, the psychological well-being of **stress relief** was resulted from social use or hedonic use. The following two remarks reflect the associations respectively:

“Social media helps me stay connected to fellow teacher peers who are also in the same boat, trying to survive their first year of teaching.” (25-years old; Female; Graduate student; Liberal studies major; Employed full-time)

“Social media helps my academic work, because it gives us a quick break so that we can get away from the stressful student life.” (21-years old; Female; Senior; Psychology major; Employed full-time)

#### 4.4 Complexities in the social media affordance-impact relationships

The data analysis also revealed some complex interplays between affordances and perceived values or outcomes by individuals. Two such complex patterns are explained below.

**Same affordance, but different values:** When social media afford socializing, some users valued the network effects while others appreciated the ease of communication for introverted persons. This is shown below:

“Yes, social media helps my social interactions, because many people are on social media, so it is an easy place to get in contact with others.” (22-years old; Female; Senior; Sports entertainment and hospitality major; Employed part-time)

“Yes, social media does helps my social interactions, because some people are shy to talk face to face.” (27-years old; Male; Senior; Business major; Employed full-time)

**Same affordance, but different outcomes:** The communication affordance of social media was perceived as positive in some cases (e.g. for busy schedules) but negative in other cases (e.g., reduced opportunity for face-to-face interactions). This is reflected below:

“I believe that social media is a good form of communication considering out busy life but it keeps us from interacting with the people in front of us.” (23-years old; Female; Junior; Business major; Employed full-time)

## 5 Discussion

In this study, we strive to examine how FGCS use the SM and how SM usage influences FGCS level of digital inclusion. In response to the first research question (RQ) in this study, our findings demonstrated that FGCS made use of the SM in various ways. It was discovered that different participants perceived the SM tools differently. This led to the identification of three types of SM usage (e.g., social use, cognitive use and hedonic use). Although the use of the SM afforded the users with similar actions, not all of the users leveraged the SM in the same manner. Because users actualize various affordances, the type of usage will have an influence on the outcomes experienced by the user. Thus, our study identified four different outcomes of psychological well-being (e.g., positive relationships with others, personal growth, environment mastery, and stress relief). In relation to the second RQ, our results demonstrated that SM usage facilitated FGCS to gain a new sense of digital inclusion. Digital inclusion may be an outcome of SM usage that enabled FGCS to have access to more communication and information gathering resources. Overall, our study has implications for research in the areas of digital inclusion and technology affordance.

### 5.1 Digital Inclusion and Technology Affordances

In terms of technology affordance research, our study offers two important implications. The affordance lens drives IS researchers to think about the relationship between the technology affordances and its outcomes (e.g., Volkoff & Strong, 2013). According to Volkoff and Strong (2013), it is important to study the affordances of a technology in order to gain an understanding of how change occurs after a new information technology has been introduced. Although the “association” affordance (Treem & Leonardi, 2012) and the “network-informed associating” affordance (Majchrzak et al., 2013) have been noted in the affordance literature, our findings extend this research by demonstrating 1) how the cultural background of individuals plays an important role in gaining a greater sense of community belonging and 2) how academic outcomes are experienced with a greater sense of digital inclusion.

Regarding the first research extension, our findings provide insights into a new affordance we refer to as the sense of community belonging. The cultural backgrounds of the FGCS impacted how the SM was used to remain in connection with family. The need of FGCS to remain connected to others translated to their initiative to actualize the affordance of fostering relationships within their academic cohorts. As FGCS connected to others and became aware of what was happening in their network, they experienced a sense of community belonging in their new academic life. For example, FGCS struggling with the same assignment realized they were not alone. In the same manner, FGCS balancing work and school shared similar experiences of the struggles and faced the boundary blurring of these two worlds such that they were able to relate with each other. As a result, they experienced a greater bond with others and a greater sense of community; it differs in that a sense of community created closer ties in a personal connection with others. In our study, most (73%) of the FGCS were from Latino ethnicity and may be more naturally inclined to maintain close family ties. Making greater use of SM allowed them to build a new “sense of family” via a virtual community with others they shared common experiences and be recognized.

In addition, the type of SM usage played a role as well. While recent high school young adults engaged in hedonic SM use (e.g., networking and socializing communication activities) with their new classmates and friends, the more mature and older adults who were typically employed used the SM for cognitive purposes such as information sharing and collaboration effort with colleagues and classmates. Although prior research have suggested that the same object (technology) may be perceived differently by different people in terms of the object's feature and capabilities (e.g., Gibson, 1986; Treem & Leonardi, 2012), the type of usage is not considered to demonstrate the differences that the SM afforded the users.

Concerning the second research extension, our study found that SM usage affords FGCS with positive experiences that may lead to academic success. Three frequently cited effects of the SM use are: maintaining and strengthening the family bonding relationship over the temporal and physical barriers; enhancing psychological well-being (e.g., feeling less stressful); and gaining access to more informational resources. All of these impacts are conducive to the degree of digital inclusion achieved by the social media users in our study. Coming from an economically disadvantaged population, our informants were able to use the social media to enhance their work and college life. By meaningfully engaging in the social media platforms, the FGCS in our study took advantage of the SM to actively participate in their new college environment in ways they were not aware in their homes and communities. Moreover, those social media capabilities --communication, bonding, collaboration, and information gathering/sharing - became most valuable to the users in the new environment (Notley, 2009).

In addition, our study revealed that the FGCS required a greater sense of family, support, and resources. For example, underserved individuals may suffer from missed social, environmental, or cultural fallbacks that their professional growth and pathways may be limited. Our findings revealed that SM technologies afford underserved community members the means to experience digital inclusion by providing them with resources otherwise not available. These new resources may increase the FGCS success rate in college and facilitate workplace engagement for professional growth after completion of their undergraduate program. To this end, social media technology plays a vital role in promoting the digital inclusion of the underserved population.

## **5.2 Practical Implications**

Our research contributes to the educational domain. Because high-impact practices are highly valued within educational settings, our paper provides insights to organizations wishing to leverage SM during the first year of college of the FGCSs. As Engle and Tinto (2008) note, up to 43% of low-income FGCSs do not persist after six years, and 60% of those who leave, do so after their first year. By demonstrating how SM can serve FGCS, educational institutions may be able to retain a greater number of FGCSs after the first year through the use of SM for course delivery, student learning and interaction. In this regard, our study offers an important practical implication by offering useful guidance to higher education institutions on designing and implementing high-impact practices to better support our FGCSs.

Second, by focusing on the FGCS and their meaningful engagement with social technologies, our study contributes to the capability building approach proposed by Sen (1981, 1985) to improve the economic well-being of the future generation of the less privileged population. In particular, our findings demonstrated that the persuasive use of social technologies enabled FGCS to reach and mobilize a wide range of educational resources that they lacked at home and in their native communities. Additional outcomes experienced by FGCS from SM affordances included the new educational resources available from the new networks of classmates, advisors, and teachers. Thus, enabling the FGCS to become more involved in the digitized world and develop their capabilities in learning.

### **5.3 Guidelines for Social Media Academic Success**

Interests in SM for learning and higher education continue to grow. SM offers a variety of features and functionalities that afford users various actions, which lead to various outcomes. A new understanding of the implications of SM affordances will help educational institutions better approach SM implementations. Therefore, we offer the following guidelines for effective usage of SM for academic success. Our guidelines are based on the inferences we drew from our observations.

1. Promote purposeful class activities using the SM
2. Address hedonic use as a distraction up front
3. Develop procedures to create meaningful content
4. Connect new students with upper classmen with similar backgrounds
5. Share success stories through the various SM platforms

Although we have focused on the use of SM for digital inclusion, many of our findings and guidelines can also be applied to the implementation of SM within organizations to support knowledge sharing and collaborations among employees. Community and network building is critical to the success of SM initiatives. However, management should take precautionary measures during implementation of SM since the type of usage may impact users both positively and negatively.

## **6 Conclusion and Future Research**

Our study focused on first-generation college students and revealed that social media provided users with various affordances. When considering demographic data (e.g., employment status, age, and gender) and types of SM usage, organizations will be able to better embark on SM implementations. Moreover, our data analysis has shown three major impacts from social media usage in the academic setting. In this regard, our study has served as a response to a research call (Majchrzak et al., 2013) by exploring social media engagement beyond the context of communication.

Our study is subject to limitations. First, the use of convenience sampling of first-generation college students from one public urban university with a large population of Hispanic/Latino students may impact the findings and their general applicability. In this regard, further research using a broader population is needed to study a more representative data sample in ethnicity and region. Second, the social media activities and help-seeking behaviours of the first-generation college students were self-reported, which may lead to inaccuracies. Future studies may collect data from multiple stakeholders (e.g., college teachers and advisors) to provide an accurate picture of FGCS's social media usage and its impacts.

Limitations notwithstanding, our study revealed the interplays between three types of SM usage (e.g., social, cognitive, and hedonic) and four different outcomes of psychological well-being (e.g., positive relationships with others, personal growth, environment mastery, and stress relief) among FGCS, an underserved population in higher education. Moreover, this study suggests two promising areas for further research. First, contingency views of social media use differ. While social use and cognitive use mostly have positive effect on academic work, hedonic use of social media caused distractions. This kind of insight is interesting in that social use of social media could be considered as hedonic use; yet, each had opposing outcomes. Future research on the contingency effect of the type of social media use would bring additional insights. Second, future research could further investigate the notion of “distraction” in social media usage to better understand context(s) or factor(s) that increase or decrease “social media distraction.” Further research in this area would provide a better understanding and clarity of when “social use” is not “hedonic use” in order to minimize the issues that may arise with distracted behavior.

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