College Students, Networked Knowledge Activities, and Digital Competence: Implications for Online Instructors

Vanessa P. Dennen
Dan He
Hui Shi
Dawn Adolfson
Florida State University, USA

Abstract
Amid the landscape of digital literacies and frameworks is a common assumption that contemporary youth, frequently dubbed "digital natives," intuitively understand and use online technologies. While their use of these technologies may be frequent and highly skilled in some respects (e.g., communicating with friends), their use and abilities in other areas, such as those valued in school settings and the workforce, may differ. This survey of 350 college students examines how they use an array of online platforms for everyday life information-seeking purposes, including the frequency with which they engage in different networked knowledge activities. Findings show that while students often use platforms associated with personal networking, such as Instagram, professional platforms like LinkedIn are less commonly used. Students are much more likely to engage in passive online activities than active ones. In particular, skills related to tagging, writing, and creation are infrequently used. Additionally, about half of these college students do not believe social media, which fosters these networked knowledge activities, is relevant to their careers. These findings show opportunities for better developing college students' digital skill sets, with guidance for skills that might be targeted, taught together, and supported through learning activities in online spaces to prepare college students for digital information tasks in the workplace.

Keywords: college students, digital literacy, digital natives, networked knowledge, social media

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Contemporary life finds people engaging in online information-seeking and communication activities, all while managing their digital identities (Sime & Themelis, 2020). The internet fosters participatory culture, enabling individuals to build networks that connect them, their knowledge, and their creations with other people and resources across varied aspects of life (e.g., home, work, and school; Rainie & Wellman, 2012). There are several low-barrier ways that individuals can engage in participatory culture (Jenkins, 2006), and even seemingly small acts such as bookmarking or sharing an online resource can lead to more robust engagement in networked knowledge activities (Dennen et al., 2020). Youth who are active online creators engage in a broad range of transmedia activities (Scolari, 2018; Scolari et al., 2018), but not all youth are active online creators.

Traditional-aged college students in the 2020s are often referred to as digital natives. This moniker, which refers to their birth at a time rich in digital technologies, has been erroneously conflated with having inherent digital abilities. Beliefs that these students have fundamentally different cognitive and technological abilities than other generations are not sufficiently supported by empirical data (Kirschner & De Bruyckere, 2017). Still the digital native myth persists, along with assumptions that youth can be motivated by integrating their leisure technologies into other settings. However, just because youth use technologies like social media in heavy numbers for personal reasons (Anderson & Jiang, 2018) does not mean that they desire to or excel in using it across different contexts such as online learning (Dennen & Burner, 2017).

To succeed in online courses, students need to use a variety of digital competencies. Digital skills are related to learner self-efficacy in online classes, which in turn affects constructs related to learner outcomes (Prior et al., 2016). During the first year of the COVID-19 pandemic, when many courses transitioned online, it became clear that many learners lack the digital competencies to succeed as online learners (Vishnu et al., 2022). This finding is supported by many studies, which indicate that college students typically have basic, but not strong, digital competencies, with confidence that varies by task (Zhao et al., 2021). To that end, youth are full of contradictions in their assessment of their technology skills. On the one hand, they believe themselves more capable than earlier generations based on their self-taught technology experiences, but on the other hand they report situations in which they have been reliant on others to teach them specific technology-related skills (List, 2019). Essentially, although they undeniably have some level of digital skills, those skills vary in their strength and how they were acquired. Additionally, those skills may not be sufficient to truly thrive in an online learning context.

The conundrum caused by this lack of intergenerational understanding combined with varied levels of youth digital competencies can be summed up as follows: Youth use social media with great regularity and frequency for personal purposes. Higher education instructors, who are aware of this social media use, tend to overestimate youth digital competencies without deeply understanding what skills youth are and are not developing through their social media use. The result may be a missed opportunity, particularly by online instructors who encounter youth in a digital environment, to foster the development and transfer of digital competencies that will help learners succeed in their online coursework and to build pathways to the application of digital competencies in the workforce. This study seeks to address the first part of this situation by examining how college students use social media for everyday purposes and their beliefs about

how useful these skills will be as they prepare for their eventual careers. The findings of this study offer insights for online instructors, who need to better understand the tools and skills youth use—or do not use—in their everyday lives.

Literature Review

One aim of education is to develop digitally competent citizens who are proficient in applying a range of information and communication technology (ICT) use (Spante et al., 2018). Numerous frameworks, varying in scope, lens, and context, have been developed to guide and measure the development of ICT knowledge, skills, and attitudes measured by varied frameworks (Marín & Castañeda, 2022). For example, The International Society for Technology in Education has developed standards to guide technology use by students, teachers, and educational leaders (International Society for Technology in Education, n.d.). In the European Union, the DigComp framework broadly delineates competencies for citizens (Vuorikari et al., 2022). Both frameworks, and others like them, address topics ranging from the use of technologies for specific tasks (e.g., writing, communication, information seeking) to digital safety, citizenship, and leadership.

People in all age groups lack digital competence (Oh et al., 2021), including youth who are college students. Most youth have developed digital skills in the course of using social media to support personal social activities. Prior research has found that skills developed through personal social media use do not effectively transfer to academic environments (Nwangwa et al., 2014), and the same may be true for work environments. Youth primarily engage in entertainment and social networking (Ting, 2015) and develop intricate rules that guide participation in personal social media networks (Malvini Redden & Way, 2019). However, they do not perceive these social media spaces as potentially work-related ones (Kim & Malek, 2017), and do not have opportunities to develop work-related skills in these settings. In other words, youth do not typically see how skills they develop for personal reasons might transfer to other settings.

In a learning setting, college students may lack digital confidence or skills, particularly those associated with information literacy, digital creation, and digital research (Martzoukou et al., 2020). Current efforts to teach these digital skills have been criticized. For example, popular checklists for evaluating online content are outdated and do not reflect how experts approach the task (Breakstone et al., 2018). Although at the forefront in policy settings, in practice digital competence remains a "loose" concept and can become inappropriately focused on teaching technology as a content area rather than as a tool to support performance (Ilomäki et al., 2014). This approach overlooks rich opportunities to incorporate the development of digital skill development in online classes, and in domains where digital skills enable broader learning and, eventually, professional development opportunities.

In online classes, the development and application of digital competencies can be done in a way that is authentic and immediate. Certain baseline communication and technology skills are necessary for success in online classes (Martin et al., 2020), and for some students these skills must be fostered explicitly because they are not part of a pre-existing technology repertoire (Ng, 2012). In one study, college students indicated that they developed their digital literacy skills independently, as they were provided with technology, and as they needed to complete specific

projects (List, 2019). Participants in this study shared that many of their autonomously developed skills were surface-level, just sufficient for performing the tasks posed to them. Similarly, a recent systematic review found that prior experience and training play a role in college students' competency levels (Zhao et al., 2021). Although self-developed skills are important, college students need intentional skill development and support to truly thrive in digital learning environments and in the increasingly digital workforce.

A recent report from the National Skills Coalition indicated that the U.S. workforce, including professional and quasi-professional occupations, is lacking in digital skills, and younger workers often have fragmented digital knowledge (Bergson-Shilcock, 2020). Left to develop professional digital competencies on their own, some employees are agile and will succeed, while others will not (Pitafi et al., 2020). Where social media is concerned, individuals struggle to navigate the divide between personal and professional tasks, relationships, and boundaries (Farivar & Richardson, 2020; Kühnel et al., 2020). Benson, Morgan, and Filippaios (2014) proposed that university students need to be taught, explicitly, how to engage in business-related social networking. This assertion was based on their findings from a study of college students in the United Kingdom. Their study showed that students typically created accounts on social networking sites for personal reasons, not professional ones, and when they created professional accounts those accounts quickly became dormant.

In sum, the literature suggests that college students independently develop the skills required to navigate their social media worlds, in whatever manner suits them individually. However, they are not necessarily able to apply or transfer these skills to other contexts, such as academic learning and the workforce, without assistance. Their pre-existing skills should not be assumed, but if known could serve as a starting point for opportunities to develop and practice workforce digital competencies related to using networked knowledge environments.

Purpose and Research Questions

The purpose of this study was to examine college students' use of social media in their everyday lives, with a focus on the types of networked knowledge activities they engage in. In other words, it seeks to describe the frequently engaged in online activities so online educators can better understand what skills youth might be developing and using on their own, and what skills are likely underdeveloped or underpracticed. This study was guided by the following research questions:

1. How frequently do college students use different social networking sites to support everyday life information needs?
2. Which networked knowledge activities are college students most likely to use to support everyday life information needs? Do skills vary by user type?
3. How do college students perceive the relevance of social media to their careers? Does perceived relevance vary by user type or year in school?

The first research question seeks to establish a baseline understanding of how active participants are on various social networking sites, where they may engage in different networked knowledge activities. The second and third research questions explore specific networked knowledge activity use and perceived career relevance as well as the variance of use among subgroups in the

study population. Together, these questions are used to understand competencies that college students develop and practice in the context of their everyday life needs so that areas with low use and opportunities for skill transfer can be identified. The findings can inform the design of online learning curricula, taking advantage of the opportunity to help students develop new competencies and facilitate existing skill transfer.

Method

Study Design and Frameworks

This exploratory study uses a cross-sectional survey design to study college students' use of social media for specific networked knowledge task areas and perceptions of relevance to their eventual career. The intent of the survey is primarily descriptive, although relationships between social media user type and the likelihood of engaging in an activity or finding social media relevant in a career context are also explored.

Two frameworks guided this study. First was Savolainen's (1995) Everyday Life Information Seeking (ELIS) framework, which focuses on non-work related information and expression-focused tasks. In the case of youth, school-related information-seeking searching may represent ELIS because their school and personal lives are tightly intertwined (Agosto & Hughes-Hassell, 2005). ELIS may be employed for solving personal problems, pursuing hobbies, or just satisfying general curiosity or entertaining oneself. When individuals engage in ELIS, they are driven by their values and beliefs (Savolainen, 1995), and the activity is voluntary.

The second framework is the Networked Knowledge Activities (NKA) framework (Dennen et al., 2020), comprising seven major activities that individuals participate in within online settings: collect, curate, share, broker, create, negotiate, and network. We used this framework to guide the development of survey items about specific categories and tasks related to social media activities in ELIS contexts. This framework was originally developed to guide instructors engaged in lesson design by grouping and labeling different tasks one might undertake in a networked learning environment. It has previously been used to determine how college students perceive the function of different social media activities (Dennen et al., 2023).

Participants

Participants in this study are 350 college students, after excluding 34 incomplete responses from the initial pool of 384. They were recruited through a research participation pool at a large public university (see Table 1 for an overview of participant demographics). In this study pool, students may participate in research for a small portion of their course grade at the discretion of their instructor. Instructors provide optional course activities for students who do not wish to participate in research, and students can choose from among several studies. The study was approved by the researchers' Institutional Review Board and all participants consented before participating.

The participants represent majors across the university, and the majority of them are undergraduate students in their senior (113; 32.29%), junior (101; 28.86%), and sophomore (100; 28.57%) years. The presence of relatively few freshmen may reflect the number of dual enrollment and advanced placement credits that incoming students bring to the university, resulting in many first-year students who attain sophomore standing in their first or second

semester of study. The sample skews female (266; 76%), which has been typical of our experience surveying this age group both via this study pool (Dennen, Bagdy, et al., 2021; Dennen & Burner, 2017; Dennen et al., 2023; Dennen et al., 2022) and through other means (e.g., social media recruitment; Dennen, Rutledge et al., 2021).

Table 1
Participant Demographics

Demographic	%	Count
Gender		
Male	23.14%	81
Female	76.00%	266
Non-binary	0.86%	3
Year in School		
Freshman	9.14%	32
Sophomore	28.57%	100
Junior	28.86%	101
Senior	32.29%	113
Graduate	0.86%	3
Other	0.29%	1
Major		
Health Sciences	26.00%	91
Social Sciences	24.29%	85
Business	12.29%	43
Education	11.43%	40
Humanities	6.57%	23
Physical Sciences	4.00%	14
Two or more majors	9.14%	32
Other	6.29%	22

Instrument and Data Collection

The survey contained four sections: (1) demographics, (2) frequency of social networking site (SNS) platform uses for ELIS, (3) likelihood of using NKA skills to support ELIS needs, and (4) perceptions of social media use for career purposes. In the demographic section, social media

user type was collected via a single item asking participants to describe their social media activity as follows:

1. Consumer (more likely to look for information resources and support than to offer them)
2. Prosumer (an equal mix of consuming and producing)
3. Producer (more likely to offer information resources and support than to look for them)
4. Infrequent (do not frequently use social media for ELIS)

The second section listed the most popular social networking sites per Pew Research (Auxier & Anderson, 2021), plus a few others that are commonly used in school and work settings. Perceptions of career relevance were measured via two Likert-style items, one asking about personal career relevance and the other about perceptions of the intended career area.

To develop the items related to NKA skills in the third section of the survey, the research team began with the NKA framework. Each part of the framework was broken into potential tasks and component skills for accomplishing a task. For example, people who collect (NKA category) need to save (potential task), which may be accomplished via bookmarking and downloading (skill areas). As the list of tasks for each scale category was developed, there were certain skills that were cross-cutting and appeared in multiple categories. Additionally, the original NKA categories were reorganized into seven categories (see Table 2), each consisting of a scale with three to nine items, starting with the prompt: "When you engage in everyday life information needs, how likely are you to do the following WRITING activities?" The word in capitals was changed relative to each scale. Participants used a five-point scale to indicate their likelihood of performing an activity. The internal consistency of each scale was tested using Cronbach's alpha, with the α ranging from 0.772 to 0.896. Specific scale items appear in tables in the findings section.

Table 2

Overview of Activity Scales

Activity Scale	Related NKA Categories	Number of Items	Cronbach's alpha
Collect	Collect, Curate	8	0.772
Tag Content	Collect, Curate, Share	6	0.880
Tag People	Curate, Share, Negotiate	3	0.788
Share	Share	8	0.871
Communicate	Negotiate	3	0.798
Write	Create, Negotiate	6	0.887
Create	Create	8	0.896

Prior to deployment, the survey was reviewed by two experts and five members of the target population for ease of use, clarity of language, and face validity. After initial tests, the activity scales were refined and then reviewed again using a think-aloud protocol with eight members of the target population. The final version of the survey was hosted online via Qualtrics. A description of the study and a link to the survey appeared in the study pool. The survey was available for study pool participants for five months during 2021. The mean response time was 609.72 seconds, or just over 10 minutes.

Data Analysis

Frequencies were calculated for all survey items. For each activity category, after confirming internal consistency (see Table 2), an overall scale score was calculated from the average of all items in that scale. To explore differences in activity scale scores between prosumer and consumer groups in different activity areas (research question 2) and to explore differences related to perceptions of career relevance (research question 3), Mann-Whitney U tests and Kruskal-Wallis tests were used because Shapiro-Wilks test revealed that the data were not normally distributed. All of the statistical analyses in this study were performed with SPSS 26.0. For all tests of significance, an alpha level of 0.05 was used.

Findings

Frequency of Platform Use for ELIS

To help better understand college students' opportunities to engage in networked knowledge activities, the participants were asked to indicate the frequency with which they use popular social networking sites. Instagram and Snapchat were the most regularly used platforms used for everyday life information seeking, used daily by most participants and at least weekly by more than 85% of the sample (see Table 3). Other SNS that are frequently used by this age group, such as TikTok, Facebook, and YouTube, were used multiple times per week by more than 50% of the sample, as was GroupMe, a popular messaging service. SNS platforms associated with work environments and professional activities (LinkedIn, Slack) were among the least-used platforms. Other infrequently or never used SNS included blogs, Discord, WhatsApp, and Reddit, with more than half of the participants reporting non-use for ELIS and daily use ranging from a low of 0.57% (blogs) to a high of 7.43% (Reddit).

Table 3

Frequency of SNS Use

Tool	Daily	4–6 times a week	2–3 times a week	Once a week	A few times per month	Less than once a month	Never
Instagram	79.71%	9.14%	5.14%	1.43%	1.14%	0.57%	2.86%
Snapchat	74.00%	6.86%	4.86%	1.14%	3.43%	2.00%	7.71%
TikTok	57.71%	7.14%	3.14%	2.86%	2.86%	3.14%	23.14%
GroupMe	39.43%	19.14%	14.00%	7.71%	4.00%	4.86%	10.86%
Facebook	36.00%	10.86%	9.43%	8.86%	6.29%	12.00%	16.57%
YouTube	31.43%	20.57%	16.29%	10.00%	13.71%	5.71%	2.29%
Twitter	26.57%	10.57%	12.29%	6.29%	7.14%	10.57%	26.57%
Reddit	7.43%	3.43%	4.57%	7.14%	10.00%	12.29%	55.14%
WhatsApp	6.00%	3.14%	3.43%	3.14%	4.57%	8.86%	70.86%
Discord	5.43%	1.71%	2.29%	2.57%	3.43%	6.57%	78.00%
Pinterest	4.00%	5.71%	4.86%	12.00%	19.14%	18.86%	35.43%
LinkedIn	2.86%	3.14%	6.29%	7.71%	9.71%	14.29%	56.00%
Slack	2.29%	2.00%	2.29%	2.00%	2.29%	5.43%	83.71%
Blogs	0.57%	0.86%	5.71%	5.71%	9.14%	11.71%	66.29%

Use of Networked Knowledge Activities for ELIS

Using a five-point Likert scale (from "Extremely unlikely" to "Extremely likely") participants were asked to share their likelihood of engaging in different networked knowledge tasks for everyday life information seeking. These tasks were clustered into seven scales, each representing different networked knowledge activity areas (collect, content tagging, people tagging, sharing, communicating, writing, creating). Table 4 summarizes the descriptive statistics for each item on the activity scales.

Table 4

Descriptive Statistics for Individual Items on Activity Scales (N = 350)

Activities	**Extremely likely (5)**	**(4)**	**(3)**	**(2)**	**Extremely unlikely (1)**	***Median (IQR)***
Collect Activities						
Use search engines to find resources	77.71%	17.43%	2.29%	0.86%	1.71%	5.00 (0)
Use social media to find resources	39.14%	37.14%	9.71%	9.43%	4.57%	4.00 (1)
Add new people to my social media network	32.29%	41.71%	13.43%	7.71%	4.86%	4.00 (1)
Bookmark interesting resources in my browser	33.14%	38.00%	8.29%	15.71%	4.86%	4.00 (2)
Bookmark interesting resources in a shared space / using a social bookmarking tool	24.00%	27.43%	16.00%	20.29%	12.29%	4.00 (3)
Bookmark/save interesting resources in my social media accounts	35.43%	39.71%	9.43%	8.57%	6.86%	4.00 (1)
Organize bookmarked or saved items into categories	22.86%	25.43%	16.29%	18.29%	17.14%	4.00 (2)
Download interesting resources to my computer	16.29%	28.57%	20.86%	20.57%	13.71%	3.00 (2)
Content Tagging Activities						
Search using tags to locate resources shared by others	17.43%	37.14%	13.71%	14.86%	16.86%	4.00 (2)
Search through tags to locate resources saved for myself	16.00%	31.43%	14.00%	15.71%	22.86%	3.00 (2)
Apply tags to resources to attract other people	12.00%	19.14%	15.14%	19.14%	34.57%	2.00 (3)
Apply tags to resources for organizational purposes	9.71%	18.00%	16.00%	22.00%	34.29%	2.00 (3)
Apply tags to resources to help describe them for myself	9.14%	21.14%	17.14%	21.14%	31.43%	2.00 (3)
Apply tags to resources to help describe them for other people	7.43%	19.14%	20.00%	18.57%	34.86%	2.00 (3)

People Tagging Activities						
Tag another person to respond to them	63.14%	21.14%	7.43%	4.00%	4.29%	5.00 (1)
Tag another person to give them credit for their work	61.43%	22.29%	7.71%	4.57%	4.00%	5.00 (1)
Tag another person to call their attention to a resource	57.71%	23.71%	7.14%	5.71%	5.71%	5.00 (1)
Sharing Activities						
Share resources that I have found	46.57%	36.00%	8.29%	6.86%	2.29%	4.00 (1)
Share resources that I have created	29.71%	31.43%	15.71%	16.00%	7.14%	4.00 (2)
Share posts from one social media platform to another (e.g., share a tweet on Facebook)	23.43%	31.71%	14.86%	16.00%	14.00%	4.00 (2)
Share resources from my online network to my face-to-face network	21.14%	36.57%	18.29%	15.14%	8.86%	4.00 (1)
Share resources from one social media platform to another (e.g., share a YouTube video on Facebook)	21.14%	32.57%	18.57%	15.43%	12.29%	4.00 (2)
Share my opinions via social media posts	19.71%	29.14%	13.43%	22.57%	15.14%	3.00 (2)
Share resources from my face-to-face network with my online network	16.00%	28.00%	22.86%	19.43%	13.71%	3.00 (2)
Share my expertise via online posts	15.14%	24.86%	19.71%	26.00%	14.29%	3.00 (2)
Communication Activities						
Respond to a conversation in a group forum or threaded conversation	20.57%	39.14%	13.71%	15.71%	10.86%	4.00 (2)
Initiate a conversation in a group forum or threaded conversation	16.57%	28.86%	12.86%	22.57%	19.14%	3.00 (2)
Participate in a live chat	12.86%	23.43%	14.29%	27.14%	22.29%	3.00 (2)
Writing Activities						
Write a persuasive essay or commentary on a topic	9.14%	15.43%	10.86%	25.71%	38.86%	2.00 (3)
Write a response essay (e.g., responding to someone else's essay/post)	7.14%	20.00%	12.29%	21.71%	38.86%	2.00 (3)
Write a work of fiction	6.00%	10.86%	12.00%	21.43%	49.71%	2.00 (2)
Apply a copyright or Creative Commons license to something you have written	6.00%	8.86%	15.43%	18.57%	51.14%	1.00 (2)

Write something in collaboration with others	5.43%	19.43%	16.86%	22.00%	36.29%	2.00 (4)
Write a "how to" essay on a topic	4.57%	8.00%	14.86%	26.86%	45.71%	2.00 (2)
Creation Activities						
Create image-based media (photos, graphics)	17.71%	33.14%	12.57%	15.14%	21.43%	4.00 (2)
Create something in collaboration with others	11.71%	26.57%	17.71%	17.43%	26.57%	3.00 (3)
Assemble a collection of resources on a topic	11.14%	28.29%	15.43%	21.14%	24.00%	3.00 (2)
Create new resources for the purpose of sharing online	9.14%	16.57%	18.57%	26.00%	29.71%	2.00 (3)
Create a remix or mashup of existing items	8.29%	15.71%	17.14%	26.57%	32.29%	2.00 (3)
Create a video on a topic	7.14%	13.71%	14.00%	23.43%	41.71%	2.00 (2)
Apply a Creative Commons license to something you have created	5.71%	8.57%	16.57%	17.43%	51.71%	1.00 (2)
Create a podcast on a topic	4.86%	5.71%	12.86%	24.57%	52.00%	1.00 (1)

Collecting is a core information-seeking activity in which one locates a source of information and finds a way to save it or locate it again. Participants indicated that they were most likely to seek resources via search engines, followed by seeking resources on social media and connecting to new people/resources (i.e., collecting people/resources in their network). They were least likely to download resources to their own computer, with social media accounts and browsers serving as most likely used bookmarking spaces.

Content tagging and people tagging activities were separated into two scales, recognizing that the former serves an organizational function, whereas the latter serves a networking function. The content tagging items were designed to determine how likely participants were to search for content using tags and to apply tags. Tag application occurred with less frequency than tag searching or any of the collecting activities, with over 50% indicating that they were somewhat or extremely unlikely to do so. In contrast, the frequency for all three of the actions involving people tagging items had over 80% of participants indicating that they were extremely or somewhat likely to engage in these activities (see Table 7). The only activity across all scales that had a higher frequency (77.71%) was using search engines to find resources (collecting activity).

Among the eight sharing activities, participants were most likely to share resources that they found, followed by sharing resources they had created, and less likely to share their opinions and expertise in posts to social media. Sharing was more likely to occur across social media platforms or from online to offline networks than from offline to online networks.

The three items on the Communication scale highlight show that participants are more likely to participate in asynchronous forms of communication than synchronous communication. Additionally, they are more likely to respond to a conversation than to initiate a conversation.

Similarly, writing and creation activities were among the activities in which participants were least likely to engage.

Differences by User Groups

Most participants reported being consumers (177, 50.57%) or prosumers (142, 40.57%), with only a few reporting that they were producers (8, 2.29%) or infrequent users (23, 6.57%). Group means for each scale appear in Table 5. Notably, prosumers had the highest mean in each category and infrequents had the lowest means. Means for people tagging, sharing, and collecting were above the scale mid-point for all groups, whereas means for content tagging, writing, and creation were below the scale mid-point for all groups.

Table 5

Group Mean Scores for Different Activity Scales

	Prosumer (*n = 142*)	**Consumer (*n = 177*)**	**Producer (*n = 8*)**	**Infrequents (*n = 23*)**
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Collect[1]	30.98 (5.77)	29.82 (5.66)	26.88 (7.06)	23.96 (4.72)
Content Tag[2]	17.72 (6.63)	15.47 (6.36)	14.38 (5.13)	14.43 (6.40)
People Tag[3]	13.32 (2.24)	12.74 (3.03)	13.25 (1.75)	11.30 (3.20)
Share[1]	30.37 (6.45)	25.32 (7.08)	26.00 (8.11)	23.00 (7.74)
Communicate[3]	10.06 (3.22)	8.66 (3.40)	10.00 (3.12)	7.96 (3.69)
Write[2]	14.86 (6.53)	11.79 (5.50)	14.00 (7.39)	10.74 (5.14)
Create[1]	22.31 (8.33)	18.09 (7.22)	18.00 (8.38)	16.43 (7.37)

Note. Higher scores indicate greater likelihood of engaging in the activity.

[1] Scale score range = 5–40, midpoint = 25

[2] Scale score range = 5–30, midpoint = 17.5

[3] Scale score range = 5–15, midpoint = 10

To investigate whether there are differences in likelihood to engage in an activity category, Mann-Whitney U tests were conducted, comparing the consumer and prosumer group. The other two groups were not used for comparison due to small cell size. Results show a significant difference between the two groups for every activity category except collect and people tag (see Table 6), with prosumers reporting higher scores and thus greater likelihood of engaging in the activity on each scale.

Table 6

Results of Mann-Whitney U tests Comparing Scale Scores for Consumer and Prosumer Groups

Activity Scale	**Consumer *N* = 177 *M* (*SD*)**	**Prosumer *N* = 142 *M* (*SD*)**	**U**	***p***
Collect	29.82 (5.66)	30.98 (5.77)	11044.0	0.062
Content Tag	15.47 (6.36)	17.72 (6.63)	10197.5*	0.004
People Tag	12.74 (3.03)	13.32 (2.24)	11602.0	0.211
Share	25.32 (7.08)	30.37 (6.45)	7477.0**	< 0.001
Communicate	8.66 (3.40)	10.06 (3.22)	9676.0**	< 0.001
Write	11.79 (5.50)	14.86 (6.53)	9063.5**	< 0.001
Create	18.09 (7.22)	22.31 (8.33)	8834.0**	< 0.001

Note. * $p < 0.01$, ** $p < 0.001$

Social Media and Perceived Career Relevance

Participants were asked to report whether they believed social media would help in their careers and was used by others in their career areas. Table 7 shows the frequency distributions, medians, and interquartile range for these items, with roughly half of all participants reporting some level of agreement, and around one-quarter choosing the mid-point. Notably, the median is higher and interquartile range smaller in response to the item about social media's use in their chosen career versus beliefs about how social media might help participants personally in their career.

Table 7

Descriptive Statistics for Perceived Career Relevance

Item	Strongly Disagree (1)	Somewhat Disagree (2)	Neither agree nor disagree (3)	Somewhat Agree (4)	Strongly Agree (5)	*Median (IQR)*
Social media will help me in my career	36 (10.29%)	61 (17.43%)	87 (24.86%)	106 (30.29%)	60 (17.14%)	3.00 (2)
People in my chosen career use social media for professional support	29 (8.29%)	44 (12.57%)	98 (28.00%)	107 (30.57%)	72 (20.57%)	4.00 (1)

Consumer and prosumer group responses to these items were compared using Mann-Whitney U tests. Findings showed that group medians were the same and standard deviations were similar, and thus there was no statistically significant difference between the groups (see Table 8).

Table 8

Results for Mann-Whitney U Texts Comparing Perceived Career Relevance for Consumers and Prosumers

Item	Consumer (N = 177) *Mdn* (*SD*)	Prosumer (N = 142) *Mdn* (*SD*)	U	*p*
Social media will help me in my career	3.00 (1.23)	3.00 (1.17)	11195.5	0.085
People in my chosen career use social media for professional support	4.00 (1.16)	4.00 (1.13)	11369.5	0.130

Additionally, a Kruskal-Wallis test was conducted to explore differences based on class standing. The rationale for running this analysis was that students with higher class standing (juniors and seniors) would be more likely to have experienced university-level instruction that supports or mentions workforce-related uses of social media. Although median values for career usefulness were higher for freshmen and sophomores than juniors and seniors, these differences were not significant (see Table 9).

Table 9
Results of Kruskal-Wallis Test Comparing Perceived Career Relevance by Class Standing

Item	Freshman (*N* = 32) *Mdn (SD)*	Sophomore (*N* = 100) *Mdn (SD)*	Junior (*N* = 101) *Mdn (SD)*	Senior (*N* = 113) *Mdn (SD)*	*p*
Social media will help me in my career	4.00 (1.14)	4.00 (1.41)	3.00 (1.15)	3.00 (1.21)	0.200
People in my chosen career use social media for professional support	4.00 (1.08)	4.00 (1.19)	3.00 (1.08)	4.00 (1.21)	0.135

Discussion

Overall, these findings suggest that college students' online skills and dispositions, while presumably well-suited for meeting their everyday life needs, may not prepare them to be sophisticated users of social tools in the workforce. By considering the current state of college student social media use and the anticipated workforce context, higher educators can identify opportunities to prepare students with a set of digital competencies that will enhance their career readiness.

Social Networking Sites

The first research question focused on the social networking sites frequently used by college students. Among these participants, the use of SNS typically associated with social and leisure activities, like Instagram and TikTok, was much higher than the use of SNS with a heavier focus on work-related networking and productivity, like LinkedIn and Slack. These findings are consistent with other cross-sectional surveys of youth in the U.S. (Anderson & Jiang, 2018). Additionally, LinkedIn has a smaller overall use rate across the adult population when compared to social-focused SNS, regardless of age, with higher rates of use among college graduates (Auxier & Anderson, 2021).

Although most SNS offers a core collection of similar features, such as sharing and messaging, each has its own set of norms and different primary uses. For many people, leisure and professional use are different (Benson et al., 2014). Privacy and context collapse can be a concern for users as they contemplate broadening their networks and scope of use (Davis & Jurgenson, 2014; Dennen & Burner, 2017). This phenomenon explains why someone might post about their work project on LinkedIn, but their child's accomplishment on Facebook. Both SNS offer feeds where people post life updates that may be restricted to their networks, but the former fosters a distinctly professional network whereas the latter is typically used among family, friends, and communities.

More than half of the participants reported never having used work-related SNS, which is similar to findings in other studies of Slack (Menzies & Zarb, 2020) and LinkedIn (Badoer et al., 2020) in higher education. When youth transition into the workforce, they encounter these tools, which represent areas of opportunity for higher education. Faculty could address or incorporate tools like Slack and LinkedIn in their classes to promote familiarity and use, or workshops could be offered to help students develop their professional networking and communication skills as they near graduation.

Networked Knowledge Activity Use

In this sample, passive activities like searching and saving outpaced activities related to resource classification and organization, sharing, creation, and engagement in public conversations. Most of the sample classified themselves as either consumer or prosumer, and activities associated with producing content online were among the lowest rated ones. Thus, while some individuals engage in content tagging, writing, or otherwise creating, others do not engage in them very much at all. From a leisure-use perspective, this finding is not problematic. The world needs both content creators and audience members; without one, the other would not function. From a professional perspective, however, a question remains: If new college graduates needed to engage in these tasks professionally, would they be able to do so effectively and efficiently? Prior research suggests that those who already use these skills regularly might, but others might not (Martzoukou et al., 2020), and that content creation is a generally underdeveloped competency area among college students (López-Meneses et al., 2020).

This study asked about the likelihood that an individual would engage in a task, not whether they are capable of it. Writing has a regular place in the college curriculum, and all participants would have experience with academic writing, but writing curricula do not commonly address the types of writing skills and dispositions that are needed for writing on social media professionally (Novakovich et al., 2017). Social media has become popular among foreign language instructors as a means of motivating students to write (e.g., Aziz et al., 2019; Putri & Aminatun, 2021) and college students who enroll in online classes are likely to gain experience writing short messages in academic discussion forums, but neither of these activities would directly prepare students for either the professional writing genres associated with social media or the multimodal messages that professional communicators use on SNS.

Participants also were unlikely to engage in content tagging. Other studies have found that content tagging and, relatedly, social bookmarking are confusing to many college students (Dennen et al., 2023), although formal instruction and practice can help (Dennen et al., 2018; Dennen et al., 2017). Although college students frequently use hashtags on social media, their use of hashtags may be largely performative or crudely aggregative (McCosker, 2017). In other words, students' leisure use of social media tagging does not inherently transfer to professional information classification tasks.

Career Relevance

Half of the participants did not consider the career relevance of social media, suggesting that they are not prepared to develop professional networks such as those used in professional development (Bedford, 2019; Trust et al., 2017; Trust et al., 2016) and career-focused networking (Benson et al., 2014). The similar beliefs regardless of class standing further suggests that throughout their college experience these participants are not being introduced to ways that social media and networked knowledge are used in professional settings.

There are several ways students might be prepared for workforce networked knowledge activities. These include informal conversations in class, formal assignments, and referrals to third parties like career centers (Daniels & Dempsey, 2021). Integrating a specific SNS in a class may seem like an easy solution to this problem—e.g., popular workforce networking tools like

Slack have been effectively integrated into higher education (Menzies & Zarb, 2020), and scaffolded use of LinkedIn in a class was found to greatly increase future student use and confidence with the platform (Badoer et al., 2020). Still, caution is warranted before assuming this path. Not all professions use these tools equally, and some students may have privacy concerns (Healy et al., 2023; Tuhkala & Kärkkäinen, 2018). Educators should always consider privacy and other ethical concerns related to sharing in digital environments before requiring students to use social media for coursework (Dennen & Burner, 2017), and can also seize the opportunity to discuss issues related to online privacy and identity management in professional networking contexts.

Implications

This study has implications for online instructors, particularly those who teach courses within the professional disciplines who can address social media use and its associated literacies and skills as part of professional preparation. Specifically, these findings suggest that college students would benefit from instruction on how and why they might use tags, writing and creating in multimodal online genres, and online intellectual property issues.

Online classes provide an ideal opportunity for addressing digital competencies related to networked knowledge activities. For example, instructors could incorporate opportunities for students to collect and share digital resources with a class, simultaneously creating opportunities to tag that content for organizational purposes and to call people's attention to it. Students could be engaged in writing in a variety of short form genres or to create multimodal digital assignments. These work products could take the form of renewable assessments (Wiley & Hilton III, 2018), which in turn could be digitally shared and tagged with a broader learning audience. Additionally, instructors might introduce students to profession-specific forms of online content creation and sharing and encourage the development of professional learning networks. In this way they not only fulfill the technological aspects of their instructor role, but by using the technology also support the network dimension (Dennen & Jones, 2023).

Although students' social accounts and experiences are different from professional accounts and experiences (Benson et al., 2014), online instructors could nonetheless help college students draw parallels between familiar tasks in their social worlds and target tasks and concepts in their future professions. Similar to how educational technologies can be leveraged to support the transfer of content knowledge (Galoyan et al., 2021), with creative pedagogical planning these technologies also can be leveraged to support the transfer of digital competencies. There is, however, a major caveat to consider before this idea becomes a reality: instructors also may need assistance to transfer their knowledge of social media, likely based on personal or scholarly use, to the applied contexts in which their students will be employed.

Limitations

This study's limitations relate to the sample, the use of non-parametric tests, and the survey instrument. First, the sample is not representative of the overall population of college students, and the proportions of consumer to prosumer to inactive students should not be considered an indicator of proportions in the larger population. Still, readers may consider that all types of users are present in the population and should be the concern of educators.

Non-parametric tests were used in this study because the data were not normally distributed. Additionally, the data used to address the third research question were ordinal. Non-parametric tests are not as powerful as their corresponding parametric tests.

The survey instrument measured the likelihood that college students would apply a skill for everyday life purposes, but not whether they could apply that skill. It is possible that participants who reported that they were unlikely to engage in an activity were nonetheless capable of engaging in that activity. Additionally, the survey lacked a robust scale to measure career relevance. Future research might inquire more thoroughly about perceptions of career relevance. Finally, this study did not examine the ability to transfer skills across platforms or functions. Still, the findings show the limited application of information organization, communication, creation, and networking skills by college students. Future studies might explore the transfer of these skills more directly.

Conclusion

In conclusion, this study continues to dispel the digital natives myth that young people inherently use technology in general (Kirschner & De Bruyckere, 2017; Sorrentino, 2018), and social media platforms in particular, to engage in learning, communication and creation transactions. Instead, these findings confirm the diverse skill and activity levels and dispositions that college students develop independently in social media environments, and highlights areas where skill use may be underdeveloped. Additionally, it confirms that higher education instructors should not only be concerned with the transfer of content knowledge (Galoyan et al., 2021), but also of digital competencies when preparing students for their future careers.

For online educators, this study represents initial work to stimulate interest in developing college students' digital competencies through course activities, and ideas about the types of networked knowledge activities that might be familiar and frequently used or alternatively unfamiliar and infrequently used by their students. Online educators may find that their own digital skills are underdeveloped in some of these areas as well, leading to opportunities for professional development.

Declarations
This study was approved by the Florida State University, USA Institutional Review Board.
The authors have no conflicts of interest to declare.
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