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<th>Title</th>
<th>Individual differences in social media use for information seeking</th>
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<tr>
<td>Author(s)</td>
<td>Kim, Kyung-Sun; Sin, Sei-Ching Joanna; Tsai, Tien-I</td>
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ABSTRACT

This study investigated which social media platforms are used as information sources, and for what purposes. It also examined how user characteristics are related to the use of different platforms. A Web-based survey was used to collect data from undergraduate students. Responses from more than 800 students showed that most of the social media platforms are used as information sources, where wikis, user reviews, and media-sharing sites emerged as the top platforms. The purpose of use varied across platforms. T-test and ANOVA results also revealed individual differences. Significant differences in gender, class level, academic discipline, and Big Five personality traits were found in the frequency of information seeking using different platforms and also in the purpose of use. Study findings have implications for information literacy (IL) education and information services. Because many students are actively using social media platforms for a variety of information-seeking purposes, it is suggested that IL programs embrace social media as potential information sources and offer effective strategies for using and evaluating these increasingly popular social media sources.

Keywords
information sources; social media; undergraduates; user characteristics
INTRODUCTION

Social media have become increasingly popular among younger generations (Duggan & Brenner, 2013; Lenhart et al., 2010). Social-networking sites (SNS), for example, are used by 89% of online users between the ages of 18 and 29 (Brenner & Smith, 2013) and 86% of undergraduate students (Smith, Rainie, & Zickuhr, 2011). As social media have become more popular, a number of studies have been conducted to examine college students’ social media use (Correa et al., 2010; Gray et al., 2013; Hughes et al., 2012; Nadkarni & Hofmann, 2012; Pempeck et al., 2009; Yang & Brown, 2013). However, most of these studies focused on specific types of social media and investigated social media use for social networking or for marketing purposes (Berthon et al., 2012; Ellison et al., 2007; Lampe et al., 2006; Xiang & Gretzel, 2010). Little attention has been given to the roles that different social media platforms play in individuals’ information seeking. While some studies acknowledged the informational value of social media, they highlighted general trends, rather than individual differences, in college students’ use of social media to acquire information (Head & Eisenberg, 2010; Kim et al., 2011). Because the veracity of social media information is an issue of concern, it is important for library and information science (LIS) professionals to understand the informational purposes for which students are using social media. Also of interest is whether certain types of users are more inclined to use social media for satisfying their information needs, such that relevant information literacy training can be provided.

Focusing on undergraduate students, this study aims to investigate which social media platforms are used for what kinds of information-seeking purposes and who are likely to use such platforms. Relations between user characteristics, including demographics and personalities, and the use of different social media platforms, are examined. Findings of the study will help to better understand different types of users and their preferences in terms of social media use for information seeking. Based on the findings, suggestions are made for improving information services and information literacy (IL) programs on social media use.

LITERATURE

Across different age groups, social media are widely used for various purposes. SNS, for example, are among the most popular social media platforms used by college students (Smith, Rainie, & Zickuhr, 2011). While SNS are used mainly for socialization purposes, recent research shows that many individuals get news from SNS. Microblogs such as Twitter and media-sharing sites such as YouTube are also frequently used as sources for news (Mitchell, Holcomb, & Page, 2013; Pew, 2012). Wikipedia is another popular social media platform, which is often used as a go-to source. It seems that many college students start with Wikipedia to get an overview of a new concept and related resources (Head & Eisenberg, 2010). Although initial evidence suggests that various social media platforms are used as information sources (Head & Eisenberg, 2010; Kim et al., 2011), there is a dearth of research related to the question of who is likely to use which social media platforms as information sources, and for what purposes.

SOCIAL MEDIA AND INFORMATION LITERACY

Students’ usage of various social media as an information source is a concern for librarians and educators, in part due to the varying quality of information available via these forms of media. The popularity of social media, similar to that of the Web, has prompted debates over the goals and scope of information literacy (IL). Broader concepts of IL, such as critical IL (Dunaway, 2011), IL 2.0 (Carpan, 2010; Farkas, 2011; Spiranec & Zorica, 2010) and metaliteracy (Mackey & Jacobson,
have been proposed. Some libraries have started to introduce guidelines and other resources to support the use and evaluation of social media (Austria, 2007; Bridges, 2012; Mitrano, 2012; Witek & Grettano, 2012). In this digital age, it is generally agreed that IL should move beyond the static check-list approach. IL should actively cultivate higher-order critical thinking skills, such as competencies in engaging with information, in a collaborative environment, and from various media. Furthermore, IL may need to prepare individuals to become valuable creators as well as informed consumers of information (Cronon, 2012). These recognitions of the import of broadening the scope of IL highlight the need to survey the current landscape of students’ information seeking in a wide range of sources, including the use of social media for information seeking purposes.

DEMOGRAPHIC CHARACTERISTICS OF SOCIAL MEDIA USERS

Gender seems to have some effect on social media use. In general, male students are known to use Internet sources more frequently than female students do (Li & Kirkup, 2007). However, SNS, a social media platform, seem to be used by female students more often than by males (Madden & Zickuhr, 2011; Nadkarni & Hofmann, 2012). Women also tend to have more friends (Pempek et al., 2009) and spend more time on SNS (Moore & McElroy, 2012) than men do. Men, on the other hand, are found to use SNS more for task-oriented reasons and less for interpersonal purposes (Lin & Lu, 2011; Shade, 2004). Related to the level of education, studies suggest that more undergraduates than graduate students use SNS (Lampe et al., 2006; Park, 2010; Stutzman, 2006). Among undergraduates, underclassmen (i.e., freshmen and sophomores) tend to use SNS more frequently than upperclassmen, mainly for keeping in touch with others (Pempek et al., 2009; Yang & Brown, 2013). Head (2013) found that sophomore, junior, and senior students use Wikipedia more frequently than freshmen do. Freshmen, on the other hand, are found to use blogs frequently. Academic background is another factor that seems to influence the use of social media and other resources. Among doctoral students, social science students tend to use more journals in both print and e-journals, whereas science students use more Internet resources and conference proceedings (Seeja, 2010). A study on social media use indicates that more natural and engineering scientists than humanities researchers use social media (CIBER, 2010). Philosophers use blogs often to stay up-to-date with the newest contributions in their field (Collins & Jubb, 2012).

PERSONALITY TRAITS OF SOCIAL MEDIA USERS

Users’ personality traits have been shown to predict various behaviors, including communication (Moberg, 2001; Wanberg & Kammeyer-Mueller, 2000) and information seeking (Heinstrom, 2005; Weiler, 2005). To date, one of the most widely used trait classifications is the "big five" personality taxonomy (Wanberg & Kammeyer-Mueller, 2000). The model identifies five broad dimensions of personality, including extraversion, agreeableness, conscientiousness, neuroticism, and openness to new experience. Personality tests, similar to all self-reported measures, are subject to the possibility of respondent reactivity and social desirability responses. The big-five model, nonetheless, has shown good reliability measures. The Big Five Inventory (BFI) instrument, for example, scored an average of .80 alpha reliability and a .85 three-month test–retest reliability (John et al, 2008). The big-five model (Costa & McCrae, 1992) has been frequently used to examine behavior differences in the online environment, such as personality differences in Internet and social media usage for online social capital building (e.g., Amichai-Hamburger & Vinitzky, 2010; Correa et al., 2010; Guadagno, Okdie, & Eno, 2008; Moore & McElroy, 2012; Ross et al., 2009). The model is also gaining attention in information user studies (Heinström, 2003, 2005; Kwon & Song, 2011).
Extroverts tend to be adventurous, sociable, and talkative, whereas introverts are typically quiet and shy (Costa & McCrae, 1992). Facebook users are found to have significantly higher scores on extroversion (Ryan & Xenos, 2011). Extroverted individuals generally have more Facebook friends (Amichai-Hamburger & Vinitzky, 2010; Zywica & Danowski, 2008) and belong to more Facebook groups (Ross et al., 2009) than introverts do.

Agreeableness is related to the degree of friendliness, and is associated with individuals who are kind, sympathetic, and warm (Costa & McCrae, 1992). Heinström (2003) shows a link between competitiveness (i.e., a low level of agreeableness) and the critical analysis of information that contributes to more effective information seeking. Those individuals with low levels of agreeableness tend to be “broad scanners,” a classification characterized by wide and thorough information seeking (Heinström, 2005).

Conscientiousness refers to a person’s work ethic, orderliness, and thoroughness. Individuals with high levels of conscientiousness tend to have a high search drive and high involvement in source use (Halder, Roy, & Chakrabarty, 2010). Conscientious searchers are more likely to use a structured information-seeking approach, which contributes to fewer information-seeking problems (Heinstrom, 2005). Song and Kwon (2012) found that conscientiousness is a strong personality predictor of information competence. High levels of conscientiousness are positively related to higher levels of information competence.

Individuals with low levels of openness tend to prefer familiarity and convention, and adhere to established patterns (McCrae & Costa, 1987). Those who are open to new experiences, in contrast, have broad interests and seek novelty (John & Srivastava, 1999). They tend to have a “broad scanners” information-seeking pattern (Heinstrom, 2005) and quickly adopt new social media platforms. For example, at the time when blogs were still an emerging platform, individuals with high levels of openness tended to use blogs more frequently than others (Guadagno, Okdie, & Eno, 2008). Heavier users of SNS also tend to have higher levels of openness to new experiences (Ross et al., 2009).

 Neuroticism is a personality trait characterized by anxiety and moodiness. Interestingly, individuals who have high levels of neuroticism tend to use Internet social services, including chat rooms and social media such as SNS more frequently (Ehrenberg, Juckes, White, & Walsh, 2008; Hamburger & Ben-Artzi, 2000). These individuals are likely to prefer Internet services that provide more time for contemplation before acting than offline or face-to-face interactions, as the former can help individuals to feel less nervous or worried (Ehrenberg et al., 2008; Ross et al., 2009). Those with high levels of neuroticism tend to prefer using the Wall in SNS, for example. The Wall is a public writing space where users can post their thoughts or views for everyone to see. It offers users the opportunity to take their time in formulating and controlling messages and responses (Ross et al., 2009).

Although a substantial amount of research has been done to examine the relationship between user characteristics and social media use, most of the extant studies focus on social media used for socialization purposes rather than for information seeking. While a few studies have begun to address the use of social media as information sources, most of them have not tested the relationship between user characteristics and social media use. The current study aims to address this research gap by investigating the relationship between user characteristics and social media used for information-seeking purposes.
The study examines two broad research questions (RQ). The first RQ has two subparts: RQ1a asks which social media platforms are used as information sources, and RQ1b asks for what purposes they are used. RQ2 examines the question of who are likely to use different social media platforms.

METHODS

A Web-based survey was used to collect data. The questionnaire included closed and open-ended questions about how different social media platforms are used for information seeking. The study focused on students’ usage of broad social media platform types rather than specific sites while the platform types were presented along with some example sites in the questionnaire. Social media types and examples covered in the survey include: blogs, media-sharing sites (e.g., YouTube, Vimeo), microblogs (e.g., Twitter), SNS (e.g., Facebook, MySpace, LinkedIn), social Q&A sites (e.g., Yahoo!Answers, Answerbag), user reviews (e.g., user reviews in Amazon.com), and wikis (e.g., Wikipedia). Questions about participants’ demographics and academic backgrounds were also included. The questionnaire was developed based on extant literature on social media and an explorative study conducted previously. It was finalized after two rounds of pilot testing. In addition, the big five inventory (BFI), a forty-four item standardized test based on the big five personality trait model, was used (John et al., 2008).

Participants were recruited through an invitation distributed to all undergraduate students in a public university using a mass e-mailing service. Participation was voluntary. Upon completion of the data collection, gift certificates were awarded to those respondents selected via a random drawing. As a nonprobability convenience sampling method was used in this study, any generalization of the study’s findings should be done with caution.

DATA ANALYSIS

Collected data were analyzed using inferential statistics. T-tests and analysis of variance (ANOVA) were used to examine the relationship between user characteristics and the social media use behaviors. Users’ demographic and personality variables were the independent variables. Social media usage behaviors, including the frequency and the purpose of use, were the dependent variables. These statistical analyses were conducted using SPSS software.

RESULTS

PARTICIPANT CHARACTERISTICS

Among the 845 questionnaires collected, 809 were fully completed and included in the final analysis. About 65% of the 809 respondents were female students, and 35% were male. About 30% of the respondents were underclassmen, and about 69% were upperclassmen (i.e., juniors and seniors). Related to their academic backgrounds, about 37% of the respondents were social science students, whereas 19% were humanities students. Science and engineering students constituted 31% and 13% of the respondents, respectively.

RQ1: SOCIAL MEDIA PLATFORMS USED AS INFORMATION SOURCES & PURPOSES OF USE

Respondents were asked which social media platforms they used as information sources (RQ1a). It was found that a majority of respondents used wikis and social networking sites to obtain information: 98% of them used wikis, and 95% used SNS. User reviews and media-sharing sites were also quite popular: 73% of the respondents used user reviews, and 69% used media-sharing sites. About half the respondents (49%) used social Q&A sites as information sources. However, blogs and microblogs were used by fewer respondents. Only 34% of the respondents used blogs,
whereas 25% used microblogs.

Regarding RQ1b, the informational purpose of social media use, wikis, social Q&A, and user reviews were used often for getting background information (Figure 1). To find solutions or how-to instructions, social Q&A and media-sharing sites were used frequently. While frequently used for updates/news, microblogs, SNS, and blogs were also used for obtaining others’ opinions. User reviews were mainly used for obtaining others’ opinions.

Figure 1.

Main purpose of using various social media platforms (Frequency: 1- Never; 4 - Often).

RQ2: INDIVIDUAL DIFFERENCES IN SOCIAL MEDIA USE

In order to find out who are likely to use which social media platforms for information seeking, the study tested potential differences in gender, class level, academic discipline, and personality traits.

Gender

A series of t-tests were done to find out whether gender differences exist in the use of different social media platforms. Statistically significant gender differences were found in five out of seven platforms: blogs ($t = 4.278, p < .001$), media-sharing sites ($t = 5.84, p < .001$), social Q&A ($t = 4.305, p < .001$), user reviews ($t = 7.553, p < .001$), and wikis ($t = 8.604, p < .001$). That is, male students used blogs, media-sharing sites, social Q&A, user reviews, and wikis more frequently than female students did. No significant gender difference was found in SNS and microblog usage (Table 1).

To measure the magnitude of differences between groups (male vs. female), effect size of gender was calculated using Cohen’s $d$. Based on Cohen (1988), the effect size is considered small when $d = .20$, medium when $d = .50$, and large when $d = .80$. Gender’s effect size was around medium (Cohen’s $d$ ranging between .45 and .64). Slightly larger gender differences ($d > .6$) were observed in the use of user reviews and wikis.
Table 1.
Gender differences in the frequency of social media use (N = 809)

<table>
<thead>
<tr>
<th></th>
<th>Blogs*</th>
<th>Media- Sharing Sites*</th>
<th>Microblogs</th>
<th>SNS</th>
<th>Social Q&amp;A*</th>
<th>User Reviews*</th>
<th>Wikis*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=285)</td>
<td>Mean</td>
<td>5.06</td>
<td>5.97</td>
<td>6.31</td>
<td>6.60</td>
<td>3.96</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(S.D.)</td>
<td>(1.68)</td>
<td>(1.20)</td>
<td>(1.19)</td>
<td>(1.02)</td>
<td>(1.24)</td>
<td>(1.41)</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=524)</td>
<td>Mean</td>
<td>4.11</td>
<td>5.32</td>
<td>6.18</td>
<td>6.62</td>
<td>3.38</td>
<td>3.32</td>
</tr>
<tr>
<td></td>
<td>(S.D.)</td>
<td>(1.80)</td>
<td>(1.32)</td>
<td>(1.27)</td>
<td>(1.04)</td>
<td>(1.29)</td>
<td>(1.17)</td>
</tr>
</tbody>
</table>

Note. Scale used: 1 – Never; 7 – Daily. * p < .01

Class Level
T-test results revealed significant class-level differences in three social media platforms: wikis (t = -4.075, p < .001), blogs (t = -2.048, p < .05), and social Q&A sites (t = 2.182, p < .05). Upperclassmen tended to use wikis and blogs more frequently than underclassmen did. Underclassmen, on the other hand, used social Q&A sites more often than upperclassmen did (Table 2). Effect size of class-level was small (Cohen’s d ranging between .23 and .32).

When the purposes of using different social media platforms were analyzed, a significant class-level difference was found. That is, upperclassmen tended to use wikis for obtaining background information more frequently than underclassmen did (t = -3.102, p < .01): Mean UpperClass = 3.83, Mean UnderClass = 3.72 (Scale used: 1–never; 4–often).

Table 2.
Class level differences in the frequency of social media use (N = 792)

<table>
<thead>
<tr>
<th></th>
<th>Blogs*</th>
<th>Media- Sharing Sites*</th>
<th>Microblogs</th>
<th>SNS</th>
<th>Social Q&amp;A*</th>
<th>User Reviews</th>
<th>Wikis**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Underclassmen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=237)</td>
<td>Mean</td>
<td>4.00</td>
<td>5.72</td>
<td>6.15</td>
<td>6.69</td>
<td>3.78</td>
<td>3.49</td>
</tr>
<tr>
<td></td>
<td>(S.D.)</td>
<td>(1.74)</td>
<td>(1.22)</td>
<td>(1.35)</td>
<td>(.91)</td>
<td>(1.45)</td>
<td>(1.25)</td>
</tr>
<tr>
<td><strong>Upperclassmen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=555)</td>
<td>Mean</td>
<td>4.57</td>
<td>5.49</td>
<td>6.23</td>
<td>6.59</td>
<td>3.47</td>
<td>3.68</td>
</tr>
<tr>
<td></td>
<td>(S.D.)</td>
<td>(1.82)</td>
<td>(1.33)</td>
<td>(1.22)</td>
<td>(1.08)</td>
<td>(1.22)</td>
<td>(1.36)</td>
</tr>
</tbody>
</table>

Note. Responses with no class level information were excluded. * p < .05; ** p < .01

Academic Discipline
To analyze how users’ academic disciplines affect their social media use, a series of ANOVAs were performed with academic discipline and social media use behavior as independent and dependent variables, respectively. Two platforms showed statically significant differences across academic disciplines: wikis (F = 3.573, p < .05) and media-sharing sites (F = 3.97, p < .01). Post hoc analyses revealed that students in engineering programs tended to use wikis significantly more frequently than those in social sciences. Students in humanities disciplines used media-sharing sites more often than those in science disciplines (Table 3). To measure the magnitude of differences in disciplines, effect size of disciplines was calculated using eta squared ($\eta^2$), which is an effect size...
measure for ANOVA results. Based on Cohen (1988), $\eta^2 = .02$ indicates a small effect size, $\eta^2 = .13$ indicates a medium effect size, and $\eta^2 = .26$ indicates a large effect size. Effect size of disciplines was found to be small ($\eta^2$ around .02).

When the purposes of using different social media platforms were analyzed, significant academic discipline differences were found. With respect to wikis, engineering students used them for finding solutions more often than humanities or social science students ($F = 6.003, p < .001; \text{Mean}_{\text{Engineering}} = 2.62, \text{Mean}_{\text{Humanities}} = 2.16, \text{Mean}_{\text{SocialScience}} = 2.21$) (Scale used: 1–never; 4–often). With respect to media-sharing sites, students in humanities used media-sharing sites to get updates or news more frequently than those in sciences ($F = 2.812, p < .05; \text{Mean}_{\text{Humanities}} = 2.72, \text{Mean}_{\text{Science}} = 2.39$). In addition, humanities and social science students used media-sharing sites for obtaining other peoples' opinions more often than science students ($F = 4.855, p < .01; \text{Mean}_{\text{Humanities}} = 2.61, \text{Mean}_{\text{SocialScience}} = 2.62, \text{Mean}_{\text{Science}} = 2.26$).

**Table 3.**
Academic discipline differences in the frequency of social media use ($N = 809$)

<table>
<thead>
<tr>
<th></th>
<th>Blogs (Mean)</th>
<th>Media-Sharing Sites (Mean)</th>
<th>Microblogs (Mean)</th>
<th>SNS (Mean)</th>
<th>Social Q&amp;A (Mean)</th>
<th>User Reviews (Mean)</th>
<th>Wikis (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities (n=155)</td>
<td>Mean 4.84</td>
<td>5.80</td>
<td>6.50</td>
<td>6.59</td>
<td>3.45</td>
<td>3.64</td>
<td>5.13</td>
</tr>
<tr>
<td></td>
<td>(S.D. 1.82)</td>
<td>(1.20)</td>
<td>(0.86)</td>
<td>(1.12)</td>
<td>(1.31)</td>
<td>(1.30)</td>
<td>(1.49)</td>
</tr>
<tr>
<td>Social Sciences (n=298)</td>
<td>Mean 4.43</td>
<td>5.55</td>
<td>6.27</td>
<td>6.63</td>
<td>3.54</td>
<td>3.54</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td>(S.D. 1.86)</td>
<td>(1.24)</td>
<td>(1.24)</td>
<td>(1.05)</td>
<td>(1.28)</td>
<td>(1.38)</td>
<td>(1.37)</td>
</tr>
<tr>
<td>Engineering (n=108)</td>
<td>Mean 4.47</td>
<td>5.76</td>
<td>6.00</td>
<td>6.50</td>
<td>3.69</td>
<td>3.80</td>
<td>5.24</td>
</tr>
<tr>
<td></td>
<td>(S.D. 1.69)</td>
<td>(1.27)</td>
<td>(1.46)</td>
<td>(1.10)</td>
<td>(1.43)</td>
<td>(1.36)</td>
<td>(1.28)</td>
</tr>
<tr>
<td>Sciences (n=248)</td>
<td>Mean 4.09</td>
<td>5.31</td>
<td>5.96</td>
<td>6.65</td>
<td>3.60</td>
<td>3.62</td>
<td>4.88</td>
</tr>
<tr>
<td></td>
<td>(S.D. 1.74)</td>
<td>(1.44)</td>
<td>(1.41)</td>
<td>(.92)</td>
<td>(1.26)</td>
<td>(1.24)</td>
<td>(1.49)</td>
</tr>
</tbody>
</table>

Note. Scale used: 1 – Never; 7 – Daily. * $p < .05$; ** $p < .01$

**Personality**

To examine potential personality differences in the frequency of social media use, seven ANOVA tests were carried out, one for each social media platform. The BFI scores for the five personality traits were used as the independent variables, and the frequency of social media use served as the dependent variable.

For both blogs and user reviews, the ANOVA results revealed significant effects of agreeableness and openness: agreeableness (blogs: $F = 6.511, p < .05$; user reviews: $F = 11.785, p < .001$) and openness (blogs: $F = 5.426, p < .05$; user reviews: $F = 9.029, p < .01$). Students with high levels of openness and those with low levels of agreeableness used blogs and user reviews more frequently than their counterparts did (Table 4).

With respect to wikis, findings were similar to what was found in blogs and in user reviews. That is, agreeableness ($F = 10.760, p < .001$) and openness ($F = 14.848, p < .001$) had significant effects on the frequency of wiki use. In addition, a significant effect of conscientiousness was found ($F = 13.892, p < .001$). As in the cases of blogs and user reviews, openness had a positive effect on the
wiki use, while agreeableness had a negative effect. Students with high levels of openness and those with low levels of agreeableness used wikis more frequently than their counterparts did. Conscientiousness had a negative effect on wiki use: students with low levels of conscientiousness used wikis more frequently.

Regarding the use of media-sharing sites, the ANOVA yielded two significant effects: conscientiousness ($F = 3.946, p < .05$) and openness ($F = 13.397, p < .001$). Students with high levels of openness and those with low levels of conscientiousness used media-sharing sites more often than their counterparts did.

Related to the use of SNS, a significant effect of extroversion was found ($F = 4.732, p < .05$). Students with higher levels of extroversion tended to use SNS more frequently than their counterparts (the introverts) did.

Medium to large effect sizes were observed in agreeableness and openness: agreeableness (blog: $\eta^2 = .23$; user review: $\eta^2 = .2$; wikis: $\eta^2 = .11$); openness (blog: $\eta^2 = .21$; user review: $\eta^2 = .15$; wikis: $\eta^2 = .20$). For other personality traits, effect sizes were small.

**Table 4.**
Personality differences in the frequency of social media use ($N = 809$)

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Blogs Mean (S.D.)</th>
<th>Media- Sharing Sites Mean (S.D.)</th>
<th>Micro-blogs Mean (S.D.)</th>
<th>SNS Mean (S.D.)</th>
<th>Social Q&amp;A Mean (S.D.)</th>
<th>User Reviews Mean (S.D.)</th>
<th>Wikis Mean (S.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extrovert</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Low</td>
<td>4.55 (.15)</td>
<td>5.65 (.08)</td>
<td>6.16 (.13)</td>
<td>6.53 (.05)</td>
<td>3.58 (.09)</td>
<td>3.68 (.07)</td>
<td>5.02 (.07)</td>
</tr>
<tr>
<td>High</td>
<td>4.19 (.17)</td>
<td>5.44 (.08)</td>
<td>6.31 (.12)</td>
<td>6.70 (.06)</td>
<td>3.56 (.10)</td>
<td>3.55 (.08)</td>
<td>4.89 (.08)</td>
</tr>
<tr>
<td><strong>Agreeable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Low</td>
<td>4.66 (.15)</td>
<td>5.58 (.08)</td>
<td>6.16 (.12)</td>
<td>6.57 (.05)</td>
<td>3.58 (.09)</td>
<td>3.80 (.08)</td>
<td>5.12 (.07)</td>
</tr>
<tr>
<td>High</td>
<td>4.08 (.17)</td>
<td>5.51 (.08)</td>
<td>6.31 (.13)</td>
<td>6.65 (.05)</td>
<td>3.56 (.10)</td>
<td>3.42 (.08)</td>
<td>4.79 (.07)</td>
</tr>
<tr>
<td><strong>Conscientious</strong></td>
<td></td>
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</tr>
<tr>
<td>Low</td>
<td>4.39 (.16)</td>
<td>5.66 (.08)</td>
<td>6.15 (.13)</td>
<td>6.61 (.06)</td>
<td>3.59 (.10)</td>
<td>3.67 (.08)</td>
<td>5.14 (.07)</td>
</tr>
<tr>
<td>High</td>
<td>4.35 (.16)</td>
<td>5.43 (.08)</td>
<td>6.32 (.12)</td>
<td>6.62 (.05)</td>
<td>3.55 (.09)</td>
<td>3.56 (.07)</td>
<td>4.77 (.07)</td>
</tr>
<tr>
<td><strong>Neurotic</strong></td>
<td></td>
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</tr>
<tr>
<td>Low</td>
<td>4.423 (.16)</td>
<td>5.58 (.08)</td>
<td>6.07 (.12)</td>
<td>6.68 (.05)</td>
<td>3.52 (.10)</td>
<td>3.62 (.08)</td>
<td>5.05 (.07)</td>
</tr>
<tr>
<td>High</td>
<td>4.31 (.17)</td>
<td>5.51 (.09)</td>
<td>6.40 (.13)</td>
<td>6.54 (.06)</td>
<td>3.62 (.10)</td>
<td>3.60 (.08)</td>
<td>4.86 (.08)</td>
</tr>
</tbody>
</table>
To test potential personality trait differences on the purposes of social media use, ANOVA tests were conducted for different purposes of using each platform. For wikis, it was found that students with low levels of conscientiousness tended to use wikis for finding solutions more often than those with high levels of conscientiousness did ($F = 5.819, p < .05; \text{Mean \text{Low-Conscientious}} = 2.39, \text{Mean \text{High-Conscientious}} = 2.21$). Students with high levels of openness used wikis for getting updates/news more frequently than those with low levels of openness did ($F = 6.965, p < .01; \text{Mean \text{Low-Open}} = 1.69, \text{Mean \text{High-Open}} = 1.86$). The former also used media-sharing sites more often than the latter for various purposes, including getting updates/news ($F = 8.254, p < .01; \text{Mean \text{Low-Open}} = 2.44, \text{Mean \text{High-Open}} = 2.70$), background information ($F = 6.543, p < .05; \text{Mean \text{Low-Open}} = 2.68, \text{Mean \text{High-Open}} = 2.88$), and others’ opinions ($F = 4.503, p < .05; \text{Mean \text{Low-Open}} = 2.4, \text{Mean \text{High-Open}} = 2.59$). Extroverted students tended to use SNS for updates/news more frequently than introverted respondents did ($F = 11.912, p < .001; \text{Mean \text{Low-Extrovert}} = 3.32, \text{Mean \text{High-Extrovert}} = 3.53$).

**DISCUSSION**

The current study revealed that most social media platforms were used as information sources. For example, wikis, user reviews, media-sharing sites, social Q&A sites, and even SNS whose main purpose is networking, were used for getting information by at least half of the participants. Specific purposes of using different social media platforms varied, however. Wikis were often used for getting background information, while media-sharing and social Q&A sites were used mainly for finding solutions. Despite concerns about its information quality (Denning, Horning, Parnas, & Weinstein, 2005; Wallace & Fleet, 2005), Wikipedia is widely used among college students (Head & Eisenberg, 2010). Some acknowledge its informational value (Fallis, 2008; Lim, 2009) and usefulness as an initial source that can provide background information and that can lead to other related resources (Shaw, 2008). The frequent usage of wikis found in the study suggests that undergraduate students still seem to value wikis, including Wikipedia, as a useful information source.

It is interesting to note that microblogs and SNS were often used for getting updates or news, which coincides with the findings of another recent study. A Pew study revealed that roughly half the SNS and microblogs users get news from those sites (Mitchell, Holcomb, & Page, 2013). While media-sharing sites are also found to be a popular source for news (Pew, 2012), SNS and microblogs seem to be emerging as important sources for news information.

The results of the study show that individual differences exist in social media use. Gender and personality traits have stronger effect sizes on social media use for information seeking than academic discipline and class-level. Male students, for example, tended to use most of the social
media platforms more frequently than female students did. This, in general, seems to confirm previous findings related to Internet use: Males tended to use the Internet more (Li & Kirkup, 2007) and to be more engaged in a wider range of topics and activities than females did (Fallows, 2005; Jones et al., 2009). It also supports recent findings on Wikipedia use: Male college students used Wikipedia more frequently than female students did (Lim & Kwon, 2010). Interestingly, while extant research suggests that female students use SNS more frequently than males do (Madden & Zickuhr, 2011; Nadkarni & Hofmann, 2012), the current study found no such gender differences. This might be because, in this study, questions were asked regarding SNS use for information seeking rather than for social networking purposes. A previous study on the informational value of SNS for international students also found no gender difference (Sin & Kim, 2013). The significant gender difference in social media use for the social networking aspect, but not for information seeking, suggests that different variables and mechanisms are in play. Hence, it should be beneficial to differentiate the social networking aspect from the information seeking aspect when studying social media use.

It is worth noting that wikis, such as Wikipedia, were used more frequently by upperclassmen than by underclassmen. Studies show that Wikipedia is popular among college students, and that it is gaining reputation as a go-to source that can be used as a starting point (Colón-Aguirre & Fleming-May, 2012; Head & Eisenberg, 2010; Lim, 2009). As students gain more experience, they seem to better appreciate Wikipedia's informational value and to use it more frequently. Another group of frequent wiki users are engineering students, who seem to be interested in finding solutions from wikis more so than students in other disciplines. Many agree that Wikipedia provides quality information and that its use would result in more advantages than disadvantages (Chesney, 2006; Fallis, 2008; Lim & Kwon, 2010; Stvilia, Twidale, Smith, & Gasser, 2008), although some are clearly against its use for academic work (Waters, 2007). As wikis seem to have become a popular information source among students, even for more experienced students such as upperclassmen, it might be better to proactively cope with this trend rather than to ignore it. Given its popularity, wikis may need to be treated as an important information source. It would be helpful for librarians and educators to teach students how to effectively evaluate and use the information provided by wikis, while pointing out limitations that wikis have as information sources for academic tasks.

While upperclassmen used wikis, underclassmen used social Q&As more frequently. Compared to wikis that are similar to conventional information sources in format and style (e.g., encyclopedias), social Q&A sites provide information in a format that is rather casual and conversational. Social Q&A sites are community-based and allow individuals to ask questions of the public and to receive answers from anyone who knows something related to the questions. It has been argued that when making use of the “wisdom of crowds,” the average answer may be at least as good as the answer of the smartest member (Surowiecki, 2004). It is hypothesized that compared to the more experienced and socially-connected upperclassmen, underclassmen who are newer to their university and to their subject field may have a less extensive personal network in which to ask certain questions. The underclassmen may feel it beneficial to use social Q&As to seek answers from the wider public. Research shows that the criteria used for evaluating information from social Q&As are somewhat different from the criteria typically applied for traditional information sources (Kim & Oh, 2009). As many students turn to social Q&As for finding information, it would be important to understand why such services are appealing to students and what IL programs can do to help them effectively evaluate information from the sites.

Although media-sharing sites were used generally for finding solutions or how-to-instructions (see Figure 1), humanities students seemed to be more interested in getting updates/news and others’
opinions through media-sharing sites than science and engineering students. Media-sharing sites are already known as one of the most important sources for news (Pew, 2012). The nontextual nature of most objects on these sites (e.g., videos) may hinder effective search and retrieval. Quality metadata would thus be important. As information needs may vary depending on users, such as types of information sought, areas of interest, and contexts, it would be helpful to categorize postings based on genre, topic, purpose, and other criteria. Possible categories that can be useful may include how-to instructions, news, and entertainment. In fact, YouTube has incorporated such a categorization system and organized its contents in a similar way. In addition, information on how many times the posting has been viewed and recommended is also made available. While librarians help students to learn effective ways of evaluating information, system developers should continue to improve information systems to support the effective retrieval, evaluation, and use of information.

Related to the relationship between personality traits and social media use behavior, it was found that students with high levels of openness used blogs, media-sharing sites, user reviews, and wikis more often than their counterparts did. Openness to new experiences reflects an individual’s degree of intellectual curiosity and preference for novelty and variety. This preference for variety is indeed reflected here in their higher usage of multiple social media platforms, including less conventional sources, like media-sharing sites. Similar to those with high levels of openness, users with low levels of agreeableness used a higher number of social media platforms frequently. According to Heinström (2005), individuals with low levels of agreeableness and those with high levels of openness tend to be “broad scanners” characterized by wide information seeking. The current study corroborates the findings that certain groups of users prefer to consult a wide variety of resources. Assuming that these users are attracted to new types of sources, it would be interesting to see if their social media use behavior keeps changing to incorporate newer types of platforms over time, and how these might affect their effectiveness and efficiency in meeting their information needs.

IMPLICATION AND CONCLUSION

Unlike previous social media research that tends to focus on the networking and social capital aspects, the present study focused on the informational aspect of social media. The study found demographic and personality differences in which social media platforms are used and the informational purposes behind their uses. This could be due to personal preferences or types of tasks and trainings students received. Understanding users’ personal preferences, purposes, and information needs would help librarians better prepare to provide effective information services. The findings suggest areas for future research. Firstly, wikis’ appeal to certain disciplines deserves further investigation. Why do students in engineering, for example, use wikis more frequently than other students do? Is it due to the availability of quality information through wikis in particular subject areas, the kinds of problems commonly asked in certain fields that can be resolved through wiki types of sources, or for other reasons? Secondly, the reasons behind underclassmen’s higher use of social Q&A need further examination. Is the preference for using social Q&A inversely related to one’s personal network size and social capital as hypothesized in the discussion section? Further studies are needed to test these hypotheses.

The study also found that students often used a variety of social media platforms as information sources. This has implications for IL instruction. Librarians should make sure that IL programs address the issue of how to effectively evaluate and use the information from different social media platforms including wikis, social Q&A, and media-sharing sites that are often used for background information and solutions, for example. The study also revealed that wikis is more popular among engineering students. Librarians serving engineering students may therefore want to learn more
about typical academic tasks and information needs that engineering students have. This will help to
gain a better understanding of what students seek from wikis, and ultimately develop effective
information services and IL training customized for engineering students.

Depending on personality traits, students may prefer to use more conventional, or rather, novel and
innovative information sources. Some students, such as those with low level of agreeableness and
those with high level of openness, also prefer to consult a number of different sources. While
librarians cannot always seek to measure and identify users’ personalities, we should, in the very
least, recognize individual differences and be prepared to serve various types of users: those who
prefer new types of sources, those who like traditional sources, and those who tend to explore a
variety of different sources.

As most students use social media as information sources despite concerns over a varying quality
of information, librarians may want to be more proactive. The findings underscore the importance of
acknowledging the potential informational value of social media and actively incorporating social
media in IL education and information services for undergraduate students. Instead of hoping that
students would be discouraged from using various social media for information seeking, we should
consider incorporating newer types of resources into IL programs and help students see more
critically the strengths and weaknesses of such resources. IL programs will need to cover different
social media platforms in more detailed discussions about which social media platforms would be
useful as information sources for what purposes, as well as how to better evaluate and use
information from such platforms (Nicholas et al., 2011).

Information literacy programs will also need to address how each of us can be a valuable member
of this increasingly connected information society. That is, in addition to helping to learn strategies
for the effective evaluation of information, IL programs should provide students with the
opportunities to learn strategies for the creation of quality information. Librarians can also capitalize
on the popularity of social media among students, and use these popular channels to reach their
constituents. For example, librarians can post and curate quality information on popular platforms
such as wikis, SNS, user reviews, media-sharing sites, and social Q&A, that are found in this study
to be used by at least half of the respondents. The rise of social media platforms has opened up
more avenues for us to voice our thoughts and share our knowledge with the public. But the full
power of these media can only be realized if we are responsible and effective content creators and
consumers. To these ends, librarians’ contributions will be critically important.

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