Student class standing, Facebook use, and academic performance

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ABSTRACT

Although some research has shown a negative relation between Facebook use and academic performance, more recent research suggests that this relation is likely mitigated by multitasking. This study examined the time students at different class ranks spent on Facebook, the time they spent multitasking with Facebook, as well as the activities they engaged in on the site ($N = 1649$). The results showed that seniors spent significantly less time on Facebook and spent significantly less time multitasking with Facebook than students at other class ranks. Time spent on Facebook was significantly negatively predictive of GPA for freshmen but not for other students. Multitasking with Facebook was significantly negatively predictive of GPA for freshmen, sophomores, and juniors but not for seniors. The results are discussed in relation to freshmen transition tasks and ideas for future research are provided.

Unquestionably, Facebook is the most popular social networking site (SNS) in the both the United States and Europe (Ellison, Steinfield, & Lampe, 2007; Hampton, Sessions Goulet, Rainie, & Purcell, 2011; Madge, Meek, Wellens, & Hooley, 2009; Stutzman, 2006). Of all social networking site users, 92% use Facebook (Hampton et al., 2011) while 71% of all adult Internet users use Facebook (Pew Research Internet Project, 2014). While Facebook is popular with all Internet users, it is even more so with college students. Research shows that between 67% and 75% of college-aged adults used SNS (Jones & Fox, 2009; Lenhart, 2009; Lenhart, Purcell, Smith, & Zickuhr, 2010). The last time they asked the question in their yearly study, the EDUCAUSE Center for Applied Research (ECAR) found that 90% of college students used Facebook with a majority (58%) using it several times a day (Dahlstrom, de Boor, Grunwald, & Vockley, 2011). In large sample studies conducted at single institutions, 92% of students reported using Facebook and spending an average of over one hour and forty minutes a day on the site (Junco, 2012a,b).

Facebook is also the most popular social media website used by higher education faculty for personal purposes. Seaman & Tinti-Kane (2013) found that 57% of faculty members reported visiting Facebook "at least monthly." They also found that 8.4% of faculty reported using Facebook for teaching purposes, much more than Twitter but less than blogs and wikis, podcasts, and LinkedIn. Some scholars have suggested that using Facebook for teaching and learning can promote active learning, student engagement, support knowledge construction, and be used as a communication tool congruent with the preferences of today's students (Junco, 2012b; McLoughlin & Lee, 2010; Selwyn, 2010). Greenhow (2011) suggests that social network sites like Facebook can

be used as environments that support learning but also as places where youth learn as well as environments that can help youth be more civically and academically engaged.

Facebook has been the most researched platform for teaching and learning (Manca & Ranieri, 2013; Tess, 2013). In their review, Manca and Ranieri (2013) discovered 23 empirical studies of using Facebook as a learning environment. Manca and Ranieri (2013) identified five main educational uses of Facebook: 1) Support class discussions and helping students engage in collaborative learning; 2) Developing content; 3) Sharing educational resources; 4) Delivering content to expose students to extra-curricular resources; and 5) To support self-managed learning. They note that only four studies have examined how Facebook relates to learning outcomes and found positive impacts on learning outcomes such as improvement in English writing skills, knowledge, and vocabulary (Manca & Ranieri, 2013). Robelia, Greenhow, and Burton (2011) examined a Facebook application designed to raise awareness about climate change. They found that users of the app reported above average knowledge of climate change science and reported increased pro-environmental behaviors because of peer role modeling on the site (Robelia et al., 2011).

Facebook has been used as a replacement for learning and course management system (LCMS) discussion boards. For instance, Hurt et al. (2012) examined student outcomes from and preferences for Facebook use. They assigned students to either use Facebook or the learning management system (LMS) in two courses. They found that the Facebook group reported better educational outcomes than the LMS group. They also found that 43% of the LMS users said they would have contributed more if they had used Facebook; while only 12% of Facebook users said they would have participated more with a switch to the LMS. Hollyhead, Edwards, and Holt (2012) found that students

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preferred to create their own Facebook groups when no official-course related ones were available instead of using the LMS. Schroeder and Greenbowe (2009) found that while only 41% of a Chemistry class joined the course Facebook group, the number of posts on Facebook were 400% greater than on the course management system. Furthermore, they reported that postings on the Facebook group "raised more complex topics and generated more detailed replies" than postings on the CMS (Schroeder & Greenbowe, 2009).

Because of its popularity with students, its popularity with faculty, and its potential to support teaching and learning, it is important to understand the relation between Facebook use and student learning. Researchers have examined how Facebook is related to various aspects of the college student experience including engagement (Junco, 2012b), multitasking (Junco, 2012c; Junco & Cotten, 2012), political activity (Vitak et al., 2011), life satisfaction, social trust, civic engagement, and political participation (Valenzuela, Park, & Kee, 2009), development of identity and peer relationships (Pempek, Yermolayeva, & Calvert, 2009), and relationship building and maintenance (Ellison, Steinfield, & Lampe, 2011; Ellison et al., 2007; Valenzuela et al., 2009). Although research has been conducted on other facets of the student experience, little research exists examining how Facebook relates to student learning (Aydin, 2012; Junco, 2012a; Kirschner & Karpinski, 2010; Kolek & Saunders, 2008; Manca & Ranieri, 2013; Pasek, More, & Hargittai, 2009; Tess, 2013).

Facebook use and educational outcomes

Academic performance

In the broadest sense, the desired outcomes of a college education include subject area content achievement, general education knowledge, the acquisition of skills such as critical thinking, moral development, development of civic engagement skills, and psychological maturation (Hersh, 2009; Pascarella & Terenzini, 2005). However, research on college outcomes focuses alomost exclusively on academic performance and persistence (Robbins et al., 2004). Academic performance is typically measured by cumulative GPA which is connected to class and subject matter achievement (Robbins et al., 2004). In addition to being the most common measure of academic performance in the literature on college outcomes, GPA is the sole measure of academic performance used in the literature on Facebook (Junco, 2012a; Kirschner & Karpinski, 2010; Kolek & Saunders, 2008; Pasek et al., 2009).

Research on the relation between Facebook use and academic performance has yielded mixed results. Pasek et al. (2009) found there was no relation between Facebook use and grades. Kolek and Saunders (2008) found that there were no differences in overall grade point average (GPA) between users and non-users of Facebook. Kirschner and Karpinski (2010), on the other hand, found that Facebook users reported a lower mean GPA than non-users; additionally, Facebook users reported studying fewer hours per week than non-users (Kirschner & Karpinski, 2010). Lastly, Junco (2012a) found that number of logins and time spent on Facebook were related to lower overall GPA; however, sharing links and checking to see what friends are up to were positively related to GPA. Junco (2012a) also found that there was a negative relation between time spent on Facebook and time spent preparing for class.

There are a number of possible reasons for the disparate findings among studies. The studies may have been limited by the measures used to evaluate Facebook use and/or grades. These studies may have also been limited due to their sampling designs (Junco, 2012a). For instance, Facebook use was measured in different ways such as through a measure of time spent on the site (Junco, 2012a) or by splitting users and non-users (Kirschner & Karpinski, 2010). Additionally, grades were measured either through self-report (Kirschner & Karpinski, 2010; Kolek & Saunders, 2008; Pasek et al., 2009) or through data collected from the university registrar (Junco, 2012a). Furthermore, there may

be differences in how students use Facebook and how this relates to academic outcomes, a factor examined in only one of the studies (Junco, 2012a).

Relationship building and maintenance

As students transition into and move through college, they have to develop new skills in order to be successful (Upcraft, Gardner, Barefoot, & Associates, 2005). Some of these skills are academic such as learning how to engage in progressively more difficult levels of academic work. For instance, as first year students transition to college, they need to learn how to manage their time so that they spend an appropriate amount of time studying for their courses (Upcraft et al., 2005). Social skills are equally important for student success. An important social task for new college students is the building and maintenance of friendships at their new institution (Pascarella & Terenzini, 2005; Tinto, 1993; Upcraft et al., 2005).

Students use Facebook to maintain their former network of high school friends and also to build and sustain bonds with new friends on their campuses (Ellison et al., 2007, 2011; Junco & Mastrodicasa, 2007). They use Facebook to initiate and maintain friendships and to seek out new information about those in their social circle (Ellison et al., 2011). The practice of social information seeking is related to student's perceived levels of social capital (the resources obtained from their relationships and interactions such as emotional support; Ellison et al., 2011). Social capital is related to improved self-esteem, fewer psychological and behavioral problems, and improved quality of life (McPherson et al., 2014). Furthermore, increased social capital can help students feel more of a connection to their institution, which is related to more positive educational outcomes (Pascarella & Terenzini, 2005).

Facebook use can help a student connect with a new peer group as well as maintain relationships with their high school friends in order to mitigate feelings of homesickness thereby allowing them to develop new connections while keeping the support of their old ones. Such interactions are important for student success: students who interact a great deal with their peers, who have broad social ties and reciprocated relationships, and who have strong bonds in their social network are more likely to persist to graduation (Eckles & Stradley, 2011; Pascarella & Terenzini, 2005; Thomas, 2000). Indeed, Yu, Tian, Vogel, and Kwok (2010) showed that Facebook use was directly related to developing relationships, which mediated the association between Facebook use and self-esteem, satisfaction with university life, and the student's evaluation of their own performance.

Multitasking and academic outcomes

While Facebook use can help students develop new connections in their transition to college, researchers have found that students are likely to multitask while using the platform (Junco & Cotten, 2011, 2012). For this paper, multitasking is defined as "consumption of more than one item or stream of content at the same time" and is described in cognitive science research as task switching (Ophir, Nass, & Wagner, 2009, p. 15,583; Tombu et al., 2011). Today's college students multitask more than any other generation of students (Carrier, Cheever, Rosen, Benitez, & Chang, 2009; Rosen, Carrier, & Cheever, 2013; Rosen, Lim, Carrier, & Cheever, 2011). Carrier et al. (2009) examined the multitasking behaviors of different generations and found that those in the "Net Generation" (born after 1978) multitasked significantly more and reported that multitasking was "easier" than older generations. The market firm Wakefield Research surveyed 500 college students and found that 73% said they were not able to study without some form of technology and 38% reported that they couldn't go more than 10 minutes without checking an electronic device such as their phone or laptop (Kessler, 2011).

While today's students multitask a great deal, much research has shown the detrimental effects of multitasking on human information