The Effect of Social Network Sites on Adolescents' Social and Academic Development: Current Theories and Controversies

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Teenagers are among the most prolific users of social network sites (SNS). Emerging studies find that youth spend a considerable portion of their daily life interacting through social media. Subsequently, questions and controversies emerge about the effects SNS have on adolescent development. This review outlines the theoretical frameworks researchers have used to understand adolescents and SNS. It brings together work from disparate fields that examine the relationship between SNS and social capital, privacy, youth safety, psychological well-being, and educational achievement. These research strands speak to high-profile concerns and controversies that surround youth participation in these online communities, and offer ripe areas for future research.

The current tools of teenage communication go by a peculiar set of names. Wall Posts, Status Updates, Activity Feeds, Thumbs Ups, and Profiles are some of the ways that youth today communicate with one another. These tools are features of social network sites (SNS), such as Facebook and MySpace. SNS are part of a suite of Web applications, also called social media, which utilize Web 2.0 principles. The term Web 2.0 defines websites that are designed to: (a) rely on the participation of mass groups of users rather than centrally controlled content providers, (b) aggregate and remix content from multiple sources, and (c) more intensely network users and content together (O'Reilly, 2007). Adolescents use social media in large numbers. For example, a national survey in 2009 finds that 73% of online teenagers use SNS, which is an increase from 55% 3 years earlier (Lenhart, Purcell, Smith, & Zickuhr, 2010).

That youth are connected to these global online communities is both a frightening prospect for parents and educators and an intriguing area for social science research. For example, educators and parents in the United States face difficult quandaries concerning students and SNS. Many scholars suggest that students learn in new ways using social media and that educators should embrace these new platforms (Ito et al., 2009; Jenkins, 2006). Nevertheless, most school districts block access to SNS (Lemke, Coughlin, Garcia, Reifsneider, & Baas, 2009), while parents remain fearful about safety and effects on their children's social development. Teenage youth are a unique population of SNS users. They are among the first to have grown up entirely surrounded by communication technologies. Teenagers are also in a period of rapid development, growth, and maturation. Research about social media effects on youth promises to contribute significantly to the concerns of adults who mediate access to these online communities.

In this article I consider several key controversies around youth participation in SNS and review relevant research that begin to inform these debates. I first consider the theoretical considerations that arise when one focuses on SNS effects on youth. To search for effects engenders particular orientations toward causal theories and methodologies. However, prior research on media effects consistently shows that technology alone cannot be hypothesized to affect human outcomes. Instead, a social informatics approach that examines the interaction between technical features of SNS communities and how teenagers adopt SNS is needed (Kling, 2007). Working from a concrete epistemological framework, I then define SNS and describe studies that capture how youth use these technologies to develop relationships, interact with friends, and learn new skills. Finally, the article reviews relevant research that informs several controversies concerning SNS and adolescents. The specific controversies reviewed are:

- Are there digital divides concerning youth participation in SNS?

- Does adolescent participation in SNS expose them to harm or help them develop relationships?
- Do youth activities in SNS influence their personal development in terms of self-esteem and psychological well-being?
- Does SNS use affect student learning or academic achievement?

Several considerations also frame this review. I use the terms youth, teenagers, and adolescents interchangeably throughout the text. As Large (2005) notes, it is difficult to define categories such as children, adolescents, and young adults in concrete terms. National studies often define teenagers as between the ages of 12–17 (see Lenhart et al., 2010). However, Ito et al. (2009) observe that terms such as children, adolescents, and young adults are socially and culturally constructed labels. In their case studies of youth and media they define children as less than 13 years of age, teenagers and adolescents as between 13–18, and young adults as 19–30 years old. Given these elastic conceptualizations of youth as a developmental category, this article casts a wider net to include studies that consider adolescents between the ages of 12–18.

This review also includes pertinent studies that deal with adult and young adult populations. The research literature pertaining to youth (12–18) and SNS is only just emerging, with few studies that explicitly consider the unique contexts of teenagers. Many studies consider college-age or young adult users of SNS. While such research does not consider adolescents as defined earlier, they provide rich theoretical frameworks and considerations from which to build studies of youth populations. For example, early studies find that college student use of Facebook is related to positive relationships to their peers on campus (Ellison, Steinfield, & Lampe, 2007). The intriguing question for youth researchers then is to consider whether such findings also apply to younger age groups and in what areas one might find differences. The societal impact of youth media research is significant. Studies that directly inform the debates and controversies outlined in this article have tremendous promise to both improve youth access and utilization of social media, and also contribute significant theoretical insight into the media effects of SNS on adolescent populations.

Media Effects as a Product of Social Informatics Systems

Many of the controversial questions concerning SNS ask what kinds of effects these technologies have on youth development. Given this focus, the media effects paradigm is a natural area to begin conceptualizing theories of SNS effects. Media effects scholars examine the outcomes that arise when people use new technologies. Talking about effects engenders important theoretical discussions that must be laid clear when examining studies. Most significantly, the term implies a focus on causality. Studies in this framework imply that a media form, or the features of the technology, causally influences some outcome (Eveland, 2003). The structure of questions from this perspective is usually in the form of:

Do media affect learning? Do video games make children violent? Or do SNS affect the psychological well-being of adolescents? Media effects scholars in a variety of fields have quickly come to realize that the answers to these questions are more complex. Very rarely, if ever, is there a direct causal relationship between a technology and a social outcome such as learning (i.e., Clark, 1983, 1991; Schmidt & Vandewater, 2008).

Early media studies often used a technological framework or object-centered approach (Fulk & DeSanctis, 1999; Nass & Mason, 1990). Such a perspective assumes and tests whether a technology itself causally affects a social outcome. For example, a common question in youth research is whether media affects learning. Education researchers now firmly conclude that a media tool itself does not affect student learning (Clark, 1983, 1991). Numerous studies show that the media tool neither improves nor negatively impacts learning when compared to the same teaching strategy in the classroom (Bernard et al., 2004; Clark, 1983, 1991). What matters is not the computer, but the learning behaviors that occur within the software or educational program.

Counter to the technological determinism seen in previous media effects research, theoretical orientations that combine technology affordances with social adoption come with various names such as an emergent perspective (Fulk & DeSanctis, 1999) or social informatics (Kling, 2007). Technology is a structuring factor. Features of a technology, not the technology itself, enable and constrain how one uses that tool. Simultaneously, social forces such as cultural norms and behavioral practices influence how one ultimately uses a technology. This social informatics perspective offers several grounding principles for researchers of SNS. The SNS platform itself does not cause outcomes such as psychological well-being, social capital, or learning. Rather, the communication and cultural behaviors of users—how they share information, social support, or information—can be theorized as the causal mechanism. Undoubtedly, social media platforms such as SNS alter how communication happens. However, one cannot find effects of the technology alone without taking into account the communication behaviors within the system. To understand SNS as a social informatics system (Kling, 2007), researchers must take into account (a) the features of SNS, (b) the user populations in these online communities, and (c) the behaviors that can plausibly be linked to social outcomes.

What are Social Network Sites and How Do Youth Use Them?

When a teenager joins a site like Facebook they first create a personal profile. These profiles display information such as one's name, relationship status, occupation, photos, videos, religion, ethnicity, and personal interests. What differentiates SNS from previous media like a personal homepage is the display of one's friends (boyd & Ellison, 2007). In addition to exhibiting a network of friends, other users can then click on their profiles and traverse ever widening social networks.

These three features—profiles, friends, traversing friend lists—represent the core, defining characteristics of SNS.

Social networking features are increasingly integrated into other types of media tools and online communities. Sonia Livingstone (2008) notes that SNS invite "convergence among the hitherto separate activities of email, messaging, website creation, diaries, photo albums and music or video uploading and downloading" (p. 394). For example, YouTube is primarily a video sharing service, but users can add others as their friends or subscribe to a member's collection of videos. Using boyd and Ellison's (2007) definition, YouTube can be included as a type of SNS. As researchers examine the effects of SNS on social behaviors, they will undoubtedly come across these blurring of technologies. The proliferation of SNS, both as standalone communities and integrated into other media tools, underscores the importance of understanding the unique effects these sites have on human interaction.

Amid the sea of what websites can be termed SNS, the technical definition of SNS still provides a shared conceptual foundation. Comparing across common features—i.e., profiles and friend networks—researchers can begin to understand how various communities co-opt these characteristics to create entirely new cultural and social uses of the technology. Lange's (2007) ethnographic study of YouTube shows that users deal with issues concerning public and private sharing of video. Some YouTube users post videos intended for wide audiences, but share very little about their own identities. Their motivations might be to achieve Internet fame and gather viewers. Other members upload videos intended for a small network of friends and may restrict the privacy settings to only allow access to those individuals. The concepts of friend and social network for these users are entirely distinct.

The features and culture of particular SNS communities may also affect behavior. Pappacharissi (2009) analyzes profiles and user behavior on Facebook, LinkedIn, and ASmallWorld and finds that the features, intent, and norms of each social network are intricately related to user behavior. For example, Facebook is a more wide-open network with less stringent rules about membership, information disclosure, and interaction. LinkedIn is also an open-membership network, but its design such as profiles in résumé-like format encourages professional uses. ASmallWorld is an entirely closed and exclusive network, where members share pictures that signal their socioeconomic status. Similarly, when MySpace introduced its Top 8 function, where users designated their top friends on their profile, it set off a firestorm of social drama among teens. boyd (2006) noted, "There are tremendous politics behind the Top 8, not unlike the drama over best and bestest friends in middle school" (para. 32). These examples highlight how the structure, function, and mission of a respective SNS community influence networking behavior.

Signaling Theory, Warranting Theory, and Identity Development

The process of creating profiles has been a major focus of theoretical and empirical discussion. The common features of profiles include personal information such as one's name, location, school affiliation, occupation, and personal interests such as favorite movies or music. Other vital components of the profile are pictures, videos, and the comments one's peers leave on the page. Profiles can be updated at any time and some sites like MySpace allow individuals control as to how their profile looks. Using programming techniques, youth frequently apply "skins" to their MySpace profiles that completely alter the visual design or interface of their pages (boyd, 2008).

Signaling theory is one framework used to understand how individuals disclose information on their SNS profiles. Donath (2007) observes that, "Whether face-to-face or online, much of what people want to know is not directly observable" (para. 10). She contends that much of human interaction consists of signals that communicate the status and characteristics of an individual. Signaling theory examines how one's self-presentation in SNS develops identity and trust with others. For example, when a user displays a contact as a "friend" he or she is—in an indirect way—vetting that that person is in fact who they claim to be. Thus, members who indiscriminately add any and all friend requests (including fake profiles or people they do not know) in an effort to seem popular may instead damage their credibility and trustworthiness to others. Among teenagers, boyd (2008) finds that "it is cool to have Friends on MySpace but if you have too many Friends, you are seen as a MySpace whore" (p. 129).

In a similar vein, warranting theory suggests that human beings do in fact judge others based on cues in SNS profiles. Walther and colleagues have shown that an individual (on Facebook) is consistently rated as physically and socially attractive when his or her friends are also attractive (Walther, Van Der Heide, Kim, Westerman, & Tong, 2008). Positive and negative comments left on a person's Facebook wall also greatly influence whether they are seen as attractive. In addition to judging others based on their profiles, SNS users appear to judge the credibility of profile information quite consistently. On SNS we are judged by the company we keep.

Signaling theory and warranting theory also propose that people assess other-generated statements as more credible compared to self-generated information. This hypothesis is especially likely in SNS because profile owners can manipulate what information is presented on their page. Thus, statements from others might be seen as more credible than statements from the individual. Early experiments show that a Facebook user is rated as more attractive if others state that identity (through wall posts, comments, etc.) compared to when the individual (through self-statements on the profile) asserts this identity (Walther, Van Der Heide, Hamel, & Shulman, 2009). SNS profiles not only represent information that an individual chooses to disclose, but also signal what those friends indicate about the individual.

These early studies offer compelling evidence that what one puts on one's SNS profile is assessed by others and the characteristics of friends are strongly related to how one is viewed. In addition, the feedback provided by one's network in an SNS is influential in the development of social

identity. Adolescents use SNS in a variety of ways. They disclose personal information about their identities and tastes on their profiles (Livingstone, 2008). Teenagers must also add or reject friend requests from their peers, navigating the complicated web of friendship practices (Ito et al., 2009). Finally, the interactions and feedback that one's network provides in SNS—through wall posts and comments—show how complex social identity and peer influence processes occur in these online communities (Subrahmanyam, Reich, Waechter, & Espinoza, 2008; Walther et al., 2008, 2009).

Social network sites provide a platform for teenagers to develop personal and social identities. Developing identities in SNS is very similar to offline contexts. Donath and boyd (2004) observe some of the ways that individuals reflect their social identity:

> In the physical world, people display their connections in many ways. They have parties in which they introduce friends who they think would like—or impress—each other. They drop the names of high status acquaintances casually in their conversation. They decorate their refrigerator with photos. Simply appearing in public with one's acquaintances is a display of connection (p. 72).

In similar fashion, young adult users of SNS decide what to place on their profiles (Liu, 2007; Manago, Graham, Greenfield, & Salimkhan, 2008) and what friends to display for others to see (boyd, 2006). The emerging picture is that individuals make explicit decisions to disclose information about themselves on their profiles, and their networks provide social feedback to those profile displays. This process of developing identity is quite salient to adolescents who are experiencing a time of rapid growth and development.

The majority of current research on SNS attempts to understand the phenomena itself. Scholars have been interested in how youth use these technologies, what cultural practices emerge in these online contexts, and what theoretical implications SNS have on personal identity and social relationships. The early descriptive and ethnographic research on youth, Internet, and social media offer rich evidence that (a) the features of different platforms, for example, the MySpace Top 8 case, influence the social practices of youth within those online communities, (b) SNS are important places for youth to develop their personal identity, and (c) youth use technologies like SNS to mediate their relationships with friends, romantic partners, and broader groups of peers (Ito et al., 2009). The questions that parents, educators, and researchers now grapple with concern the effects SNS have on adolescent outcomes.

Issues Surrounding SNS Effects and Youth

Discussions about adolescents today differ considerably from the past through the central role that technology plays in youth lives. Ito et al. (2009) observe that:

> . . .Although today's questions about "kids these days" have a familiar ring to them, the contemporary version is somewhat unusual in how strongly it equates generational identity with technology identity (p. 2).

The technologies that youth utilize today are most definitely new and how teenagers use them to communicate with each other is clearly novel. Nevertheless, the technologically mediated activities that youth participate in are similar to past generations:

> Just as they have done in parking lots and shopping malls, teens gather in networked public spaces for a variety of purposes, including to negotiate identity, gossip, support one another, jockey for status, collaborate, share information, flirt, joke, and goof off. They go there to hang out (Ito et al., 2009, p. 79).

Not surprisingly, the apprehensions of parents and educators about SNS are also comparable to past questions about how youth spend their time. SNS represent a new environment through which to examine adolescent development and learning. Within this context, I focus on several areas of concern that are particularly salient for adolescent populations: youth characteristics and digital divide, privacy and safety, psychological well-being, and learning.

Digital Divides: What Types of Youth Use Social Network Sites?

Traditional digital divide scholarship asks whether particular populations have or do not have equal access to new technologies or platforms. Scholars assert that social media represent new skills and ways of participating in the world. If students are not allowed to use new technologies and contribute to online communities like SNS, they will not be able to develop the necessary skills and technical literacy that will be vital in the future (Jenkins, 2006). Stemming from this belief, researchers continue to wonder whether certain groups of students are systematically hindered from using new technologies. For example, Seiter (2008) observes that "Young people famously use digital communications—instant messaging, cell phone texting, and social networking Web sites—to maintain their social capital, at least with those peers who can afford to keep up with the costly requirements of these technologies" (p. 39). The statement succinctly outlines the concerns of digital divide scholars: (1) there is an understanding that many people are using technology, (2) the use has some positive outcome, i.e., developing social capital, and (3) questions remain as to the systemic and unequal access to the technology.

The emerging research literature suggests that SNS are becoming ubiquitous aspects of youth and young adult life. In a sample of college students, Hargittai (2007) finds few demographic differences between users and nonusers of SNS. Gender appears as a significant predictor, with females being 1.6 times more likely to use an SNS than males. In addition, having Internet access through friends or family also significantly predicted whether a college student used SNS. Other traditional indicators such as race and parent's education had no significant correlation with the use of SNS. Hargittai's study underscores the developing trend of mass adoption of SNS. Among the college students in her sample,

there appeared to be few systemic inequalities in their access to SNS.

Hargittai (2007) also disaggregates her results based on different SNS—Facebook, MySpace, Xanga, and Friendster. She finds interesting and significant correlations between race and particular SNS communities. For example, Hispanic students were more likely to use MySpace, but less likely to use Facebook compared to Caucasian students. Asian students were significantly more likely to use Xanga and Friendster. Such patterns problematize some of the theoretical benefits of social networks. For example, Wellman et al. (1996) theorize that, "People can greatly extend the number and diversity of their social contacts when they become members of computerized conferences or broadcast information to other CSSN [computer supported social network] members" (p. 225). However, Hargittai notes that if particular groups of people gravitate to respective communities, offline inequalities may persist online.

Studies of digital divides and adolescent youth are less frequent. However, Ahn (2011) examines a nationally representative sample of 12–17-year-old teens from a 2007 Pew Internet and American Life survey. African-American youth were more likely to use SNS compared to their white peers, controlling for other factors. Furthermore, traditional divide indicators such as having Internet access at home were counterintuitive. A teenager whose primary Internet access was not at home or school was over twice as likely to use SNS as teens who had home access. Such results converge with ethnographic accounts and surveys of youth, which suggest that teenagers find different ways to connect to their online social networks despite socioeconomic status (Ito et al., 2009; Lenhart et al., 2010). Mobile devices and Internet access away from adult supervision may constitute new contexts where youth use social media. Such contexts are theoretically vital areas to explore because they may contribute to culture and behavior in SNS communities.

In addition to concerns about digital divide, understanding the characteristics of SNS users is necessary to properly assess any effects of participation. For example, perhaps one is concerned about whether using Facebook leads to higher levels of self-esteem among youth. The question cannot be adequately examined without taking into account the characteristics of youth who use Facebook or the network they interact with. Selection bias looms large in studies of SNS. Youth actively decide to use SNS, versus other tools, for particular communicative reasons such as keeping in touch with friends (Agosto & Abbas, 2010). Early studies in the field also imply that characteristics such as shyness, self-esteem, and narcissism are related to behavior in SNS (Barker, 2009; Buffardi & Campbell, 2008; Zywica & Danowski, 2008). Survey data find that female and male youth might use SNS in different ways (Lenhart, Madden, Macgill, & Smith, 2007). Several of the studies reviewed below also find that SNS use has differential effects for individuals with high/low levels of self-esteem or extraversion (i.e., Steinfield, Ellison, & Lampe, 2008; Zywica & Danowski, 2008). Youth enter these online communities with existing traits (gender, self-esteem, shyness, etc.). They also have varying motivations for using SNS. Such factors influence with whom youth interact, how they behave, and ultimately how they develop through their participation in SNS communities.

Social Network Sites and Youth Relationships: Safety Versus Social Capital

A major controversy surrounding SNS is youth safety and privacy. Approximately 70% of school districts block access to SNS, and the main reason for this trend centers on fears about student safety (Lemke et al., 2009). However, initial research on SNS suggests that these online communities help individuals build social capital. Social capital refers to the idea that one derives benefits—i.e., advice, information, or social support—through their network of relationships (Portes, 1998). A critical theoretical concern for youth is whether and how SNS facilitate detrimental behaviors such as bullying and interacting with strangers, versus positive outcomes such as developing wider networks of relationships.

The early picture concerning youth and online privacy is mainly positive. Nearly every major SNS offers privacy controls. In fact, "These privacy measures have given adolescent users a great deal of control over who views their profiles, who views the content that they upload, and with whom they interact on these online forums" (Subrahmanyam & Greenfield, 2008, p. 123). Current research finds that teenagers disclose a variety of personal information on their profiles, but they also proactively use privacy features to manage who can view their content (Hinduja & Patchin, 2008; Lenhart & Madden, 2007). Lenhart and Madden (2007) report from a nationally representative sample of youth that 66% of teenagers limit their profile to particular people in their network. A cross-sectional study of a college student sample also reports that privacy concerns did not hinder users' desire to share personal information on their profiles. Rather, students used privacy features to control and limit who could view their information (Tufecki, 2008).

Approximately 91% of youth who use SNS report that they utilize the sites to communicate with already known friends (Lenhart & Madden, 2007). Qualitative studies also converge with this finding that U.S. youth mostly use SNS to interact with friends and not to meet strangers (Agosto & Abbas, 2010; boyd, 2008). Studies also find that teenagers are less likely to experience unwanted sexual solicitations or harassment in SNS, while more likely to experience these dangers in instant messaging and chat room environments (Ybarra & Mitchell, 2008). This initial research suggests that the fears about SNS creating opportunities for predators to solicit children are overstated. Nevertheless, these and other detrimental behaviors such as cyberbullying are real concerns. Even if dangerous or negative experiences in SNS only account for a small percentage of online activity, each instance represents a significant concern for adults, parents, and educators.

A social informatics approach to understanding youth safety would compel researchers to consider two interrelated

aspects of SNS: technical features and youth behavior. The features of a technology tool may influence the likelihood of contacting strangers on the Internet. Peter, Valkenburg, and Schouten (2006) find that youth who spend more time in chat rooms talk with more strangers. Ybarra and Mitchell (2008) also find that adolescents are less likely to be targeted for unwanted sexual solicitation in SNS compared to chat rooms. Chat rooms are often public and unmonitored spaces where multiple people talk synchronously. Perhaps such features are related to the higher frequency of risky behavior and unwanted interactions in these online forums.

Early research also notes variations within different SNS themselves. Dwyer, Hiltz, and Passerini (2007) find that MySpace users utilize the site to meet new people more often than Facebook members. Such patterns might be related to the norms of each site at that time. Facebook originally began as a college-campus based SNS, and thus established boundaries around one's social networks (boyd & Ellison, 2007). MySpace began as a broader and open network. As Facebook has slowly opened its network to high school students, then to any individual, these dynamics may have changed. The key point is that technical and social elements of a respective SNS community may facilitate or inhibit behavior, and this question requires further examination.

Beyond a keen eye towards the technical features of an SNS platform, additional studies are needed to identify those youth who might be prone to risky online behavior and why they participate in such activities. One theoretical question is to understand what characteristics—i.e., social, emotional, or behavioral—relate to adolescents seeking or experiencing negative behavior in online communities. Factors such as age, gender, experience level, and personality traits appear to influence youth risks in online setting. For example, in a survey of 412 Dutch teenagers, Peter et al. (2006) find that younger adolescents were more likely to talk with strangers. In addition, teens that used the Internet to explicitly meet new friends or to overcome their own shyness (social compensation) communicated with strangers more often.

Early studies of college students and Facebook find that peer influence is related to safety behaviors in SNS. Students appear more likely to have a private profile if their friends or roommates also used privacy settings (Lewis, Kaufman, & Christakis, 2008). Such results offer a hypothesis that peer effects influence the safety behaviors of youth online. Finally, a recent report by the Berkman Center for Internet & Society observes that while the Internet may potentially provide access to negative experiences for children, technology alone is not the causal mechanism (Berkman Center for Internet & Society, 2008). Factors such as age influence when and how youth experience unwanted sexual solicitation or cyberbullying. In addition, youth characteristics are related to both those who are victims of online harassment, and those who bully their peers. The underlying social, psychological, and emotional characteristics of youth influence whether they engage in negative activity, and technology provides another avenue (but is not a cause) for these behaviors.

Studies about adolescent privacy and safety focus on the potential negative relationships that can be formed online. However, scholars also posit that the Internet widens our social networks and provides positive benefits in the form of *social capital* (Wellman et al., 1996). Various theorists focus on disparate elements of social capital theory, which often leads to confusion on the part of research studies that use the framework (Portes, 1998). For example, Pierre Bourdieu (1986) focuses his definition on people's membership of social groups that have cultural and financial wealth. If one is a member of a group with many resources, he or she can accrue benefits—financial, cultural, or social—from having that access.

James Coleman (1990) defines social capital in terms of relationship and group norms. Groups that exhibit a high level of trust have more social capital because they are more likely to help each other. Putnam (2000) also popularizes the term in his book *Bowling Alone* and SNS researchers have utilized his ideas of bridging and bonding capital in recent studies. Putnam observes that diverse social groups provide bridges to new information and ideas, while homogenous groups most often offer bonding relationships based on social support. The diverse perspectives on social capital are worth noting because SNS scholars often evoke one or more of these definitions under the banner of social capital theory. Portes (1998) offers a more general definition that highlights the explicit conceptual link between SNS and the theory: "Despite these differences [in definitions], the consensus is growing in the literature that social capital stands for the ability of actors to secure benefits by virtue of membership in social networks" (p. 6).

Hypothetically, SNS have the potential to widen a person's social networks and provide access to valuable resources, information, and social support (Wellman et al., 1996). A series of studies with college students and Facebook test these particular social capital hypotheses. For example, Ellison, Steinfield, and Lampe (2007) find that higher Facebook use is positively correlated with bridging and bonding social capital in a sample of college students. The researchers also find interactions between Facebook use, measures of self-esteem (SE) and life satisfaction (LS). Participants who were low in self-esteem, but frequently used Facebook, had higher bridging social capital than their peers who were already high in self-esteem. The results suggest that college students who have low self-esteem or life satisfaction might benefit more from Facebook usage. Subsequent studies also find a positive relationship between Facebook use and social capital (Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009). For example, Valenzuela et al. (2009) examine a sample of college students in Texas and find that Facebook usage is positively correlated to life satisfaction, social trust, and civic engagement. However, the authors note that the relationships were small and conclude that SNS might not be the most effective means to develop social capital.

Almost no studies of SNS and social capital have considered adolescent youth, with most considering college-age

users. However, emerging studies suggest that SNS may also connect younger teenagers to the broader community. For example, Ahn (2010) finds that high-school students who are members of Facebook and MySpace report substantially larger levels of social capital than their peers who are not members. However, beyond this exploratory evidence, further research is needed to understand whether and how youth participation in SNS connects them to their broader community. Questions of whether youth also develop different types of social capital (i.e., bridging and bonding) are fruitful avenues for study. Such research is particularly helpful because the benefits of social capital are numerous for youth. Children with more social capital appear to achieve higher academically, attend college at greater rates, and are less likely to drop out of school (Dika & Singh, 2002). If SNS increasingly mediate adolescent interactions, youth relationships with others in these online communities may prove to be a vital mediating variable for a variety of life outcomes.

Does Participation in SNS Affect Psychological Well-Being and Self Esteem?

Self-esteem and psychological well-being are the two most common outcomes of interest in prior Internet and SNS studies. Researchers typically measure self-esteem using established scales such as the Rosenberg Self-Esteem Scale (used in Ellison et al., 2007). Psychological well-being often refers to various measures that capture an individual's satisfaction with life. Scholars use a variety of scales that include measures of loneliness, depression, and overall life satisfaction (i.e., Kraut et al., 1998). A key debate among researchers considers whether higher use of the Internet affects one's self-esteem and psychological well-being (Kraut et al., 1998; Valkenburg & Peter, 2009a). Such Internet research informs how SNS researchers examine psychological well-being.

The often-cited HomeNet study by Kraut et al. (1998) recorded the number of hours individuals spent on the Internet (using tracking software on the participant's computers) and its relationship to future measures of social involvement and psychological well-being. The researchers found that longer use of the Internet was related to increased depression, loneliness, and smaller social circles. The results suggest that Internet use isolates individuals from their friends and family, and has a negative impact on one's psychological well-being. This effect is known as the reduction hypothesis (Valkenburg & Peter, 2009a).

After the HomeNet project, Internet studies exhibited a wide variety of findings concerning psychological well-being. For example, a longitudinal follow-up to the original HomeNet study found no long-term effects of Internet use on loneliness or depression (Kraut et al., 2002). Valkenburg, Peter, and Schouten (2006) note a major shortcoming of previous Internet research. Many of the studies treat Internet use as a one-dimensional activity. In reality, individuals use the Internet for many goals such as information gathering versus social interaction. In addition, prior studies often do not specify what activities might affect self-esteem and well-being, and why those specific activities might plausibly affect these outcomes. Binary specifications of whether a teenager uses a particular technology or not will likely prove to be an inconclusive predictor of self-esteem and well-being. Instead, media scholars are now moving towards finer definitions of the technological environment, activities within that environment, and theoretical specifications about why those interactions would affect social and psychological outcomes.

Current media studies that examine online interactions instead of broad Internet use generally find positive outcomes for youth. For example, Valkenburg et al. (2006) find that within a sample of over 800 Dutch adolescents, SNS use is related to self-esteem and psychological well-being. Adolescents who frequently use an SNS have more friends on the site and also more reactions on their profile (i.e., friends posted more comments and wall posts). In addition, the researchers report that having more positive reactions on one's SNS profile is correlated with higher self-esteem, and higher self-esteem is significantly correlated with satisfaction with life. The results highlight the emerging sense that use of SNS itself does not cause feelings of well-being. Rather, the positive or negative reactions that youth experience within the site are a key mechanism for their social development.

Why might earlier Internet studies report negative psychological outcomes, while recent studies find positive personal development? Valkenburg and Peter (2009a) observe two changes in Internet behavior that help explain recent, positive results of SNS. First, the authors contend that when prior studies occurred, ". . .it was hard to maintain one's existing social network on the Internet because the great part of this network was not yet online" (p. 1). In the late 1990s, one had fewer family members and friends online with whom to communicate. Past Internet applications such as chat rooms and forums were designed to facilitate conversation between strangers. The situation now is starkly different as teenagers and parents, youth and adults, all find themselves connected in SNS. Adolescents typically do not join Facebook to meet strangers. Instead, they join because their friends are already members and have invited them to participate. The Internet is no longer isolating, but connecting people.

The fact that youth frequently encounter known friends and family online underscores a second change in the Internet (Valkenburg & Peter, 2009a). Web 2.0 or social media applications are designed to facilitate interaction and communication through networks. Prior uses of the Internet primarily focused on an individualistic process of presenting or finding information. Information exchange still plays a prominent role in online communication. However, current tools make one's social network an explicit and visible resource from which to get that information. SNS, through the use of profiles and friend networks, enhance the ways in which people share information about themselves, their friends, and their lives. Again, the focus of Web 2.0 applications has been to connect persons rather than information.

Self-disclosure also plays a large role in SNS effects on well-being. Specifically, researchers posit that when youth

disclose and express more information about themselves the quality of their relationships improves. These positive interactions lead to improved self-esteem and psychological well-being (Valkenburg & Peter, 2009a,b). This theoretical direction is directly related to scholarly thought in other frameworks, including signaling theory (Donath, 2007) and warranting theory (Walther et al., 2009). Future studies of SNS and youth must consider more detailed measurement of behaviors within the online community. These interactions—positive, negative, informative, or social—may then better predict outcomes of youth well-being.

Does Social Network Site Use Affect Student Grades and Learning?

Research on social networking sites and learning achievement is particularly slight when compared to studies of privacy, safety, social capital, and psychological well-being. To date, two studies exemplify the debate surrounding SNS, youth, and educational achievement. A conference paper by Karpinski (2009) received much media attention with findings that college Facebook users have lower GPAs than students who are not users of the site. Karpinski offers several hypotheses for these findings. For example, perhaps Facebook users spend too much time online and less time studying. However, the study did not rigorously examine counter hypotheses and remains a rather exploratory, basic attempt to understand the effect of SNS on learning.

Pasek, more, and Hargittai (2009) note several clear limitations of the Karpinski study. First, the sample of students is clearly limited. Second, the study utilizes few control variables in the analysis. And finally, Pasek et al. take issue with the liberal conclusions of Karpinski, namely, that the original study offers strong evidence for a negative relationship between Facebook use and grades. Pasek et al. offer three additional analyses that use a larger sample of undergraduate students, a nationally representative sample of 14–22 year olds, and a longitudinal dataset. The authors utilize more control variables including race, socioeconomic status, and previous academic achievement variables. From this analysis, the researchers find that Facebook usage has no significant relationship to GPA in any of their datasets.

The researchers in this debate suggest that the Facebook/ GPA relationship is an interesting avenue for future studies. However, aside from the fact that many youth use Facebook, there appear to be no substantive theoretical reasons *why* Facebook use might influence GPA. As noted earlier, adolescents use the Internet for diverse communication and social goals. If perhaps a large percentage of youth interactions on Facebook were school- or academic-related, one might find a relationship to measures such as GPA. However, measurement of these communication patterns is lacking in the current literature and is a critical area for additional studies.

The work of new media literacy researchers provides one avenue to better specify behaviors that might lead to learning. Most studies of social media and youth education define learning from a literacy perspective (Greenhow &

Robelia, 2009; Ito et al., 2009; Jenkins, 2006). The literacy perspective focuses on learning practices, such as creating media, rather than traditional measures of learning such as grades or standardized assessments. Hull and Schultz (2001) note that one major contribution of literacy scholars is to understand the concept of practices. Children's activities in school—i.e., listening to a teacher's lecture, practicing problems on worksheets, taking tests to assess their learning—can be seen as specialized literacy practices. Formal schooling is designed to teach students to perform well in those behaviors. However, literacy practices outside of school may serve very disparate functions than expected in the classroom. In the context of new technologies, youth today communicate and learn very different practices outside of school. Engaging in social networking interactions is a different literacy practice than successfully completing a multiple-choice test.

This direction is particularly fruitful to consider how youth's everyday practices with technology constitute learning in and of itself, and how these activities are in stark contrast to practices within school. Jenkins (2006) observes that youth today must be literate in several practices within social media environments. For example, he defines *performance* as the ability to adopt different identities for the purpose of discovery. Perhaps SNS, which are ideal identity building tools, can be used to aid students in exploring different characters, voices, and perspectives during the learning process. Jenkins characterizes *appropriation* as a skill to remix content from disparate sources to communicate ideas. SNS are environments that integrate numerous media tools, and could theoretically be applied to help students collect, synthesize, and remix content. He defines *networking* as the capacity to search for, integrate, and disseminate information. Similarly, SNS offer a natural environment to examine youth information practices.

The early studies of youth literacy with social media suggest that adolescents do in fact practice these skills. Ethnographic studies find that teens use social technologies to delve deeper into interest-driven communities and activities (Ito et al., 2009). Perhaps SNS provide a platform for youth to participate in communities that help them learn, and practice skills, within particular knowledge areas. Greenhow and Robelia (2009) examine the SNS use of 11 low-income youth and find numerous social behaviors that provide a theoretical link to learning outcomes. For example, students in their study use MySpace profiles to display creative work and receive feedback from their network. Youth report experiencing social support for school-related tasks, daily stresses, and problems. SNS help blend school and outside life for the teenagers in this study.

These ethnographic studies offer rich accounts of new and vital literacy practices among youth. Similarly, research on college-age youth find that they produce a tremendous volume of writing via tools like SNS, blogs, emails, and other social media environments (Fishman, Lunsford, McGregor, & Otuteye, 2005; Stanford Study of Writing, n.d.). For researchers of social media effects, these exploratory accounts of media practices provide a vital link to learning

outcomes. Perhaps SNS that: (a) are used for particular educational means, (b) have strong academic cultures that are built within the online community, and (c) encourage particular information and social learning behaviors will lead to better learning outcomes. These are open hypotheses for social media scholars. This area is ripe for interdisciplinary studies that combine insights from literacy, media effects, and information perspectives. Ultimately, researchers interested in traditional academic outcomes such as high-school completion, academic engagement, grades, and test scores must specify what practices would theoretically improve these outcomes.

The research on SNS, social capital, and psychological well-being offers an additional link to student learning through the mechanism of academic engagement. The concept of engagement can be defined in behavioral, emotional, and cognitive terms (Fredericks, Blumenfeld, & Paris, 2004). Behavioral engagement refers to participation in academic, social, or extracurricular activities. Emotional engagement describes the positive and negative feelings students may have towards teachers, peers, and the broader school community. Cognitive engagement depicts the idea that a student is willing to expend the energy to comprehend difficult concepts and learn new skills. As noted in this review, much of the research on SNS suggests that as students more frequently interact with their network, they develop higher quality relationships with others. Education researchers who examine the social context of learning in areas such as out-of-school time, extracurricular activity, and classroom climate also find a link between high-quality relationships, students' academic engagement, and achievement (Eccles & Templeton, 2002; Feldman & Matjasko, 2005; Martin & Dowson, 2009).

A major hypothesis among education researchers is that youth participation in extracurricular and school activities increases their social connectedness with teachers and peers (Eccles & Templeton, 2002; Feldman & Matjasko, 2005). This connectedness is related to increased engagement with school and academics. Engagement has also been related to a lesser likelihood to drop out of school (Fredericks et al., 2004). These hypotheses are still major questions for education research. SNS offer a new context within which to observe how relationships influence school engagement, grades, and student achievement.

Researchers of SNS also have the ability to directly observe how online relationship networks may facilitate this social learning process. What interactions in SNS might a researcher expect to affect student engagement? Martin and Dowson (2009) offer some hypotheses culled from a variety of social learning theories such as expectancy theory, goal theory, self-determination theory, and self-efficacy. Expectancy theory and goal theory suggests that one's peers communicate which behaviors and goals are of value. For example, a student will value achieving good grades and set this as a goal, if his or her friends also strive for high achievement. Similarly, Eccles and Templeton (2002) also suggest that peer groups transmit a social identity that affects student behaviors. Self-determination theory proposes that if

a student's psychological need to belong is met, he or she is much more likely to take academic risks, explore more ideas, and persist when presented with difficult work. Self-efficacy, a major part of Bandura's (2002) social cognitive theory, describes how capable one feels about accomplishing a task. When teachers, parents, and friends model the kinds of behavior that lead to academic success (i.e., study habits or information seeking), a student subsequently feels more capable about achieving success.

Martin and Dowson (2009) observe that high-quality relationships with adults, teachers, and peers impact these social learning mechanisms. These theories also highlight the educational impact of SNS. Quality relationships might allow students to feel more connected to school and thus take academic risks. Other peers might communicate what goals and behaviors are valued, through their status messages and wall posts. Finally, students might model positive academic behaviors by posting their behaviors or sharing information in SNS. These types of interactions begin to specify how relationship development in SNS may contribute to increased engagement and learning. Perhaps teachers can utilize SNS to engage their students, develop closer relationships, and model positive learning behaviors over time. Such educational hypotheses have yet to be tested in formal studies.

Finally, SNS researchers can learn much from past studies in television and adolescent learning. For example, Karpinski (2009) offers a possible hypothesis that Facebook users might spend less time studying, thus explaining their lower GPA. This idea is called the displacement hypothesis, and has been examined by early television researchers who posited that television took away students' study time (Hornik, 1981). Studies of students' extracurricular activities instead suggest that new media, such as Facebook, replace or enhance other leisure activities, but do not take away time from youth (Roberts & Foehr, 2008). The critical question for future studies is not whether youth use one technology or another, but what kinds of interactions and content they experience in these virtual settings.

Conclusions

This paper offers a review of the emerging research surrounding SNS and youth. SNS are an intriguing new environment to study because the technology is such an integral part of teenage life. Given its popularity, parents and educators have considerable concerns about the effects of SNS on their children and students. These concerns range from youth privacy, safety, psychological well-being, social development, and academic performance. While there is much theoretical discussion about the effects of SNS on youth, the empirical research that informs these popular debates is currently in an exploratory stage. Qualitative accounts and cross-sectional analyses dominate the literature. Longitudinal and experimental designs are needed to tease out the effects of SNS environments on youth outcomes. However, these studies must be finely specified and attuned to theories about how youth use SNS, build culture in these

online communities, and enact communication behaviors that might be linked to their development.

As noted earlier, researchers must take an integrated approach to exploring SNS effects. The technology alone is not likely to cause social outcomes such as well-being or learning. However, research clearly shows that the technical features and infrastructure of a particular SNS community impacts user behavior. In addition to taking a fine attention to the technical features of SNS, one must also take into account social factors. Adolescents bring already existing social, psychological, and emotional characteristics into the online community. These human factors interact with the respective SNS platform to influence how individuals network and communicate. It is ultimately these communication behaviors that may provide the causal link to the social outcomes of interest. For example, supportive wall posts from peers may lead to higher social capital or psychological well-being. Information sharing and instances of academic support may be related to higher school achievement. It is the social informatics of SNS—the interaction of technology, culture, and communication—that ultimately may explain the social effects of these online communities. Future causal studies must attempt to model these interactions to develop finer theories of communication and youth development in social network site environments.

Subrahmanyam and Greenfield (2008) observe that the lines between the virtual and real world is increasingly blurred for youth today: "...for today's youth, media technologies are an important social variable and . . . physical and virtual worlds are psychologically connected; consequently, the virtual world serves as a playing ground for developmental issues from the physical world" (p. 124). The key questions for the field of youth and SNS focus on what the emotional, social, and cognitive effects of using the technology are for adolescents. Empirical studies that examine SNS effects are few, but fortunately researchers have the opportunity to incorporate insights from a variety of previous research traditions beyond the theoretical perspectives outlined in the current literature. Researchers of SNS have a unique opportunity to build a new area of study, extend previous Internet research, and apply a variety of new theoretical perspectives that have not yet been explored. Irrespective of the theoretical frameworks SNS scholars decide to utilize, research on social media effects is vital to inform the societal debates and concerns about new technology and youth.

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