

# Social Consequences of the Internet for Adolescents

## A Decade of Research

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**ABSTRACT**—*Adolescents are currently the defining users of the Internet. They spend more time online than adults do, and they use the Internet for social interaction more often than adults do. This article discusses the state of the literature on the consequences of online communication technologies (e.g., instant messaging) for adolescents' social connectedness and well-being. Whereas several studies in the 1990s suggested that Internet use is detrimental, recent studies tend to report opposite effects. We first explain why the results of more recent studies diverge from those of earlier studies. Then, we discuss a viable hypothesis to explain the recent findings: the Internet-enhanced self-disclosure hypothesis. Finally, we discuss some contingent factors that may deserve special attention in future research.*

**KEYWORDS**—*Internet; Internet effects; adolescents; well-being; social competence; social connectedness*

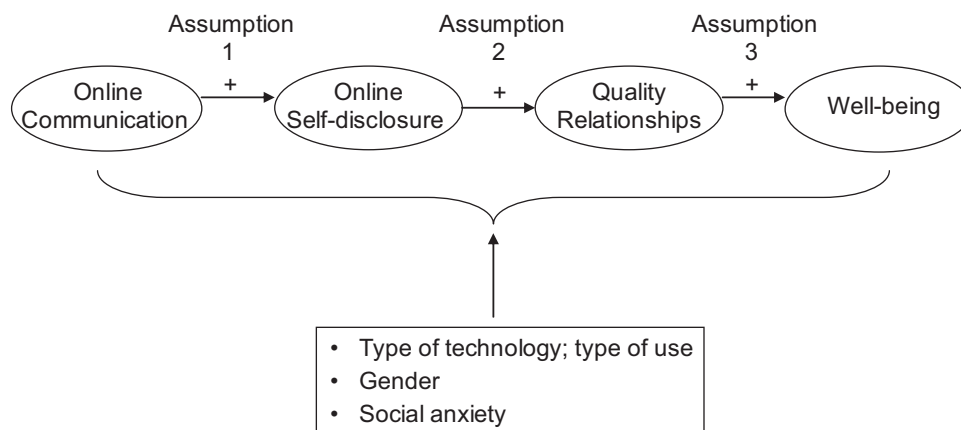
When online communication technologies, such as e-mail and chat rooms, became popular in the 1990s, several authors believed that these technologies would reduce adolescents' social connectedness and well-being. Social connectedness refers to adolescents' relationships with others in their environment (e.g., friends, family members). At the time, it was assumed that (a) the Internet motivates adolescents to form superficial online relationships with strangers that are less beneficial than their real-world relationships (e.g., Nie, 2001) and (b) time spent with online strangers occurs at the expense of time spent with existing relationships (Kraut et al., 1998), so that (c) adolescents' social connectedness and well-being are reduced (e.g., Kraut et al., 1998).

This reduction hypothesis received considerable empirical support in the second half of the 1990s. Several studies in the early years of the Internet, conducted among adolescents and adults, demonstrated that Internet use was negatively related to social connectedness and well-being. For example, a longitudinal study by Kraut et al. (1998) showed that Internet use reduced adolescents' social connectedness and well-being within a period of 1 year. In addition, Nie (2001) demonstrated that adults who spent more time on the Internet spent less time with friends. Finally, Mesch (2001) found that adolescents who had fewer friends, particularly fewer "friends who always listened to them," were more likely to be Internet users.

However, while these reduction effects were demonstrated consistently in the early stages of Internet adoption, at least two changes in Internet use may render such effects less likely now. First, in the second half of the 1990s, it was hard to maintain one's existing social network on the Internet because the greater part of this network was not yet online. For example, in the study by Mesch (2001), only 11% of adolescents were online. In the Kraut et al. (1998) study, none of the respondents had Internet access before they participated in the study. At the time, online contacts were separated from offline contacts. But at present, the vast majority of adolescents in Western countries have access to the Internet (e.g., Lenhart & Madden, 2007). At such high access rates, a negative effect of the Internet on social connectedness is less likely because adolescents have more opportunities to maintain their social network through this medium.

Second, communication technologies that were popular among adolescents in the 1990s, such as MUDs (Multi-User Dungeons) and public chat rooms, were typically used for communication between strangers. However, in recent years, several communication technologies, such as Instant Messaging (IM) and social networking sites like Facebook, have been developed that encourage adolescents to communicate with existing friends. European and U.S. studies have shown that 84% (e.g., Gross, 2004) to 88% (e.g., Valkenburg & Peter, 2007a) of adolescents use IM for communication with existing friends.

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**Fig. 1.** The Internet-enhanced self-disclosure hypothesis. Assumption 1 is that online communication stimulates online self-disclosure. Assumption 2 is that this higher online self-disclosure leads to higher-quality relationships, which in turn (Assumption 3) increase adolescents' well-being. This stimulation effect depends, however, on (a) the type of technology that is used, (b) the user's gender, and (c) the user's level of social anxiety. All three assumptions of the Internet-enhanced self-disclosure hypothesis have been confirmed in several studies.

### A TIME-RELATED SHIFT FROM NEGATIVE TO POSITIVE INTERNET EFFECTS

Obviously, when media use changes, its outcomes may change. Because adolescents now predominantly use the Internet to maintain their existing friendships, the condition for negative effects of the Internet on social connectedness and well-being no longer exists. It is no surprise, therefore, that most recent Internet studies have demonstrated that adolescents' online communication stimulates, rather than reduces, social connectedness and/or well-being. For example, in a 2-year follow-up study based on their initial sample of Internet novices, Kraut et al. (2002) found that Internet use improved social connectedness and well-being. Several other recent studies have demonstrated significantly positive relationships between online communication (mostly IM) and adolescents' social connectedness and/or well-being (e.g., Bessièrè, Kiesler, Kraut, & Boneva, 2008; Valkenburg & Peter, 2007a). However, these positive results are only found for adolescents who use the Internet predominantly to maintain existing friendships (Bessièrè et al., 2008). When they use it primarily to form new contacts and talk with strangers, the positive effects do not hold (Bessièrè et al., 2008; Valkenburg & Peter, 2007b).

### IDENTIFYING UNDERLYING PROCESSES

Although changes in Internet use may plausibly explain changes in the social effects of the Internet, the question remains *why* online communication is positively related to social connectedness and well-being. Unfortunately, earlier studies on the effects of the Internet have typically investigated direct relationships between the independent variables (i.e., different types of Internet use) and dependent variables (i.e., social connectedness or well-being) without exploring the processes

that may underlie these relationships. In the past years, we have conducted several studies to identify the underlying processes of the relationship between the Internet and social connectedness. On the basis of these studies, we have formulated a hypothesis that may explain the Internet's positive effects—the Internet-enhanced self-disclosure hypothesis. This hypothesis states that the positive effects of the Internet on social connectedness and well-being can be explained by enhanced online self-disclosure. Online self-disclosure refers to online communication about personal topics that are typically not easily disclosed, such as one's feelings, worries, and vulnerabilities. The three assumptions of our hypothesis are summarized in Figure 1.

### ASSUMPTION 1: ONLINE COMMUNICATION STIMULATES ONLINE SELF-DISCLOSURE

The first assumption of our hypothesis is that online communication stimulates online self-disclosure. This assumption is based on earlier computer-mediated communication (CMC) theories in general and on Walther's (1996) hyperpersonal communication theory in particular. According to hyperpersonal communication theory, CMC is typically characterized by reduced visual, auditory, and contextual cues (e.g., social status cues). An important consequence of these reduced cues is that CMC interactants become less concerned about how others perceive them and, thus, feel fewer inhibitions in disclosing intimate information. In other words, their communication becomes hyperpersonal—that is, unusually intimate. These liberating processes are particularly relevant to adolescents, for whom shyness and self-consciousness are inherent to their developmental stage.

The assumption that CMC stimulates self-disclosure has received ample support. A series of studies have shown that CMC and online communication result in more and/or more intimate

self-disclosures (e.g., Tidwell & Walther, 2002; Valkenburg & Peter, in press). In fact, the finding that online communication enhances self-disclosure is one of the most consistent outcomes in CMC research.

### **ASSUMPTION 2: ONLINE SELF-DISCLOSURE ENHANCES RELATIONSHIP QUALITY**

A second assumption of our hypothesis is that Internet-enhanced online self-disclosure enhances the quality of adolescents' relationships (see Fig. 1). It is long-standing wisdom in interpersonal communication that offline, face-to-face self-disclosure is an important predictor of adolescents' friendships (Berndt, 2002). Several studies have demonstrated that face-to-face self-disclosure is related to the closeness and quality of adolescent friendships (e.g., McNelles & Connolly, 1999). Adolescents identify the mutual disclosure of intimate topics as a vital characteristic of high-quality friendships and as one of those friendships' highest rewards (Buhrmester & Prager, 1995).

There is also evidence that *online* self-disclosure is related to friendship formation (McKenna & Bargh, 2000) and to the quality of existing friendships (Valkenburg & Peter, 2007a). A recent longitudinal study showed that, within 1 year, adolescents' online self-disclosure resulted in higher-quality friendships (Valkenburg & Peter, in press). This study also found that the direct relationship between online communication and the quality of friendships disappeared when online self-disclosure was added to the analysis. The disappearance of this direct effect implies that online self-disclosure mediates the relationship between online communication and the quality of friendships. It also means that it is not just online communication (or mere exposure to IM) that leads to higher-quality friendships; Internet-enhanced self-disclosure accounts for the positive effect of online communication on the quality of friendships.

### **ASSUMPTION 3: HIGH-QUALITY RELATIONSHIPS PROMOTE WELL-BEING**

The final assumption is that Internet-enhanced self-disclosure indirectly promotes adolescents' well-being—specifically, by enhancing the quality of their relationships (see Fig. 1). This assumption is based on the repeated finding that the quality of adolescents' friendships is a powerful predictor of their well-being (Erdley, Nangle, Newman, & Carpenter, 2001). High-quality friendships can form a powerful buffer against stressors in adolescence, and adolescents with high-quality friendships are often happier than adolescents without such friendships (Hartup & Stevens, 1997).

However, although there is evidence that online self-disclosure enhances the quality of adolescent friendships (e.g., Valkenburg & Peter, in press) and that the quality of friendships promotes well-being (e.g., Erdley et al., 2001), it is unclear whether the quality of adolescents' friendships mediates, and thus accounts for, the

relationship between online self-disclosure and well-being. However, a recent study did provide circumstantial evidence for our final assumption (Valkenburg & Peter, 2007b). It was demonstrated that the quality of adolescents' friendships mediated the relationship between their online communication with existing friends and their well-being: Online communication stimulated the quality of adolescent's friendships, and via this route, it improved adolescents' well-being, measured with the five-item satisfaction-with-life scale developed by Diener, Emmons, Larsen, and Griffin (1985).

### **WHO BENEFITS MOST FROM THE EFFECTS OF ONLINE COMMUNICATION?**

The effects of the Internet may be contingent upon many factors, such as the type of technology, the adolescent who is using the technology, and his or her social environment. Although the literature on Internet effects has rapidly grown in the past decade, knowledge about the factors that may influence any Internet effect is still scarce. At least three moderating factors deserve more attention. These factors, which are presented at the bottom of Figure 1, have not yet been investigated in an integrated effects model. Therefore, their function in the effects model cannot yet be decisively specified.

#### **Type of Technology, Type of Use**

Online communication and online self-disclosure can stimulate adolescents' social connectedness and, thereby, their well-being. However, several studies have found that this positive Internet effect holds only when (a) adolescents predominantly talk with their existing friends (Bessière et al., 2008; Valkenburg & Peter, 2007a) or (b) when they use IM (Valkenburg & Peter, 2007b). IM is a text-based technology that is predominantly used to talk with existing friends. Therefore, self-disclosure via IM inherently means self-disclosure to existing friends. Communication technologies that are predominantly used to communicate with strangers (e.g., chat in a public chatroom) or more solitary forms of Internet use (e.g., surfing) have no effects or even negative effects on social connectedness and well-being (Bessière et al., 2008; Valkenburg & Peter, 2007b). Future research should, therefore, differentiate between types of Internet use and formulate hypotheses that are based on the functions that these technologies have for adolescents.

#### **Gender**

Adolescent boys seem to benefit more from online communication with existing friends than girls do. About one in three adolescents are able to self-disclose better online than they are offline. This holds more for boys than for girls (Schouten, Valkenburg, & Peter, 2007). Especially in early and middle adolescence, adolescents are inhibited in disclosing themselves in face-to-face settings. At this stage, IM may be particularly

helpful to encourage self-disclosure. In face-to-face settings, adolescent boys generally have more difficulty self-disclosing to friends than girls do (McNelles & Connolly, 1999). Therefore, boys especially benefit from online communication to stimulate their self-disclosure and, thereby, their social connectedness and well-being (Schouten et al., 2007).

### Social Anxiety

In the 1990s, it was often believed that the Internet would especially attract socially anxious adolescents. Social anxiety implies that one is worried about the self and consequently is inhibited in face-to-face social interactions. There are two hypotheses on the relationship between social anxiety and online communication. The social compensation hypothesis assumes that it is mainly socially anxious adolescents who turn to online conversation. The reduced audiovisual cues of the Internet may help these adolescents overcome the inhibitions they typically experience in real-life interactions. The opposite hypothesis—the rich-get-richer hypothesis—states that it is primarily socially competent adolescents who use the Internet for online communication. These adolescents, who already have strong social skills, may consider the Internet as just another venue to get in touch with peers (Kraut et al., 2002).

Most studies seem to support the rich-get-richer hypothesis rather than the social compensation hypothesis (for a summary, see Valkenburg & Peter, 2007a). Adolescents who are socially competent in offline settings also more often use online communication technologies, such as IM, to stay in touch with these friends. These adolescents typically also often use other communication technologies, such as social networking sites and text messaging through their cell phones (Bryant, Sanders-Jackson, & Smallwood, 2006). However, in comparison with their socially competent peers, socially anxious adolescents do more often prefer online self-disclosure to offline self-disclosure. Because socially anxious adolescents are inhibited in face-to-face social interactions, they may prefer a more protected environment in which they feel less inhibited to reveal their concerns. The Internet provides them with such an environment. The reduced auditory and visual cues of online communication diminish the constraints that socially anxious adolescents typically experience in offline settings (Schouten et al., 2007). Furthermore, because socially anxious adolescents often prefer settings in which their interactions can be prepared ahead of time, they find the control over message construction, which is possible in online communication, more important than less socially anxious adolescents do (Schouten et al., 2007).

## CONCLUSIONS AND FUTURE RESEARCH

Based on the evidence presented in this article, it is plausible to assume that online self-disclosure accounts for the positive relationship between online communication and social con-

nectedness. However, Internet research is still young and does not yet allow us to draw decisive conclusions. Several alternative explanations may be possible. For example, in comparison with face-to-face communication, online communication may result in greater positivity of interaction, in enhanced liking of online partners, and in more breadth of interaction. These processes may all qualify as alternative explanations for the positive relationship between Internet use and social connectedness found in recent studies. In addition, other moderators may have to be added to our model. For example, in face-to-face interactions, self-disclosure is often only effective for the development of close friendships when the communication partner is responsive and supportive. It is important to investigate whether these results also hold for online self-disclosure.

We hope that future research will pay attention to additional variables that may explain the social consequences of the Internet and that they will compare the validity of our hypothesis with that of other explanatory hypotheses. Future research should also investigate the simultaneous effect of different communication technologies. Most research has focused on the effects of IM and chat in public chat rooms. However, the advent of IM and chat technologies coincided with all kinds of other technologies, such as text messaging through cell phones. For an encompassing view on the differential effects of current communication technologies, it is important to compare the effects of these different technologies.

The positive effect of online communication with existing friends may be attributed to enhanced online self-disclosure. However, the same liberating or disinhibiting mechanisms of online communication that have led to the positive outcomes that were the focus of this paper can also have negative consequences for adolescents. For example, flaming (hostile and insulting interactions between Internet users), online harassment, and cyberbullying may all be associated with the disinhibition that results from the reduced auditory and visual cues in CMC. Our article must not be misunderstood simply as a glorification of the Internet. There is definitively a need for more research to identify the conditions under which adolescents may experience potential positive or adverse effects of different forms of online communication and how adolescents can be educated about such effects.

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### Recommended Reading

- McKenna, K.Y.A., & Bargh, J.A. (2000). (See References). A useful reference on the special attributes of the Internet and their possible social consequences.
- Valkenburg, P.M., & Peter, J. (in press). (See References). A longitudinal study that found support for the Internet-enhanced self-disclosure hypothesis (available online at [http://www.cam-ascor.nl/images/documents/2008\\_valkenburg\\_peter\\_JOC\\_IM.pdf](http://www.cam-ascor.nl/images/documents/2008_valkenburg_peter_JOC_IM.pdf)).
- Wallace, P.M. (1999). *The psychology of the Internet*. Cambridge, UK: Cambridge University Press. Rather dated but still useful to understand the psychology of the Internet.
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## REFERENCES

- Berndt, T.J. (2002). Friendship quality and social development. *Current Directions in Psychological Science, 11*, 7–10.
- Bessière, K., Kiesler, S., Kraut, R., & Boneva, B.S. (2008). Effects of Internet use and social resources on changes in depression. *Information, Communication, and Society, 11*, 47–70.
- Bryant, J.A., Sanders-Jackson, A., & Smallwood, A.M.K. (2006). IMing, text messaging, and adolescent social networks. *Journal of Computer-Mediated Communication, 11*(2), article 10. Retrieved January 2, 2009, from <http://jcmc.indiana.edu/vol11/issue2/bryant.html>
- Buhrmester, D., & Prager, K. (1995). Patterns and functions of self-disclosure during childhood and adolescence. In K.J. Rotenberg (Ed.), *Disclosure processes in children and adolescents*. Cambridge, UK: Cambridge University Press.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*, 71–75.
- Erdley, C.A., Nangle, D.W., Newman, J.E., & Carpenter, E.M. (2001). Children's friendship experiences and psychological adjustment. *New Directions for Child and Adolescent Development, 91*, 5–24.
- Gross, E.F. (2004). Adolescent Internet use: What we expect, what teens report. *Journal of Applied Developmental Psychology, 25*, 633–649.
- Hartup, W.W., & Stevens, N. (1997). Friendships and adaptation in the life course. *Psychological Bulletin, 121*, 355–370.
- Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues, 58*, 49–74.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*, 1017–1031.
- Lenhart, A., & Madden, M. (2007). *Teens, Privacy & Online Social Networks*. Washington, DC: Pew Internet & American Life Project.
- McKenna, K.Y.A., & Bargh, J.A. (2000). Plan 9 from cyberspace: The implications of the Internet for personality and social psychology. *Personality and Social Psychology Review, 4*, 57–75.
- McNelles, L.R., & Connolly, J.A. (1999). Intimacy between adolescent friends: Age and gender differences in intimate affect and intimate behaviors. *Journal of Research on Adolescence, 9*, 143–159.
- Mesch, G. (2001). Social relationships and Internet use among adolescents in Israel. *Social Science Quarterly, 82*, 329–340.
- Nie, N.H. (2001). Sociability, interpersonal relations and the Internet: Reconciling conflicting findings. *American Behavioral Scientist, 45*, 420–435.
- Schouten, A.P., Valkenburg, P.M., & Peter, J. (2007). Precursors and underlying processes of adolescents' online self-disclosure: Developing and testing an "Internet-attribute-perception" model. *Media Psychology, 10*, 292–314.
- Tidwell, L.C., & Walther, J.B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations. *Human Communication Research, 28*, 317–348.
- Valkenburg, P.M., & Peter, J. (2007a). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology, 43*, 267–277.
- Valkenburg, P.M., & Peter, J. (2007b). Online communication and adolescents' well-being: Testing the stimulation versus the displacement hypothesis. *Journal of Computer Mediated Communication, 12*(4), article 2. Retrieved January 2, 2009, from <http://jcmc.indiana.edu/vol12/issue4/valkenburg.html>
- Valkenburg, P.M., & Peter, J. (in press). The effects of instant messaging on the quality of adolescents' existing friendships: A longitudinal study. *Journal of Communication*.
- Walther, J.B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*, 3–43.