

Case Study: The Internet as a Developmental Tool in an Adolescent Boy With Psychosis

MELITA L. DALEY, M.D., DANIEL F. BECKER, M.D., LOIS T. FLAHERTY, M.D.,
GORDON HARPER, M.D., ROBERT A. KING, M.D., PATRICIA LESTER, M.D.,
NADA MILOSAVLJEVIC, M.D., J.D., SILVIO J. ONESTI, M.D., NANCY RAPPAPORT, M.D.,
AND MARY SCHWAB-STONE, M.D.

ABSTRACT

The Internet has become an increasingly important part of teen culture; however, there still remains little in the medical/psychiatric literature pertaining to the impact of the Internet on adolescent development. Despite the potential problems associated with communication online, the Internet offers a variety of positive opportunities for teens. In this report, we present a case study that illustrates the Internet as a helpful tool in a 15-year-old adolescent boy with a history of chronic neurological illness accompanied by refractory psychosis. Although the case emphasizes some of the ways in which the Internet may have a positive impact on adolescent development, further research is indicated to evaluate the contexts in which the Internet serves healthy developmental processes and those in which its influence is potentially deleterious. *J. Am. Acad. Child Adolesc. Psychiatry*, 2005;44(2):187–190. **Key Words:** Internet, developmental.

Over the past decade, the Internet has become a growing part of teen culture. A report on Internet access for children in the United States showed that 60% of households with children and youths have home computers, and 36.6% of all households with children had Internet services, more than twice the percentage reported 3 years previously (Turow, 1999). Adolescents use the Internet to socialize with their peers, do homework assignments, look up personal information, and

for amusement. There is, however, little in the medical/psychiatric literature on the impact of the Internet on adolescent development, including effects on relationships and psychological well-being.

Despite the potential problems commonly associated with online communication, the Internet does offer a range of positive opportunities for adolescents. Most adolescents use the Internet for academic sources to assist with their schoolwork, to explore creative or cultural interests, and to communicate with friends and family. The Internet can also allow adolescents (especially those in isolated social settings) to make contact with others sharing their special interests, sexual orientation, or disabilities, while protecting their anonymity. For children and adolescents with social language difficulties, as in the case of those with pervasive developmental disorders, the de-emphasis of paraverbal cues and other challenges of face-to-face communication may be an asset. These youngsters get the opportunity to practice less intimidating social interactions online.

Many concerns have been raised about the growing role of the Internet in the daily lives of adolescents; a few of these issues merit mention here. The following have been outlined in the American Academy of Child and Adolescent Psychiatry Talking Points: The Internet and

Accepted September 8, 2004.

Dr. Daley is with the Youth Services Division, Merced County Department of Mental Health, Merced, CA; Drs. King and Schwab-Stone are with Child Study Center, Yale University, New Haven, CT; Dr. Becker is with the Psychiatry Department, University of California, San Francisco; Dr. Flaherty is with the University of Maryland School of Medicine, Baltimore, and Harvard University, Boston; Drs. Harper and Onesti are with Harvard Medical School, Harvard University, Boston; Dr. Lester, UCLA Neuropsychiatric Institute Center for Community Health, UCLA School of Medicine; Dr. Milosavljevic is with Brown University School of Medicine, Providence; Dr. Rappaport is with Cambridge Health Alliance and Harvard Medical School, Boston.

This report was developed by the Committee on Adolescence of the Group for the Advancement of Psychiatry. The details of this case have been changed sufficiently such that the patient described is not recognizable.

Correspondence to Dr. Daley, Merced County Department of Mental Health, 808 West 16th Street, Merced, CA 95340; e-mail: mdaley@mednet.ucla.edu.

0890-8567/05/4402-0187©2005 by the American Academy of Child & Adolescent Psychiatry.

Children (1999). First, the deceptive intimacy of instant messaging is superficial and the anonymity of the process can promote group regression with scapegoating, humiliation (through wide and instant dissemination of conversations and confidences), and sexual provocation. Also, Internet relationships may perpetuate the social isolation of anxious and avoidant teens. This form of social experimentation poses the danger that teens may communicate with child predators online. Finally, the adolescent may have easy access to Internet sites featuring pornography, hate, prejudice, violence, and drugs. There is also the risk of exposure to bizarre and offensive language.

As with many influences on development, context is critical in appraising relative risks and benefits. We present a case study illustrating the Internet as a helpful developmental tool in a 15-year-old adolescent with a history of chronic neurological illness accompanied by a debilitating psychiatric disorder.

CASE STUDY

Mark, a 15-year-old boy, had intractable seizures since the age of 18 months. He had mild early psychomotor developmental delays that improved with intensive physical therapy. At 9 years of age, he developed psychotic symptoms that became chronic throughout his adolescence and were complicated by concurrent grand mal seizures. He started home schooling at age 11 after several months of hearing a voice that repeatedly told him that his teacher had had sex with him. By this point, Mark was unmanageable in the classroom due to agitation and socially intrusive behaviors. His seizures were so debilitating that he became more isolated at home with frequent medical hospitalizations. Hence, during his early adolescent years, there were few social interactions outside those with his family. At age 14, Mark had a vagal nerve stimulator inserted that resolved his grand mal seizures.

Before the onset of his psychotic symptoms, the computer was very important to him, and he attained sophisticated computer skills with the help of his father. The Internet allowed Mark to socialize with peers and assisted him in his home study. He played many Internet games, including some involving virtual pets. He became interested in a virtual pet Web site through which he could be a virtual pet owner, check out shops, and buy food and toys for his "pet." Other aspects of

this fantasy included owning his own store and selling virtual pets and stock in a virtual company related to the pets. The Web site also had chat rooms for other children who owned virtual pets.

In addition, Mark used a chat group for children who have seizure disorders. This experience allowed him to share his worries and thoughts with other youngsters with seizures. He established a close friendship with John, a boy with a similar problem. These contacts helped decrease Mark's sense of isolation. He was able to have online relationships without the stress of face-to-face interactions. Mark's family reported increases in his level of confidence and self-esteem as he progressed in these complex games, and they attributed his improvement to these activities. As a teenager he started making his own Web sites and experienced relative freedom from psychotic symptoms as he entered cyberspace. In particular, Mark described being able to ignore "the voices" or actually push them out of his mind while he was engaged in computer-based activities. Mark's parents specifically reported that he was not observed talking to himself while online.

Despite control of his grand mal seizures with the vagal nerve stimulator, Mark continued to demonstrate psychotic behaviors and subsequently developed pseudoseizures. He had multiple trials of antipsychotic medication, in combination with various augmenting agents, with little improvement in his symptoms. After multiple outpatient trials, Mark was referred to the center's adolescent inpatient unit for further evaluation and treatment of the refractory psychosis and pseudoseizures. He reluctantly agreed to the hospitalization. On admission, a complete neurological workup proved unremarkable with no further evidence of any grand mal seizure activity.

At the time of admission, Mark denied any history of alcohol or illicit drug use. The family history was positive for schizophrenia in the maternal grandmother. For 3 months before admission, Mark had worsening auditory hallucinations. He had experienced persistent voices laughing at him and telling him to kill himself. During the admission interview, Mark had seizure-like episodes every 5 minutes in which his eyes would roll back suddenly and he would shake intensely mid-sentence. He appeared very frightened and hypervigilant in between these episodes and admitted to hearing voices telling him that he should die and that the doctor was making fun of him.

During hospitalization, Mark's psychosis gradually cleared with clozapine 100 mg/day therapy. While hospitalized, Mark, on his own initiative, made a Web site for his psychiatrist including biographical material about her and her interests. In daily sessions with his psychiatrist, he discussed enthusiastically his Internet activities, and she acquiesced to the development of this site as a way of attempting to engage him in the therapy. Mark updated the psychiatrist regularly on progress with the Web site and openly accepted any edits that she felt were appropriate. Once the Web site was completed and reviewed with her, Mark agreed not to make any further additions without first consulting with her. Mark felt very comfortable in his virtual world, which allowed increased reality testing within the framework of supportive therapy.

After discharge, Mark resumed outpatient treatment from his previous outpatient therapist, but used e-mail to keep in touch with the inpatient psychiatrist whom he referred to as "Dr. Dude." He continued to send updates on his progress about every 2 months. According to the outpatient therapist, he was clinically stable 1 year later. An e-mail approximately 1 year after discharge read as follows: "Hi Dr. Dude! Remember me? It's Mark, the red-headed boy who made you a Web site at the hospital. Thanks to you and Clozaril, I'm back in school and doing very well! I even have friends now." He communicated plans to start his own dog-walking business with the friend from the chat group for children with seizure disorders. Mark and his friend had corresponded for several years over the Internet and went on to develop a close real-life relationship thereafter.

When questioned about how the Internet had helped him, Mark responded by saying "The Internet has given me a chance to get some friends and feel better about myself. I met John in a chat group and he's really cool! He lives near me, and we met up last year and do lots of fun things together on the weekends. Also, when I go on the Net to play games, I can actually block out the bad voices I hear. It is like going into a safer world where I can think more clearly. Oh! I almost forgot. I don't have pseudoseizures when I'm logged in."

DISCUSSION

This case illustrates some ways in which the Internet can serve as a tool for promoting development. In Mark's

case, use of the Internet assisted him in transitioning, first with his therapist and then with his friend John, from social isolation to integrating back into school with his peers. Mark had started corresponding with John through a chat group for teens with similar medical problems. Over time, this Internet relationship turned into a real-life friendship in which the two teens started a dog-walking service together.

This view of the potential developmental benefits of the Internet has been expressed by other investigators. Turkle (1984) describes this role of the computer as a transitional object for the adolescent. The UCLA Center for Communication (2003) also supports the idea that the Internet may facilitate human contacts and involvement with other people. These findings are in keeping with the results of Zimmerman's study (1987), which showed that computer-mediated communication may facilitate emotionally rich, relationship-oriented verbal interaction among severely disturbed adolescents. Colby (1973) years ago demonstrated the usefulness of computer-based treatment of language difficulties in nonspeaking autistic children. Similar research was done by Geoffrion and Goldenberg (1981), who showed increased responsivity in communication-handicapped children through the use of computer-based learning systems.

Teens are becoming more involved in Internet activities such as e-mail, chat rooms, and games online. Both e-mail and involvement in chat rooms were the most popular Internet activities after doing homework (Turow, 1999). These activities can be beneficial to youths in increasing communication skills. However, it is also important for teens to interact with peers in real life to facilitate development of broader interpersonal skills.

Whether the Internet helps or hinders adolescent development depends on a number of factors, such as whether the Internet is replacing real-life social contacts. Peer interaction fosters the development of interpersonal skills, poise, and social competence (Dworetzky, 1996). Experimentation with social relationships is an important aspect of this process, and the Internet may provide opportunities for such experiences. Through the anonymity that it offers, teens can meet new people online and practice socialization with less risk of rejection than in real life.

In essence, Mark's use of the Internet became part of his treatment and rehabilitation. Repeated sessions with his inpatient psychiatrist allowed in-depth

discussions of his virtual world, which fostered positive communication and gave a better sense of his inner creativity. His imagination and creativity were productive, original, and even bizarre, but its elements were well integrated. The activity of making a Web site allowed this adolescent to use that creativity and then invite his therapist to respond, allowing for a collaborative endeavor that contributed to the therapeutic alliance.

Mark inquired with great curiosity about the psychiatrist's knowledge of computers, only to realize the relative superiority of his own technical skill. Working collaboratively on the Web site allowed Mark to achieve the mastery and competency afforded by his expertise. Adolescents spontaneously use computers therapeutically, that is, they play with computers—and play can heal (Yager et al., 2002). For Mark, the Internet activity could be seen as a form of interactive play therapy. Therapeutic activities included the building of his self-esteem as well as a trusting relationship with his doctor. In addition to these psychotherapeutic interventions incorporating Internet use, we must not underestimate the contribution of the clozapine treatment to the positive outcome of this case.

With respect to possible future directions for research, this case suggests hypotheses that could be tested in a study. One may speculate that encouragement to use the Internet, for isolated youths, could have a beneficial outcome. Could one imagine a randomized, controlled trial to test such a hypothesis? Also, one could hypothesize that socially isolated youths use the Internet in novel, developmentally useful ways that a clinician might not have anticipated. This hypothesis could potentially be tested in an uncontrolled, qualitative design.

CONCLUSIONS

With the rapid growth of online services and modern computing, the Internet has found an important place in contemporary teenage culture. These technologies will have social implications for our patients. Adolescents spend a significant amount of time on the Internet; they have access to an endless supply of educational materials and have opportunities for Internet-based social relationships. Internet communication is less anxiety provoking than face-to-face interactions. This is an issue for all teenagers and part of the reason why e-mail,

instant messaging, and chat rooms are so appealing; they can say things online that they would be too anxious to say face to face. For similar reasons, the telephone has been an important part of the teenager's life. In contrast to normal adolescents, for whom computers can substitute for time spent with friends, teens who are already socially isolated are not diminishing anything except their isolation.

Psychiatrists should inquire about Internet use in their adolescent patients to assess whether online time is appropriate and helpful with social competence or whether it promotes social isolation. It is important to educate patients and their families on appropriate Internet use, which, when used properly, can prove to be a useful developmental tool.

There is little in the medical/psychiatric literature on adolescents and the Internet. This article has focused specifically on the case of a psychotic and developmentally disabled adolescent and the ways in which the computer was helpful in (1) fostering a therapeutic alliance, (2) decreasing loneliness and isolation, and (3) enhancing adaptive functioning through pretend play (the virtual pet) and creating a Web site. This case emphasizes some of the ways in which the Internet may have a positive impact on adolescent development.

Disclosure: The authors have no financial relationships to disclose.

REFERENCES

- American Academy of Child and Adolescent Psychiatry Talking Points (1999), The Internet and children (available at <https://office.aacap.org/eseries/StaticContent/StaticPages/internet.htm>). Accessed April 2003
- Colby K (1973), The rationale for computer-based treatment of language difficulties in non-speaking autistic children. *J Autism Child Schizophrenia* 3:254–260
- Dworetzky J (1996), *Child Development*, 6th ed. St. Paul: West Publishing
- Geoffrion L, Goldenberg E (1981), Computer-based learning systems for communication-handicapped children. *J Spec Educ* 15:325–332
- Turkle S (1984), *The Second Self*. New York: Simon and Schuster
- Turow J (1999), The Internet and the Family: The View From the Parents, the View From the Press (Report no. 27). Philadelphia: Annenberg Public Policy Center of the University of Pennsylvania
- UCLA Center for Communication Policy (2003): UCLA Internet report: surveying the digital future (available at <http://www.ccp.ucla.edu/pages/internet-report.asp>). Accessed November 2003
- Yager J, Bailey R, Jenson J (2002), The psychiatrist as clinical computerologist in the treatment of adolescents: old barks in new bytes. *Am J Psychiatry* 159:1298–1304
- Zimmerman D (1987), A psychosocial comparison of computer-mediated and face-to-face language use among severely disturbed adolescents. *Adolescence* 22:827–840