

Social Fitness and Technology Use:

Adolescent Interview Study

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Introduction

Research has suggested that technology use may interfere with real-time interpersonal relationships and increase shyness and loneliness (Carducci & Zimbardo, 1995; Kraut, 1998). As researchers engaged in the study of shyness, and the prevention and treatment of problematic shyness, we wanted to know if shyness was increasing with technology use in our local high schools, and if this presented a problem for shy students. As a result we submitted a research proposal to the Palo Alto School District to address the question.

Review of Previous Research

Study 1

As a first step we conducted a survey of over a hundred and fifty students at Gunn High School (Henderson, Zimbardo, Smith, & Buell, 1999; www.shyness.com). Students responded to questionnaire items about technology use and patterns of face-to-face interaction. We predicted that shy students would use computers more than non-shy students and experience more loneliness. Our predictions were not confirmed for the moderately shy. A few extremely shy students, however, did spend more time using technology. They played more computer games, and tended toward more use of email. They endorsed email as a communication medium more than other students, and more frequently chose to deal with interpersonal conflict via letters, email, and the telephone. They also reported more loneliness. However, our recent findings, and those of others, suggest that technology use, particularly in groups, may reduce shyness.

Study 2

Ethnographic observations and interviews with teacher mentors at Palo Alto High School in the spring of 2000 revealed interesting and contrasting patterns. Technological expertise seemed to be growing and to be contributing to both academic and social learning. The student-run Web team designed and maintained the school's web pages as part of a technology class. Students from another class also maintained the school's technological infrastructure. Students who were sophisticated computer users, some of whom were shy, were "stars", often being called "computer jocks". They were leaders and collaborators in various outstanding school projects, several of which were described in glowing terms in a Fortune magazine article in the spring of 2000. Some of the results

of these projects were presented by the Technology Coordinator, Chuck Merritt, at the first Conference on Universal Usability sponsored by the ACM (Association for Computer Machinery) held in Washington, DC in November, 2000.

Interview Study of Palo Alto High School Students

As part of our investigation in the spring of 2000, Stanford undergraduates from our Psychology of Shyness Honors Class interviewed twenty-two Palo Alto High school students using a structured interview we developed through our previous research and ethnographic observations at Palo Alto High School. These results are presented in this report.

The sample

The sample consisted of 22 students (12 male, 10 female) from Palo Alto High School. Students ranged in age from 16 to 19 (Mean = 17.3, SD = .72)

General Findings regarding Technology Use

All students reported access to computers, either in the home or school environment. Of the 21 students reporting access to computers at home, nearly one-third (32%) reported having a computer in their bedrooms. Home computers were described as being in nearly every room of the house, commonly in studies, offices or family rooms. Issues regarding adequate privacy and freedom from distractibility were important variables in a teen's satisfaction with the location of the computer within the home.

Of the twenty students who responded to the question regarding increased use, seventy percent used computers more than they did the previous year. Ninety-five percent of the students who responded indicated that they liked having technology in their lives. Over half the students, however, acknowledged times when they wished that they did not have so much technology. They used computers from one to three hours per week on academic activities, and three to six hours per week for other activities, which included surfing the web, communicating via email, playing games, and participating in chat rooms. More than half the students reported surfing the web from one to three hours or more per week and some as much as four to six hours per week. One student reported spending up to eleven to fifteen hours per week surfing the web.

Email was another common computer activity with students spending an average of one to three hours per week corresponding with others. The use of ICQ and chat rooms was less popular. Only half the students endorsed using ICQ at all and they used this feature less than an hour a week. Far fewer students, only 23%, reported using chat rooms. More than half of the 19 students who responded indicated that they used computers less than their friends. The vast majority of students (95% of those who responded) reported that their parents placed little or no restrictions on the amount of time spent using the computer.

Students reported playing computer games less than one hour per week. Two students however endorsed significantly more time playing computer games. One student reported an average of 7-10 hours per week while a peer reported an average of 20 hours of computer games per week. One half of the students reported that they didn't play computer games. Of those who did play computer games, roughly one-third reported that they typically played alone. With the popularity of on-line, multi-player games a teen may be physically alone yet interacting with other players, either in real or delayed time.

Technology Use and Social Activity

Students reported spending an average of three to six hours watching television each week. Television viewing was often a solitary activity with over half the students reporting that they either don't watch TV, or watch less than an hour per week with friends. However there is a subset of students (36%) who do report watching up to three hours per week with friends. The extent to which teens viewed television with family members is not known. Half the students reported that they never ate meals while watching television. Half of those students who did eat meals in front of the television reported doing so for one to three hours or more per week.

Students reported spending four to six hours per week talking on the telephone and eleven to fifteen hours socializing with friends. Students reported an average of one to three hours per week involved in school related extracurricular activities; however 27% of the students reported no participation in such activities. Students reported going to social events such as parties, movies and sporting events from one to three hours per week. Nearly half the students reported spending no time in dating related activities. All

students reported spending at least one to three hours with their parents per week. The average student spent seven to ten hours a week with a parent.

Sixty percent of students reported checking their email at least once a day. On the average, they received three to six emails per day. They responded only to half the emails they received, frequently ignoring “junk” email and forwarded information. Half of the eighteen students who responded to this question, reported that their emails were typically half a page in length at least. Eighty percent of the nineteen students who responded to a question about how they began their email messages said they used a typical social greeting rather than just beginning with a sentence about the content of the message. Sixty percent had ongoing conversations with others, primarily friends, over email. Students used the computer to contact others approximately one-third of the time they spent on the computer.

Interestingly, students were equally divided in terms of whether or not they thought their time spent on computers was used to increase socializing. Half the students believed that technology brings people together while thirty-eight percent of students believed that technology both enhances and reduces social interaction. Less than ten percent of responding students indicated that they believed technology worked solely to enhance social interaction.

Technology Use and Social Support

Two-thirds of the students reported using the computer with friends, while only half reported watching TV with friends. While over half the students (55%) used computers with friends an hour or less a week, the other half endorsed spending at least one to three hours per week with their friends on the computer. Typical activities included playing games, using email or chat rooms and working on school related projects. In general, students endorsed preferring phone contact and to a greater extent, fact-to-face contact, when discussing personal and relationship issues rather than relying on email to address such concerns. When interpersonal conflicts arose, they preferred face-to-face contact over telephone contact or email correspondence to a much stronger degree.

In general, students reported feeling supported by their school, and to a greater extent by friends and families. Nearly a quarter of the students expressed high

satisfaction with the degree of support they receive from school while over one-third of students reported high satisfaction in their relationships with friends. Sixty percent reported being very satisfied with familial support.

Gender Differences

Overall, few gender differences were detected. Male and female students generally reported equal access to computers in both home and school environments, and equivalent numbers of males and females worked without access to computers. Of those who had their own computers, however, all were male. ($\chi^2(1, N=22) = 5.39, p < .02$).

Shy and Non-shy Students

The average level of shyness reported in this sample, using a scale ranging from zero, not at all shy, to four, very shy, was 1.6 (SD=1.0). Levels 0,1 and 2 were categorized as non-shy (68%) while levels 3 and 4 were categorized as shy (32%). There was little difference between shy and non-shy adolescents in their use of technology, except in their social lives.

Shy students reported receiving significantly fewer emails than their non-shy peers, $t(18) = -2.57, p < .02$. Shy students received up to three emails per day while non-shy students received up to six. Differences approaching significance were also detected in the percentage of time shy students spent contacting others through the computer as compared to their non-shy peers, $t(20) = -2.05, p < .05$. Shy students estimated that 20 percent of their time was spent contacting others while non-shy students said they were communicating with others 40 percent of the time they were on a computer. In disappointing social interactions, shy students were also more likely than non-shy students to blame themselves for poor outcomes, $t(12) = 3.37, p < .01$.

Summary

Overall, technology use has increased and is a significant vehicle for socializing as well as academic and technical learning. Students who are shy, however, may not be taking as much advantage of the potential for social practice and social learning.

Recent studies have shown that participating in one-on-one and group communication, as well as developing on-line relationships, reduces shyness in equivalent situations off-line. A six month longitudinal study of new Internet users demonstrated that Internet use decreased shyness off-line (Roberts, 2000), and a study of Computer mediated communication (CMC) via synchronous social text-based virtual environments (MOOs) also reduced shyness (Roberts, 2000). Shy individuals reported

being less inhibited in social interaction on-line, finding on-line environments safe places to practice. They were also able to change perceptions of their own interpersonal skills.

Given these recent findings, and research demonstrating that the use of computer-mediated communication enhances subsequent face-to-face interaction, and that people use it as simply another way to form relationships, it behooves us to find ways to facilitate shy adolescents' use of technology to enhance their social lives. They may be particularly suited to making friends through computer-mediated communication because it gives them time to plan their responses to interaction when they are feeling socially anxious, and to gradually build up to more socially challenging interactions offline.

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