

Shyness and Technology Use in High School Students

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Abstract

We investigated technology use by high school students, predicting that shy students would use computers more than non-shy students would. Our predictions were not confirmed for the moderately shy, who did not differ from the non-shy. However, they endorsed wanting to talk, even about personal issues, via email more than the non-shy, and used the telephone less. The extremely shy, however, spent more time than other students, engaging in both academic work and other activities. They played more computer games, and showed a trend toward more use of email. They endorsed email as a communication medium more than their compatriots, and more frequently chose to deal with interpersonal conflict via letters, email, and the telephone. They also reported more loneliness and interpersonal self-blame.

Purpose

The purpose of our research is to investigate the various uses of technology by high school students, in order to discover how the interaction of students with technology may facilitate or interfere with social participation and social learning. In the current study we explored the association between time spent using technology with time spent engaging in social and academic activities, with group identification, and with self-reported social and academic success. Specifically, we hypothesized that shy adolescents would use technology more than non-shy students. Furthermore, we expected that greater use would be associated with more negative affect and less satisfaction in relationships.

The sample

The sample consisted of 152 students (89 female and 61 male) from a local high school in the Palo Alto School District. Students ranged in age from 13 to 18 (Mean =15; SD=1).

Procedure

Students completed questionnaires when they visited a Shyness booth at a school-wide health fair held in the spring of 1999. Included were questions about hours spent on computers engaging in various activities, places where students had access to computers, students' patterns of face-to-face social interaction, academic performance, and current emotional status.

Findings

Computer Access and Activities:

All students reported some access to computers, and on the average, they used computers for academic activities for one to three hours per week. They reported the same amount of time spent in other computer-related activities. Students reported similar hours of use for playing games, surfing the net, exchanging email, and participating in chatrooms. Fifty-eight percent of the students checked their email several times a week or more, but eighteen percent said they never did. Twenty-three percent said they checked it daily and eleven percent said they checked it more than once a day. Students reported one to three hours a week working on computer-related projects with others. They also reported spending four to six hours on the telephone per week and four to six hours watching TV, (one to three of those while eating). They spent seven to ten hours socializing with friends, four to six hours engaged in extracurricular activities and four to seven hours with their parents.

Group Identification

Students were asked to choose the group in school with which they identified. The choices were “jocks”, “nerds”, “alternative”, “popular”, “everyone”, and “other”. Students responded to more than one category so the results will be reported for each group. Nine percent of the students identified with the “jock” group, fifteen percent with the “nerds”, twenty percent with the “popular” group, only two percent with “everyone,” and forty-eight percent with “other”. When asked to describe “other”, many students said, “normal”, “middle”, “all”, or “nice”. Some identified with interest groups, such as theatre or music. A few referred to ethnic groups. Six percent did not respond to the item. We also asked students whether they used the Internet more or less than their friends. Of those who said they used it more than their friends, forty-three percent identified with the alternative group, whereas only fourteen percent of those who said

they used it less identified with that group, a highly significant difference, $\chi^2 (1, N = 129) = 13.41, p < .001$.

Gender Similarities and Differences

Technology use Males and females did not differ in how much they used computers for academic work, computer projects with others, email, or participation in chatrooms. However, males used computers more for activities other than academic use, $t (148) = 3.82, p < .0001$; spent more time surfing the net, $t (144) = 2.30, p < .05$; and playing computer games, $t (133) = 4.19, p < .0001$. Males were more likely to have computers in their bedrooms, $\chi^2 (1, N = 148) = 5.86, p < .02$. Slightly over half of the males (52%) and slightly less than a third of the females (32%) reported having a computer in the bedroom. Males more than females reported that parents limited the amount of time they spent on the computer, $\chi^2 (1, N = 146) = 4.83, p < .05$. One third of the males (33%) and less than a fifth of the females (17%) reported parental limits. Females spent more time (4 – 6 hours) than males (1 – 3 hours) on the telephone, $t (144) = 3.44, p < .001$.

Socializing Males and females did not differ in the amount of time they spent socializing with friends and engaging in extracurricular activities. Both genders viewed themselves as equally popular and outgoing, and reported equivalent academic success.

Gender Differences Related to Communication via Technology, Self-reported Emotions, and Group identification

Students were asked if they preferred to talk to someone via email or telephone. They were also asked if they preferred to talk about personal and relationship issues via email, letter, telephone, or in person. Many students checked more than one category, so again, results are given for each category. There were no differences between males and

females in their expressed preference for talking about personal and relationship issues via letter, telephone, or in person. However, males reported preferring to talk via email more often than females did, $\chi^2 (1, \underline{N} = 143) = 5.39, p < .02$, and reported a preference for talking about relationship issues via email more than females did,, $\chi^2 (1, \underline{N} = 142) = 4.77, p < .05$. Loneliness was the only emotion for which there was a gender difference, although students were also asked to rate happiness, anger, and sadness. Males experienced more loneliness, $t (144) = 2.71, p < .01$, had fewer friends, $t (123) = -2.05, p < .05$, and identified themselves with the “nerd” group, $\chi^2 (1, \underline{N} = 136) = 6.18, p < .02$; and the alternative group more frequently, $\chi^2 (1, \underline{N} = 136) = 4.30, p < .05$. Females were more likely to identify with the “other” category, $\chi^2 (1, \underline{N} = 1, 38) = 11.36, p < .001$.

Differences between Shy and Non-shy Students in Technology Use, Group Identification, Face to Face Socializing, and Social and Academic Success

The average level of shyness reported in this sample, using a scale from zero to four, from not at all shy to very shy was 1.7 (S D = 1.1). Level 0 through 2 was categorized as non-shy (74%), and level 3 and 4 as shy (26%). Members of the she shy group were equally likely to be male or female. A significantly greater proportion of the shy than the non-shy students identified themselves as “nerds”, $\chi^2 (1, \underline{N} = 137) = 5.57, p < .02$. They identified less than did the non-shy with the popular group, although the difference only approached significance, $\chi^2 (1, \underline{N} = 137) = 2.69, p < .08$. There were no other differences in group identification.

Contrary to our expectation, shy students did not use technology more than non-shy students. They also did not differ from the non-shy in endorsing face-to-face contact for discussing personal and relationship issues. However, it is important to note that the

shy students wanted to talk, and to talk about personal issues, via email more than did the non-shy, $\chi^2(1, N = 144) = 5.84, p < .02$; $\chi^2(1, N = 146) = 3.92, p < .05$, respectively. Shy students socialized with friends less than the non-shy, $t(145) = 1.93, p < .06$. They used the telephone less, $t(142) = 2.08, p < .05$; had fewer friends, $t(123) = 2.78, p < .01$; and were less satisfied with the friendships they had, $t(144) = 1.92, p < .06$. They were also less likely to attempt further contact if social interactions were disappointing $t(143) = 3.06, p < .01$. Substantial emotional differences were also revealed: the shy students were more lonely $t(145) = -1.91, p < .06$, reported greater sadness $t(144) = -2.13, p < .05$, and less happiness $t(144) = 2.39, p < .02$. They also felt less supported by the school than the non-shy did $t(143) = 2.33, p < .05$, but not less supported by their families. Shy and non-shy students did not differ in number of AP classes or GPA.

The Extremely Shy Group Compared with All Other Students

Seven students rated themselves as a four on the zero to four rating scale (4.6% of our sample). Six of these students were male. We compared these extremely shy students with the rest of the sample. Our initial hypothesis, that shy students would use technology more than the non-shy, was confirmed in this group of students. They were more likely than the rest of the students to use computers for academic work, $\chi^2(1, N = 152) = 13.67, p < .02$, and for other activities, $\chi^2(1, N = 145) = 13.42, p < .02$. They spent more time playing computer games, $\chi^2(1, N = 137) = 12.87, p < .05$; and showed a trend toward more use of email, $\chi^2(1, N = 139) = 8.92, p < .11$. They also tended to prefer email to communicate more than did the rest of the students, $\chi^2(1, N = 144) = 3.06, p < .08$. They were somewhat more likely to have a computer in their bedrooms at home than other students, $\chi^2(1, N = 150) = 2.88, p < .10$, but reported significantly less access

at school, $\chi^2(1, N = 149) = 7.91, p < .01$. They also reported more access to computers at work than their cohorts, $\chi^2(1, N = 149) = 5.48, p < .02$.

The extremely shy expressed a desire to use technology in interpersonal relationships more than did the non-shy. Although they endorsed face to face contact for communicating as much as other students, they liked to talk about personal issues via email more than others did, $\chi^2(1, N = 146) = 4.07, p < .05$. The extremely shy endorsed talking about personal things by letter more than the rest of the sample, $\chi^2(1, N = 146) = 6.34, p < .02$, and more often wanted to use the telephone or email to discuss relationship issues, $\chi^2(1, N = 144) = 3.85, p < .05$; $\chi^2(1, N = 143) = 4.45, p < .05$. They also reported a willingness to use the telephone to deal with conflict in relationships more than other students, $\chi^2(1, N = 142) = 5.12, p < .05$.

Group Identification and Friendships. The extremely shy more often identified with the “nerd” group, $\chi^2(1, N = 137) = 15.77, p < .001$; or “everyone”, $\chi^2(1, N = 137) = 5.04, p < .05$. They were more likely to blame themselves when social interactions had negative outcomes $t(111) = -2.37, p < .02$, were more lonely $t(145) = -3.05, p < .01$, and had fewer female friends $t(123) = 2.09, p < .05$ (though not fewer male friends).

Discussion

Our first hypothesis, that shy students would use computers more than non-shy students was not confirmed for the moderately shy, in terms of hours spent using computers for academic and for other activities. They did not differ in hours spent playing games, using email, surfing the net, or participating in chat rooms. They endorsed face to face contact to discuss personal and relationship issues as much as the non-shy. However, they also endorsed wanting to talk via email more than the non-shy

and wanting to talk about personal issues via email more than the non-shy. They also used the telephone less.

The extremely shy did spend more time than the rest of the students on computers, engaging in both academic work and in other activities, and identified with the “nerd” group more than other students. They spent more time playing computer games, and showed a trend toward more use of email. These individuals also tended to endorse email as a communication medium more than their compatriots did, and chose to deal with personal issues in a less intimate fashion more often than the non-shy. For example, they were more likely to endorse letters, email, and the telephone for dealing with interpersonal conflict. They also reported more loneliness and interpersonal self-blame than the rest of the students. The extremely shy reported less access to computers at school, which may indicate that they are less assertive in claiming public computers. Alternatively, they may be more concerned about evaluation when performing in public than other students, or simply are more introverted and prefer solitude while doing schoolwork.

We could not examine direction of causality in survey research, only the relationships reported between self-categorized shyness and time spent using various forms of technology. Our long-term goal is to discover specific mechanisms by which individuals and groups interact with technologies that tend to increase shyness and social inhibition, or ameliorate it. For instance, do collaborative small group interactions reduce shyness and encourage successful social participation and positive social learning? Our hope is to structure interactions with technology in ways that serve to mitigate against problematic or extreme shyness and that encourage active and enjoyable interpersonal participation by all students.

The gender differences that were revealed in this study warrant further large-scale investigation. Males in this sample spent more time than females using the computer, surfing the net and playing computer games. One might argue that they are learning more about the current cultural environment by doing so, but they reported more loneliness and fewer friends. Does that indicate that their use of technology is causing males to be lonelier than females, or are they driven to it because they are lonely? Again, our findings do not point to causality. However, since this association between increased use of technology and greater loneliness is consistent with previous findings (Kraut et al., 1998), it is vital that the linkages between technology, gender, shyness, and psychosocial outcomes be more fully explored.

References

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