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[Bonetti, Luigi, Campbell, Marilyn, & Gilmore, Linda](#) (2010) The relationship of loneliness and social anxiety with children's and adolescents' online communication. *CyberPsychology and Behavior*, 13, pp. 279-285.

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<http://dx.doi.org/10.1089/cyber.2009.0215>

The relationship of loneliness and social anxiety with children's and
adolescents' online communication

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Running Title: Loneliness, anxiety and online communication

Abstract

Children and adolescents now communicate online to form and/or maintain relationships with friends, family, and strangers. Relationships in “real life” are important for children’s and adolescents’ psychosocial development; however, they can be difficult for those who experience feelings of loneliness and/or social anxiety. The aim of this study was to investigate differences in usage of online communication patterns between children and adolescents with and without self-reported loneliness and social anxiety. Six hundred and twenty-six students aged between 10-16 years completed a survey on the amount of time they spent communicating online, the topics they discussed, the partners they engaged with, and their purposes for communicating over the Internet. Participants were administered a shortened version of the UCLA Loneliness Scale and an abbreviated subscale of the Social Anxiety Scale for Adolescents (SAS-A). Additionally, age and gender differences in usage of the aforementioned online communication patterns were examined across the entire sample. Findings revealed that children and adolescents who self-reported being lonely communicated online significantly more frequently about personal things and intimate topics than did those who did not self-report being lonely. The former were motivated to use online communication significantly more frequently to compensate for their weaker social skills to meet new people. Results suggest that Internet usage allows them to fulfill critical needs of

social interactions, self-disclosure, and identity exploration. Future research, however, should explore whether or not the benefits derived from online communication may also facilitate lonely children's and adolescents' offline social relationships.

Key words: adolescents, children, Internet, social anxiety, loneliness, communication

Introduction

The basic concept of loneliness as a subjective emotional state blended with an objective physical condition of isolation has been recognized in children as young as five or six years old.¹ The majority of research on children's loneliness has focused on social, emotional, and behavioral problems affecting their social relationships and hence leading to loneliness.² Social problems include lack of friendships,³ lack of high-quality and enduring friendships,⁴ peer rejection and victimisation.⁵

These circumstances are among the best predictors of a child's potential for negative self-views.⁶ From middle to late childhood in particular, when a need for intimacy typically arises,⁷ children may become aware of their low peer competence if their social interactions are not positive. Such a realization may trigger emotional problems such as shy-anxious behavior, negative self-perception, or even depression, which all combine to produce a sense of isolation.⁸ Asher and Gazelle⁹ argued that children who have low peer social status are also more likely to have deficits in communication competence.

It is during adolescence, however, that loneliness seems first to emerge as an intense recognizable phenomenon.¹⁰ In this period, social relationships start to expand outside of the individual's family unit;¹¹ therefore, being accepted by peers including those of the opposite sex is of vital importance in the development of adolescents' identity.¹² Early

adolescence in particular is a time of an acute sense of self-awareness of one's social value and self-presentation. This change results in increased experience of self-evaluative emotions, which may lead to feelings of loneliness.¹³ When early adolescents have not reached a state of stabilisation in their relationships, and have not reconciled their own beliefs or values with those of their parents and peers, their self identity suffers.¹⁴

As children enter adolescence they become better able to differentiate between loneliness and solitude, since they can also actively choose to spend increased amounts of time alone in different contexts.¹⁵ Although it is important to determine whether adolescents' solitude is due to their disposition or to peer exclusion, this voluntary state can be experienced in purposeful and adaptive ways. Therefore, loneliness should not be viewed in itself as pathological, especially if it is situational and not chronic.⁹

However, often loneliness in adolescence becomes increasingly associated with depression, antisocial behaviors, and social anxiety.^{16,17} Social anxiety (or social phobia) is a disorder characterized by a strong fear of humiliation and embarrassment during exposure to unfamiliar people or possible scrutiny by others.¹⁸ As a result, socially anxious children or adolescents often withdraw from either informal or formal situations because they are afraid of failing social-evaluative tasks. However, socially anxious young people's views of themselves may also be distorted, as these

individuals tend to amplify features of their behavior or performances that would most likely elicit criticism or derision from others.¹⁹

Expectation of negative evaluation has been negatively associated with low self-worth and a lack of peer acceptance, as well as increased deficits in assertiveness and responsibility.²⁰ Children and adolescents who are socially phobic have been found to exhibit significantly poorer social skills than those who are socially well adjusted.¹⁶ Also, the former can show impairments in their academic and family functioning, and are at higher risk for long-term problems with their career and functioning independently as adults.¹⁸

In addition, children and adolescents who have experienced elevated levels of peer victimization have been found to report higher levels of social phobia.²¹ Repeated exposure to peer harassment can lead children and adolescents to avoid anxiety provoking social interactions or to endure them with substantial emotional distress.²⁰ Negative feedback from these situations may consequently hamper victimized individuals' potential for exposure to constructive peer relationships.²¹ Hence, social anxiety in children and adolescents can interfere with their normal process of peer socialisation.¹⁶

Parental influences on children's and adolescents' social anxiety and loneliness include poor quality attachment, over-controlling and over-critical parenting styles. Further, intergenerational transmission and parents'

negative promotion of their children's peer relationships may each independently contribute to their experiencing of these conditions.²²

Thus, the peer group and the family play a key role in the development of lonely and/or socially anxious children's and adolescents' identity.²³ These children and adolescents in particular have to learn how to satisfy rising interpersonal needs for affection, belonging, approval, and control through communication and interactions.²⁴ A motivation to form and/or maintain at least a minimum quantity of positive relationships is fundamental to their general development and health.²⁵ However, as this is a hard task for them to face, they may prefer to seek excitement, intimacy, and friendship from using the Internet for communication purposes.²⁶

*Online Communication Usage by Lonely and/or Socially Anxious Children
and Adolescents*

Altered features of online communication as opposed to the nuances of face-to-face communication seem to be particularly appealing to lonely and/or socially anxious children and adolescents.²⁷ The relative anonymity of the Internet may motivate them to disclose generic or intimate information more frequently and effectively online.²⁸ Fewer social status and audiovisual cues, as well as lack of physical presence of a partner online, may also help them compensate for their poor social skills, overcome their shyness and inhibitions, and reinforce their self-esteem.²⁹

As physical attractiveness is not important in the Internet environment, it may offer them a safe opportunity for identity-experiments with much less fear of disapproval and rejection.³⁰ Further, the controllability over timing available to reflect or make plans and decisions in online communication may over time foster their assertiveness and responsibility.³¹ As a result, lonely and/or socially anxious children and adolescents may be able to form and/or maintain relationships more easily online than in face-to-face interactions.

The Current Study

According to the *social compensation* hypothesis, lonely and/or socially anxious children and adolescents turn to online communication. By contrast, the *rich-get-richer* hypothesis posits that mainly non-lonely and/or non-socially anxious individuals consider the Internet as just another venue to get in touch with friends and/or family.³² However, both hypotheses are inadequate at explaining how particular children and adolescents communicate online to form and/or maintain relationships. Also, such hypotheses do not take into consideration the fact that these individuals may vary in their motives for using the Internet to fulfill their needs.²⁹

Building on the work of Valkenburg and Peter,³² the current study investigated the amount, topics, partners, and purposes of online communication to explore differences in usage of communication patterns

between children and adolescents with and without self-reported loneliness and social anxiety. Because, Livingstone and Helsper³³ revealed a “digital divide” by age and gender in terms of access and quality of use of the Internet, age and gender differences in usage of patterns of online communication were also investigated.

Materials and Methods

Participants

Data were gathered from a convenience sample of 626 students aged between 10-16 years of age ($M = 12.85$, $SD = 1.92$). Participants were 316 males and 310 females, 286 children (10- to 12-year olds) and 340 adolescents (13- to 16-year olds). This was not a representative sample of the Australian population, being skewed in favor of high socio-economic status according to the Australian Standard Classification of Occupations, Second Edition.³⁴

Measures

Online Communication. Four items assessing the *frequency* (Question 1) and *duration* (Questions 2-4) of online communication were adapted from Valkenburg and Peter's³² study. Question 1 asked the participants the number of days that they had been online to chat in the past

week; Questions 2-4 asked about the approximate total time spent chatting on the last day they were online, on an average week day, and on an average weekend. Response categories for Question 1 ranged from 0 (*none*) to 4 (*every day*); response categories for Questions 2-4 ranged from 1 (*less than 15 minutes*) to 5 (*more than 4 hours*). Responses to the four items were standardized ($\alpha = .84$); z scores were summed to create a composite measure (*amount of online communication*), with higher scores equating to a higher usage and lower scores a lower usage of online communication.

Topics of Online Communication. A list of topics of online communication was constructed by combining 35 items that had been used in the Pew Internet & American Life Project's surveys and other previous studies.^{35,36} Some additional items were added by the authors. Participants were asked how often they chatted about each topic presented in Table 1; response categories ranged from 0 (*never*) to 2 (*often*). Cronbach's alpha for this list was .90 ($M = .78$, $SD = .66$).

Partners of Online Communication. An 8-item list of partners of online communication was devised by the authors ($\alpha = .60$; $M = .76$, $SD = .62$). Participants were asked how often they chatted with each partner presented in Table 2; response categories ranged from 0 (*never*) to 2 (*often*).

Purposes of Online Communication. The 18 purposes for communicating online developed by Peter, Valkenburg, and Schouten³⁷ were retained in a list. The authors had included them in five motive scales which in this study yielded the following indexes of internal consistency: *entertainment*: $\alpha = .81$ ($M = 1.18$, $SD = .69$), *maintaining relationships*: $\alpha = .62$ ($M = 1.42$, $SD = .67$), *social compensation*: $\alpha = .72$ ($M = .61$, $SD = .71$), *social inclusion*: $\alpha = .70$ ($M = .52$, $SD = .68$), and *meeting people*: $\alpha = .76$ ($M = .66$, $SD = .70$). Participants were asked how often they chatted for each purpose presented in Table 3; response categories ranged from 0 (*never*) to 2 (*often*).

Loneliness. In line with Valkenburg and Peter,³² the same five items selected with the highest item-total correlations and a negative wording from the UCLA Loneliness Scale³⁸ were used. In this study, the five items produced a Cronbach's alpha of .84 ($M = 1.82$, $SD = .83$).

Social Anxiety. In line with Valkenburg and Peter,³² the same four items selected with factor loadings greater than .50 from the SAD-New subscale of the Social Anxiety Scale for Adolescents³⁹ were used. A Cronbach's alpha for the four items was .83 ($M = 2.42$, $SD = 1.17$).

Procedure

The children were recruited from six primary schools and the adolescents from four secondary schools in the greater area of Brisbane. To be eligible to take part in this cross-sectional study, students had to have access to a computer and the Internet at home and use any application for online communication purposes. Interested students returned signed informed consent forms to their teachers after they had obtained permission to participate in this survey by their parents or guardians.

Completion of an anonymous questionnaire occurred at a convenient time during school hours. Surveys from students who indicated that they did not communicate online were not retained for analysis.

Results

Loneliness and Social Anxiety: Group Differences in Patterns of Online Communication

A one-way ANOVA was conducted to evaluate differences in amount of online communication between children and adolescents with and without self-reported loneliness and social anxiety. A median split divided the sample into four groups: those who were neither socially anxious nor lonely (group 1; $n = 220$), those who were socially anxious but not lonely (group 2; $n = 139$), those who were lonely but not socially anxious (group 3;

$n = 107$), and those who were both lonely and socially anxious (group 4; $n = 159$). The ANOVA was significant, $F(3, 621) = 4.46, p = .004, \eta^2 = .02$. Tukey HSD Post Hoc tests revealed that group 3 and group 4 used a significant higher amount of online communication than group 2.

Chi-square analyses were then conducted to test for statistical differences between the loneliness/social anxiety factor and frequency of online communication. These considered topics, partners, and purposes included in the lists at three levels for each pattern of Internet communication: never, sometimes, and often. Using the Holm's sequential Bonferroni method to control for Type I error at the .01 level, follow-up pairwise comparisons were conducted within the significant results to explore the differences among the four groups.

These indicated that groups 3 and 4 always reported communicating online significantly more frequently than did group 1 and group 2 about "how they felt", "serious problems", "things that bothered them", "secret or confidential things", "other kids" ($p < .001$ for each topic listed above), "parents or family", "their health", "things they would not say to someone's face", "gossip/rumors", "things in their past", "things they have done that day", and "asking someone to be their friend" ($p < .01$ for each topic listed above). Additionally, groups 3 and 4 reported communicating online with "adults they had met" significantly more frequently than did group 2. Finally, groups 3 and 4 always reported communicating online for social

compensation and meeting people motives, but also “to belong to a group” or their “chat friends” and “to relax”, significantly more frequently than did group 1 and group 2.

Age Differences in Patterns of Online Communication

The results of a Mann-Whitney U test revealed a significant age difference between children’s and adolescents’ rankings in terms of amount of online communication, $z(626) = -5.75, p < .001$. Children had an average rank of 268.23, while adolescents had an average rank of 351.58.

Chi-square analyses were then conducted to test for statistical differences between age and frequency of online communication (as above). Within the significant differences, adolescents reported communicating online more frequently than did children about “relationships”, “plans for social events”, “serious problems”, “school work or homework”, “things that bothered them”, “their health”, “how they felt”, “trivial problems”, “parents or family”, “other kids”, “things they have done that day”, “clothes and fashion”, “secret or confidential things”, “things in their past”, and “music” ($p < .001$ for each topic listed above). Adolescents indicated that they communicated online more frequently than did children with “friends”, “boys or girls they had never met”, and “non-friends”; however, chi-square values were higher when the partners were girls, regardless of whether they were friends or not. Furthermore, adolescents reported communicating

online more frequently than did children to avoid boredom and for relaxation, but above all “to get to know new people” and also “because they dared to say more”.

In contrast, children indicated that they communicated online more frequently than did adolescents about “videogames and online games” and “asking someone to be their friend”, with members of their “family”, and for a social inclusion motive, in order “to be a member of something” and “to belong to a group” or their “chat friends”. Here and in the subsequent sections, “more frequently” means that the sums of frequencies for response categories *sometimes* and *often* were higher.

Gender Differences in Patterns of Online Communication

The results of a Mann-Whitney *U* test revealed a significant gender difference between boys’ and girls’ rankings in terms of amount of online communication, $z(626) = -1.99$, $p = .047$. Boys had an average rank of 299.26, while girls had an average rank of 328.02.

Chi-square analyses were then conducted to test for statistical differences between gender and frequency of online communication (as above). Within the significant differences, girls reported communicating online more frequently than did boys about “shopping”, “clothes and fashion”, “how they felt”, “things they have done that day”, “things that bothered them”, “parents or family”, “gossip/rumors”, “relationships”,

“plans for social events”, “current events”, “secret or confidential things”, “music”, “other kids”, and “holidays” ($p < .001$ for each topic listed above). Girls indicated that they communicated online more frequently than did boys with same-sex “friends” and “family” members, as well as for a maintaining relationships motive (in order “to keep in contact with their friends”, even if they “lived far away”) and “because they enjoyed it”.

In contrast, boys indicated that they communicated online more frequently than did girls about “videogames and online games” and “sports”, with same-sex “friends” too but most notably also with people whom they had “never met” (boys, girls, or adults), and “to belong to a group”.

Discussion

The Relationship of Loneliness and Social Anxiety with Children's and Adolescents' Online Communication

The results show that those children and adolescents who self-identified as lonely communicated online significantly more than those who self-reported being socially anxious. The former also indicated that they communicated online significantly more frequently about personal things, people in their everyday lives, intimate topics, and their present and past, in comparison to socially anxious and typically developing children and

adolescents. It appears that lonely children and adolescents value the Internet as a communicative “protected” environment in which they can better express their inner selves and find conversation more satisfying than they do offline. Their poor social skills are probably the reason for their preference for online communication, as the lonely young people indicated that they communicated online more frequently so they did not feel as shy, were able to talk more comfortably, and dared to say more.

The question is with whom in particular they were able to do so. Gross et al.,⁴⁰ found that young people aged 11-13-years ($N = 130$) who reported feeling lonely were more likely to communicate online with strangers. However, the present study found that lonely children and adolescents reported communicating online more frequently with known adults, more than socially anxious young people. Peter et al.²⁹ have argued that the social compensation motive may facilitate online friendship formation. That is the more time lonely children and adolescents spend online self-disclosing with someone, the more new relationships they are also likely to establish with other persons.⁴¹ The present study also supported this hypothesis as lonely young people reported using the Internet to make new friends in addition to communicating with known adults more than non lonely young people.

Age Differences

Consistent with previous studies, age was positively related to participation in and frequency of online communication with one's existing network of friends. Adolescents normally confide in their friends about their day-to-day issues and grievances more often than do children⁴². However, adolescents may also perceive online communication as broader and deeper than face-to-face communication,³¹ and benefit from having greater access to the Internet as compared to children.³³ Furthermore, children most often visit chat rooms devoted to discussion of entertainment topics such as gaming, whereas adolescents most frequently communicate online about relationships and lifestyles.⁴³

On the other hand, it is common for adolescents in particular to interact online also with strangers or acquaintances. Although online communication with such partners may be primarily influenced by an entertainment motive and curiosity,³⁷ it may also serve as an indicator of heightened risk-taking for adolescents. Additionally, the results show that the Internet appears to promote typical adolescent developmental features such as increased cross-sex communication with different peers.⁴⁰

Conversely, children may have been more frequently motivated to ask someone to be their friend online because of a need to include and be included in the community. Friendships are important in childhood because

they contribute to communication, both off- and online, with family members.⁴⁴

Gender Differences

Females reported being involved significantly more than males in online communication suggesting that it can no longer be expected that boys spend more time online than girls.⁴⁰ In line with Lenhart and Madden,⁴⁵ girls' main purposes for communicating online were to reinforce pre-existing friendships and to use online communication as a bridge to friends they seldom see. Females identified online communication with friends who were girls significantly more frequently than males. As in their offline social relationships, girls' online interactions were most likely characterized by talking, enjoyment, and intimacy on different topics.⁴²

However, boys reported significantly more frequent online communication with same-sex friends as well. Perhaps children or adolescents who only feel confident to be involved in same-sex friendships may have lower self-esteem.⁴⁶ In turn, a decline in self-esteem could encourage them to use the Internet more frequently to experiment with their identities, for example by pretending to be someone else, role-playing, or dating online.⁴⁷ Since boys indicated that they communicated online with people they had never met more frequently than did girls, and higher numbers of regular online relationships amongst boys have been shown to

militate against self-esteem,⁴⁸ it is likely that in the present study males explored certain aspects of their selves when communicating online with strangers. However, boys may as well have taken more risks during their online engagements as compared to girls,⁴⁹ who reported communicating online with their family significantly more frequently than did boys.

Finally, the current study confirms that boys' interests are usually more focused, narrow, and stereotyped, even in relation to their Internet activities. Indeed, as substantiated by Roberts et al.,⁴³ they identified videogames and online games plus sports as the only two online communication topics more frequently discussed compared to girls.

Implications

The findings suggest that lonely children and adolescents may need to become part of a community of similar others who are captivated by the Internet, most likely because they have a low sense of belonging to their own neighborhood or school community.^{50,51}

Lonely children and adolescents deal online with the same developmental issues as they do in their "real lives". The Internet seems to allow them to fulfil needs of social interactions, self-disclosure, and identity exploration.⁵² However, will they tend to integrate any social skills acquired online into their real lives, or will they just continue to seek out online relationships to fill the void from the lack of offline social relationships?⁵³

Do they heavily use online communication to alleviate their depressed feelings, or just as a means to escape them and further isolate themselves? Parents and professionals should particularly monitor lonely children and adolescents, and educate them on a beneficial and safe use of online communication.⁵⁴ Indeed, these vulnerable individuals may be at greater risk of becoming addicted to the Internet, as well as adopting faking/aggressive online behaviors and could be more likely to go out of their way to meet people with whom they have established online relationships.⁵⁵

Conclusion

The introduction of online communication has given rise to a debate about whether it impacts positively or negatively on children's and adolescents' social adjustment.⁵⁶ The results of this study suggest that future research should compare the nature and quality of online vs. offline social relationships, as well as continue the investigation of loneliness and/or social anxiety with related underlying factors in the two domains. Further studies should consider using a qualitative approach aimed at complementing survey data, in order to better understand the relationship between Internet use and personality/socio-demographic variables.

Authors' disclosure statement

No competing financial interests exist.

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Table 1

List of Topics of Online Communication

TOPICS	
Serious problems	Relationships
Trivial problems	Things that bother you
School work or homework	Clothes and fashion
Things you would not say to someone's face	Music
Other kids	TV programmes
Plans for social events	Films and videos
Asking someone to go out with you	Parents or family
Asking someone to be your friend	Websites
Teachers	Things related to the computer
Sports	How you feel
Videogames and online games	Breaking up with someone
Gossip/rumours	Your future
Books	Things in your past
Shopping	Things you have done that day
Current events	Secret or confidential things
Politics	Jokes or funny stories
Your health	Holidays
Hobbies	OTHER

Table 2

List of Partners of Online Communication

PARTNERS
Friends who are boys
Friends who are girls
Boys who are not friends
Girls who are not friends
Boys or girls you have never met
Family
Adults you have met
Adults you have never met

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Table 3

List of the Five Motive Scales Including Purposes of Online Communication

(1) Entertainment

PURPOSES

To have fun
Because I enjoy it
For pleasure
So I don't get bored
To have something to do
To relax

(2) Maintaining Relationships

PURPOSES

To speak with my friends from real life
To keep in contact with my friends
To talk with friends that live far away

(3) Social Compensation

PURPOSES

Because I can talk more comfortably
Because I dare to say more
To feel less shy

(4) Social Inclusion

PURPOSES

To belong to a group
To be a member of something
Because everybody does it
To belong to my chat friends

(5) Meeting People

PURPOSES

To get to know new people
To make new friends
