

Insights into the Social and Psychological Effects of SMS Text Messaging

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The increasingly widespread use of text-messaging has led to the questioning of the social and psychological effects of this novel communication medium. A selection of findings from an online questionnaire that was developed by the author to answer this pertinent question are presented. McKenna's recent work on the way the Internet can help some people develop relationships is drawn upon and taken a step further by exploring the differences between those who prefer texting ('Texters') and those who prefer talking on their mobiles ('Talkers'). A large sample of 982 respondents completed the questionnaire. Results showed there was a clear distinction between Texters and Talkers in the way they used their mobiles and their underlying motivations. The key finding to emerge in the preliminary analyses was that Texters seemed to form close knit 'text circles' with their own social ecology, interconnecting with a close group of friends in perpetual text contact. Compared to Talkers, Texters were found to be more lonely and socially anxious, and more likely to disclose their 'real-self' through text than via face-to-face or voice call exchanges. Structural equation modeling produced a model showing that where respondents located their real-self and whether they were a Texter or a Talker mediated between the loneliness and social anxiety measures and the impact of these on relational outcomes, in line with McKenna's theoretical framework. Thus it appears that there is something special about texting that allows some people to translate their loneliness and/or social anxiety into productive relationships whilst for others the mobile does not afford the same effect. Applications and explorations for future research are discussed.

1. Introduction

This paper is concerned with the social and psychological impact of mobile phone text-messaging, or 'texting'. The increasing and widespread use of texting is revolutionising communication in today's society. It is estimated that 72.1% of western Europe own a mobile phone (Katz & Aakhus, 2002) and that over one billion messages of up to 160 characters are sent each month in the UK alone (AOL mobile, 2002). 'Mobile messaging is the modern way to communicate. It's instant, location independent, and personal. That's why the new mobile phone generation has started to favour messaging, making it one of the fastest-growing segments of the mobile communications industry' (Nokia, 2002).

There is emerging a clear but untested assumption that young people are both the driving force behind and at the same time the slaves of a growing text messaging culture (Thurlow, 2003). According to Nokia's world-wide survey of 3300 people (Nokia, 2001), the core mobile phone market is the under-45 age group. Over 80% of those sampled in this survey reported text-messaging as the most used function on their mobiles. Other studies have found that, in Britain at least, nearly 80% 14-16 year olds own mobiles (NOP, 2001; as cited in Thurlow, 2003), and that it is this teen market that dominates text-messaging, with 90% of teenagers claimed to text more than they talk on their phones (Haig, 2002). However, despite a small number of qualitative studies of teenagers' use of text messaging (e.g. Thurlow, 2003;

Kasesniemi & Rautiainen, 2002; Ling & Yttri, 2002; Puro, 2002), little is known about the psychological impact of texting on social interaction amongst regular users, nor on the long-term consequences of texting on the development and maintenance of these relationships.

In this paper we report on the preliminary findings of a four-year study into the social and psychological aspects of SMS text-messaging. In particular, we present some results emerging from a large sample internet survey of texting designed to explore the relevance of Katelyn McKenna's work on relationships formed and maintained on the Internet to this mode communication. By focusing on positive aspects of conventional Internet use, McKenna and her colleagues have attempted to 'set the record straight ... about the actual social and interpersonal consequences of the Internet' (McKenna & Bargh, 2000, p59). McKenna & Bargh (1998), for example, found that regular use of electronic mail and participating in user groups had improved the lives of some users, particularly those who experienced difficulties with face-to-face communication (e.g. those who are socially anxious and/or lonely, or who have marginal identities) (Bamrud, 2002; McKenna *et al.*, 2002). McKenna reasoned that key features of the Internet, particularly the attenuation of personal information e.g. appearance, stuttering, shyness, etc., would allow greater freedom of self-expression, and nurture personal relationships that may not have otherwise had the chance to develop face-to-face. In fact, McKenna *et al.* (2002) found that the lonely and socially anxious were better able to express themselves and develop close friendships on the Internet than in the 'real' world. Whilst people with extensive social networks and frequent intimate social contacts also use the Internet for social purposes (Birnie & Horvath, 2002), many turn to it as a relatively safe environment in which to form close and meaningful relationships "to make a reality out of their virtual lives" (McKenna *et al.*, 2002, p.30).

We suggest in this paper that this applies equally well to the regular, social use of mobile phone texting. For a significant number of users, sending a text message may be more important for building and maintaining social relationships than for co-ordinating practical arrangements (Ling & Yttri, 2002). However, certain features of mobile telephony set SMS texting apart from conventional Internet use, as well as resembling it from the user's point of view. Firstly, the immediacy, mobility, and perpetual accessibility afforded by the mobile phone allows near-conversational levels of synchronous texting, such that an exchange of text messages can resemble online chat in turn taking and discourse structure (Kasesniemi & Rautiainen, 2002). On the other hand, the texting interface presents the user with an asynchronous medium similar to email, allowing time for composition and reflection, and the opportunity to manage the way users construct and present themselves in their messages (Chenault 1998; Danet, 1995; Ling & Yttri, 2002).

We suspect that it is the combination of these two features—the sociability of the chat room coupled with the psychological distance of electronic mail—that lends texting a special, but paradoxical, appeal to a significant number of users. In Thurlow's (2003) recent study of undergraduate text messages, only about one-third of messages accomplished functional or practical goals—the remainder fulfilled a combination of

phatic, friendship maintenance, romantic, and social functions associated with highly intimate and relational concerns. Text messaging therefore seems to provide an opportunity for intimate personal contact whilst at the same time offering the detachment necessary to manage self presentation and involvement.

The present research will attempt to directly tap in to McKenna *et al.*'s (2002) model by measuring social anxiety and loneliness and some of the measures of the 'real me' to see the impact of texting upon relationships. It will also go *beyond* their model to look at other potential mediating factors other than the 'real me', for example exploring how people who prefer using their mobiles for texting –“Texters”–differ from those who prefer using it for voice calls—“Talkers”. It is suspected that whilst Talkers value the immediacy and mobility of the mobile phone, it is the Texters who capitalise on the social environment created by texting to form and manage close personal relationships.

2. Method

A multi-page, branching online questionnaire including multiple-choice, scalar and open-field questions was developed to gather information on mobile phone ownership and usage, and aspects of relationship development. Questionnaire items included both newly developed questions as well as questions drawn from existing scales.

Respondents

The study was advertised on the Internet at various sites, including Plymouth and other universities on-line research pages, chat forums, newspapers and a range of list servers, and a link to the study was also hosted by one of the Internet's largest search engines. In addition, the questionnaire was advertised through a distribution list to all students at the University of Plymouth.

Experimental Design and Procedure

The link for the questionnaire was <http://psy.plym.ac.uk/onlineresearch/dr2>. When respondents arrived at the questionnaire on the Internet, they were presented with an information page, detailing what the study was about and how to complete the questionnaire.

The final questionnaire consisted of 143 questions concerning demographic information, mobile phone ownership and other background information on mobile use, text/talk preferences, mobile phone etiquette, phonebook contacts, language usage in text messaging, message collection, experiences with texting problems, and the use of texting in relationship development and maintenance. Individual differences in user orientation were assessed by the 10-question abbreviated UCLA Loneliness scale (Russell, 1996) and the 15-question Interaction Anxiousness Scale (Leary, 1983), both of which have reported Cronbach reliabilities of $\alpha = 0.89$.

To address the topic of real-self expression, items were adapted to refer to text messaging as opposed to the Internet from McKenna's 'real-me' questionnaire to include questions regarding the extent to which respondents' families “would be

surprised if they were to read his or her text messages” (3 point scale of very surprised to not at all surprised); whether respondents “felt more comfortable saying things in text messages than face-to-face” (“yes” or “no”); and in which medium (text messages, phone calls, or face-to-face) respondents “felt better able to express their true feelings”.

In order to assess breadth and depth of text relationships 15 questions from Parks & Floyds (1995) Levels of Development in On-Line Relationships Scale were used. Respondents had to answer these questions in regard to the person they text the most.

3. Results

The Sample

The sample reported here completed the online questionnaire between the 5th March and the 26th May 2003, totalling a maximum of 1073 respondents to any one question. For the SEM, there were 982 complete cases. Incomplete cases ($N = 43$) and those who did not own a mobile phone ($N = 48$) were discarded from the modeling stage.

There were a total of 395 males and 676 females, whose ages ranged from 12 to 67 years old, with a mean of 23.8 years. Of the total who responded to the question ($N = 1066$), 77.6% ($N = 827$) were of British nationality, 7.4% ($N = 79$) were American, and the remaining 22.4% came from a wide range of countries, none of which made up more than around 2% of the sample. In regard to country of residence, 82.3% ($N = 873$) of the 1061 who responded were British residents and 13.3% ($N = 133$) resided in the USA.

The preference for texting over talking split the sample almost exactly in half—of those 950 respondents reporting a preference, 517 stated they preferred talking - a group we termed the Talkers - and 433 preferred texting, who we termed the Texters. It is on this dichotomy that this paper will focus on.

How Texters and Talkers use their mobiles

Of all the splits, the distinction between Texters and Talkers seemed the most theoretically interesting. The data was examined to look for differences between these two groups in terms of patterns of communication, what they got out of texting and their underlying motivations, and various outcome measures. Results reported here are significant at the $p < .05$ level.

The first thing to note was that in terms of personality characteristics, Texters were significantly more lonely and significantly more socially anxious than Talkers. There also seemed to be distinct differences between Texters and Talkers in the way that they reported using their mobile. Texters phone bills were reportedly significantly less than Talkers. Compared to Talkers, Texters spent more of their bill on text, sent nearly double the number of texts, but made less than half the number of voice calls. Texters were also more likely to think that they text too much, to spend more time carefully editing or rewriting their text messages, to make full use of the character limit, reporting that their texts were more likely to be most of the limit or all of the

limit compared to Talkers. They reported deleting texts more regularly (which is understandable given the increased traffic of text messaging that this group has over Talkers) and to have a special tariff for texting. Texters were less likely to be on a contract instead preferring a pre-pay tariff, indicating that choice of pricing plan may reflect communication needs. There were no significant differences in the amount of time Texters and Talkers have owned a mobile suggesting that the preference for text or talk on the mobile is not mediated by length of ownership, but rather they are distinctive communication medium in their own right.

So, what is it that motivates Texters and Talkers to use their phones in these distinctive ways? Two aspects of the current questionnaire, the impact on relationships and the real-self expression questions may help answer this question. Texters reported having developed deeper relationships with the person that they texted the most, however, Texters and Talkers did not differ in the reported breadth of their relationships. Possibly as a result of this greater depth of personal contact, Texters were significantly more likely to report that texting had affected their relationships with friends and family. They also reported that texting helped them develop new relationships, added something new to their existing relationships and as having affected their social life more than Talkers.

In terms of real-self expression, the majority of Talkers and Texters preferred face-to-face (FTF) communication to express themselves, however interestingly over a quarter of Texters preferred texting, which was four times the number of Talkers who preferred texting. Talkers were more likely than Texters to prefer voice calls. Texters were also more likely to report that their family would be surprised if they were to read their texts, suggesting that texting allowed Texters to present a self-image that differs from the one familiar to family members and others who know them well. Texters also reported feeling more comfortable saying some things through text than they did FTF. So texting seems to afford Texters an opportunity for more intimate social contact than it does Talkers.

There were no significant differences between the two groups in terms of the size of the phonebook or the number of people they text regularly. Texters sent more texts in their text conversations than Talkers, sending an average of around 7 texts in a typical text exchange compared to Talkers average of 5.

The social ecology of texting-- textmates and text circles

The distinctive affordances of texting that attract Texters appear to create a special kind of “text world” with its own social ecology and structure. Indicators of this social ecology include the fact that Texters seem to establish and maintain social contacts within one or a few fairly well defined and close knit groups of textmates, forming “text circles”, within which they regularly, perhaps even continuously, exchange messages. They also engage more frequently in extended “text conversations”, sending nearly twice as many messages in these conversations than Talkers. Texters were more likely to text a particular group opposed to many groups, and more frequently participated in several simultaneous text conversations, findings which taken together reinforce the idea that Texters share interconnections within a close group of friends in perpetual text contact with one another.

The questionnaire also probed for information regarding the person respondents' text the most, the so called closest 'textmate'. It was reported that Texters develop deeper relationships with the person they text the most, despite there being no difference in the length of time Texters and Talkers had known this person, nor in the time they had been texting this person, or saw this person FTF. They did text this person significantly more however, and called them significantly less, and it's possible that this greater frequency of Texting facilitated a deeper, more meaningful relationship. However we cannot be sure from this particular data whether Talkers mirror this relationship with the person they talk to the most, nor can we be confident of the causal direction of this relationship until the data is more fully analysed. This analysis will progress in the following sections.

So on the whole, these findings seem to suggest that texting offers Texters a special kind of communicative relationship for which calls are no substitute.

Confirmatory Factor Analysis & Structural Equation Modeling

The structural equation modeling process went through 2 phases. Firstly the measurement models were tested and re-specified if necessary. This was then followed by determining the structural model, to depict the links between the latent variables (Byrne, 1994).

Testing the full structural model ended with the best fitting, most parsimonious hybrid model depicted in Figure 1 (CFI* = .90; RMSEA= .04 ; S-B $\chi^2_{(1067)} = 2934.85$; AIC = 984.68).

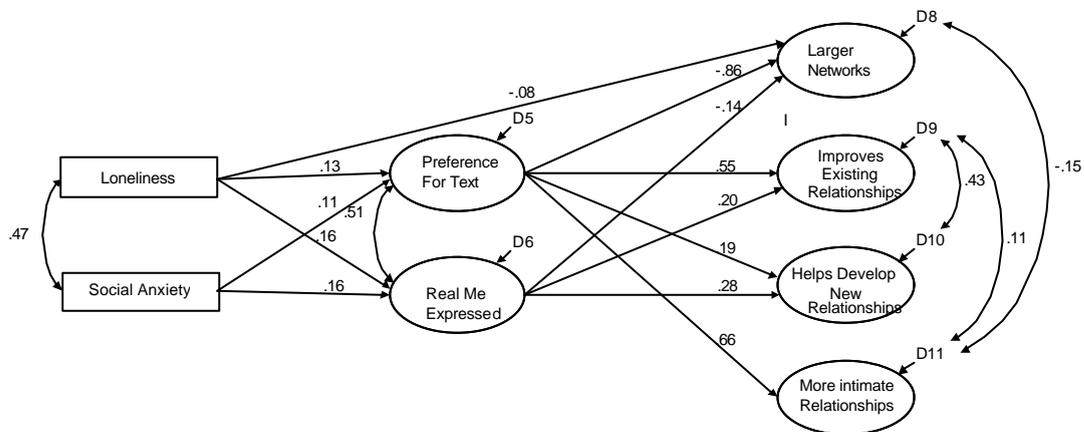


Figure 1: Final Hybrid model. To facilitate interpretation, only the factors are shown.

Structural Model Interpretation

The structural model in Figure 1 shows that the loneliness and social anxiety scores predict whether someone is a Texter or a Talker and whether they locate their real-self in text as opposed to face-to-face or voice call. The more lonely and socially anxious a person is, the more likely they are to be a Texter and to locate their real-self through text. Looking at the paths between the middle 'mediator' variables and the outcome variables the model shows that Texters have smaller social networks than Talkers, report Texting to have an impact on their existing relationships, new

relationships and to have had a greater impact on the relationship they have with their closest textmate. Those who indicate their real-self is located in text are more likely to be Texters, have smaller networks, and to find texting has impacted on their existing relationships and new relationships.

Whether someone is a Texter or a Talker seems to be the strongest mediator, indicated by the size of the coefficients between these factor and the outcome factors. There is also a path between Loneliness and Networks and follows that the lonelier someone is the smaller their social network, which is as one may expect.

So, it appears that there is something special about texting that allows some people to translate their loneliness and/or social anxiety into productive relationships whilst for others the mobile does not afford the same effects. This is inline with McKenna *et al's* (2002) findings where by the Internet provided a special forum for some users where they could express their real-self, and this would mediate between these personality factors and relational outcomes.

The next step with the present data is to carry out multiple-group CFA whereby the model is tested by seeing how well it applies to different groups, like the gender and age splits. The differences between owners and non-owners will also be explored.

4. Discussion

The results showed that there was a nearly equal split between those who preferred texting (the 'Texters'), and those who preferred talking (the 'Talkers') on their mobiles. Texters differed from Talkers in the way they used their mobile, their underlying motivations and key aspects of their personality. Texters were more likely to be female but this may be due to the larger number of females sampled in this particular study.

The fact some people prefer texting to talking suggests that they get something out of texting that they cannot get from talking. Indeed, the results showed that texting affords a distinctive medium for personal contact—not only did Texters report that the medium added something extra to their existing relationships with friends and family, but it also took them beyond this, helping them develop new relationships. As a result, they committed more time and effort to the process of message composition, writing longer messages and editing them more carefully, expressing things in their messages they may not have felt comfortable saying face-to-face. Texters also reported developing deeper relationships with the person that they texted the most compared to Talkers, despite there being no difference in the amount of time they had known the person or had been texting the person. Texters did text this person significantly more than Talkers did however, and it is possible that this greater frequency of contact facilitated a deeper, more intimate relationship. However, it cannot be deduced from this particular data whether Talkers show the mirror image effect with their voice calls, establishing deeper relationships with those they most frequently talk with.

Perhaps one of the most interesting themes to emerge out of our data was the notion of 'Text circles'- the idea that Texters seem to form closely knit groups of 'Textmates' with whom they engage in regular, maybe even perpetual, contact. This

finding neatly dovetails with the work of Thurlow (2002) who found that the majority of text messages seem to fulfil a social-relational or phatic function, as opposed to informational or practical purposes. The author is following this up in another study at present to see whether the content of texts sent by Texters differs from that sent by Talkers.

The core feature of the analyses was structural equation modeling. In the modeling phase of analysis, the discovery of the distinct groupings of Texters and Talkers was further reinforced, as well as uncovering some other insightful findings. The SEM results showed that people who were better able to express their real-self through texting than either face-to-face or through voice calls were more likely to find that texting had impacted on their existing relationships and helped them to develop new relationships. So where a person located their real-self mediated whether or not texting impacted on their relationships. This result is the same as McKenna *et al.* (2002) found with respondents who located their real-self on-line. Like McKenna, it was also found in the present analysis that the more lonely and socially anxious were better able to express their real-self through text, and for it to impact on various aspects of their relationships. This may be because such personality traits stop them from establishing relationships in the 'real' world and create a stronger need to express the real-self, a need that is satisfied for some by texting.

In terms of the Texter-Talker distinction, Texters were those who located their real-self in their text messages and who found texting had impacted on their relationships. The model also showed that those respondents who located their real-self on-line and who were Texters were likely to have a smaller social network compared to those who did not, as one may expect if these people had problems in traditional FTF communication. This was further reinforced by the fact that such people reported being more lonely.

The model also reinforced the finding that texting had more of an impact for Texters in terms of their relationship with their closest 'textmate' than Talkers. Texters texted this person more and developed deeper and more diverse relationships with this person compared to Talkers.

As McKenna *et al.* (2002) found with regards to the Internet, many people may turn to texting to form and maintain relationships in a relatively safe environment. Texting permits visual anonymity and its asynchronous nature allows for editing and self-reflection. Texters may feel at greater ease being their 'real-self' through a text message reducing the potential repercussions that may otherwise take place in a traditional face-to-face or telephone encounter. Texting may offer Texters more control over their interactions with others by affording them visual anonymity and asynchronous communication. As such the mobile may become more a matter of identity than a simple communication tool. Further research needs to be carried out to delve into these ideas further.

Texting in a way is more likely to result in a feeling of perpetual contact than voice calls. A text can often be received at any time at any place and people can reply covertly and discretely, and do so whilst multitasking. Texters were found to engage in a greater frequency of texting and this greater frequency of interpersonal communication through texting by Texters may make people feel better connected

and supported by their friends and family, etc. as (Crabtree, Nathan, & Roberts, 2003) Tyler (2002) found with CMC. The feeling that someone is always there, that people are perpetually connected may be a big draw of texting to Texters.

In summary, texting therefore seemed to facilitate the expression of some peoples real-self. Those people tended to be those who were socially anxious and lonely and that had been classified as 'Texters' based on a number of different measures. For such people, texting was more likely to help them develop new relationships and to have impacted, and impacted in a positive way, on their relationships with their friends and family. They were also more likely to have developed a closer relationship with their closest textmate.

Applications and Directions for Future Research

There are many avenues by which this research can continue. Presented here are just a few of those that are the most salient. In terms of applications for this research in the 'real world' there are some major implications for technologists and those driving the mobile industry. As Holloway points out "technology for its own sake is never as powerful a tool as technology that makes sense in the everyday life of a user" (Crabtree, Nathan & Roberts, 2003, p.1). We have identified different types of 'users' who may want different things from their mobile phone. Instead of marketing mobiles as a 'one-size fits all' device, maybe a more successful approach would be to identify the distinctive groupings of users and see what each group would benefit from in their mobile device.

Linked to this idea, perhaps the most exciting novel application of this research is that of sociable interface designs to support the interconnectivity between Texters. The interface may take a similar form to that of Instant Messaging on the Internet where one can see the status of ones 'textmates' and see who may be available for texting and who is busy, and maybe even who is Texting who. Such an application may be very popular with those who are forming these Text circles. This is another area that will be delved into in future research.

In conclusion, one of the main things this research has shown is that although a large number of people seem to have a mobile phone, they are not all using their phone in the same way (Crabtree *et al.*, 2003, p1). This research has found that there are at least 2 types of mobile users- Texters and Talkers- who differ in aspects of their personality, and who use their phone in distinctive ways. The research has also highlighted how readily users appropriate and co-opt new communication technologies to suit their own agenda, which in the case of Texters, seems to be to both use the medium to establish close perpetual contact with those in their 'text circle', and to employ the mobile phone texting facility to establish a forum for real-self expression, which in turn mediates the impact that Texting has on their relationships.

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