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## Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh



# Changes in technology use and adult attachment orientation from 2002 to 2012 \*



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#### ARTICLE INFO

Article history: Available online 1 July 2014

Keywords: Attachment Technology Cohort changes Media Anxiety

#### ABSTRACT

We have lived in an age of ever-increasing connection this past decade. Although technology and online social networking may not have increased psychological closeness, as some researchers suggest, it may have increased the perceived availability of other people in our social networks. The current study measures changes in comfort with closeness (attachment avoidance) and perceived availability of others (attachment anxiety) in a large Internet sample (N = 123,554) from 2002 to 2012. Attachment anxiety decreased from 2002 to 2012 and attachment avoidance exhibited no changes over the same time period. Further, these decreases were primarily driven by younger adults, presumably due to their heavy technology use. Attachment anxiety was negatively associated with mobile phone subscription rates and the number of Facebook users over this time period. Results from the current study suggest that the perceived availability of others has been increasing over time—perhaps because technology has increased the accessibility of close others.

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#### 1. Introduction

We have lived in an age of ever-increasing connection this past decade. Cell phones and social networking sites have made individuals more accessible to each other than ever before. Time spent exposed to new media (e.g., cell phones, texting, video games, TV, Internet) among children has exploded from nearly 10 h per week in the 1930s to 11 h per day by the 2000s (Gutnick, Robb, Takeuchi, & Kotler, 2011). Most online social networks (e.g., Friendster (2002), Myspace (2003), Facebook (2004), and Twitter (2006)) have also started in the past ten years (Lapinski, 2006). Almost half of American Internet users now have at least one online social profile (Arbitron, 2010). According to one report, time spent social networking is up 82% from previous years as of 2009 (Whitney, 2010).

Despite these trends, Konrath (2012) suggests that recent generations have been experiencing an "empathy paradox," in which technology has brought people closer together than ever before, but that this increase in *technological* closeness has not been accompanied by a sense of *psychological* closeness. Although technology and online social networking may not have increased

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psychological closeness, it may have increased the perceived availability of other people in our social networks. Increases in this perceived availability could have large implications for how individuals interact with others on- and offline, but few studies have examined changes in psychological characteristics conceptually related to technology use over this timeframe. Specifically, very little is known about how individuals' approach toward close relationships (i.e., their attachment orientation) is related to this recent increase in technology usage. The current study measures changes in comfort with closeness (attachment avoidance) and perceived availability of others (attachment anxiety) in a large Internet sample from 2002 to 2012.

#### 1.1. Societal-level changes in attachment orientation

An individual's attachment orientation is generally conceptualized as their position on two conceptually distinct dimensions: anxiety and avoidance (Fraley & Waller, 1998). Attachment-related anxiety reflects "hyperactivation" of the attachment system and preoccupation with the availability of close others (Mikulincer, Gillath, & Shaver, 2002). For instance, individuals with higher anxiety scores exhibit excessive reassurance-seeking and hypervigilance to signs of rejection and abandonment (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006; Shaver, Schachner, & Mikulincer, 2005). The avoidance dimension is characterized by chronic attempts to inhibit attachment-system activation in an effort to minimize expressions of distress (Edelstein & Shaver,

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2004; Fraley, Davis, & Shaver, 1998). For instance, individuals with higher avoidance scores generally tend to dislike intimacy and are less likely to provide emotional support for romantic partners (Brennan, Clark, & Shaver, 1998; Li & Chan, 2012). Individuals reporting low scores on both dimensions are generally considered secure (or high on "attachment security").

Why might one expect attachment orientations to be changing in recent years? Research comparing the personality traits of different cohorts (e.g., Twenge, 2006) suggests that social/cultural conditions of a particular time period can shape an individual's attachment orientation. One unique feature of the last decade is the rapid increase in the use of technology. Cell phones and online social networking sites presumably make it easier to reach out and check on the availability of close others (Sheldon, Abad, & Hinsch, 2011). Without a means of communicating or checking in easily, individuals may be concerned about the availability of the people on whom they depend. Therefore, technology that enables individuals to quickly contact each other (i.e., cell phones, texting, social networking sites) may afford individuals a sense of security knowing that close others are more readily available and therefore might decrease attachment anxiety. In support of this hypothesis, Sheldon and colleagues (2011) discovered that higher Facebook usage is associated with greater feelings of satisfaction with the connection to one's social network. Further, individuals who felt more disconnected after being deprived of Facebook access for a 48-h period responded with greater usage rates of social media during a second, unconstrained 48-h period. Electronic communication is also associated with greater feelings of availability among long-distance couples (Boneva, Kraut, & Frohlich, 2001; Dainton & Aylor, 2002; Stephen, 1986) and is associated with lower relational uncertainty (i.e., doubts about the status of or involvement in a relationship; Jin & Peña, 2010). Further, mobile phone experiments suggest that texting supportive messages has the potential to boost attachment security (Otway, Carnelley, & Rowe, 2013). Greater social networking use is also associated with greater feelings of intimacy and support among individuals high in attachment anxiety, suggesting that social networking may be associated with lower concerns about the availability of close others (Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013).

Given that technology use may provide individuals with a sense of security with respect to the availability of close others by increasing their perceived accessibility, attachment anxiety may have been decreasing over the past decade—coinciding with increases in technology use. Further, decreases in anxiety should be particularly pronounced among younger adults, due to the heavy usage of technology and social networking sites by this group. Thus, attachment anxiety should be lowest in years when technology use was at its highest. Based on Konrath (2012)'s observation that individuals have not experienced an increase in psychological closeness in the past decade, individuals should not be changing with respect to their comfort with closeness (attachment avoidance) over this time period. In the current study, we examined changes in attachment anxiety and avoidance from 2002 to 2012 using a large Internet sample. This large sample allowed us to test the hypothesis that attachment anxiety had been decreasing over the past decade. We also utilized publicly accessible data on the number of mobile phone subscriptions and Facebook users (as a measure of social networking site usage) to test the hypothesis that higher technology usage was associated with lower attachment anxiety.

#### 2. Method

#### 2.1. Participants and procedure

Participants were 123,554 adult users, ranging in age from 18 to 65+ (73.5% female), from an Internet site (authentichappiness.com)

who participated between September 2002 and March 2012. The website is supported by researchers from the University of Pennsylvania. Participants self-reported their age by selecting one of seven discrete age groups (i.e., 18-20 years old, 21-24, 25-34, 35–44, 45–54, 55–64, 65+;  $Mdn_{age\ category} = 25-34\ years\ old$ ). The majority of the sample (70.1%) had at least a bachelor's degree. Information on respondent-level ethnicity, sexual orientation, and relationship status was unavailable. All users were from the United States. Participants created a profile on authentichappiness.com and were provided with several questionnaires related to the field of positive psychology. Participation was voluntary and participants received feedback on their attachment orientation following completion. Duplicate responses were filtered out prior to data analysis and reporting. Use of these questionnaires for online data collection has been approved by the University of Pennsylvania Institutional Review Board.

#### 2.2. Adult attachment

The Experiences in Close Relationships-Revised Inventory (ECR-R; Fraley, Waller, & Brennan, 2000) was used to assess attachment anxiety and avoidance. The 18-item avoidance subscale ( $\alpha$  = .91) reflects an individual's discomfort with closeness and intimacy. The 18-item anxiety subscale ( $\alpha$  = .90) reflects an individual's concern about abandonment and the perceived availability of close others. Sample items include "I don't feel comfortable opening up to romantic partners" (avoidance), and "I often worry that my partner doesn't really love me" (anxiety). Participants rated the extent to which they agreed with each statement, using a 7-point Likert scale, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Items were averaged to create subscales for avoidance (M = 2.87, SD = 1.25) and anxiety (M = 3.29, SD = 1.42). The correlation between anxiety and avoidance was .49 (p < .001), which is consistent with previous research using the ECR-R.

#### 2.3. Mobile phone subscriptions

The annual number of mobile phone subscriptions per 100 people in the US from 2002 to 2012 was retrieved from The World Bank's open database of social indicators (World Bank., 2014). The number of mobile phone subscriptions per 100 people has risen dramatically from 2002 to 2012 (2002: 49 subscriptions/100, 2007: 82 subscriptions/100, 2012: 95 subscriptions/100).

## 2.4. Use of social networking sites

The annual number of Facebook users was used as a proxy for social networking site use as it is one of the most popular social networking sites and has existed for most of the time period of the current study. The number of Facebook users per year was only available from 2004 (when the site launched) until 2012 (Facebook.com., 2013). The number of Facebook users has risen dramatically from 2004 to 2012 (2004: 1 million users, 2007: 100 million users, 2012: 1.1 billion users).

#### 3. Results

### 3.1. Is attachment anxiety declining from 2002 to 2012?

To formally model the associations between year and the attachment dimensions, we conducted multiple regression analyses predicting anxiety and avoidance from year of survey completion while controlling for participant age, gender, and attachment orientation (e.g., when predicting anxiety, avoidance was controlled for). To assess whether decreases in anxiety were being

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