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Can text messages make people kinder?

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Abstract

Empathic character is a set of interrelated dispositions, skills, motivations, emotions, and behaviors that involve a habitual responsiveness to others' needs. It is linked to higher prosocial behavior, lower aggression, and better health. There is much research demonstrating both its consistency within people over time and its malleability in response to environmental and situational cues, including face-to-face interventions. In this paper I examine whether it is possible to increase empathic character using a mobile-based program. A large body of research in public health has used text messages to improve physical health outcomes and behaviors, but no research has examined whether text messages can be used to change traits. We conducted a study (N=90) in which participants received 6 daily empathy-building text messages for a 2 week period, versus a control group. We found that those in the empathy group showed some evidence of increased empathic character compared to control participants. The chapter ends by discussing implications of this work for a deeper understanding of empathic character, and some future directions of this research.

This chapter asks some age old questions that are bigger than the specific one we address in our research: can old dogs learn new tricks, can leopards change their spots, and do old habits die hard? That is, is it possible to change something as ingrained as someone's character? In the current paper, I specifically examine if it is possible to change *empathic* character traits, using a rather unorthodox tool: *the mobile phone*.

There are reasons why the mobile phone might be an unlikely candidate for changing empathy. Mobile phones are often used to strategically block out in person social interactions. During unwanted or awkward face-to-face conversations, people use them to psychologically escape, and they can also be used to avoid such interactions in the first place, by screening or blocking calls. However, they also serve as potentially powerful social connectors. They can help to lubricate existing social relationships by keeping people in touch via regular check-ins. One other use of mobile phones that may not immediately come to mind is as habit formers. Given the ubiquity of mobile phones and their proximity to users, they have also successfully been used as powerful tools to inject people with regular pieces of useful information (e.g. health and safety messages) and thereby change their behaviors.

But can they be used to shape a person's character? This chapter will give some initial answers to this question, and it will also demonstrate that the answer depends on how we measure and define character. Although the evidence is not crystal clear or simple, this is the first known study that uses mobile technology to try to shift deep character traits in people, and I hope it won't be the last. This new use of a familiar technology offers a powerful tool to better understand the nature of character and the possibility of character change.

Defining empathic character

Empathy is very difficult to define and measure, since scholars use the term loosely to apply to traits (Davis, 1983c), emotional responses (Batson, 2011), cognitive states or abilities (Davis & Kraus, 1997; Goldstein & Winner, 2012; Ickes, 1997; Van Honk et al., 2011), hypothetical responses (Barkai & Fine, 1983; Truax et al., 1966), and sometimes even behaviors (Lobchuk & Bokhari, 2008; Locraft & Teglassi, 1997; Strayer, 1980; Teherani, Hauer, & O'Sullivan, 2008). Given this broad usage in the literature, I define empathic character as encompassing interrelated dispositions, beliefs, skills, motivations, emotional responses, and behaviors. To some extent, this is in line with recent theorizing on the complex nature of character traits. For example, in his recent book on moral character, Miller defines a character trait as consisting "of some cluster of ... interrelated mental state dispositions" (Miller, 2013, p. 10). I see behaviors as important potential manifestations of such 'interrelated mental state dispositions' character. Although it is difficult to determine one's inner character from a simple observation of behavior, in combination with measures of more internal states, behaviors add an important dimension. For example, if a person felt a lot of compassion and also saw themselves as empathic, I find it doubtful to believe that he would be seen as possessing an empathic character unless he also regularly helped others and shared his time and belongings with them. Character is as character does.

Empathic character could also be called "kindness," however, the term "empathy" is more commonly used within the psychological literature. For example, a keyword search on empathy versus kindness in PsycInfo reveals that empathy is used 17 times more often than kindness (17,698 articles versus 1,030 articles). People with empathic characters habitually feel concern and compassion for others, limit their own personal distress and other barriers to becoming involved in others' situations, and consistently try to do what they can to help and support others, regardless of who sees them or whether there are rewards to gain. They give and

help and share because they want to help others in need, rather than to feel good or to receive something in return (Batson, 2011; Miller, 2013, Ch. 5).

The importance of empathic character

Empathic character traits are of central importance to people. They are readily identified in others (Wojciszke, 2005), and different people can agree on who scores higher versus lower in them (Bar-Tal & Raviv, 1979; Hartshorne, May, & Maller, 1928-30). Indeed, both men and women say that the number one attribute they are looking for in a romantic partner is kindness, despite gender differences lower in their preference lists (Buss & Barnes, 1986; Sprecher & Regan, 2002).

Empathic character is associated with more prosocial behavior

Numerous studies have found that people who score high on measures of empathic character traits tend to self-report and also exhibit more everyday prosocial behaviors; (Davis, 1983b; Kerber, 1984; Krebs & Sturupp, 1982; Larrieu & Mussen, 1986; McNeely & Meglino, 1994; Mehrabian & Epstein, 1972; Penner & Orom, 2009; Rushton, 1980, 1981; Rushton, Brainerd, & Pressley, 1983; Rushton, Chrisjohn, & Fekken, 1981; Rushton, Fulker, Neale, Nias, & Eysenck, 1989; Staub, 1974). Of course, there are also some null results in the literature (Amato, 1990; Yakimovich & Saltz, 1971), and probably many more in researchers' file drawers. However, meta-analyses find that there are overall relationships between empathic traits and prosocial behaviors (Borman, Penner, Allen, & Motowidlo, 2001; Eisenberg & Miller, 1987; Underwood & Moore, 1982).

Empathic traits are also correlated with longer-term, more deliberate prosocial behaviors, such as volunteering for non-profit organizations (Carlo, Okun, Knight, & de Guzman, 2005; Penner, 2002; Penner, Fritzsche, Craiger, & Freifeld, 1995; Stolinski, Ryan, Hausmann, & Wernli, 2004; Unger & Thumhuri, 1997). Even when controlling for a number of potential explanatory variables, empathic character traits are associated with increased volunteering behavior, charitable donations, and other prosocial behaviors in nationally representative Dutch and American samples (Bekkers, 2005, 2006; Clary, Snyder, & Stukas, 1996; Wilhelm & Bekkers, 2010).

There has also been some research examining empathic traits in more drastic situations. Indeed, Holocaust rescuers score higher in trait measures of empathy than non-rescuers and are more likely to be involved in prosocial behaviors several decades later (Fagin-Jones & Midlarsky, 2007; Midlarsky, Fagin Jones, & Corley, 2005; Oliner & Oliner, 1992). Other research finds that people who were awarded a national medal for exemplary caring score higher on empathic character traits than those who received a medal for bravery (Walker & Frimer, 2007). However, other studies examining people who helped in extreme situations (e.g. during car accidents or crimes) find mixed (Bierhoff, Klein, & Kramp, 1991) or null results (Huston, Ruggiero, Conner, & Geis, 1981). Meta-analyses would be useful in this literature.

Still, taken together, there is evidence that people with empathic character traits have an elevated probability of acting in the interests of others across a variety of situations.

Empathic character is associated with optimal well-being and health

It is well understood that empathic character predicts prosocial behavior, but what may be less known is that it has implications for the psychological well-being, mental health, and physical health of both givers and receivers of care (Konrath & Brown, 2012).

More empathic or compassionate people experience less stress, anxiety, burnout, and depression (Au, Wong, Lai, & Chan, 2011; Burtson & Stichler, 2010; Dyrbye et al., 2010; Ironson et al., 2002; Steffen & Masters, 2005; Wink & Dillon, 2002). Empathic people have a

lower physiological stress response to social evaluation (Ho, Konrath, Brown, & Swain, 2014), and this stress buffering effect is present even when people are induced to be in temporary empathic states (Abelson et al., 2014; McClelland & Krishnit, 1988), suggesting that empathy causally affects stress regulation. People with more empathic character traits are also prone to healthier lifestyles, such as less alcohol and tobacco consumption (Adams, 2010; Kalliopuska, 1992), and not surprisingly, they also have better physical health (Dillon & Wink, 2007; Ironson, 2007; Konrath & Fuhrel-Forbis, 2011b). In addition, high empathy in doctors, therapists, and teachers is associated with better outcomes in their patients and students (Aspy & Roebuck, 1972; Beck, Daughtridge, & Sloane, 2002; Chang, Berger, & Chang, 1981; Coffman, 1981; Derksen, Bensing, & Lagro-Janssen, 2013; Kurtz & Grummon, 1972; Truax, et al., 1966; Waxman, 1983; West et al., 2006).

Is empathy changeable?

There is evidence that empathic character is both a stable disposition and also responsive to people's general environments and immediate contexts.

The stability of empathy

Heritability. Individual differences in empathy-related traits are at least partially heritable (Rushton, Fulker, Neale, Nias, & Eysenck, 1986), especially when considering their more affective aspects such as empathic concern (Davis, Luce, & Kraus, 1994; Matthews, Batson, Horn, & Rosenman, 1981; Zahn-Waxler, Robinson, & Emde, 1992).

Stability over time and situation. People who have empathic traits or behaviors at one time point, are also more likely to have empathic traits or behaviors at a later time point (Bar-Tal & Raviv, 1979; Davis, 1980; Davis & Franzoi, 1991; Eisenberg, Carlo, Murphy, & Court, 1995; Eisenberg et al., 2002; Eisenberg et al., 1987; Grünh, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008; Penner, et al., 1995; Van der Mark, Ijzendoorn, & Bakermans-Kranenburg, 2002; Volbrecht, Lemery-Chalfant, Aksan, Zahn-Waxler, & Goldsmith, 2007). For example, one study found that preschoolers who spontaneously shared with other children were more likely to: i) behave prosocially, ii) be rated by others as high in empathy, and iii) see themselves as more empathic and prosocial in later childhood, adolescence, and young adulthood (Eisenberg et al., 1999). The authors conclude that "there is a prosocial personality disposition that emerges early and is somewhat consistent over time" (p. 1368). Next, in terms of cross-target consistency, children who show empathy to their mothers are also more likely to show empathy toward strangers (Robinson, Zahn-Waxler, & Emde, 2001; Young, Fox, & Zahn-Waxler, 1999).

The malleability of empathy

Situational factors affecting empathy. Yet there is also much research finding that empathy is malleable. For example, situational factors can affect the probability of prosocial behaviors (Baron, 1997; Darley & Batson, 1973; Isen, Horn, & Rosenhan, 1973; Isen & Levin, 1972; Krebs & Miller, 1985; Latané & Nida, 1981; Staub, 1974; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). Since one sign of empathic character is consistent prosocial behavior, it is important to realize how much these types of behaviors are influenced by variables outside of the person.

In addition, one expression of empathic character is the ability to identify others' emotions. Research has found that this can be affected by motivation. When people are more motivated because there is a chance to gain a financial reward, they can more accurately infer others' emotional states (Ickes & Simpson, 2008; Klein & Hodges, 2001). Moreover, temporal trends in dispositional empathy over the past 30 years suggest that it can be shaped by broad sociocultural factors (Konrath, O'Brien, & Hsing, 2011).

Empathic character can directly be taught and learned from others. Parents who are warmer, use more other-oriented discipline strategies (e.g. “Imagine how he must feel”), and discourage aggressive behavior elicit higher dispositional empathy and more prosocial behaviors from their children (Koestner, Franz, & Weinberger, 1990; Krevans & Gibbs, 1996; Strayer & Roberts, 2004; Zhou et al., 2002). Socio-emotional intervention programs can also increase empathic tendencies. For example, empathy can increase when similarity between the self and others is emphasized (Barnett, 1984; Brehm, Fletcher, & West, 1981), after role-playing another person’s feelings or situation (Barak, Engle, Katzir, & Fisher, 1987; Feshbach, 1984; Feshbach & Konrad, 2001; Underwood & Moore, 1982), after observing others’ misfortunes (Barnett, Howard, Melton, & Dino, 1982; Perry, 1975), and after exposure to highly empathic role models (Bryan & Walbek, 1970; Kohn, 1991; Kremer & Dietzen, 1991; Perry, 1975).

New technology as both a cause and solution for declining empathy

Over the past several decades, there have been documented declines in face-to-face social interactions, and in young people’s self-perceived ability to care and connect with others (Konrath, Chopik, Hsing, & O'Brien, 2014; Konrath, et al., 2011; O'Brien, Konrath, Grünh, & Hagen, 2013; Putnam, 2000; Twenge & Foster, 2008; Twenge, Konrath, Foster, Campbell, & Bushman, 2008). For example, our research has found that the personality trait narcissism has risen since the early 1980s among American college students (Twenge & Foster, 2008; Twenge, et al., 2008), while dispositional empathic concern and perspective taking have simultaneously been declining (Konrath, et al., 2011). In addition, American college students are now more likely to report insecure attachment styles, saying, for example, that they are comfortable without close relationships (Konrath, et al., 2014).

Some scholars have suggested that new media and technologies at least partially account for such changes (Konrath, 2012; Turkle, 2012). This is a plausible hypothesis considering that narcissism is associated with more frequent social media use (Carpenter, 2012; Panek, Nardis, & Konrath, 2013), and that studies have found that mobile phones can reduce people’s empathy, feelings of closeness, feelings of trust, and prosocial behaviors (Abraham, Pocheptsova, & Ferraro, 2012; Przybylski & Weinstein, 2013). Yet even though mobile phones may distract people from face-to-face interactions under some circumstances, they also literally connect us to others, making us feel closer to loved ones when there is physical distance (“Always connected: How Smartphones and Social Keep Us Engaged,” 2013; Coyne, Stockdale, Busby, Iverson, & Grant, 2011; Faulkner & Culwin, 2005; Padilla-Walker, Coyne, & Fraser, 2012; Pettigrew, 2009). Technologies are simply tools, and with the introduction of new technologies, there are often struggles to make sense of them and optimize their potential (Postman, 1992).

Public health researchers have realized the potential of mobile technologies for several years (Konrath, 2014a). For example, they have found that sending text messages to people encouraging them to quit smoking, exercise more often, or better manage their blood glucose can improve physical health outcomes (Cole-Lewis & Kershaw, 2010; Fiordelli, Diviani, & Schulz, 2013; Fjeldsoe, Marshall, & Miller, 2009; Herbert, Owen, Pascarella, & Streisand, 2013; Krishna, Boren, & Balas, 2009; Liang et al., 2011; Militello, Kelly, & Melnyk, 2012; Park, Howie-Esquivel, & Dracup, 2014; Shaw & Bosworth, 2012; Whittaker et al., 2009). Text messages are ideal intervention tools. They are inexpensive, embedded within participants’ everyday lives, and have broad dissemination power. Approximately 9/10 Americans own a mobile phone (Center, 2012), and 6/10 of those are smartphones (Nielsen, 2013). One study found that people had their phones in the room with them 90% of the time, and within arm’s reach 50% of the time (Dey et al., 2011).

Yet, so far text messaging interventions have been limited to physical health outcomes or serious mental health problems, with virtually no research using text messages to change psychological traits or social behaviors (Konrath, 2014a). With respect to empathy specifically, most prior empathy-induction studies rely on classroom or laboratory settings (Barak, et al., 1987; Barnett, 1984; Barnett, et al., 1982; Brehm, et al., 1981; Bryan & Walbek, 1970; Feshbach, 1984; Feshbach & Konrad, 2001). Yet some innovative research has found that empathy can be taught using videos (Kremer & Dietzen, 1991; Warner, 1984), demonstrating the potential effectiveness of more remote interventions.

The current study: Can text messages make people kinder?

The current study is the first known study that attempts to change character traits via text messaging. Our rationale was that daily practice may help to create empathic habits. Some theorists consider more automatic (effortless) versus more controlled (effortful) aspects of empathy (Hodges & Wegner, 1997). We posit that if people repeatedly engage in practicing empathy-related tasks, this could lead to more automatic (or habitual) empathic responses. This is in line with research demonstrating that tasks that initially take much concentration can later become automatic, almost done without thinking (Ericsson, 2006; Milton, Small, & Solodkin, 2004). Indeed, higher empathy people exhibit spontaneous muscle mimicry of facial expressions when stimuli are presented below their conscious awareness (Sonnby-Borgström, Jönsson, & Svensson, 2003). This provides some support for the idea that some aspects of empathy may become more automatic with practice.

In this study, we randomly assigned participants to an empathy-building text message group, an active control group, or a passive (no intervention message) control group. We measured their empathic character traits before and after the intervention, and also approximately 6 months later to examine whether the intervention had staying power. We found some evidence that this method can be successful. However, some of the results were unexpected and warrant further explanation. This study can help us to better understand the nature of empathic character and the changeability of different aspects of it.

Study design and measures

Developing the text messages

We developed the text messages by first gleaning the empathy literature for content ideas. Three commonly used components of empathic character arose from this process: 1) *Emotional empathy*, also known as empathic concern or compassion (Davis, 1983c; Galinsky, Maddux, Gilin, & White, 2008; O'Brien, et al., 2013), 2) *Cognitive empathy*, also known as perspective taking or role taking (Batson, Early, & Salvarani, 1997; Davis, 1983c; Galinsky, et al., 2008) (O'Brien, et al., 2013), and 3) *Prosocial behavior* as a potential consequence of empathy, such as helping or sharing (Eisenberg & Miller, 1987; Eisenberg et al., 1989). Control group messages were designed to capture both the emotional and the cognitive aspects of low empathy. These included messages that promoted loving oneself (i.e. high self-esteem) and messages that promoted psychological detachment or objectivity (i.e. psychological distance). Ideally these two ways of being low in empathy would be two separate control groups; however, because of limited resources, they were combined into a single control group. We initially developed 39 empathy text messages and 38 self/objective control text messages.

A group of 22 raters who were affiliated with our research lab next scored each message on the extent to which they were: other-oriented versus self-oriented, logical versus emotional, and behavioral versus in someone's mind. The final 21 empathy messages and 21 self/objective control messages were selected based on these ratings. An example empathy message was

“Think about someone close to you. How can you show this person that you accept them and care for them?” and an example self/objective message was “Think about your last social interaction. Did this person give you the level of respect you deserve?” Within each experimental condition, the messages were categorized into: 8 emotional messages, 8 cognitive messages, and 5 behavioral messages (See Table 1). In the study, participants were sent these messages 6 times per day for 14 days, presented in a randomized order (i.e. 4 times per message).

Across both experimental conditions, the messages did not significantly differ in length. We also tried to match the messages in reading difficulty and were partially successful.

[INSERT TABLE 1 HERE]

Choosing the outcome measures

One of the problems we immediately encountered when planning this study was in determining how we could demonstrate that the text message intervention had indeed increased empathic character. Given the numerous definitions and operationalizations of empathy in the literature, how could we most convincingly demonstrate whether our intervention worked? Would it be most convincing if we found that people who received empathy-building text messages...

- ...experienced more feelings of compassion for someone in distress? (Batson, 2011)
- ...had more prosocial motives for helping others? (Konrath & Fuhrel-Forbis, 2011a)
- ...scored higher in self-reported dispositional measures of empathy, such as empathic concern and perspective taking? (Davis, 1983c)
- ...had stronger moral beliefs that it was important to help others? (Wilhelm & Bekkers, 2010)
- ... had stronger beliefs that it was unacceptable to behave aggressively? (Huesmann & Guerra, 1997)
- ...actually behaved more prosocially (less aggressively) in response to a provocation? (Konrath, Bushman, & Campbell, 2006; Taylor, 1967)
- ...were rated as more empathic by observers?
- ...responded in prosocial ways to hypothetical scenarios or real situations in which others were in distress? (Batson, 2011; Truax, et al., 1966)
- ...cooperated with other participants in a prisoner’s dilemma game involving real money? (Balliet, 2009; Batson et al., 1995; Batson & Moran, 1999)
- ...gave more social support than they received? (Konrath, 2014b)

Each of these different outcomes could be seen as acceptable evidence for the effectiveness of our intervention. Indeed, many intervention studies that have attempted to increase empathy or kindness only include one or two dependent measures. However, we thought it was better to use a constellation approach that went beyond demonstrating *whether* it was possible to alter empathic character using text messages. Instead, using this approach allowed us to examine *which specific aspects* of empathic character or kindness were most responsive to the program. So we ended up including a number of different measures that other researchers have considered to be related to empathy or kindness.

Study design and participants

We used a pre-post longitudinal experiment to test our hypotheses (see Figure 1). There were three experimental conditions: empathy messages, active control group (self-esteem / objective messages), and a passive (no intervention messages) control group. Because of our small sample size, the randomization script oversampled to the empathy condition (N=37) and

undersampled to the other two conditions so that we could collapse them into a single control group (active control group: N=21; passive control group: N=25). In an ideal larger study we would disentangle the self-esteem from the objective messages in the active control group, and we would also have enough power to examine whether there were significant differences between the two control groups. However, for the purpose of this initial study, we tested the difference between the empathy messages and the combined control conditions.

[INSERT FIGURE 1 HERE]

The text messages were sent in a randomized order, during blocks of time that matched participants' preferences. The messages were sent every 2 hours, so that a sample daily message schedule for a late rising undergraduate might be: 11 AM, 1 PM, 3 PM, 5 PM, 7 PM, and 9 PM. All participants, regardless of condition, also received 6 daily text messages that queried them on their current mood and feelings of social connection. These *query messages* came 5 minutes after the intervention text messages for those in the empathy and active control group, and came on the hour for passive control group participants. These data have not yet been analyzed.

Participants responded to an advertisement for a social skills training study. The final baseline sample included 90 college students who were relatively gender balanced and ethnically diverse (60% female; Mean age=21; 52% Caucasian, 33% Asian, 11% African-American, and 4% Other). Research assistants conducted pre and post laboratory assessments, and were blind to participants' experimental condition.

The study involved multiple assessments at different times, which are briefly described below:

Time 1 and 2 measures of empathic character. During the baseline and post-intervention session, participants completed a number of measures of empathic character, encompassing four different categories:

Affective. We assessed *feelings of compassion* (e.g. sympathetic, compassionate) for a stranger in distress (Batson, 2011; Batson, et al., 1997; Davis, 1983a), presented via a radio clip at Time 1 (Katie Banks) and via a video clip at Time 2 (Karen Klein). To assess *prosocial motives for volunteer behavior* we asked participants to "list the main reasons why you participate in unpaid volunteer work (or why you would do this, if you are not currently a volunteer)." We coded for the presence and absence of more altruistic (e.g. volunteering to help others) and less altruistic (e.g. volunteering to feel good) motives. *Empathic concern* was assessed using the Interpersonal Reactivity Index subscale (Davis, 1983c).

Cognitive. *Perspective taking* was assessed using the Interpersonal Reactivity Index subscale (Davis, 1983c). Empathy-relevant moral beliefs were assessed via the *Moral principle of Care* scale (e.g. "Everybody in this world has a responsibility to help others when they need assistance;" Wilhelm & Bekkers, 2010). Beliefs in the *acceptability of aggression* were measured via the Normative Beliefs about Aggression scale (Huesmann & Guerra, 1997). A sample item is: "Suppose a young man says something bad to another young man, John. Do you think it's OK for John to scream at him?" Higher numbers indicated *lower* endorsement of aggressive responses.

Relational. *Support giving* was assessed by asking if participants provided target groups (friends, siblings, parents, and others) with emotional support in the past week. *Support receiving* was assessed with similar questions, referring to receiving rather than giving support. The main outcome measure was the ratio of giving to receiving support.

Objective measures. We assessed *observer-rated empathy* based on research assistant ratings. After interacting with participants, research assistants were asked to rate how empathetic they thought the participant was. We also asked participants to give written responses to three *empathy-relevant scenarios*. For example, in one scenario a friend studied very hard for a test but still received a C-. Participants were asked to report what they would do or say in such a situation. We coded the responses for empathy-related behaviors or emotional responses.

We assessed *baseline (Time 1) prosocial behavior* based on a standardized helping task (Batson, 2011; Batson, et al., 1997; Davis, 1983a). At the end of the laboratory session, all participants listened to a short radio program about a young college student, Katie Banks, whose parents had recently died in a car accident, and who now risks dropping out of college because of limited resources to take care of her siblings. Participants were asked to imagine her perspective while listening to the program. They were then given an opportunity to volunteer to help her with fundraising tasks by sending a sealed envelope directly to the local radio station that was helping her. Research assistants were blind to participants' helping behavior.

We assessed *Time 2 prosocial behavior* based on a similar paradigm. However, this time participants (N=83) were asked to watch a short video depicting Karen Klein, a school bus monitor who was bullied by adolescent males on her school bus. This was a real video that was recorded by the actual bullies and then later posted on YouTube. After viewing the video with instructions to take her perspective, participants were given information on an anti-bullying organization, and were then given an opportunity to volunteer for the organization. Again, responses were placed in sealed envelopes to be sent directly to the organization.

Time 3 prosocial behavior. At Time 3, which occurred on average 5.8 months after the baseline session, participants were sent a provoking text message from an unknown person. In reality this was from a member of our research team whose phone number did not come up in internet searches. The message simply stated: "*stop txting me u jerk!*" Forty-three participants responded to it, half of them within the first 5 minutes. We recorded the verbatim response and then two members of the research team coded them as aggressive, neutral, or prosocial. Intercoder reliability was high ($\alpha=.95$).

Time 4 prosocial behavior. At Time 4 (N=60), which occurred on average 6.2 months after the baseline session, participants played an online social dilemma game with another participant in the study. They were told that they would have a chance to earn additional money as a bonus (between \$0 and \$10) for playing an economics game (see Table 2). After giving them general background information about economics games, they were then given the specific instruction to look at the following table and make a decision to either cooperate (1) or defect (0). Prior research has found that people who are randomly assigned to take the perspective of their partner are more likely to cooperate with that specific person (Batson & Moran, 1999), but at the expense of contributing to the collective good (Batson, et al., 1995).

[INSERT TABLE 2 HERE]

Notes on study implementation

Before presenting the results, it is worth briefly noting some of the obstacles we encountered while trying to collect these data. These are currently barriers to the wider use of such methods, but I hope that this will simply be a historical note at some point in the future. Although we only collected data from 90 participants, rendering it more of a pilot study, it was extremely resource intensive. Besides the principal investigator, it required one full-time staff

member, one computer programmer, and 11 undergraduate research assistants. Scheduling the pre and post sessions separated by a 2 week period proved to be difficult with busy college students, and our follow up success rate seemed to be determined by the time of term, with most drop outs occurring at the end of the academic term. Yet this difficulty is to be expected with pre-post experimental designs.

The major problem that we encountered during this study was the lack of adequate available tools to help administer research studies using mobile technology. This is a problem if researchers want to more widely use this method. After some research on potential programs, we ended up using RedOxygen, which is an internet based program that is intended to be used to send a single message to a large group of cell phone numbers (i.e. spam). We needed to do something different from what the program was designed for: to send and receive a large group of messages to a single cell phone each day for a 14 day period. In order to accomplish our goal, we had to create a computer program that first randomly assigned participants into one of the conditions, then created a randomized order of the text messages for each participant, and then created a customized delivery schedule for each participant. When we ran the program, it logged into RedOxygen and sent the RedOxygen server separate requests for each text message that needed to be sent. This involved 168 text messages sent per participant for the active conditions (6 intervention messages and 6 query messages for 14 days). A separate issue was that the program was not designed for data collection (most spam messengers do not expect responses). Although the program was able to collect the responses, these were spit out as a large text file and took intensive processing in order to be usable data for analyses.

At the time of running the study, there was no known tool that was easy for researchers to use (at the level of Qualtrics, for example) and also had the capability of randomizing participants into experimental conditions. There are a number of studies in public health that use text messaging; however, most of these studies required at least some programming. I now know of a few available programs that are suitable for ecological momentary assessment purposes (i.e. data collection in real time), but only one that has begun beta testing a more user friendly program for ecological momentary interventions (SurveySignal). These programs are described and compared in my recent chapter on mobile-based psychosocial interventions (Konrath, 2014a).

Our research team needed to keep track of a large volume of text messages that were both directed to and received from participants, estimated at approximately 20,000 messages in total (not accounting for dropout or missed responses) over the initial 6 month data collection period. Each message cost 10 cents, and they are purchased in large batches. When mobile users fail to receive a spam message, they are unlikely to notice or complain. However, the combination of highly motivated participants and less-than-reliable implementation software meant that a lot of time was spent carefully tracking and double-checking the messages: whether they were actually sent, whether participants actually received them, and whether participants were responding to them. We were careful to be timely whenever there were problems with message delivery, in order to ensure that all participants received the same dosage.

One other point of consideration when running these types of studies is how to properly compensate participants for a study that involved 2 lab visits and 14 days of intensive involvement. We decided on a compensation strategy in which participants received a larger remuneration on the second lab visit compared to the first, to thank them for staying in the study. They also received a small payment each time they responded to a query message and a daily bonus if they responded to all 6 query messages in a single day. We deliberately did not

incentivize the 6 daily intervention messages in order to limit participants' extrinsic motivation to follow the directions.

Study results and interpretation

Engagement metrics and data analyses

The study's Time 2 dropout rate was less than 8%, with 83 of the original 90 participants returning to the lab for the second time. Of those 83 participants, 95% (N=79) agreed to be contacted by the research team in the future, and of those 79, 43 participants (54%) responded to the hostile text message from the unknown number (Time 3; covert follow up). Of the 79 participants who agreed to be contacted in the future, 60 participants (76%) completed the online follow-up survey in which they played a social dilemma game (Time 4; overt follow up). On average, included participants responded to 78.2 of the 84 (93%) incentivized query messages that they received across the 14 day period. There was no effect of condition on the number of responses to the query messages. Taken together, these metrics indicate that participants were highly engaged with the program.

To analyze the data, we examined the effect of Condition (empathy versus the collapsed control conditions) and Gender on each of the outcomes, controlling for their baseline scores whenever that was possible. The use of random assignment and the statistical control for baseline scores gives us more confidence that the outcomes we found were not because of differences between the groups at baseline.

Results

As can be seen in Table 3, the question of whether our intervention affected empathic character has a complex answer. Participants who received the empathy-building text messages reported more other-oriented motives for volunteering (i.e. to help) and less self-oriented ones (i.e. to feel good), less beliefs that aggression is an acceptable response (males), and more giving than receiving of social support (males). They also offered more hours of help and had lower feelings of personal distress when exposed to a needy person. Personal distress feelings are typically seen as self-oriented emotional responses, rather than empathic ones (Batson, 2011).

In addition, participants in the empathy condition were rated by observers as higher in empathy, showed more emotional empathy in imagined scenarios (e.g. emotional resonance, acknowledging emotion), and responded more prosocially to a stranger who sent them an unprovoked hostile text message six months after the intervention. To us, this response is notable, because the hostile text message was not obviously linked to the study, and it was sent so long after the intervention that it is doubtful that participants were even thinking of the study when they responded.

However, not all of the results were so straightforward. Those in the empathy-building condition also saw themselves as lower in two traits that I consider to be important indicators of empathic character: dispositional empathic concern and the moral principle of care (males). In addition, although they showed more *emotional* empathy in the imagined scenarios, they simultaneously showed less *practical* empathy. So, for example, when they imagined a friend coming to them after a break up, they were more likely to say that they would acknowledge their friend's emotion, but less likely to say that they would offer practical help. Moreover, the empathy-building condition had no effect on dispositional perspective taking, feelings of compassion for a needy person, and the tendency to cooperate with other participants in a social dilemma game on the overt follow up survey six months later.

Overall, on the 15 key measures of empathic character, 9 results were in the expected direction, 3 results were null (possibly because of low power), and 3 results were in the *opposite*

direction. A few of the results in the expected direction were only statistically marginal, which may again be because of low statistical power. In addition, some outcomes depended on gender and others did not, and there did not seem to be a clear pattern that could explain these results. Overall, the evidence that the empathy-building text messages increased participants' empathic character is not perfectly clear, but is intriguing for a study with this relatively small sample size.

[INSERT TABLE 3 HERE]

Reflections on the efficacy of the empathy-building intervention

We are left with similar questions that this chapter began with: can we really teach old dogs new tricks, can leopards change their spots, and do old habits die hard? Did we really change participants' ingrained habits of empathic character after only 2 weeks? The answer is messier than may be desired, and I think this has to do with our definition and measurement of empathic character. We also need to keep in mind that because of the relatively small sample size, the power to detect significant differences is limited.

Still, some overarching patterns can be identified if we carefully examine the results. In Table 4, I attempt to do so by grouping the measures into different categories: observable behaviors, motives, emotional responses, beliefs, self-reported behaviors, and traits. I gave each effect that was in the expected direction a score of 1, each null result a score of 0, and each effect that was in the opposite direction a score of -1. When examining the data from this perspective, it appears that the results depend upon the type of measure that we used to assess empathic character.

[INSERT TABLE 4 HERE]

The empathy-building text messages most successfully changed observable behaviors. Participants who received the empathy messages were rated by others as more empathic, offered more time to a person in distress, and responded more prosocially after being provoked by a hostile text message 6 months later. There was no effect on their cooperation with another unknown participant in a social dilemma game, yet prior research finds that when people are asked to empathize with a partner, they are more likely to cooperate (Batson & Moran, 1999). Our study does not replicate this finding, and it is unclear why this might be the case. It is possible that methodological differences mattered. In prior research, the partner was a person of the same gender and academic major who was supposedly playing the game with participants in a different room. In our study, the partner was less concrete. We told participants that we would randomly match them with another participant who completed the survey either right before or right after them. It is possible that in our study the partner was too psychologically distant to have an emotional impact.

Typically, behavioral outcomes are seen as strong evidence in favor of an intervention compared to other less observable outcomes. But in the case of character traits, behaviors in themselves do not give us enough information. People can act in kind ways for many reasons, including that it makes them look good or makes it more likely that they will get what they want. However, the empathy text messages also changed participants' motives for volunteering (see Tables 3 and 4). Most of the students in the study regularly volunteered for nonprofit organizations, and the two week intervention affected their stated reasons for volunteering, even when controlling for their baseline motives.

The empathy condition also affected emotional aspects of empathy. Participants felt less personal distress when exposed to a needy target, and also imagined that they would experience more emotional empathy when presented with hypothetical scenarios. Yet the empathy condition did not increase participants' feelings of compassion for the needy target. This might have been because all participants were asked to *imagine the target's perspective* while listening to a radio program (Time 1) or watching a video (Time 2). In hindsight, it would have been a better idea to let participants naturally vary in how they responded to the stimuli, but at the time, our rationale was to keep participants' mindset constant while consuming the media clips. Unfortunately, in doing so, we may have increased feelings of compassion to such an extent that any differences between the two experimental groups were erased.

The results for beliefs and self-report behaviors were inconsistent. In terms of beliefs, male participants in the empathy condition were less likely to believe that aggression was an acceptable response, and in terms of self-report behaviors, they reported more giving than receiving transactions in their close social relationships. However, at the same time, those in the empathy condition imagined that they would be *less* likely to offer practical assistance when posed with hypothetical scenarios about someone in need. Instead, they were more likely to offer subtler and more complex emotional responses in these scenarios. This might make sense if we posit that empathic character moves people beyond an obvious checklist of helping behaviors, and more into the imaginative space of people who are in need. This explanation also fits with some of the other results finding that the empathy messages led to more subtle empathic acts. For example, participants in both conditions were *equally likely to help* the needy target, but those in the empathy condition offered *more hours of help* than those in the control conditions. So, rather than simply helping or saying that one would help in an imagined scenario, empathic character may increase the degree of helping (e.g. the number of hours) and the emotional subtlety of it (e.g. feeling with others, acknowledging their emotions).

The most interesting and unexpected finding was that participants who received empathy-building messages scored *lower* in trait empathic concern and the moral principle of care (males). This went against our predictions, and we can only speculate on potential explanations. First, it is possible that these lower self-perceptions stem from contrast effects (Schwarz & Bless, 1992a, 1992b). For example, it is possible that the frequent daily exposure to the high standard of empathy and compassion made participants see themselves as low in empathy and the moral principle to care, even if their behaviors indicated otherwise. At times they may have found the instructions annoying or difficult to perform, and if so, this would have made them conclude that they are not very empathic people. Some research suggests that it is possible to have such lowered self-perceptions even in the presence of increased trait-relevant behaviors. One study, for example, found that when participants were asked to recall 12 instances of their assertiveness, they saw themselves as *less* assertive than those who were asked to recall 6 instances, despite the fact that the first group of participants actually recalled *more* assertive behaviors (Schwarz et al., 1991). Maybe the intensive daily reminders to focus on others made participants in the empathy condition more aware of how they deviate from this high standard.

Second, these unexpected lower self-perceptions in the empathy condition could be explained by frame of reference effects (Heine, Lehman, Peng, & Greenholtz, 2002; Schmit, Ryan, Stierwalt, & Powell, 1995; Wood, Brown, Maltby, & Watkinson, 2012). Perhaps the frequent daily empathy messages made participants shift their beliefs about how empathic most other people are. Participants may have assumed that most people are pretty empathic, habitually

focusing on others most of the time each day. If so, participants could plausibly see themselves as less empathic in comparison.

It is worth noting that although these lowered self-perceptions were unexpected, they help to rule out social desirability as an alternative explanation for many of our results. After receiving 6 messages per day telling them to think about and feel for others, it is likely that participants guessed the true purpose of our study. Given this, some might argue that our results can best be explained by the desire to look good to researchers or to themselves. Yet we can rule out such an explanation both because of the low self-perceptions of empathic concern, and also because participants responded more prosocially to a hostile provocation that did not appear to be connected to the study.

Future directions

Taken together, although we did not have entirely consistent results, the evidence suggests that we were able to ‘teach old dogs’ at least *some* ‘new tricks,’ change a few ‘spots’ on our participants, and at least begin to form new empathic habits among them. This work is only at the beginning stages though, with many potential future directions.

First, in this same dataset, we also assessed psychological well-being and mental health outcomes, and we will be analyzing these data in the months to come. This can help to more clearly determine the causal role of empathy in health and well-being, since most research to date is based on correlational or longitudinal data (Konrath & Brown, 2012). Although Batson and his colleagues have convincingly demonstrated that being randomly assigned to an empathic mindset increases altruistically motivated prosocial behaviors (Batson, 2011), we know little about the causal relationship between empathy and psychological well-being, mental health, physical health, relationship outcomes, and violence and aggression (Konrath & Grynberg, 2013). This empathy-building text message program can thus help to answer a number of important research questions.

Next, we are currently designing future studies with larger and more diverse participant samples. Increasing the sample size will allow us to disentangle the effectiveness of the program relative to different kinds of control groups (e.g. self esteem versus objective versus passive control groups). Expanding this research outside of the domain of privileged college students is another necessary next step. We are currently working with our technology partners to test this program on a large and diverse sample of adolescents. There are a number of other participant groups who could also likely benefit from this program or an adapted version of it: new parents who need help prioritizing the needs of their infants, medical students, who have been shown to decline in empathy during medical school (Hojat et al., 2009; Neumann et al., 2011), teachers, whose empathy scores are linked to their students’ objective performance (Chang, et al., 1981; Waxman, 1983), and other human service professionals.

Given that participants’ in the empathy condition saw themselves as less empathic compared to controls, we are also testing dosage levels in our future research. Since it is possible that receiving so many messages per day backfired in terms of self-perceptions, we will be running studies to determine the optimal number of messages per day. For example, we are asking whether we will get similar effects if participants receive fewer messages per day. Indeed, we are even testing whether 1 message per day would be sufficient for character change to occur.

Finally, we are also exploring other mobile-based methods for building empathic character, with support from the John Templeton Foundation. The current text messaging program uses a didactic approach to building habits, but such overt instructions could have the unintended side effect of increasing reactance or disinterest among some people. Thus, we are

also creating a game-based empathy-building smartphone app. Our hope is that the game play is so interesting and enjoyable that developing a set of empathy-related skills is seen as a bonus outcome, rather than the main goal while playing. This philosophy is key to the emerging serious games movement in public health and psychology (Baldwin & Dandeneau, 2009).

In future work, I also hope to examine whether the duration of exposure to the empathy-building program matters. In the current study, participants received the empathy-building messages for a 2 week period. However, in a recent review of the literature, I found that most physical health text messaging interventions were 6 weeks or longer, with some lasting up to 14 months (Konrath, 2014a). Although we found that participants responded more prosocially to a hostile text message approximately 6 months after receiving the empathy program, 2 weeks may not be long enough to change a habit on a long term basis. How long should a character change program be? One recent study examined how long it took for a new health behavior to feel automatic, which is one way of characterizing a habit (Lally, Van Jaarsveld, Potts, & Wardle, 2010). Participants were asked to carry out a new health behavior of their choice for a period of 84 days (e.g. drink a glass of water with lunch). On average, it took 66 days for automaticity scores to plateau. Considering this, interventions that are 9 weeks or more might be more effective at building habit-like character traits than shorter ones.

Conclusion

This chapter asked whether text messages could make people kinder, but I also hope that readers will see the larger potential of mobile-based interventions in the study of character. Can text messages also make people more honest, more optimistic and hopeful, and more grateful? The current study has implications for these and other character traits, and I recommend that other scholars consider whether it would be useful to develop and test tools that could both build valued character traits, and be used as scientific tools to test hypotheses about those traits. It is currently very difficult to run such studies, and there is a need for user-friendly tools to more easily implement mobile-based interventions in the future.

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Figure 1. *Overview of the study*

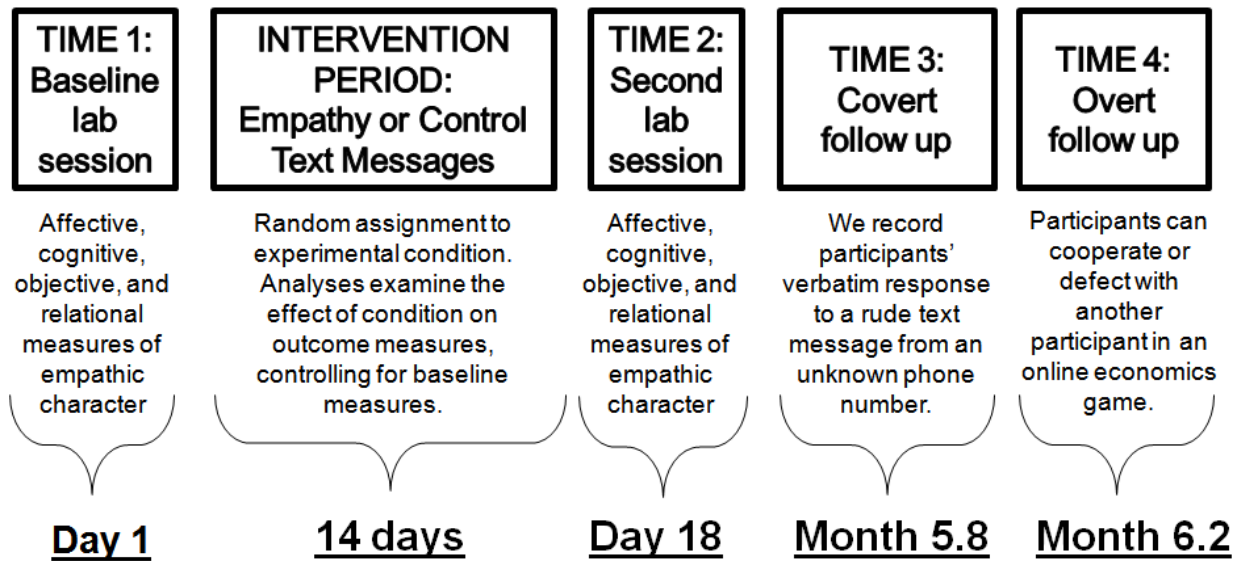


Table 1. *Example text messages from study*

Empathy Condition	Self / Objective (Control) Condition	
Think about somebody close to you. Do a small nice thing for this person today.	Think about all that you deserve. Do something nice for yourself today.	Behavioral
Smile at the next person you see, no matter who they are.	Smile at the mirror or window next time you see your reflection.	
Think about your last social interaction. What obstacles or challenges does the person face? See these problems from their point of view.	Think about your last social interaction. Think of two specific ways you could be more neutral and objective in the future.	Cognitive
Think about your last social interaction. What was your interaction partner really trying to say? Did you accurately read their body language?	Think about your last social interaction. What were you really trying to say. Did the other person accurately read your body language?	
Think about someone close to you. How can you show this person that you accept them and care for them?	Think about your last social interaction. Did this person give you the level of respect you deserve?	Emotional
Focus on connecting with and feeling close to the person you last interacted with, no matter who they are.	Focus on the ways that you are different and unique from the person you last interacted with, no matter who they are.	

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Table 2. *Decision chart for Social Dilemma game*

	YOU: Cooperate	YOU: Defect
YOUR PARTNER: Cooperates	You get \$6 bonus Your partner gets \$6 bonus	You get \$10 bonus Your partner gets \$0 bonus
YOUR PARTNER: Defects	You get \$0 bonus Your partner gets \$10 bonus	You get \$0 bonus Your partner gets \$0 bonus

Table 3. Summary of study results

Time 2	Result	Direction of effect	Type
<i>Self-reported measures</i>			
Motives for volunteering behavior: To help others	↑ in empathy condition	+	Motive
Motives for volunteering: To feel good	↓ in empathy condition	+	Motive
Beliefs that aggression is acceptable	↓ in empathy condition among males	+	Belief
Ratio of giving to receiving social support	↑ in empathy condition among males	+	Self-report behavior
IRI Perspective taking	⊗ no effect of condition	o	Trait
IRI Empathic concern	↓ in empathy condition	-	Trait
Moral principle of care	↓ in empathy condition among males	-	Trait
<i>Prosocial behaviors and emotions</i>			
Observer rated empathy	↑ in empathy condition (marginal)	+	Observable Behavior
Feelings of personal distress in response to needy target	↓ in empathy condition	+	Emotional response
Feelings of compassion in response to needy target	⊗ no effect of condition	o	Emotional response
Helping behavior in response to needy target	↑ hours of help in empathy condition (marginal); no effect on decision to help	+	Observable Behavior
Emotional empathy in imagined scenarios (e.g. emotional resonance, acknowledging emotion)	↑ in empathy condition	+	Emotional response
Practical empathy in imagined scenarios (e.g. offering to listen or help)	↓ in empathy condition (marginal)	-	Self-report behavior
Time 3			
Response to hostile text message (higher = more prosocial response)	↑ in empathy condition	+	Observable Behavior
Time 4			
Cooperation in social dilemma game	⊗ no effect of condition	o	Observable Behavior

Note. Baseline scores were added as covariates whenever possible. For direction of effect, a plus sign (+) indicates expected, a minus sign (-) indicates opposite of what was expected, and a zero (o) indicates a null result.

Table 4. *Change in empathic character depends upon how it is measured*

Type of measure	Direction of effect	Total score
Observable behaviors	+ + + o	3
Motives	+ +	2
Emotional responses	+ + o	2
Beliefs	+	1
Self-report behaviors	+ -	0
Traits	- - o	-2

Note. Plus sign (+) is coded as 1, null sign (o) is coded as 0, and minus sign (-) is coded as -1.