

EFFECTS OF INNOVATION ATTRIBUTES ON CHARITABLE GIVING
USING SMARTPHONES

by

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This thesis is dedicated to my husband, Austin, who has provided me
unending love, support, and patience,
and to God, my rock, who gave me the strength to complete this work.

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LIST OF ABBREVIATIONS

Abbreviation	Description
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PC	– Personal computer
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App	– Mobile application
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ABSTRACT

This study examines innovation attributes of charitable giving on smartphones, measuring the influence each attribute has on smartphone users' intention to donate on a smartphone. The attributes examined include complexity, risk, relative advantage and compatibility. In addition, the study measured the influence of age on likelihood to donate. The study used an online questionnaire with a total convenience sample of 120 respondents. The findings from the study suggest that of the attributes examined, risk, relative advantage and compatibility have the most significant correlation with intention to donate on a smartphone. These findings are consistent with past diffusion research.

CHAPTER I

Introduction

Problem

Fundraising is imperative for nonprofit organizations. They need adequate funding to meet their needs and serve their populations effectively. Nonprofits – especially small, local organizations – are fighting for donations on an ongoing basis. Traditionally people give to charities through mediums such as fundraisers, checks and online through personal computers (PCs), but now a new option exists in the form of mobile devices. This study will specifically look at charitable giving through smartphones, which continue to become more powerful and more popular for navigating the Internet and making online purchases (Miller, 2013). For the purpose of this paper, smartphone will be defined as a cellular phone able to perform many of the same functions as a computer, such as browsing the Internet.

Technology has become a great tool for fundraising and communicating with donor bases. In a survey by Lasa Charity UK Limited (2012), 68% of respondents said they use digital technology for fundraising. But many small nonprofits do not use digital resources for a variety of reasons, including lack of resources, lack of training and little support from leadership (Lasa, 2012). In this same survey, Lucy Caldicott, director of fundraising at CLIC Sargent, is quoted on the importance of digital communication: "Good quality digital communication has become an essential fundraising and relationship management tool and organizations who don't make that shift will be left behind" (Lasa, 2012).

In addition, while much research has been done on consumer behavior on mobile devices, less research exists in the area of mobile charitable giving. And the research that exists isn't complete. For example, the Pew Research Institute reported that one in five U.S. adults have made a charitable contribution online, and that one in ten have made a charitable contribution using the text messaging feature on their mobile phone, but they neglect to report the number of people who made an online donation using a web browser on their smartphone (Smith, 2012).

It has become increasingly common for people to use smartphones for Internet activities instead of a desktop computer. In 2012, people spent \$25 billion on purchases made from phones and tablets, an increase of 81% from the year before (Laja, 2012). Online shopping has become mainstream and many people regularly make purchases online via a personal computer. While there is a lot of research about consumer attitudes and behavior, there is a gap in the research on donor attitudes and behaviors in regard to mobile giving.

Because mobile usage is becoming more common, it is important to understand potential donors' attitudes toward charitable giving on mobile devices. As mobile technologies become the norm, they represent an opportunity for nonprofits as a new and growing donation source.

Background

Much of the research that exists on mobile giving is market research rather than academic research. While some academic studies have addressed the adoption of mobile technology in libraries (Dresselhaus & Shrode, 2012) or the effects of mobile phone

features on students' communication practices (Karaaslan & Budak, 2012), there is a big gap in the literature in regard to mobile usage by nonprofits for fundraising. While some case studies have examined text-to-give programs which often occur in the wake of a large natural disaster like the Haiti earthquake of 2010 (Reiersgord, 2011 and Yates & Paquette, 2011), few examine the day-to-day integration of mobile giving as part of nonprofit fundraising strategy. While some nonprofits collect their own data and analysis of their methods, there is not a good compilation of attitudes toward mobile giving across the board.

This study will utilize diffusion theory to examine how the attributes defined in diffusion research impact users' likelihoods of donating using a smartphone.

Significance

As mobile computing becomes increasingly powerful and more people have access to smartphones, an opportunity exists for nonprofits to utilize smartphones as a donation source. In 2011, vendors shipped more smartphones worldwide than PCs, and the trend continues in that direction (Cooper, 2011). In the Mobile Web Watch (2012) survey of people across 13 countries in Europe, Latin America and South Africa, 69% of all Internet users reported connecting to the Internet through a mobile device. Of those using a mobile device, 61% used a smartphone specifically (Mohr, Lalloz, & O'Brien, 2012). While many large nonprofits utilize mobile giving, not all nonprofits support this new fundraising platform.

The data gathered from this study will provide important insight into smartphone users' attitudes toward this new giving medium, and it will equip nonprofits with

practical data to support decisions to pursue donations through smartphones and other mobile devices. Some people have cautioned that nonprofits that resist the mobile wave risk alienating some of their supporters, so there is a real, practical need for nonprofits to have access to data that can better inform their decision-making around mobile fundraising (Chambers, 2013).

In addition, this study will add to the body of academic research examining the diffusion of new media technologies like smartphones and other mobile devices.

CHAPTER II

Literature Review and Theoretical Background

Attitudes toward smartphones

Smartphone adoption

While smartphones are still a new technology, the adoption of their use has been fairly rapid. Today, many people carry these miniature computers with them all the time, providing constant access to the Internet. The Coda Research Consultancy predicts that worldwide sales of smartphones will total 2.5 billion units from 2010 to 2015, and that mobile Internet usage on smartphones will multiply by 50 in that same timeframe (Smith, 2010, p. 5).

It's clear that smartphones are diffusing rapidly, but little knowledge exists in regard to understanding the adoption of features within a smartphone's capabilities. Whether it's the purchase and use of apps, use of smartphones to make purchases or donations, or implementation of smartphone capabilities in the workplace, simply owning a smartphone is not an indicator of *how* people are using it.

Many studies examining the adoption of smartphone technology have focused around its adoption in a workplace. For example, Park and Chen (2007) studied motivations for smartphone adoption among medical doctors and nurses. Their study found that usefulness and ease of use positively influenced participants' attitudes toward intention to use a smartphone (Park & Chen, 2007). In addition, a study by Putzel and Park (2010) surveyed 80 practicing nurses regarding their decision to adopt a smartphone. Putzel and Park (2010) found that "the innovation characteristics of

observability, compatibility, job relevance, internal environment and external environment were found to influence a user's attitude toward using a smartphone” (p. 6).

Some research has examined psychological antecedents to smartphone use in addition to attitudes toward the innovation. Park, Kim, Shon and Shim (2013) examined South Koreans’ use of smartphones, considering factors such as motivations for social inclusion, innovativeness and locus of control (p. 1763). They measured these factors for both intention to continue use and dependency on the smartphone. The findings are consistent with other studies, which indicate the perceived ease of use is not a strong indicator of intention to use on its own (Park et al., 2013). Regarding the psychological factors, internal locus of control had a significant effect on dependency for users (Park et al., 2013, p. 1769). A study of U.S. users by Lance and Manner (2011) indicated that an extraverted personality was more likely to own and use a smartphone. It’s clear from existing research that factors other than perceived usefulness or ease of use have an effect on users’ intentions.

A study by Hopkins (2012) identified the perceived value of smartphones in the workplace after adoption takes place. He found that 87% of respondents identified being able to send and receive emails at any time and place as the most valuable smartphone service. At a much smaller rate, but still significant, was a 30% response to mobile Internet access being valuable to business users’ roles (Hopkins, 2012, p. 71).

One study has identified specific moderating variables toward adoption of mobile wireless technology. The study, by Sang Hyun Kim (2008), showed that job relevance created a strong relationship between perceived usefulness and user behavior. The results indicated this was true regardless of occupation (p. 390). The results also indicated that a

company's willingness to fund a user's smartphone had a significant effect on participants' intention to use one (Kim, 2008, p. 391). Another study used data from 507 mobile Internet users in China to understand the effects of context on perceptions and ultimate adoption of mobile Internet, which could be accessed via smartphone or other mobile device (Yang, Lu, Gupta, & Cao, 2012). The study's analysis shows that to varying degrees, contextual use factors mediate the effects of consumers' perceived values (Yang et al., 2012, p. 530).

Other research has examined the adoption and uses of specific functions within the smartphone platform. Mobile apps are a popular emerging technology with practically unlimited functions. Wang, Liao and Yang (2013) studied the adoption of pay-per-use mobile app services, discovering that "functional, social, emotional and epistemic values have significant effects on behavioral intention to use mobile apps" (p. 18). In a different study of 579 Finnish smartphone users, the authors compared the difference between users and non-users of mobile apps and their intention to use the apps (Verkasalo, López-Nicolásb, Molina-Castillo, & Bouwmanc, 2010). Their results showed a "lack of a significant path between perceived usefulness and intention to use in the case of non-users" and that "usefulness is a decisive criterion for the use of mobile Internet services" (Verkasalo et al., 2010, p. 249.)

Many studies of smartphone adoption use the technology acceptance model. Chun, Lee and Kim (2012) proposed an extended model of smartphone adoption that included "hedonic" aspects, such as enjoyment, aesthetics and social influence (p. 474). Their study found that both hedonic enjoyment and utilitarian usefulness positively predict behavioral intention (Chun, Lee, & Kim, 2012, p. 475). Continuing this line of

examination, Shin (2012) conducted a cross-cultural comparison of usability and aesthetic design between South Korea and the United States. His findings suggest that while both are important, there are cultural differences between value preferences, with Korean users' attitudes most strongly affected by perceived aesthetics. Perceived quality was a significant factor for U.S. users, while it had a lesser impact on Korean users (Shin, 2012, p. 576).

Security of smartphones

Digital data security has been an important issue since people first began transmitting information through the Web, and new devices like smartphones continue to make this a relevant issue. Smartphones have begun to act as small computers, and users do activities from shopping, to checking their online bank account, to browsing the Web. User perceptions of smartphone security will have an impact on how they use and adopt these devices, including whether they donate money to a charity using their smartphone.

While all of these activities are possible on a smartphone, some studies find that users are hesitant to engage in financial transactions using this device. One study cites that 60% of smartphone users from a commercial survey are concerned that using mobile payments could put their financial and personal security at risk (Chin, Felt, Sekar, & Wagner, 2012). The same study found that the participants they interviewed were “significantly less willing to make shopping purchases, provide their Social Security Numbers, access health data, or check their bank accounts on their smartphones than on their laptops” (Chin et al., 2012, p. 1). The higher level of user trust in laptops over smartphones demonstrated in Chin's study represents the reality of smartphone security.

According to a security methods study by Ben-Asher (2011), “Applications and data stored on mobile phones are less protected from unauthorized access than on most desktop and mobile computers” (p. 465).

However, other research indicates that some smartphone users have an attitude of complacency toward security. One study specifically surveyed users downloading applications (apps) from official repositories like Apple’s App Store. The researchers found that the majority of users surveyed were complacent toward security issues when downloading apps because of their trust of the app repositories (Mylonas, Kastania, & Gritsalis, 2012). This indicates that a difference may exist between smartphone users’ security concerns when browsing the Web versus downloading and using applications.

Much of the literature on smartphone security perceptions focuses on users’ level of contentment in security of data that is stored on their devices rather than data they are transmitting over the Internet. Ben-Asher’s (2011) study found through 465 surveys of smartphone users that they are not content with the level of data security available to protect the information stored on their phones (p. 465). A different exploratory study of 22 participants found that those users want to secure the data on their smartphones, but consider it inconvenient with the available methods (Muslukhov, Boshmaf, Kuo, Lester, & Beznosov, 2012).

User interaction on smartphones and other mobile devices is usually very brief (Koved, Trewin, Swart, Singh, Cheng, & Chari, 2013). One study showed a 67% shorter session duration on smartphones than on laptops (Kumar, Kim, & Helmy, 2013, p. 243). This time factor has an impact on users’ willingness to go through lengthy and complex

authentication for security, and may cause users to reject the task (Koved et al., 2013, p. 243). This is of particular concern in regard to the online mobile donation process.

In addition, the results of Kumar's (2013) study show that smartphone users have twice the number of sessions per day as on laptops and visit three times more new locations on smartphones than laptops (p. 243). This data highlights the importance of security on a device that is being utilized at a much higher frequency than other computing devices.

The literature insinuates that while smartphone security is an important issue, many users are not yet content with the level of security available, which keeps them from completing certain tasks using their smartphone (Chin et al., 2012). If users are unwilling to make a purchase online because of security concerns, it follows that they may have similar concerns when considering donating money to an organization.

Online donor behavior

Accepting online donations can take fewer resources than other methods, so it is a good option for nonprofits with limited resources. Extensive past research has been done examining donor behavior, but research examining the specific behavior of online donors is more limited.

One such study developed a framework to measure intention to donate online and the importance of external factors in shaping that intention (Treiblmaier & Pollach, 2006). The study revealed a particular importance in nonprofit members' awareness of the opportunity to donate online. Results showed that the intention to donate online was proportionately lower for those who did not previously know about the opportunity to do

so (Treiblmaier & Pollach, 2006, pp. 814-815). This begs the question of how well nonprofit organizations are marketing their online donation services, as well as what users' intentions are to donate to them via a smartphone.

Quality and media richness can be influencing factors for potential online donors as well as awareness of the opportunity to donate online. A dissertation by Janine Jacques (2010) found that a relationship exists between media richness and perceived service quality of a nonprofit. The results also indicate a positive relationship between media richness and the participant's level of trust in the organization (Jacques, 2010, p. 45). Both perceived service quality and trust must be taken seriously by nonprofits as they influence potential donors' perspectives of the organization as a whole. While the smaller form factor of smartphones will impact user experience when viewing a website, the quality of website may still have an influence on levels of trust and perceived quality of the organization.

A different vein of online giving research examined the determinants of impulsive decisions to donate while browsing online (Bennett, 2009). Bennett's study (2009) examined factors that influence impulsive donations by comparing a group of 239 impulsive donors and 223 pre-planned donors. While he identified certain personal characteristics that influence impulsive giving, he also found that emotive elements in websites generally led to higher levels of impulsive donations (Bennett, 2009, p. 129).

In one of the first online fundraising field experiments, researchers tested four mechanisms and found that the terms "Seed Funding" and "Matching" garnered higher click-through rates than the term "Premium" (Chen, Li, & MacKie-Mason, 2006). This again shows the importance of marketing and thoughtful design of online donation forms

and processes. Chen's (2006) results also speak to the measurement side of online fundraising, demonstrating that clickstream data, which denotes a desire to donate, is not a good indicator of actual giving (p. 1).

Online donations of any kind provide opportunities for security concerns, as noted in the literature above. But individuals' trust in an organization is a key factor as well as their trust in the Internet (Pollach, Treiblmaier, & Floh, 2005). In this study, the authors found that "nonprofits need to pay particular attention to donor relationships, process transparency, and transaction security in order to induce people to donate online" (Pollach et al., 2005, p. 1). It appears that the communication from an organization about the safety of their online donation process may be as important in building trust as the security of the process itself.

Finally, online fundraising research has included an examination of the characteristics of effective websites. At the time of Sargeant's (2001) study, Internet fundraising was in its infancy, and he states that there was a lot of room to improve the quality of fundraising websites. He continued this line of research, designing a framework specifically for assessing the relational content of nonprofit websites (Sargeant, West, & Jay, 2007). His study concluded that the constructs of accessibility, accountability, education, interaction and empowerment correlated significantly with quantity of new donors that a website garners. He also found that the constructs of accessibility, accountability and education highly correlated with the total monetary value of online donations (Sargeant et al., 2007, p. 141).

Mobile website development and perceptions

Because smartphones have become commonplace and many people regularly access the Internet on these devices, the question of the functionality of websites accessed on these smaller screens is of great importance. Lobo and his co-authors (2011) note that site functionality impacts usability and site loyalty for users (p. 34). They offer six suggestions for web developers in creating websites that are specifically designed for usability on a mobile device like a smartphone: “(1) keep it simple, (2) simplify user input, (3) use vertical scroll only, (4) use multiple versions of the website for various device screen sizes, (5) consider native applications for particular industries, and (6) avoid repeating the navigation bar” (Lobo, Kaskaloglu, Kim, & Herbert, 2011, pp. 35-36).

In addition to these suggestions, a concept called user-centered design exists that calls for developers to understand users’ needs prior to designing the site in order to create a user-friendly website, whether mobile-specific or in general. Weeghmans’ (2006) study used the contextual inquiry technique to observe users visiting both regular websites and mobile websites to determine users’ needs and expectations (p. 1).

But usability and aesthetics of mobile-friendly websites are not the only factors that influence user perception. Tsiaousis and Giaglis (2010) conducted an experiment furthering their earlier research (Tsiaousis and Giaglis, 2008), which showed that environmental distractions have a “significant effect on mobile website usability” (p. 161). So while nonprofits can plan for elements of their design and usability, some factors like environmental distractions are out of their control.

Charitable giving

Attitudes toward charitable organizations and giving

Della Vigna, List and Malmendier (2012) postulate that there are two broad classes of motivation to give. First is giving out of enjoyment, and the other is giving because of social pressure (p. 2). In a 2007 survey study for the Institute for Volunteering Research in the UK, the top reasons respondents said they volunteer was because they “wanted to help things” and the “cause was important to me” (Low, Butt, Ellis, & Smith, 2007, p. 37). A study by Green and Webb (1997) demonstrated that the two attitudes most relevant to charitable giving were attitudes toward helping others and toward charitable organizations (p. 30).

Brand personality has been well researched in the for-profit sector, but relatively few academic studies have examined brand personality in the context of nonprofit organizations. One such study used a qualitative experiment to identify four distinct dimensions of brand personality: integrity, sophistication, ruggedness and endurance (Venable, Rose, Bush, & Gilbert, 2005). The results of the quantitative portion of the study included a confirmatory analysis of these four dimensions. It indicated that these dimensions of brand personality did have an influence on participants’ likelihood to donate (Venable et al., 2005, p. 307).

Demographics and giving habits

A variety of studies exist examining different demographic data as it relates to intention to give. Because this study focuses on new technology, the researcher is

particularly interested in how age might impact people's giving habits as well as their comfort level with and intention to give on a smartphone.

A 1994 study of alumni giving at a large public university examined the relationship of age to giving habits (Okunade, Wunnava, & Walsh Jr., 1994). Okunade and his co-authors (1994) found no statistically significant difference between men and women donors, but results show that "the growth rates of alumni donations of money are projected to decline after roughly age 52" (p. 73). This study departed from the previous way of looking at donor life cycles, which assumed a relationship between income level and age (Okunade et al., 1994).

Sargeant (1999) offers a model of donor behavior that considers demographics like age, gender and income level as extrinsic determinants that influence how inputs such as charity brands, facts and mode of the ask affect a donor's perceptions (p. 218). Sargeant's study states that age appears to be directly related to a person's likelihood of giving and the amount of their gift (1999, p. 224). Dawson's (1998) study examining motivations for giving identified that both age and assets are significant predictors of a person's intention to give (p. 35). Interestingly, level of education was not found to be a significant predictor (Dawson, 1998, p. 35). Demographic trends in giving will naturally change over time, and Pharoah and Tanner's study on giving trends identified a change in age-related giving in UK households (1997). Their findings demonstrated that at the time, households in their 20s and 30s were giving less and were less likely to give than the current middle-aged households when they were younger (Pharoah & Tanner, 1997, p. 427).

Gaps in the literature and research significance

A number of research studies utilizing diffusion theory exist, especially in regard to technological innovations like smartphones and other mobile devices. However, there is a gap in the research in regard to technology use specific to nonprofits. In particular, the researcher found no studies that examined charitable giving using smartphones. Some studies looking at text-to-give programs exist, but no studies have examined how potential donors use or don't use smartphones' Internet capabilities to donate money to charities.

Many of the studies examining smartphone adoption focus on the use of the technology in the workplace. A significant amount of research has examined smartphone adoption by medical personnel in particular, which is a limitation because it is so specific and the results may not be generalizable to the greater population. Other adoption research has focused specifically on mobile apps, which are just one tool available within the smartphone platform.

Research on the security perceptions of the smartphone has a strong focus on mobile banking as well as shopping. While shopping relates closely with donating because both involve an exchange of money, people arguably have different perceptions of retail companies and nonprofits, making the processes different enough to merit specific research in charitable giving on smartphones. Similar to adoption research, some security research has specifically focused on the mobile app purchase process. Again, this is specific to only one function of the device, not including the smartphone's ability to access Web browsers and exchange personal information this way.

Some research does exist looking at users' intention to donate online, but its focus is online using PCs instead of smartphones or other mobile devices. A lot of the results provide good, practical advice for nonprofits trying to garner online donations, but it does not help nonprofits that are interested in marketing their mobile donation services. For example, Sargeant's (2001) research provided insight into the most important characteristics of effective nonprofit websites, and Lobo and Kaskaloglu's (2011) study examined similar characteristics for mobile-specific sites. While this is a good start, more research needs to be done to better understand how smartphones are used and what other important factors of smartphone giving exist in addition to the design of mobile websites.

Theoretical background

Diffusion of Innovations theory

This research study uses Rogers' diffusion of innovations theory to examine the adoption of charitable giving on smartphones. Everett M. Rogers developed diffusion theory in 1962 (Rogers, 1995). Many researchers had studied adoption of new ideas across a variety of fields, and Rogers sought to introduce a common theory of how new innovations are diffused through a standard s-curve of adoption in all fields.

Diffusion of innovations theory has four main elements: the innovation, the communication channels through which it is spread, the time during which diffusion takes place, and the social system within which adoption is occurring (Rogers, 1995, p. 10). This study will specifically look at the innovation (charitable giving on smartphones) and its attributes, and how those characteristics affect its level of adoption. Tornatzky and Klein (1982) conducted a review of 75 innovation characteristic articles and found that

three of Rogers' five innovation characteristics consistently had the most significant relationships to adoption. Those three are relative advantage, compatibility and complexity. Their results showed that compatibility and relative advantage were positively related to adoption while complexity was negatively related (Tornatzky & Klein, 1982, p. 28).

The innovation attributes examined in this study include complexity (ease of use of smartphones and user-friendliness of mobile websites accessed on a smartphone), relative advantage (convenience of smartphone donations), and compatibility (attitudes toward charity). The study will also examine risk (security of smartphones), which was introduced as an additional variable in a study of online gaming adoption (Chang, Lee, & Kim, 2006).

Past research of new media characteristics

Because this study specifically examines how the innovation's attributes affect intention to donate on a smartphone, an examination of diffusion research that considers the effects of innovation attributes is relevant. The focus of this theoretical review is on innovations in the new media realm.

Many researchers have used diffusion theory to examine the adoption of new technologies, such as smartphones. Lin (2011) examined how the attributes of mobile banking as an innovation affect behavioral intention to adopt mobile banking. His study specifically examined the attributes of relative advantage, ease of use and compatibility, along with three knowledge-based trust attributes not included in diffusion theory (p. 253). Lin (2011) cites other research identifying these three attributes as frequently

identified factors for adoption of an innovation (p. 253). The results indicate that perceived ease of use and relative advantage were significantly correlated with attitude toward mobile banking. Customer perception of compatibility also had an effect on attitude. Lin's findings (2011) agree with other literature, supporting the "appropriateness of using innovation attributes to predict customer attitude toward adopting (or continuing to use) mobile banking" (p. 257).

Similarly, Al-Gahtani (2003) examined how the attributes of diffusion theory affect the rate of adoption of computer-based information systems in Saudi Arabia. His results show that compatibility, trialability and observability had a high significant positive correlation to computer adoption and use. Relative advantage was still correlated with computer adoption, but less significantly. Finally, complexity had a significant negative correlation to computer adoption and use (p. 65). Al-Gahtani's (2003) results are in agreement with Lin's (2011) findings regarding mobile banking.

Chang, Lee and Kim (2006) combined two theories (diffusion theory and uses and gratifications theory) in studying the innovation attributes of online games along with the perceived needs of users. The authors compared responses from both adopters and non-adopters, finding their perceptions of online gaming varied in the attributes of relative advantage, complexity and observability (Chang et al., 2006, pp. 307-308). Adopters of online gaming considered relative advantage as important, while non-adopters considered complexity and observability to be the critical attributes (p. 311).

This research study begins to fill in some of the research gaps mentioned above, pursuing the question of what attributes influence smartphone users' intentions to donate on smartphones. First, it examines technology use in a nonprofit context, providing

specific, practical findings for charities looking to better promote smartphone giving opportunities. Second, the research goes beyond technology adoption in the workplace, looking at everyday users' perceptions that could influence their willingness to donate on a smartphone in the future. Third, it examines perceived security through a nonprofit lens, building on previous research examining intention to purchase. Fourth, the study furthers research on intention to donate online by focusing specifically on the smartphone as the donation platform instead of the PC. Focusing on the smartphone is important, because as the computing power of the smartphone continues to increase along with its popularity, it has potential to be the future of computing. Nonprofits need to understand user perception of these devices in order to best utilize them as a resource toward their fundraising efforts. Finally, this study will provide a broader examination of the factors that influence charitable giving on smartphones beyond the design of mobile websites.

Across the literature, findings indicate that diffusion of innovation theory's attributes are good predictors of adoption. Therefore, this study uses the attributes of complexity, relative advantage, compatibility and risk to inform the hypotheses.

Hypotheses

H₁: Smartphone users who perceive a higher ease of use with smartphones will be more likely to donate on a smartphone.

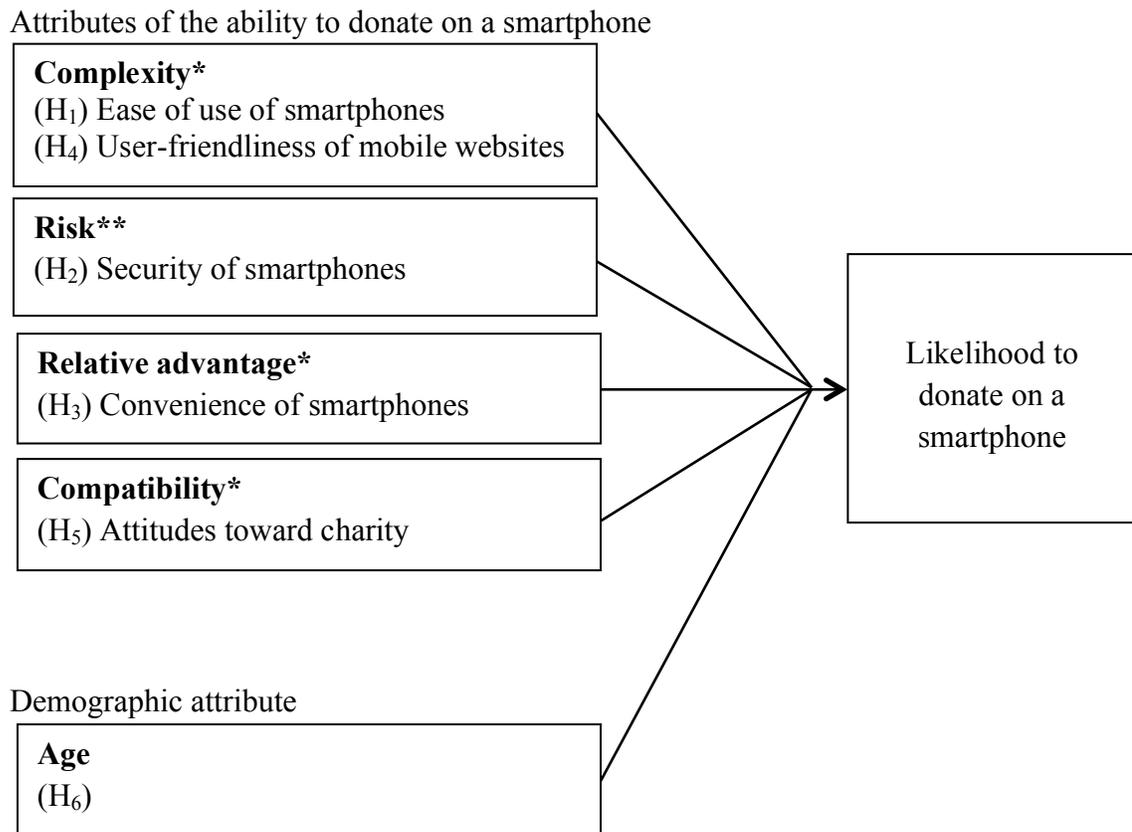
H₂: Smartphone users who perceive a higher security risk in smartphone use will be less likely to donate on a smartphone.

H₃: Smartphone users who perceive higher convenience with donating on a smartphone will be more likely to donate on a smartphone.

H₄: Smartphone users who perceive mobile websites to be less user-friendly will be less likely to donate on a smartphone.

H₅: Smartphone users who have a negative attitude toward charity will be less likely to donate on a smartphone.

H₆: As age increases, likelihood of donating on a smartphone will decrease.



*Attributes from Roger (1995).

**Attribute adapted from Chang, Lee, & Kim (2006).

Figure 2.1. A model of the study using diffusion of innovations. This figure illustrates the innovation attributes tested and the variables used to test them.

CHAPTER III

Methodology

Sample selection

This research study used the survey method to test the five hypotheses. The convenience sample consisted of 139 respondents. Requirements for respondents included that they had donated in the past or intended to in the future, and that they own a smartphone. Of the 139 responses, 3 had never donated and 16 did not own a smartphone, resulting in a total sample size of 120.

The respondents were all users of the professional social networking website, LinkedIn. This site was strategically used in order to get a sample of gainfully employed adults from a variety of ages. Using a different site, such as Facebook, or a convenience sample of students at the researcher's institution would not have garnered the same respondent pool. Because this research focuses on charitable giving, it was important to get a sample who had donated before and was inclined to donate regularly because they had an income with which to donate. Emails were sent to the 305 people listed as the researcher's contacts. In part because those invited were the researcher's personal contacts, a very high response rate of 46% resulted.

Invitees were asked for their voluntary, anonymous participation in an online survey, and sent one reminder email a day before the survey closed. The self-administered survey was conducted from Sept. 24 to Oct. 1 via the online survey platform Google Forms. Google's program automatically compiled responses into a table, which the research accessed after the survey closed.

Questionnaire

The questionnaire was developed by adapting scales from previous studies and by creating new scales. The ease of use scale was modified from Park and Chen (2007) while the charity scale was adapted from Webb, Green and Brashear (2000). The researcher created the other scales because no previously validated scales were found to be sufficient for the factors being measured.

Prior to its dissemination, the survey was shown to three people representing different demographics to get informal feedback on the clarity of the questions. Some minor adjustments in wording were made based on the feedback.

The questionnaire was then created online using Google Forms. A static URL was included in the invitation email to respondents that took them to the questionnaire page. Qualifying questions for past donation and smartphone ownership were included at the beginning of the survey, and if respondents did not qualify, the survey ended. If they met the qualifying requirements, all other questions were required, so they could not submit the survey unless all questions were answered.

The questionnaire items consisted of single-answer multiple choice for the demographic questions and five-point Likert scales (strongly agree, agree, neutral, disagree, strongly disagree) for the items measuring innovation attributes. After the survey was complete, the researcher coded the responses in October 2013 and analyzed the data using the Statistical Package for the Social Sciences (SPSS).

The newly created scales for security, convenience and mobile websites were tested for reliability and found to have internally consistent scores. The adapted scales were also tested for consistency. All scores were within acceptable Cronbach's alpha

levels: Ease of use ($\alpha = .867$), security ($\alpha = .873$), convenience ($\alpha = .665$), mobile websites ($\alpha = .687$) and charity ($\alpha = .835$). In order to achieve a higher internal consistency score for the mobile websites factor, the third question in the scale, which pertained to users' perceptions of nonprofits' mobile websites, was deleted.

Definition of terms

Smartphones, for the purpose of this study, are considered cellular phones able to perform many of the same functions as a computer, such as browsing the Internet. They typically have a large screen and an operating system that can run several applications.

Innovation for the purpose of this study is defined as the ability to donate on a smartphone, not the innovation of the smartphone in general.

Innovation attributes reflect the attributes of the ability to donate on a smartphone, which include compatibility, complexity, relative advantage and risk.

Ease of use of smartphones was measured on a five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. This factor included five questions that measured participants' level of comfort with using a smartphone.

Security of smartphones was measured on a five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. This factor included four questions that measured participants' perceptions of the security of making financial transactions and providing personal information through a smartphone. The scale examined the innovation attribute of risk, gauging the level of security risk users perceived when making transactions using a smartphone.

Convenience of donating on a smartphone was measured on a five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. This factor included

four questions that measured participants' perceptions of whether donating on a smartphone was more or less convenient than other methods of donating.

Mobile website user-friendliness was measured on a five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. This factor included four questions that measured participants' perceptions of how easy it is to navigate nonprofits' websites on a smartphone.

Attitude toward charity was measured on a five-point Likert scale: strongly agree, agree, neutral, disagree and strongly disagree. This factor included five questions that measured participants' attitudes toward charitable organizations in general.

Intention to donate was measured with two different questions. One was a Likert scale: strongly agree, agree, neutral, disagree and strongly disagree, which stated, "I would donate to charity on a smartphone." The second question was a Likert scale: very likely, likely, unsure, unlikely, very unlikely, which asked "How likely are you to donate money using a smartphone in the future?" These two questions were combined to form a two-item scale, achieving a Cronbach's alpha reliability score of .793.

A copy of the questionnaire is attached in Appendix A.

CHAPTER IV

Findings and Conclusion

Demographic profile

The majority of respondents were female at 63% (n = 75), and the most prominent age group in the sample was 18-30 years old at 58% (n = 59). The percentage of each age group decreased as age increased. The second largest age group was 31-40 at 19% (n = 23), followed by 13% of respondents who were 41-50 (see Figure 4.1).

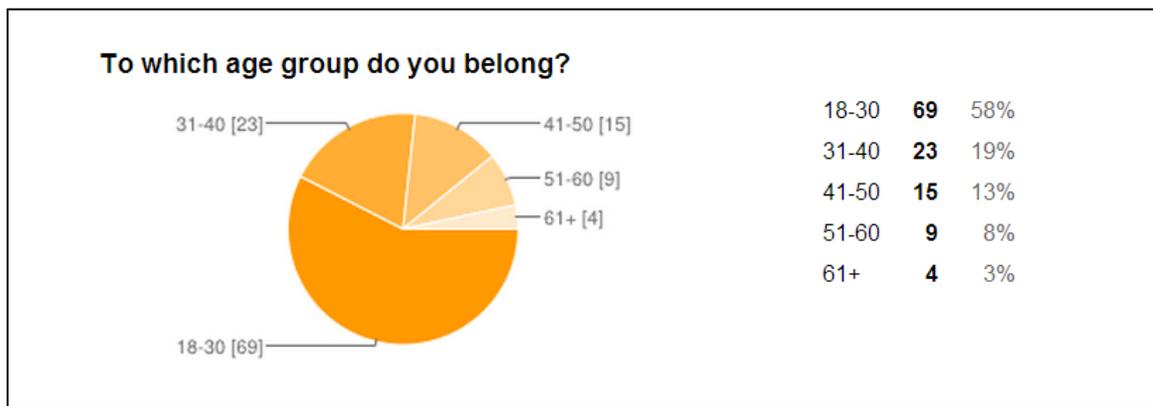


Figure 4.1. Age of respondents. This figure illustrates the breakdown in age of the sample.

The sample had a relatively high overall household income. While 30% of respondents fell into the \$25,001-\$50,000 income range, 22% had an income in the \$75,001-\$100,000 range and 18% fell into \$125,001 and higher (see Figure 4.2). In addition, respondents had an overall high level of education, with 51% holding a Bachelor's degree and 44% holding a Master's degree.

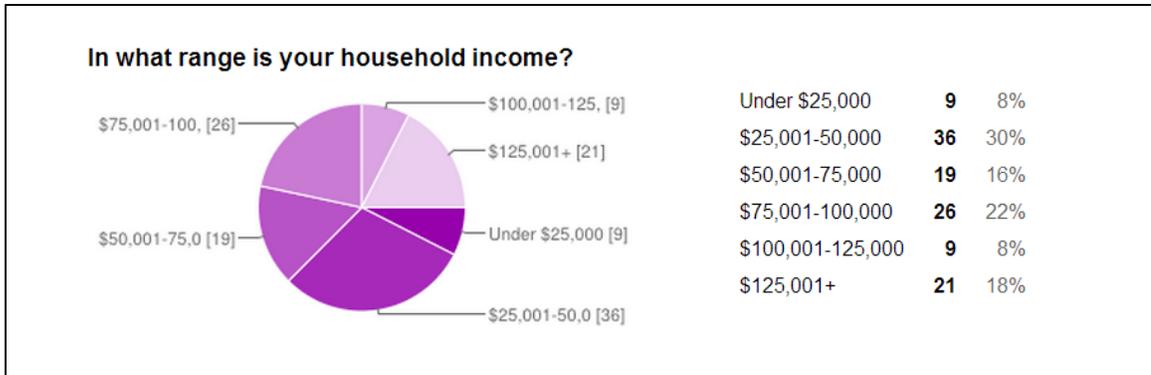


Figure 4.2. Household income of respondents. This figure illustrates the breakdown in household income of the sample.

The respondent pool was not very diverse, with 86% of participants identifying as Anglo or Caucasian. The second largest group was Latino/a or Hispanic with just six percent of the sample.

A large number of respondents (55%) were married, while 36% were single. Six percent indicated they live with a partner (see Figure 4.3).

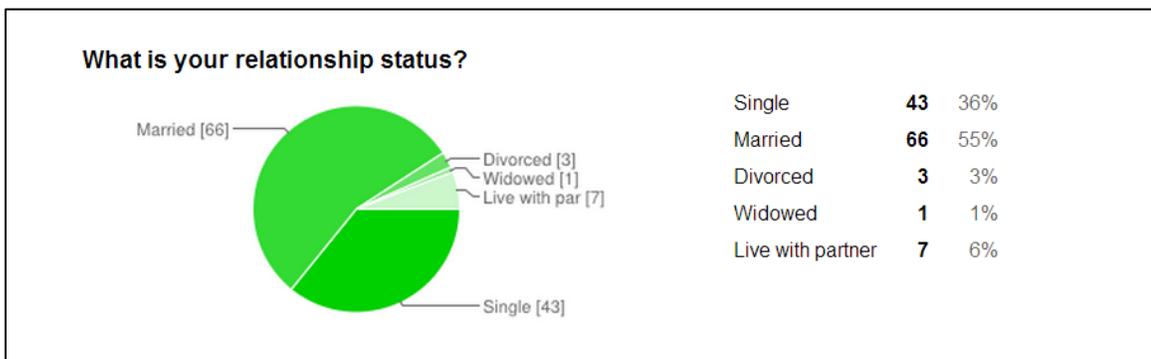


Figure 4.3. Relationship statuses of respondents. This figure illustrates the breakdown in relationship status of the sample.

Findings for hypotheses

The researcher used correlation analysis to test the hypotheses and used a regression model to determine what variables, if any, best predicted likelihood to donate on a smartphone in the future. After the internal reliability of each scale was evaluated, the researcher created composite variables for each attribute measured, except age. For all hypotheses, the respective factor composite was compared to the composite for the two-item scale indicating likelihood of donating with a smartphone.

H₁: Smartphone users who perceive a higher ease of use with smartphones will be more likely to donate on a smartphone.

The results show that ease of use of smartphones was significantly positively correlated with likelihood to donate. The ease of use composite showed a correlation of $r = .327$, $p < .01$. Ease of use was also tested for correlation with whether the respondent had donated on a smartphone in the past. The results showed a positive correlation of $r = .245$, $p < .01$.

Results show that H₁ is supported, because perceived ease of use of smartphones is positively correlated with likelihood to donate on a smartphone (Table 4.1).

Table 4.1

Correlation analysis for ease of use of smartphones

	Intention to donate on a smartphone
Ease of use	
Pearson Correlation	.327**
Sig. (2-tailed)	.000
N	120

** . Correlation is significant at the 0.01 level (2-tailed).

H₂: Smartphone users who perceive a higher security risk in smartphone use will be less likely to donate on a smartphone.

Comparing the composite factor for perceived security risk with the likelihood to donate, the results showed that the two had a significant negative correlation of $r = .639$, $p < .01$. Perceived security risk was also found to have a significant negative correlation with past donation on a smartphone with $r = .357$, $p < .01$.

Results show that H₂ is supported, because perceived security risk of smartphone use has a negative correlation with likelihood of donating on a smartphone (Table 4.2).

Table 4.2

Correlation analysis for security of smartphones

	Intention to donate on a smartphone
Security	
Pearson Correlation	.639**
Sig. (2-tailed)	.000
N	120

** . Correlation is significant at the 0.01 level (2-tailed).

H₃: Smartphone users who perceive higher convenience with donating on a smartphone will be more likely to donate on a smartphone.

The composite scale for perceived convenience was significantly positively correlated with likelihood to donate on a smartphone at $r = .584$, $p < .01$, showing that H₃ is supported (Table 4.3).

Table 4.3

Correlation analysis for convenience of donation on smartphones

	Intention to donate on a smartphone
Convenience	
Pearson Correlation	.584**
Sig. (2-tailed)	.000
N	120

** . Correlation is significant at the 0.01 level (2-tailed).

H₄: Smartphone users who perceive mobile websites to be less user-friendly will be less likely to donate on a smartphone.

Scores from the composite scale for mobile website user-friendliness had a relatively low reliability when it was first tested. The item, “Most charitable organizations do not have user-friendly mobile websites,” was removed and this increased the reliability of the score. However, in the future this scale needs to be improved for better reliability.

This scale had a statistically significant correlation with likelihood of donating with a smartphone in the future. The scale showed a correlation of $r = .287$, $p < .01$.

The results indicate that H₄ is supported because there is a statistically significant positive correlation between perceived user-friendliness of mobile websites and likelihood to donate (Table 4.4).

Table 4.4

Correlation analysis for mobile website user-friendliness

	Intention to donate on a smartphone
Mobile websites	
Pearson Correlation	.287**
Sig. (2-tailed)	.002
N	120

** . Correlation is significant at the 0.01 level (2-tailed).

H₅: Smartphone users who have a negative attitude toward charity will be less likely to donate on a smartphone.

The composite scale for attitude toward charity showed a significant correlation to likelihood of donating on a smartphone at $r = .339$, $p < .01$.

The findings support H₅, because they show that negative attitude toward charitable organizations does correlate significantly with a decreased likelihood to donate on a smartphone (Table 4.5).

Table 4.5

Correlation analysis for attitude toward charity

	Intention to donate on a smartphone
Attitude toward charity	
Pearson Correlation	.339**
Sig. (2-tailed)	.000
N	120

** . Correlation is significant at the 0.01 level (2-tailed).

H₆: As age increases, likelihood of donating on a smartphone will decrease.

The final hypothesis examined a demographic factor rather than an attribute of the innovation. Because smartphones are a new technology, the researcher suspected that greater age may impact comfort level and understanding of smartphones, so the data were tested for a correlation between age and likelihood to donate in the future using a smartphone. The study found that in fact, there is not a significant correlation between age and likelihood to donate (Table 4.6). Therefore, H₆ is not supported.

It should be noted that while the data showed no correlation, the results lack strength because the sample was not representative of a broad variety of ages, with only 13 respondents above the age of 50.

Table 4.6
Correlation analysis for age

		Intention to donate on a smartphone
Age	Pearson Correlation	.026
	Sig. (2-tailed)	.781
	N	120

Other findings

Outside of testing the hypotheses, several interesting results came out of the data collected. While the hypotheses tested for intention to donate in the future, past smartphone donation was found to function as a predictor for future likelihood to donate using a smartphone, with a coefficient of .345 and a significance of .021 (Table 4.7).

In addition, the researcher ran a multiple regression with all hypothesized predictors of likelihood to donate included and found that security, convenience and attitude toward charity were all independent predictors of likelihood to donate on a smartphone (Table 4.7).

Also, no significant differences were found in likelihood to donate in regard to gender, income level or education. A more diverse sample is needed to gauge the relationship between ethnicity and likelihood of donating with a smartphone.

Also of note is the breakdown of users who indicated they have donated using a smartphone in the past. Of the respondents who said they had previously donated on a smartphone, 17 said they had donated through a website, 13 had donated through text-to-give, and only four respondents had used a mobile app to donate.

Table 4.7

Regression analysis measuring predictability of each scale

Coefficients^a

Attributes	Unstandardized Coefficients		Standardized Coefficients	Significance
	B	Std. Error		
Ease of use	-.141	.113	-.086	.280
Security*	.503	.092	.452	.000
Convenience*	.513	.097	.374	.000
Mobile websites	-.018	.091		
Attitude toward charity*	.404	.119	.221	.001
Age	.026	.055	.030	.638
Past donation*	.345	.147	.156	.021

a. Dependent Variable: Intention to donate on a smartphone

*Attributes which had significant levels of predicting users' future donation using a smartphone.

Conclusion

This research provides a pioneering examination of smartphone use for charitable donations in academic research. The study offers important insight for nonprofits and charities that are seeking to utilize the new smartphone platform in their fundraising efforts. It expands on previous research in online giving to focus exclusively on giving through smartphones, which is an important examination as these devices gain popularity.

Furthermore, the study provides an important addition to academic scholarly research around new media innovations. The media landscape is rapidly changing and new digital media like smartphones needs to be examined in an academic, empirical context to better understand its uses and implications for individuals and society.

The data suggest that the three most important factors influencing respondents' intention to donate via a smartphone include perception of security (risk), the perceived convenience of donating on a smartphone versus other means (relative advantage), and attitudes toward charity (compatibility). While it may be difficult for one organization to change a potential donor's attitude toward charity as a whole, framing smartphone donation options as secure and convenient would be a feasible and important part of any fundraising campaign. In addition, these findings contribute to diffusion research in identifying the most influential innovation attributes for this particular technology. It supports previous research by identifying relative advantage and compatibility as two of the most influential factors in the adoption of charitable giving on smartphones.

All hypotheses examining innovation attributes were supported, indicating that nonprofit fundraising staff should consider each of these attributes when trying to increase donations on smartphones. Some of those attributes, like ease of use of smartphones and attitudes toward charity, may be out of nonprofits' control. However, long-term, creative strategies could even address these attributes over time.

Previous charitable giving studies have found that giving increases as age increases, but that does not hold true in this study. When looking specifically at donations on a smartphone, age is not a significant factor in influencing intention to donate. This is

a key finding for nonprofit marketing teams, as it may lead them to re-examine their target demographic when promoting mobile giving.

An unexpected amount of respondents (25%) indicated that they had donated using a smartphone in the past. Furthermore, regression testing of past donation showed an independent ability to predict intention to donate on a smartphone, indicating that past smartphone donors have had a positive experience and they would consider the same means of donating again. This is encouraging for nonprofits seeking donations from the smartphone platform, because it indicates adoption has begun, and utilizing the results of this study, nonprofits can work as change agents to foster continued adoption of charitable giving on smartphones.

Discussion

While this study provides data regarding general opinions about donating on smartphones, it does not distinguish between the many smartphone donation options. Today, options exist for charities to use text-to-give services, to create mobile giving apps, or to solicit donations through the Web – whether through a full, regular website or a site designed specifically for mobile. These are important considerations for nonprofits and merit further research to help inform the selection of a mobile fundraising strategy.

The reliabilities of scores from the scales tested well, but ideally the survey needed more respondents as well as a random sample instead of a convenience sample for stronger reliability results. Future research using this study's scales should consider garnering a larger sample to better test the instrument. In addition, a larger sample may also increase the ethnic diversity of respondents. Efforts should be made to include other

populations in this important research area to understand any cultural differences in likelihood to donate on a smartphone.

Specifically, the scale measuring user-friendliness of mobile websites needs significant improvement. A qualitative study may help provide insight into general perceptions about mobile website design and function, influencing better quantitative questions for the instrument used in this study.

More empirical data will continue to help inform nonprofits' uses of smartphones as a part of their fundraising efforts and beyond. Future research can continue to provide insight into the factors that influence charitable donations on smartphones and help nonprofits better facilitate that process. This area of research is especially relevant now, at a time when federal funding for some nonprofits is limited and dwindling, and many charities are seeking new ways to reach out to potential donors.

This line of research also has implications for how nonprofits use the smartphone platform in seeking future donations. Based on the results of this study, the author recommends the following practices to achieve higher rates of smartphone donations:

1. Nonprofits should use a mobile website that is simple to use and provides an easy way to enter donor information. Implementing a convenient platform on which to donate should positively influence likelihood to donate on a smartphone. In addition, a donation button should be visible and clickable from the home page of a mobile site to further facilitate a convenient donation experience.
2. Nonprofits must strive to develop financially secure methods of giving and clearly market that security to their donors. Small, lesser-known nonprofits could even enhance their security credibility by partnering with large for-profits like

Amazon, having their form redirect so the payment is processed through a familiar, trusted brand.

3. Finally, nonprofits can work to enhance overall attitude toward charity. Beyond simply acting with integrity and being transparent with donors, there is room for nonprofits to work cooperatively with one another to foster philanthropic attitudes in their communities. Attitude toward charity had a significant impact on likelihood to give, so it should not be overlooked as a factor in garnering donations through smartphones.

APPENDIX A: Questionnaire

Smartphones and Charitable Giving Questionnaire

Part I

Thank you for participating!

Please complete this questionnaire by selecting the best answer that applies. All responses are anonymous.

Charitable Giving

Have you ever donated money to charity?

- 1. Yes
- 2. No
- 3. No, but I would donate to charity in the future

Smartphone Use

Do you own a smartphone?

- 1. Yes
- 2. No

How many times per day do you believe you use a smartphone?

- 1. More than 20 times per day
- 2. 10-19 times per day
- 3. 1-9 times per day
- 4. I don't even use a smartphone on a daily basis

How many hours per week do you believe you use a smartphone?

- 1. 15+
- 2. 10-14
- 3. 5-9
- 4. 1-4
- 5. Less than 1 hour

Part II

For the questions below, select the option that indicates your level of agreement with the following statements:

Section I:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
I find it easy to accomplish tasks on a smartphone.	1	2	3	4	5
I understand how to interact with a smartphone.	1	2	3	4	5
Smartphones are difficult to interact with.	1	2	3	4	5
I am skillful at using a smartphone.	1	2	3	4	5
Smartphones are easy to use.	1	2	3	4	5

Section II:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
A smartphone is a secure way to make a financial transaction.	1	2	3	4	5
I am comfortable giving personal information like my address on a smartphone.	1	2	3	4	5
I would make a purchase on a smartphone.	1	2	3	4	5
I would not feel secure when donating money to a charity on a smartphone.	1	2	3	4	5

Section III:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
I would rather donate on a smartphone than donate in person.	1	2	3	4	5
A smartphone is an inconvenient way to make a donation to a charity.	1	2	3	4	5
Donating on a smartphone is more convenient than donating on a computer.	1	2	3	4	5
Donating with a check is less convenient than donating on a smartphone.	1	2	3	4	5

Section IV:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
I find it easy to navigate websites on my smartphone.	1	2	3	4	5
It's easy to enter my information on a website using a smartphone.	1	2	3	4	5
Most charitable organizations do not have user-friendly mobile websites.	1	2	3	4	5
Mobile websites are user-friendly.	1	2	3	4	5

Section V:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
The money given to charities goes for good causes.	1	2	3	4	5
Much of the money donated to charity is wasted.	1	2	3	4	5
My image of charitable organizations is positive.	1	2	3	4	5
Charitable organizations have been quite successful in helping those in need.	1	2	3	4	5
Charities perform a useful function for society.	1	2	3	4	5

Likelihood of future donation:

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
I would donate to a charity on a smartphone.	1	2	3	4	5

Have you donated to charity using a smartphone?

- ___ 1. Yes
- ___ 2. No

If yes, how did you donate on a smartphone?

- ___ 1. Using a mobile website
- ___ 2. Using a mobile app
- ___ 3. Using text-to-give

How likely are you to donate money using a smartphone in the future?

- ___ 1. Very unlikely
- ___ 2. Unlikely
- ___ 3. Unsure
- ___ 4. Likely
- ___ 5. Very likely

Part III

The last part of this questionnaire asks for general information about the participant. Please answer all the following questions by checking the appropriate item.

What is your gender?

- 1. Male
- 2. Female

To which age group do you belong?

- 1. 18-30
- 2. 31-40
- 3. 41-50
- 4. 51-60
- 5. 61+

What is your highest level of education?

- 1. Some high school or less
- 2. High school diploma
- 3. Associate's degree
- 4. Bachelor's degree
- 5. Master's degree
- 6. Doctorate

With which ethnic group do you identify?

- 1. Anglo/Caucasian
- 2. African American
- 3. Latino/a
- 4. Asian
- 5. Other: _____

What is your relationship status?

- 1. Single
- 2. Married
- 3. Divorced
- 4. Widowed
- 5. Live with partner

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