

2018-06

Call to claim your prize: Perceived benefits and risk drive intention to comply in a mass marketing scam.

Wood, S

<http://hdl.handle.net/10026.1/11342>

10.1037/xap0000167

Journal of Experimental Psychology: Applied
American Psychological Association

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

Call to Claim your Prize: Perceived Benefits and Risk Drive

Intention to Comply in a Mass Marketing Scam

Stacey Wood

Scripps College

Pi-Ju Liu

University of California, San Francisco

Yaniv Hanoch

University of Plymouth

Patricia M. Xi and Lukas Klapatch

Claremont Graduate University

Abstract

Mass marketing scams extract an enormous toll, yet, the literature on scams is just emerging. In Experiment 1, 211 adults reviewed a solicitation and rated their intention of contacting an "activation number" for a prize. Scarcity and authority were manipulated. Many (48.82%) indicated some willingness to contact to "activate" the winnings. Intention of responding was inversely related to the perception of risk ($b = -.441, p < .001$) and positively associated to perception of benefits ($b = .554, p < .001$), but not with the experimental condition. In Experiment 2, 291 adults were randomly assigned to one of the three conditions (low, medium, or high activation fee), and were asked to report willingness to contact. Activation fees decreased intent to contact, but percentages remained high (25.70%) with higher perception of risk reducing contact rates ($b = -.581, p < .001$), and benefit perception increasing intent to contact ($b = .381, p < .001$). Our studies indicate that consumers are responding to perceived risks and benefits in their decision-making, regardless of persuasion elements used by scammers. In summary, our studies find that consumers with lower levels of education and high perception of benefits are at increased risk for mass marketing scams.

Public Significance Statement

Mass marketing scams (MMS) represents one of the most rapid growing crimes, costing billions of dollars worldwide. MMS employ a range of tactics to entice potential victims. Our novel project indicated that attention to the reward, minimization of risk, and lower levels of education increase consumers' susceptibility to these scams.

Call to Claim your Prize: Perceived Benefits and Risk Drive

Intention to Comply in a Mass Marketing Scam

Mass marketing scams (MMS) cost consumers billions of dollars worldwide, with the Nigerian scam alone totaling \$12.7 billion in 2013 (*Smart people easier to scam*, 2014). Furthermore, MMS are linked to physical risk or harm, loss of homes, depression, and even contemplation of (and actual) suicide (Button, Lewis, & Tapley, 2014; Fraud Advisory Panel, 2015). With soaring costs and millions of people being affected, government agencies (e.g., FBI), third sector organizations (e.g., AARP), consumer organizations (e.g., Action Fraud), and international units (e.g., The International Mass-Marketing Fraud Working Group) have identified MMS as a major international crime problem. Yet, there is little empirical data regarding the psychological factors that render some individuals more susceptible to these scams and tactics employed by the perpetrators.

MMS refer to any type of fraud scheme that uses one or more mass-communication technique or technology including the internet to present fraudulent solicitations (The United States Department of Justice, 2015). In general, MMS fall into three categories, (1) advance-fee fraud schemes, (2) bank and financial account schemes, and (3) investment opportunities. Advance-fee fraud schemes are a type of scam that is based on the concept that the victim is promised a substantial benefit, such as a sweepstakes winning, inheritance, or some object of value, but must pay a fee (e.g., “activation,” “tax,” or “shipping”) or a series of fees before they can receive the benefit.

Advance-fee fraud schemes employ basic principles of persuasion to induce compliance with a small request. Potential victims are typically asked to provide some contact information by way of an email or phone number for the possibility of receiving a (financial) prize. Victims’

initial compliance can serve as a foot in the door (FITD; Freedman & Fraser, 1966) for the scammers to hook potential victims and later make additional requests, employing a larger arsenal of techniques to persuade (and at times, coerce) the person. Individuals who make that initial contact are often placed on a “suckers list” and their information can be bought and sold as a commodity. In extreme cases, victims are unwittingly used as “money mules” themselves placing them at risk for criminal prosecution (Charles, 2014). The current experiments were specifically designed to examine the earliest stages of this process, as it is the least cognitively demanding and appears innocuous because these solicitations often only ask individuals to provide “harmless” information and make a small behavioral commitment (e.g., a phone call).

To date, MMS have received scant attention from behavioral economists or psychologists, and there is a paucity of data on the underlying factors involved in responding to MMS. However, research on the topic is emerging, due to its financial and social implications. The social problem of scams also presents an opportunity to test models of decision-making and persuasion in field studies. Most papers to date have been conceptual reviews applying well known psychological theories to the problem of MMS rather than empirical investigation (Lea, Fischer, & Evans, 2009). Capitalizing on dual-process models, a number of researchers have suggested that deceptive pitches target automatic and intuitive System 1 processing, and have developed models that emphasize the interaction of persuasion and the cognitive capabilities of the target (Drew & Cross, 2013; Jones, Towse, & Race, 2015; Wood, Hanoch, & Woods, 2016; Wood & Lichtenberg, 2016). Other models have been proposed highlighting visceral influences of persuasion (Langenderfer & Shimp, 2001). For example, on some solicitation letters, benefits (i.e., large financial prizes) are often presented in bold, enlarged colorful fonts. These presentations are specifically designed to highlight the benefits of the solicitation and activate

affective processes. Common tactics from Cialdini's model of persuasion and social influence have also been proposed (Cialdini, 2006; Fischer, Lea, & Evans, 2013; Langenderfer & Shimp, 2001). This work emphasizes persuasion elements of the solicitation materials versus individual differences of the consumer and these elements include the components of authority or credibility (e.g., from a legitimate source, like "IRS" scams), scarcity (e.g., "act now", "only 3 left at this price"), social proof (e.g., "meet previous winners!"), reciprocity (e.g., may give a "free" extra gift), and liking (such as an affinity scam for a group like a charity or veterans), as well as some small behavioral commitment (e.g., "call now!").

In a recent paper incorporating a mixed method approach, Fischer and colleagues (2013) interviewed scam victims, conducted a content analysis of scam materials, and carried out a field study with mailings out to the community. The authors reported that each of these approaches provide some insights into the psychology of scams, but were not necessarily consistent. For example, high affect/positive words, authority, and scarcity were frequently employed according to both the content analysis and in person interviews. However, in the field test, there were no reliable effects of reward size or authority on return rates. Approximately 15.8% of their sample indicated that they had complied with a scam in the past, suggesting that a significant percentage of the population is susceptible to scams and are likely to respond to them.

While the work of Fisher and colleagues (2013) is important, it did not examine any individual differences that could help explain why some respond to scams and some do not. Previous work on financial exploitation and fraud, for example, has revealed that individual difference variables—such as numeracy and risk perception—can help explain differences in risk taking behavior (National Research Council, 2003; Peterson et al., 2014; Wood et al., 2014; Wood, Liu, Hanoch, & Estevez-Cores, 2016). Numeracy and financial literacy have been found

to be related to a wide range of financial outcomes, including increased retirement savings, and less vulnerability to financial exploitation in older adults (Wood & Lichtenberg, 2016). Negative social interaction may increase vulnerability secondary to a lack of a sounding board regarding a financial decision, or increase willingness to call a stranger listed in a solicitation (Liu, Wood, Xi, Berger, & Wilber, 2017). Thus, individual differences such as risk perception, numeracy, loneliness, and general financial status may influence an individual's decision to respond to MMS solicitations.

Advance-fee scams such as sweepstakes solicitations differ from other scams in several important ways. Sweepstakes scams use the lure of a reward to drive behavior, and employ some element of risk assessment. In phishing scams, on the other hand, the victims are unaware that they are targets. In sweepstakes scams, the respondents know that they are contacting some sweepstakes company, even if they are ultimately deceived regarding its legitimacy. In these scams, individuals must weigh the potential for risks with the benefit of winning a substantial prize. Thus, the decision to respond to MMS may be mainly driven by the perception of the potential benefits and risks of the particular solicitation (Cialdini, 2006).

Jones, Towse, and Race (2015) have proposed a three-factor model to understand the email fraud decision making context. Their model included (1) Persuasive techniques employed by the sender, (2) Cognitive make-up of the user (working memory capacity, self control, inhibition), and (3) UserX, the human computer interaction (Jones et al., 2015). In the current series of studies, we apply this model to the social problem of MMS victimization. We developed a prototype sweepstakes solicitation based on a review of the structure and content of a sample of 25 advance fee type scam solicitations obtained from the Postal Inspector in Los Angeles, California. These solicitations frequently contained elements such as credibility /

authority (“We obtained your name from Target”), scarcity (“respond by June 1st to claim your winnings”), a small request for a potentially large reward (“call to activate your winnings”).

In Experiment 1, the persuasion elements of scarcity (time limit: high versus low) and authority (brand name: high versus low) were manipulated. We collected information regarding the participants’ perception of the potential benefits and risks of the solicitation as both a quantitative rating and a qualitative statement. Experiment 1 also included individual difference measures of subjective numeracy, social isolation, demographic variables, and financial status.

In Experiment 2, we created a manipulation requesting an activation fee in the original solicitation (\$0, \$5, or \$100). In this study, we used a high authority, high scarcity solicitation in all conditions, resulting in a 3 (fee activation: none, low, high) by 1 (high authority, high scarcity condition) design. Experiment 2 included identical individual difference measures as well as a few additional questions regarding financial status (described below).

We predicted a relatively low base rate of intention to respond (5–10%) with increased intent to contact in the high authority/high scarcity conditions. We predicted a decrease in intent to contact the MMS solicitation with the addition of an activation fee. Finally, we predicted that individuals’ rating of risks and benefits of the offer as well as lower numeracy, increased isolation, and lower financial security would be related to increased likelihood of contacting the MMS solicitation.

General Method

Materials

Solicitations. For this project, a simple prototype solicitation was developed based on 25 real scam solicitations that were “successful” at hooking the victim from active cases which are currently being investigated in the Los Angeles area. Because of the active investigation, these

solicitations cannot be made public. Four different versions of the simple prototype solicitation were produced (see Appendix A). These letters were identical except that authority and scarcity were manipulated to create four conditions: High Authority / High Scarcity, High Authority / Low Scarcity, Low Authority / High Scarcity, and Low Authority / Low Scarcity. Authority was operationalized as a section in the letter that indicated source: “We received your information from Target, Costco, Walmart” (high authority) or “We received your information from our vendor” (low authority). Scarcity was operationalized through the indication of a time limit with high scarcity indicated by “Be aware that the deadline for claiming your price is September 30, 2015” versus low scarcity, “We urge you to claim your prize as soon as possible.” Participants were then asked, “After reading this solicitation, how likely are you to contact the activation number” on a 7–point Likert scale ranging from extremely likely (7) to extremely unlikely (1). Next, they were asked two qualitative statements: (1) “In your opinion, what are the benefits of responding to this letter?” and (2) “In your opinion, what would be the risks to responding to this letter?” Participants were then asked to make quantitative ratings of risks and benefits on a 10–point Likert scale.

Subjective numeracy scale. A 7–item subjective numeracy scale was included (Fagerlin et al., 2007).

Three-item UCLA Loneliness Scale. The scale measured participants’ subjective feelings of social isolation (hardly ever, some of the time, often feeling left out, isolated, and lack of companionship; Hughes, Waite, Hawkley, & Cacioppo, 2004).

Demographics. Participants were asked their age, gender, ethnicity, income, financial status, employment status, education, and marital status.

Debriefing. We explained the goal of the study. A link to learn more about the prevention of MMS was also provided as part of the debriefing.

Procedures

Participants in both studies experiments were recruited through Amazon's Mechanical Turk (MTurk). Results obtained through MTurk are reliable and comparable to those obtained by using hand-completed surveys (Casler, Bickel, & Hackett, 2013; Gibson, Piantadosi, & Fedorenko, 2011). All participants were residents of the United States. After providing consent, participants were informed that they would read a letter and answer some questions regarding its content. Participants were paid \$0.50 for their participation.

Experiment 1

Method

Participants. Participants were 221 adults recruited on Amazon's Mechanical Turk (age ranged from 28 to 83 years old, $M = 35.51$, $SD = 11.93$). Nine participants' responses were excluded because the qualitative responses were vague or nonsensical, they completed the survey in an extremely short time, or they failed to provide any demographic information. For demographic information, please see Table 1.

Results

Overall, close to half (48.82%) of the sample indicated willingness (15.17% somewhat likely, 14.69% likely, 18.96% very likely) to contact the scammers. Notably, there was no effect for the manipulated conditions of authority or scarcity on the willingness to contact the MMS ($F(3, 207) = 1.47$, $p = .223$, $\eta^2 = .02$). Except for education, none of the individual difference measures assessed including numeracy, loneliness, and demographics were significant predictors

of participants' response. Higher education was predictive of lower likelihood to contact the number ($b = -.348, p = .018, R^2 = .03$).

Individuals also rated the risks and benefits of the solicitation. Participants' likelihood of positively responding to the solicitation was significantly related to assessment of risk ($b = -.734, p < .001, R^2 = .28$) and assessment of benefits ($b = .676, p < .001, R^2 = .41$) such that lower risk or higher benefits both predicted likelihood to contact. Using multiple regression analysis with all the above predictors in the model, and the four authority/scarcity conditions dummy coded, risk assessment ($b = -.413, p < .001$) and benefit assessment ($b = .580, p < .001$) continued to predict higher intention of responding above and beyond other variables (R^2 change = .45 above and beyond other predictors). Additionally, participants who read the letter with low authority and high scarcity ($b = -.941, p = .003$) were less likely to contact compared with those who read the letter with high authority and high scarcity, in presence of all other variables (see Table 2).

Participants were also asked, "In your opinion, what are the benefits of responding to this letter?" Seventy-one percent indicated that winning money was a specific benefit, and 63.5% thought it was a legitimate offer. Participants were also asked, "In your opinion, what would be the risks to responding to this letter?" Sixty-one percent indicated that the solicitation was potentially a scam, and 39% expressed concern that the solicitation was about identity theft (see Appendix B for measures used).

Discussion

In summary, in Experiment 1, we found a much higher than expected intention to comply rate, no effect of the authority / scarcity manipulations, and that risk and benefits perception were strong predictors of intention to comply. In addition, our data showed that higher education

levels were related to lower intention to comply levels. Finally, participants were drawn to the financial benefits of the solicitation, but were also concerned about the possible risks of responding such as identify theft. Given that almost half of the sample indicated willingness to comply with the message, we next examined other factors that could help influence the intension to respond.

Experiment 2

In Experiment 1, we were surprised at the high rate of participants' who indicated willingness to contact the MMS solicitation. In Experiment 2, we added a cost associated to the solicitation in the form of a hypothetical "activation fee," to examine whether this additional cost resulted in decreased interest. Further, we manipulated the level of the activation fee to determine if a higher fee was associated with even more decreased interest than a lower fee. In this study, individuals either were asked to call to "activate" their winnings (same as Experiment 1), or call and pay either a \$5 or \$100 activation fee. We hypothesized that individuals who were willing to call and pay \$100 in the "high fee" activation condition would represent a distinct group especially vulnerable to MMS. All other aspects of the design were identical except for a few additional probes related to the financial situations of participants. Given that there were essentially no differences in the intention to respond between conditions in Experiment 1, we used one standardized letter for all participants (High Authority / High Scarcity).

Method

Participants. Participants were 291 adults (age ranged from 19 to 83 years old, $M = 38.20$, $SD = 12.52$) recruited on Amazon's Mechanical Turk. The original sample size was 302, but 11 participants' responses were excluded because their qualitative answers were vague or

nonsensical and they failed the manipulation check (i.e., “Was there an activation fee in the letter you read? If yes, how much was the fee?”). For full demographic information, see Table 1.

Procedure. Following informed consent, participants were randomly assigned to one of three conditions (no activation fee, \$5 activation fee, and \$100 activation fee). All participants received the same base solicitation letter (high authority/high scarcity).

Results

Slightly over a quarter of the sample (25.7%) indicated some willingness (11.0% somewhat likely, 5.8% likely, 8.9% very likely) to call the contact number and pay the activation fee if requested. Compared to other participants, those who said they were very likely to call the contact number were more likely to be high school graduates (46% versus 26%), while participants with a bachelor’s degree and above were not very likely to respond ($\chi^2(6) = 17.32, p = .008$). Having an activation fee affected participants’ reports of likelihood to respond positively to the MMS solicitation ($F(2, 288) = 4.20, p = .016, \eta^2 = .03$), such that no-activation-fee participants ($M = 3.19, SD = 2.33$) indicated higher level of willingness to call, compared with those who had to pay \$5 ($M = 2.48, SD = 1.92$) or \$100 ($M = 2.39, SD = 2.03$). Additionally, having to pay \$100 ($M = 6.18, SD = 1.46$) was rated to be more risky than the \$5 ($M = 5.86, SD = 1.41$) and no-activation-fee ($M = 5.40, SD = 1.93$) conditions ($F(2, 287) = 5.59, p = .004, \eta^2 = .04$). Again, none of the individual difference measures assessed including numeracy and loneliness were significant predictors of intent to contact.

Among the demographic variables, age and education independently predicted responses after controlling for activation fee, such that older adults ($b = -.003, p = .004, R^2 = .03$) and highly educated participants ($b = -.254, p = .020, R^2 = .02$) were less likely to make the call, while high activation fee deterred participants from calling in both models. Just like in

Experiment 1, risk and benefit assessment affected participants' responses, such that assessment of higher risk discouraged intent to contact ($b = -.833, p < .001, R^2 = .41$), but higher benefit assessment was associated with higher willingness to contact ($b = .587, p < .001, R^2 = .44$). Quantitative ratings indicated that likelihood to call with the request remained significantly related to assessment of risk ($b = -.387, p < .001$) and benefits ($b = .594, p < .001$) controlling for conditions and all other demographic and individual variables (R^2 change = .51 above and beyond other predictors). Interestingly, in this final model including all predictors, activation fee was no longer a predictor of contact ($b = -.026, p = .800$), but education level remained significant with higher educated participants less likely to call ($b = -.254, p = .005$; see Table 3).

Participants were able to leave qualitative comments regarding their decision-making. Fifty-four percent of the benefits noted the potential for a \$50,000 windfall. Fifty-eight percent noted likelihood of a scam.

Discussion

Our results from Experiment 2 indicated that intention to contact positively to the MMS solicitation remained high, although it was halved from Experiment 1. Thus, including activation was successful in deterring individuals from reporting high likelihood to respond to the scams. Participants were less likely to indicate that they are willing to call when there is an activation fee, although there was no difference between \$5 or \$100. As with Experiment 1, risk and benefits assessments remained robust predictors of intention and they remained predictors above and beyond all other predictors. Finally, unlike Experiment 1, increased age was associated with reduced willingness to contact the MMS; while in accordance with Experiment 1, education was also linked to reduced intention to comply with the MMS. Low levels of education increased intent to contact.

Summary and Concluding Discussion

As one of the top five consumer scams, MMS extracts billions of dollars from people across the globe as well as affecting the well-being of millions of (often vulnerable) victims. To reduce the likelihood of becoming a scam victim, the United States Department of Justice (2015) recommends that people remove their names from solicitation lists and not respond to claims that they have won money. As our study, and millions of victims, reveals, this proves to be a very difficult advice to follow. Gaining a better understanding of the mechanisms involved in responding to these scams, thus, is urgently needed. The two studies presented here provide much needed insights into these concerns. While our results reveal a higher rate of intent to respond than anticipated, they are not without precedent. For example, in an earlier study with university students, Modic and Lea (2013) reported that 58% of their sample indicated that they would respond to a scam. Thus, even a student population seems to be as responsive to these scams as our Mturk participants. In addition, according to a report from Truecaller (see Kok, 2107) about 10% of the US adult population fell victim to a scam. However, the Truecaller finding grossly underestimates the true rate of scams. Indeed, a report by Button, Lewis, and Tapley (2009) indicates that only 1-3% of people who fall prey to mass marketing scams actually report it to the authorities. Thus, our results from both studies might be more realistic than first meets the eye, as they focused only the first step in the process of falling prey to a scam.

Furthermore, few individual differences measures distinguished between those with higher and those with lower intention to comply. For example, we found that high and low numeracy people were as likely to report willingness to respond to the letter, despite the fact that education was a significant predictor. Reyna and colleagues (2009) have maintained that numerical abilities are independent of IQ and education level, suggesting that the two extract

independent influence. Additionally, to the best of our knowledge, the subjective numeracy scale has not been used previously in the financial domain, let alone in scam related studies. It is possible that using an objective numeracy measures would have yielded different results.

Furthermore, in our study, participants did not need to make any computation or transform data, but only read about a large sum of money.

Consistent with previous work, we saw evidence of scarcity and authority manipulations in our review of scam materials, but in our empirical studies, participants did not appear to be making discriminations based upon them (Fischer et al., 2013). That is, scammers appear to be aware of the persuasion literature and actively employ its tactics, but our research suggests that consumers are not attending to these elements and are basing response decisions upon an evaluation of risk and benefit. Thus, we are left with the question of why people are willing to respond to these scams, and even pay up to \$100 to be scammed. Our novel studies provide additional insights to this vital question. In line with earlier work (Hanoch, Johnson, & Wilke, 2006; Slovic & Lichtenstein, 1968; Weber, Blais, & Betz, 2002), our data revealed that risk and benefit perception play a key role in people's response. Indeed, those who perceived higher benefits and minimal risks were more likely to indicate that they will respond to the MMS solicitation. Therefore, it is possible that what drives peoples' positive response to MMS is their perception of the benefits associated with the offer (large financial prizes) while undervaluing the possible risks (identity theft, further persuasive tactics by scammers). Our data also indicated that education served as a protective measure, yet numeracy did not. Individuals with lower levels of education were more likely to find the offer appealing and report intent to contact which is different from previous reports of higher scam compliance in well-educated individuals (Applied Research & Consulting LLC, 2013; Ultrascan AGI, 2014). The difference may be the

context, with better-educated consumers more likely to fall for investment schemes and less educated consumers more likely to fall for sweepstakes type scams.

In summary, in these two experiments, we developed materials designed to study basic elements of persuasion employed in advance-fee scams. We used the framework of Jones, Towse, and Race (2015) as a conceptual framework to understand consumer behavior regarding susceptibility to MMS. Their model included (1) Persuasive techniques employed by the sender, (2) Cognitive make-up of the user (working memory capacity, self control, inhibition), and (3) UserX, the human computer interaction (Jones et al., 2015).

Our initial investigations indicated that the persuasive effects employed by the sender that most impacted the intention to respond was the opportunity for a large reward. While authority and scarcity appear in every letter that we reviewed from the postal inspector's office, our manipulation did not have an impact. It is possible that our manipulation was not strong enough and a greater emphasis on these attributes (**bold letters**), more specific authority (IRS; AMAZON), clearer scarcity (YOU HAVE 24 HOURS to RESPOND), would have an impact. The scammers clearly believe they matter.

In terms of individual cognitive differences of the user, as stated above we found that low education is the most consistent finding that increases the intention to respond. Why would educational level be associated with greater intention to respond to scams? One possibility relates to the fact that education is linked to impulsivity or delay discounting. Wilson and colleagues (2015), for example, have shown that educational levels were the strongest predictors of discounting measures, that is the inability to delay gratification. Likewise, work by Perez-Arce (2015) reveals a causal relationship between education and time preference, such that those with higher education exhibit greater patient. There are also emerging indications that receiving

financial education improves delays discounting behavior (e.g., DeHart, Friedel, Lown, & Odum, 2016). As such, it is possible that individuals with low education are less able to resist their impulse to respond to the scams. As this is an emerging area of research, in future studies, we will seek to determine why individuals with lower education levels are at increased risk for scams by including measures of delay discounting. In terms of human computer interactions (or in our case, letters), our current design only allows us to examine the susceptibility from one technological framework. Future studies should vary the type of scams and examine vulnerabilities based on the nature of the UserX interface.

We conceptualized these solicitations as a foot-in-the-door persuasion tactic designed to obtain contact information to facilitate future larger requests. Consistent with previous literature in social psychology, individuals were relatively willing to contact a MMS solicitation and some were even willing to pay money to do so. Our analysis indicated that although many consumers were aware in general of the potential risk involved (“it could be a scam”), they do not seem aware of the general business model used by scammers (i.e., FITD), and are potentially at risk for future requests. Further, the appeal of winning drove much of the interest in the solicitation. The results indicated that it was largely participants’ assessment of the risks and benefits that drove their responses versus other individual difference variables (numeracy and social isolation). Consistent with the model of Jones et al. (2015), our results suggest that the most important persuasion element of the sender is the promise of a reward. In terms of individual differences, cognitive variables do not appear as important as motivational factors with the exception of education in our general sample. Contrary to popular belief, age was not a significant risk factor. However, we also note that the mean age of our sample was relatively young (35.51 in Experiment 1 and 38.20 in Experiment 2) and age effects may emerge in studies

designed to sample larger groups of elderly participants. Educational outreach should stress the risk of the solicitations and encourage consumers to delete or toss out any scam solicitation.

There are several important limitations in the above experiments. We acknowledge that there is a mismatch between the use of an electronic format and presentation of the sweepstakes “letters” we used in this project. It is possible that the use of this format and the use of an MTurk sample in general biased our results in some direction. However, we note that our findings are consistent with other research on scam susceptibility. We also note that our relatively high intention to respond may reflect extra “authority” granted to a University affiliated project. At the same time, we note that the majority of our participants were able to identify the solicitations as likely a scam (61% in Experiment 1 and 58% in Experiment 2). Participants in the current study also appear to be accurately comprehending and assessing the risks involved for example, having to pay \$100 was rated to be significantly more risky than the \$5 and no-activation-fee conditions and therefore are making predicted discriminations in their judgments. However, we acknowledge that these numbers may be smaller in the field. In future studies, we plan to examine the overall size of the prize to determine if consumers are lured more by lower versus higher prizes. We also plan to explicitly measure risk propensity to better understand risk assessment and susceptibility.

In summary, our research suggests somewhat of a paradox. On the one hand, consumers are for the most part able to recognize potential scams. However, rather than use a helpful heuristic (ignore letter), a sizeable percentage considers responding. It seems that the lure of the prize (large sum of money) is largely driving individuals’ behaviors, leading many of them to discount the possible risks. After all, what harm can be done by just responding to a letter? Given the complex nature of scams (where even sophisticated entities like Facebook and Google

fall prey), it is unlikely that a single measure will serve as a panacea (Moray, 2017). Yet, our study results point in a number of possible directions. First, despite efforts by governmental agencies as well as private companies, there is a clear need for better consumer education regarding the high likelihood of risk is recommended. Currently many schools provide eSafety programs, so it is important that these programs should also incorporate materials about how to avoid scams. Second, because the presence of an activation fee helped reduce intention to comply with the scam, one possibility is to encourage consumers to ask themselves if they will be willing to pay an activation fee before replying to these scams. Finally, given that perception of benefits and of risks were the most important factors in intention to comply, one clear option is to encourage individuals to focus only on the risk and discount the benefits. Needless to say, much more work is needed in examining these possibilities, but given the growing prevalence of scams even a small reduction in compliance can make a big difference.

References

- Applied Research & Consulting LLC. (2013). *Financial fraud and fraud susceptibility in the United States: Research report from a 2012 national survey*. New York.
- Button, M., Lewis, C., & Tapley, J. (2009). *Fraud typologies and the victims of fraud: literature review*. London: National Fraud Authority.
- Button, M., Lewis, C., & Tapley, J. (2014). Not a victimless crime: The impact of fraud on individual victims and their families. *Security Journal*, 27(1), 36–54.
<https://doi.org/10.1057/sj.2012.11>
- Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior*, 29(6), 2156–2160.
<https://doi.org/10.1016/j.chb.2013.05.009>
- Charles, B. S. (2014). The most common schemes for targeting the unknowing money mule. Retrieved June 14, 2017, from <https://securityintelligence.com/the-most-common-schemes-for-targeting-the-unknowing-money-mule/>
- Cialdini, R. B. (2006). *Influence: The psychology of persuasion* (Revised ed). New York, NY: Harper Business.
- DeHart, W. B., Friedel, J. E., Lown, J. M., & Odum, A. L. (2016). The effects of financial education on impulsive decision making. *PLOS ONE*, 11(7), e0159561.
<https://doi.org/10.1371/journal.pone.0159561>
- Drew, J. M., & Cross, C. (2013). Fraud and its prey: Conceptualising social engineering tactics and its impact on financial literacy outcomes. *Journal of Financial Services Marketing*, 18(S3), 188–198. <https://doi.org/10.1057/fsm.2013.14>

- Fagerlin, A., Zikmund-Fisher, B. J., Ubel, P. A., Jankovic, A., Derry, H. A., & Smith, D. M. (2007). Measuring numeracy without a math test: Development of the Subjective Numeracy Scale. *Medical Decision Making, 27*(5), 672–680.
<https://doi.org/10.1177/0272989X07304449>
- Fischer, P., Lea, S. E. G., & Evans, K. M. (2013). Why do individuals respond to fraudulent scam communications and lose money? The psychological determinants of scam compliance. *Journal of Applied Social Psychology, 43*(10), 2060–2072.
<https://doi.org/10.1111/jasp.12158>
- Fraud Advisory Panel. (2015). *Supporting the victims of fraud: The year in review 2014-2015*. London.
- Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology, 4*(2), 195–202.
<https://doi.org/10.1037/h0023552>
- Gibson, E., Piantadosi, S., & Fedorenko, K. (2011). Using mechanical turk to obtain and analyze English acceptability judgments. *Linguistics and Language Compass, 5*(8), 509–524.
<https://doi.org/10.1111/j.1749-818X.2011.00295.x>
- Hanoch, Y., Johnson, J. G., & Wilke, A. (2006). Domain specificity in experimental measures and participant recruitment: An application to risk-taking behavior. *Psychological Science, 17*(4), 300–304. <https://doi.org/10.1111/j.1467-9280.2006.01702.x>
- Hughes, M. E., Waite, L. J., Hawkey, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based Studies. In *Research on Aging* (Vol. 26, pp. 655–672). <https://doi.org/10.1177/0164027504268574>
- Jones, H. S., Towse, J. N., & Race, N. (2015). Susceptibility to email fraud: A review of

psychological perspectives, data-collection methods, and ethical considerations.

International Journal of Cyber Behavior, Psychology and Learning, 5(3), 13–29.

<https://doi.org/10.4018/IJCBPL.2015070102>

Koo, K. F. (2017). Truecaller insights special report: An estimated 22.1M Americans lost \$9.5B in phone scams last year. Retrieved from

<https://blog.truecaller.com/2017/04/19/truecaller-us-spam-report-2017/>

Langenderfer, J., & Shimp, T. A. (2001). Consumer vulnerability to scams, swindles, and fraud:

A new theory of visceral influences on persuasion. *Psychology and Marketing*, 18(7), 763–

783. <https://doi.org/10.1002/mar.1029>

Lea, S. E. G., Fischer, P., & Evans, K. M. (2009). *The psychology of scams: Provoking and committing errors of judgement*. Office of Fair Trading. Retrieved from

http://www.offt.gov.uk/shared_offt/reports/consumer_protection/offt1070.pdf

Liu, P.-J., Wood, S., Xi, P., Berger, D. E., & Wilber, K. (2017). The role of social support in elder financial exploitation using a community sample. *Innovation in Aging*, 1(1).

<https://doi.org/10.1093/geroni/igx016>

Modic, D., & Lea, S. E. G. (2013). Scam compliance and the psychology of persuasion. *SSRN Electronic Journal*, 1–34. <https://doi.org/10.2139/ssrn.2364464>

Moray, D. (2017). Facebook, Google fall prey to \$100 million phishing scam. Retrieved from <http://www.bgr.in/news/facebook-google-fall-prey-to-100-million-phishing-scam/>

National Research Council. (2003). *Elder mistreatment: Abuse, neglect, and exploitation in an aging America*. (R. J. Bonnie & R. B. Wallace, Eds.). Washington, D.C.: National

Academies Press. <https://doi.org/10.17226/10406>

Perez-Arce, F. (2015). The effect of education on time preferences. *Economics of Education*

Review, 56, 52-64.

Peterson, J. C., Burnes, D. P. R., Caccamise, P. L., Mason, A., Henderson, C. R., Wells, M. T.,

... Lachs, M. S. (2014). Financial exploitation of older adults: A population-based prevalence study. *Journal of General Internal Medicine*, 29(12), 1615–1623.

<https://doi.org/10.1007/s11606-014-2946-2>

Reyna, V. F., Nelson, W. L., Han, P. K., & Dieckmann, N. F. (2009). How numeracy influences risk comprehension and medical decision making. *Psychological Bulletin*, 135(6), 943–973.

<https://doi.org/10.1037/a0017327>

Slovic, P., & Lichtenstein, S. (1968). Relative importance of probabilities and payoffs in risk taking. *Journal of Experimental Psychology*, 78(3, Pt.2), 1–18.

<https://doi.org/10.1037/h0026468>

Smart people easier to scam. (2014). Amsterdam. Retrieved from http://www.ultrascan-agi.com/public_html/html/pdf_files/Pre-Release-419_Advance_Fee_Fraud_Statistics_2013-July-10-2014-NOT-FINAL-1.pdf

The United States Department of Justice. (2015). Mass Marketing Fraud. Retrieved May 2, 2016, from <https://www.justice.gov/criminal-fraud/mass-marketing-fraud>

Ultrascan AGI. (2014). No Title.

Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*,

15(4), 263–290. <https://doi.org/10.1002/bdm.414>

Wilson, G. A., Franck, C. T., Mueller, E. T., Landes, R. D., Kowal, B. P., Yi, R., & Bickel, W.

K. (2015). Predictors of delay discounting among smokers: Education level and a utility measure of cigarette reinforcement efficacy are better predictors than demographics,

smoking characteristics, executive functioning, impulsivity, or time perception. *Addictive Behaviors*, 45, 124–133. <https://doi.org/10.1016/j.addbeh.2015.01.027>

Wood, S. A., Hanoch, Y., & Woods, G. W. (2016). Cognitive factors to financial crime victimization. In M. Dion, D. Weisstub, & J.-L. Richet (Eds.), *Financial crimes: Psychological, technological, and ethical issues* (pp. 129–139). Cham, Switzerland: Springer International Publishing Switzerland. https://doi.org/10.1007/978-3-319-32419-7_6

Wood, S. A., & Lichtenberg, P. A. (2016). Financial capacity and financial exploitation of older adults: Research findings, policy recommendations and clinical implications. *Clinical Gerontologist*, 1–17. <https://doi.org/10.1080/07317115.2016.1203382>

Wood, S. A., Liu, P.-J., Hanoch, Y., & Estevez-Cores, S. (2016). Importance of numeracy as a risk factor for elder financial exploitation in a community sample. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 71(6), 978–986. <https://doi.org/10.1093/geronb/gbv041>

Wood, S. A., Rakela, B., Liu, P.-J., Navarro, A. E., Bernatz, S., Wilber, K. H., ... Homier, D. (2014). Neuropsychological profiles of victims of financial elder exploitation at the Los Angeles County Elder Abuse Forensic Center. *Journal of Elder Abuse & Neglect*, 26(4), 414–423. <https://doi.org/10.1080/08946566.2014.881270>

Table 1

Sample Demographic Information

		Experiment 1 (<i>n</i> = 211)	Experiment 2 (<i>n</i> = 291)
Mean Age		35.51 (11.93) years	38.31 (12.53) years ¹
Gender	Male	120 (56.87%)	166 (57.04%)
	Female	89 (42.18%)	123 (42.27%)
	Other	2 (0.95%)	2 (0.69%)
Marital Status	Married	68 (32.23%)	102 (35.17%) ¹
	Divorced	14 (6.64%)	30 (10.34%) ¹
	Widowed	0 (0.00%)	4 (1.38%) ¹
	Single	129 (61.14%)	154 (53.10%) ¹
Education	High school degree/GED	67 (31.75%)	81 (27.84%) ¹
	Associate's degree	34 (16.11%)	47 (16.15%) ¹
	Bachelor's degree	93 (44.08%)	127 (43.64%) ¹
	Master's degree	12 (5.69%)	24 (8.25%) ¹
	Professional degree (MD, JD, etc.)	5 (2.37%)	10 (3.44%) ¹
	Income Level	Less than \$25k	84 (39.81%)
	\$25,000-\$49,999	69 (32.70%)	77 (26.46%) ¹
	\$50,000-\$74,999	32 (15.17%)	57 (19.59%) ¹
	\$75,000-\$124,999	19 (9.00%)	48 (16.49%) ¹
	\$125,000-\$174,999	7 (3.32%)	8 (2.75%) ¹

	\$175k+	0 (0.00%)	3 (1.03%) ¹
Ethnicity ²	White	178 (84.36%)	257 (88.32%)
	Hispanic/Latino	6 (2.84%)	14 (4.81%)
	Black	18 (8.53%)	15 (5.15%)
	American Indian	6 (2.84%)	5 (1.72%)
	Asian	14 (6.64%)	14 (4.81%)

Note: ¹One individual declined to report this demographic. ²Some participants identified with multiple ethnicities so these percentages sum to a total greater than 100%.

Table 2

Regression Results from Experiment 1 Predicting Intention to Respond

	Variables Entered Independently		Variables Entered Jointly			
	B	<i>p</i>	B	<i>p</i>	Collinearity Statistics	
					Tolerance	VIF
Benefit rating	0.676	0.000	0.580	0.000	0.737	1.356
Risk rating	-0.734	0.000	-0.413	0.000	0.762	1.312
Subjective Numeracy	0.015	0.509	0.006	0.769	0.669	1.494
Objective Numeracy	-0.100	0.524	-0.161	0.205	0.689	1.452
Loneliness	0.002	0.977	0.074	0.187	0.860	1.162
Age	-0.018	0.176	-0.010	0.359	0.607	1.648
Gender	-0.284	0.348	0.188	0.410	0.799	1.252
Education	-0.348	0.018	-0.082	0.456	0.816	1.226
Annual income	-0.125	0.377	0.069	0.564	0.642	1.558
Marital status: Married (reference group)						
Divorced			0.117	0.813	0.714	1.401
Widowed			---	---	---	---
Single			0.050	0.864	0.551	1.815
Ethnicity: White (reference group)						
Hispanic or Latino			0.614	0.346	0.915	1.093
Black or African American			0.754	0.063	0.893	1.120

Native American or American Indian	0.225	0.747	0.949	1.054
Asian / Pacific Islander	-0.262	0.552	0.895	1.118
Other	---	---	---	---
Employment status: Full-time (reference group)				
Part-time	-0.134	0.672	0.860	1.163
Unemployed	0.033	0.911	0.803	1.246
Student	-0.639	0.159	0.749	1.336
Letter Type: High Authority & High Scarcity (reference group)				
High Authority & Low Scarcity	-0.481	0.116	0.640	1.562
Low Authority & Low Scarcity	-0.190	0.531	0.614	1.630
Low Authority & High Scarcity	-0.941	0.003	0.612	1.633
(Constant)	3.709	0.001		

Note. "Marital status: Widowed" and "Ethnicity: Other" have missing correlations and were deleted from the analysis.

Table 3

Regression Results from Experiment 2 Predicting Intention to Respond

	Variables						
	Entered		Variables Entered Jointly				
	Independently				Collinearity Statistics		
	B	<i>p</i>	B	<i>p</i>	Tolerance	VIF	
Benefit rating	0.587	0.000	0.594	0.000	0.715	1.398	
Risk rating	-0.833	0.000	-0.387	0.000	0.746	1.340	
Subjective Numeracy	0.000	0.879	0.000	0.669	0.890	1.123	
Objective Numeracy	-0.221	0.073	0.109	0.203	0.874	1.144	
Loneliness	0.111	0.080	-0.042	0.358	0.814	1.228	
Age	-0.028	0.004	0.005	0.545	0.653	1.533	
Gender	-0.013	0.958	0.066	0.705	0.812	1.232	
Education	-0.254	0.020	0.231	0.005	0.765	1.306	
Annual income	-0.139	0.172	-0.038	0.632	0.679	1.472	
Marital status: Married (reference group)							
Divorced			0.015	0.961	0.743	1.346	
Widowed			0.074	0.918	0.910	1.099	
Single			0.202	0.316	0.642	1.559	
Ethnicity: White (reference group)							
Hispanic or Latino			0.267	0.490	0.929	1.077	
Black or African American			0.318	0.403	0.907	1.102	

Native American or American Indian	-0.927	0.155	0.891	1.122
Asian / Pacific Islander	-0.368	0.379	0.855	1.169
Other	0.740	0.597	0.951	1.052
Employment status: Full-time (reference group)				
Part-time	0.335	0.176	0.787	1.270
Unemployed	0.150	0.558	0.763	1.311
Student	0.360	0.461	0.893	1.120
Activation fee	-0.399	0.009	0.053	0.617
(Constant)	1.917	0.010	0.911	1.097

Appendix A

Congratulations! It is our pleasure to announce you as the winner of our annual March Cash Prize Giveaway Promotion. As a past or current customer of the Publishers Clearing House, Target, Walmart, and Costco, your name was automatically entered into the contest and you were randomly selected as the second prizewinner for a grand sum of Fifty thousand dollars (\$50,000 USD). To claim your winnings, you are required to contact your claims agent AT 1-888-555-3333 EXT 7 OR 1-866-444-3636 EXT 1, for verification. When contacting your claims officer you are required to provide your personal PRIZE NUMBER: WPCH-JAOSOI-200 1-1522. We urge you to claim your winnings as soon as possible. Be informed that the deadline for claiming your prize is September 30, 2015 upon receiving this notification. We will not be responsible for any unclaimed prize after the dead line. And after this date, unclaimed prizes will revert back to the jackpot. In order to avoid cast of misappropriation and mishandling of prize money, discretion and confidentiality are of utmost importance.

Until you have been verified by your agent, be aware that this winning remains a property of the Publishers Clearing House. Hence we recommend you keep your winnings confidential until the disbursement of your prize. Congratulations once more.

Andrew Smith (C.E.O.),

Andrew Smith

NOTE: After your winning check has been delivered to you, you are required to sign and detach this portion and hand it to the courier company officer who delivered your winning check for \$50,000 (USD)

Appendix B

Please answer the following questions about the letter you have just read.

After reading this letter, how likely or unlikely are you to contact the activation number?

- Very Likely (1)
- Likely (2)
- Somewhat Likely (3)
- Neither Likely nor Unlikely (4)
- Somewhat Unlikely (5)
- Unlikely (6)
- Very Unlikely (7)
- No opinion or undecided (8)

In your opinion, what could be the benefits of responding to this letter?

In your opinion, what could be the risks to responding to this letter?

Please answer the following questions about the possible benefits and risks to responding to the letter you read.

How beneficial do you think the offer in this letter is?

- Very Low (1)
- (2)
- (3)
- Neither Low nor High (4)
- (5)
- (6)
- Very High (7)

How risky do you think the offer in this letter is?

- Very Low (1)
- (2)
- (3)
- Neither Low nor High (4)
- (5)
- (6)
- Very High (7)

Why do you perceive the benefit in responding to this letter to be low or high?

Why do you perceive the risk in responding to this letter to be low or high?

How good are you at working with fractions?

- Not at all good (1)
- Kind of good (2)
- Reasonably good (3)
- Good (4)
- Very good (5)
- Extremely good (6)

How good are you at working with percentages?

- Not at all good (1)
- Kind of good (2)
- Reasonably good (3)
- Good (4)
- Very good (5)
- Extremely good (6)

How good are you at calculating a 15% tip?

- Not at all good (1)
- Kind of good (2)
- Reasonably good (3)
- Good (4)
- Very good (5)
- Extremely good (6)

When reading the newspaper, how helpful do you find tables and graphs that are parts of a story?

- Not at all helpful (1)
- Kind of helpful (2)
- Reasonably helpful (3)
- Helpful (4)
- Very Helpful (5)
- Extremely Helpful (6)

When people tell you the chance of something happening, do you prefer that they use words ("it rarely happens") or numbers ("there is a 1% chance")?

- Always prefer words (1)
- Sometimes prefer words (2)
- Rarely prefer words (3)
- Rarely prefer numbers (4)
- Sometimes prefer numbers (5)
- Always prefer numbers (6)

When you hear a weather forecast, do you prefer predictions using percentages (e.g., "there will be a 20% chance of rain today") or predictions using only words (e.g., "there is a small chance of rain today")?

- Always prefer percentages (1)
- Sometimes prefer percentages (2)
- Rarely prefer percentages (3)
- Rarely prefer words (4)
- Sometimes prefer words (5)
- Always prefer words (6)

How often do you find numerical information to be useful?

- Never (1)
- Sometimes (2)
- Rarely (3)
- Slightly Often (4)
- Often (5)
- Very Often (6)

How do you see yourself? Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?

- Very willing to take risks (1)
- (2)
- (3)
- In the middle (4)
- (5)
- (6)
- Not at all willing to take risks (7)

At the end of the month of my paycheck I am likely to still have plenty of money in my account?

- Very Likely (1)
- Likely (2)
- Somewhat Likely (3)
- Neither Likely nor Unlikely (4)
- Somewhat Unlikely (5)
- Unlikely (6)
- Very Unlikely (7)

Now, thinking about your life...

	Rarely (1)	Some of the time (2)	Often (3)
How often do you feel that lack of companionship? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel left out? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel isolated from others? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If 3 elves can wrap 3 toys in 1 hour, how many elves are needed to wrap 6 toys in 2 hours?

- 2 (1)
- 3 (2)
- 4 (3)
- 6 (4)

Jerry received both the 15th highest and the 15th lowest mark in the class. How many students are there in the class?

- 15 (1)
- 27 (2)
- 29 (3)
- 30 (4)

In an athletics team tall members are three times as likely to win a medal than short members.

This year the team has won 60 medals so far. How many of these have been won by short athletes?

- 10 (1)
- 15 (2)
- 20 (3)
- 25 (4)

What is your age?

What is your gender?

- Male (1)
- Female (2)
- I do not identify with the options given (3)

What is your annual income?

- \$0 - \$24,999 (1)
- \$25,000 - \$49,999 (2)
- \$50,000 - \$74,999 (3)
- \$75,000 - \$124,999 (4)
- \$125,000 - \$174,999 (5)
- \$175,000+ (6)

What is your employment status?

- Full-time (1)
- Part-time (2)
- Unemployed (3)
- Student (4)

What is your education?

- Do not have high school degree/GED (1)
- High school degree/GED (2)
- Associate's degree (3)
- Bachelor's degree (4)
- Master's degree (5)
- Professional degree (MD, JD, etc.) (6)
- Ph.D (7)

What is your marital status?

- Single (4)
- Married (1)
- Divorced (2)
- Widowed (3)

What is your ethnicity? Please check all that apply.

- White (1)
- Hispanic or Latino (2)
- Black or African American (3)
- Native American or American Indian (4)
- Asian / Pacific Islander (5)
- Other (please specify) (6) _____

DEBRIEFING:

Thank you for participating in our study! We want to remind participants that while some marketing solicitations represent legitimate opportunities, others do not and are simply tools for scammers to get contact information from you.

Responding to deceptive marketing solicitations may result in being targeted for other solicitations and scams in the future. If you would like to find out more about mass marketing scams or have been a victim please visit the Federal Trade Commissions Webpage. This site has general information, reporting instructions and resources for scam victims.

<https://www.ftccomplaintassistant.gov/#crnt&panel11>