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PERSUASIVENESS OF ONLINE PRODUCT RECOMMENDATIONS: THE ROLES OF WARRANTING THEORY AND CREDIBILITY

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ABSTRACT

When people make decisions, they want to know if the information they obtain online comes from authentic sources. Online judgments of a communicator's authenticity involve making evaluations on at least three criteria: the warranting value of information, the communicator's credibility, and the credibility of those who provide information about the communicator. This study articulates two theoretically novel aspects of warranting theory: meta-warranting (communicators' tendency to be more truthful when an observer can corroborate their claims than when observers cannot) and meta-meta-warranting (an observer's perception that a communicator is truthful when the communicator provides the observer with the potential to corroborate information). Through an experiment set in a crowdfunding context, support was found for the meta-meta-warranting prediction that if observers are afforded the potential to corroborate information about a target communicator, they believe that the communicator is more authentic than if they are not afforded the potential to corroborate.

Keywords: authenticity, warranting theory, credibility, crowdfunding, online social networks

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CHAPTER ONE: INTRODUCTION

Verifying the truth of information when one is online requires a different approach from when one is communicating via more traditional means. From an interpersonal communication perspective, individuals in face-to-face (FtF) interactions may analyze nonverbal cues like kinesics, oculesics, and vocalics—in addition to message content and language style—to assess whether another person is telling the truth or lying (see for review Carlson, George, Burgoon, Adkins, & White, 2004). In computer-mediated communication (CMC), the absence of nonverbal cues, which are often considered useful in detecting deception, impairs an individual's confidence to detect deception, in comparison to FtF conversations (Hancock, Woodworth, & Goorha, 2010).

One aspect of this struggle for verification is faced by online businesses, who must convince consumers they are honest merchants. In a traditional offline sales context, consumers can talk FtF with salespeople, physically inspect products they are thinking of buying, and make payment and collect the purchased products at the same time. When online, however, consumers cannot do these things. Instead, they have to make decisions while being deprived of nonverbal cues that they can use to judge whether a seller is truthful or deceptive about the quality and condition of products, whether a seller looks like he or she will deliver a product, and other e-commerce related concerns.

To circumvent the cue limitations of CMC, many websites have incorporated ways to help users evaluate whether the information provided by others is likely to be true or false. For example, e-commerce sites like Amazon and eBay allow people who have purchased products to leave comments and rate sellers. Crowdfunding sites like Indiegogo and Kickstarter afford fund-raisers with the option of providing their social

media accounts (e.g., Facebook and LinkedIn), presumably for public scrutiny. Online dating apps like Tinder are similarly connected to users' social media accounts, allowing users to see the number of mutual online friends they share with their potential dates. These affordances help users authenticate various sources of information, with communicators appearing more authentic when they are verifiable than when they are unverifiable.

The authenticity of an online information source depends on three factors: the warranting value of the information the source provides, the source's own credibility, and the credibility of others who comment on the source. Authenticity is not an entirely new concept. Rather, this study uses it as an umbrella term to describe some of what scholars have been studying about warranting theory and credibility, such as whether communicators are who they claim to be (e.g., DeAndrea, Tong, & Lim, 2017) and the real identities of communicators (e.g., Metzger, Flanagin, & Medders, 2010), to facilitate the integration of warranting theory and credibility. This study posits that authenticity has three dimensions: reality, sincerity, and reliability. Reality is the perception that an individual exists in actuality, as opposed to being a fictitious entity that exists only online. Sincerity is the perception that an individual is genuine, and free of deceit or hypocrisy. Reliability is the perception that an individual can be believed and can be relied on when making decisions.

Warranting theory (Walther & Parks, 2002) posits that warranting value is the extent to which information is perceived to be immune to manipulation by the individual it refers to. The theory argues that information with greater warranting value (perceived to be more immune to manipulation) is considered more reliable, while information with lesser warranting value (perceived to be less immune to manipulation) is considered more dubious.

Communicator credibility is the "extent to which a communicator is perceived to be a source of valid assertions [and] the degree of confidence in the communicator's intent to communicate the assertions he considers most valid" (Hovland, Janis, & Kelley, 1953, p. 21). In other words, communicator credibility is the extent to which a communicator knows the truth and is likely to tell the truth. It is a concept often used in persuasion research, based on the premise that highly credible sources provide information that contains more valid and more trustworthy assertions than sources low in credibility (see for review O'Keefe, 2016).

Both warranting value and communicator credibility function as heuristics that indicate to an individual the extent to which he or she should rely on certain information to make evaluations. In CMC environments, they compensate for the absent nonverbal cues (which exist in FtF conversations), working together to assist individuals in their attempts to evaluate the degree to which a communicator is authentic, such that information from a more authentic communicator is more influential than information from a less authentic communicator. As warranting value and credibility are based on one's judgments, the authenticity of a communicator is a perception—and not an absolutely authoritative indicator—of his or her veracity.

Insofar as individuals aim to evaluate the authenticity of a communicator, this research conceptually integrates warranting theory and credibility under the same overall framework as two complementary heuristics that guide individuals to a judgment of a communicator's authenticity. This research also defines two new theoretical mechanisms, meta-warranting (a communicator's tendency to be more truthful when he or she is aware that observers can corroborate a claim) and meta-meta-warranting (observers' perception that a communicator is likely to be more truthful when the communicator provides observers means to corroborate a claim), as

part of warranting theory. Lastly, it tests meta-meta-warranting by attempting to find out how the potential to corroborate information mediates the relationship between access to a communicator's online social networks and the communicator's perceived authenticity.

CHAPTER TWO: WARRANTING THEORY

Warranting Value of Information

Walther and Parks (2002) originally conceptualized a warrant as information that helps to establish a connection between an individual's online self and his or her offline self. They contend that certain types of information, such as one's real name, one's address, or statements made by other people about the individual, may potentially serve as warrants (also known as warranting cues) linking one's online identity to one's corporeal self. However, for information to have greater warranting value, it needs to be verifiable (Walther & Parks, 2002). For example, the work experience that an individual includes in his or her online resume may not have much warranting value as he or she can exaggerate the extent of his or her contributions to an employer. However, if the same information can be found on the employer's website, and appears not to have been modified by the person it describes, then the information seems verified, and therefore has greater warranting value.

Warranting theory has since expanded beyond its original scope of online self-presentations to describe the immunity to manipulation of online information in general (see for review DeAndrea, 2014). This study adopts this expanded scope of warranting theory, which does not limit warranting theory to information that refers strictly to an individual (see DeAndrea, Van Der Heide, Vendemia, & Vang, 2015). Therefore, the definition of warranting value that was provided earlier has to be revised: It is the extent to which information is perceived to be immune to manipulation by the individual who may benefit from its manipulation.

Influence of Information Source on Warranting Value

Several studies have examined various ways an information source influences perceptions about a message's immunity to manipulation. Messages can be

categorized into three groups according to their origins: self-claims, other-generated information, and system-generated information. Self-claims are what an individual asserts about himself or herself, and are considered to have little warranting value as they are easily manipulated by the referent individual (Walther & Parks, 2002). By comparing self-claims with information from alternative sources (i.e., other-generated and system-generated information), observers should be able to evaluate the degree to which the communicator is authentic.

Other-generated information refers to claims about an individual that are made by third-parties, or anyone other than the subject of the claim. Ostensibly, other-generated information is more immune to the subject's manipulation than are self-claims. Research has shown that other-generated information that appears as comments on social media shape opinions about the content to which they refer (Hong, Tandoc, Kim, Kim, & Wise, 2012; Walther, DeAndrea, Kim, & Anthony, 2010). Other-generated information has also been found to be more influential than claims made by an individual about himself or herself in influencing observers' perceptions (Walther, Van Der Heide, Hamel, & Shulman, 2009).

System-generated information refers to aggregates calculated by computers such as the number of *likes* on Facebook, the number of votes as part of online reviews, and the number of followers one has on social media (Walther & Jang, 2012). As these system-generated aggregates are perceived to be relatively more immune to manipulation, they are also perceived to have greater warranting value than other information less immune to manipulation. Research shows that system-generated information, in the form of a numerical indicator showing one's number of friends on social media, affects perceptions of popularity and extraversion such that individuals with more friends are judged as more popular and extraverted than individuals with

fewer friends (Antheunis & Schouten, 2011; Utz, 2010). Beyond a socially acceptable apex, however, individuals with more friends are seen to be less socially attractive (Tong, Van Der Heide, Langwell, & Walther, 2008). System-generated information, in the form of reputation scores in an online auction site, has also been found to influence e-commerce activity: Sellers with higher reputation scores received more bids on their items and a higher final bid price than those with lower reputation scores (Resnick, Zeckhauser, Swanson, & Lockwood, 2006; Van Der Heide, Johnson, & Vang, 2013). A baseline prediction of warranting theory is this:

H1: Other-generated comments have greater warranting value than self-claims.

Influence of Information Control on Warranting Value

Research has found three conceptually distinct mechanisms that influence the warranting value of online claims: modification control, dissemination control, and source obfuscation (see for review DeAndrea & Carpenter, 2016). These mechanisms are methods of information control that shape people's perceptions as to whether certain information has greater or lesser warranting value.

Modification control is the extent to which a communicator has edited information that describes or pertains to him or her (DeAndrea & Carpenter, 2016). Information about an individual has lesser warranting value when the information seems to have been modified by the individual in question. DeAndrea and Carpenter (2016) give the example of a wiki—Wikipedia, or any community-based collaborative site that allows users to contribute and edit information—as a medium that grants users greater modification control and therefore has lesser warranting value than other media. In an experiment, participants gave less favorable ratings to an individual after viewing an edited forum post about that individual than after viewing an unedited forum post about that individual (DeAndrea, Van Der Heide, & Easley, 2015).

Dissemination control is the extent to which a communicator has controlled the publishing of information pertaining to himself or herself (DeAndrea & Carpenter, 2016). DeAndrea (2012) argued that owners of social media accounts have dissemination control to the extent that they can delete others' comments on their profiles. Therefore, in social media, the warranting value of other-generated information is limited by whether a profile owner is perceived to have tacitly approved the comments on his or her profile. Most social media sites allow profile owners to delete comments posted by others. When a profile owner replies to an other-generated comment instead of deleting it, people tend to perceive that the profile owner has tacitly approved the comment, thereby decreasing its warranting value (DeAndrea, 2012). DeAndrea, Van Der Heide, Vendemia, et al. (2015) also found that a business owner is judged to have less dissemination control over reviews submitted by customers to a review platform (e.g., Yelp, Rotten Tomatoes) than reviews selected by the business owner and posted on the website the owner created for his or her business. As a consequence, people placed greater trust in reviews on a review platform than reviews on a proprietary website. In another study involving a fictitious job search website, job seekers who could delete reviews that others wrote about them were rated as less employable than those who could not (DeAndrea et al., 2017).

Source obfuscation is the extent to which a communicator is perceived to be truly who he or she claims to be (DeAndrea & Carpenter, 2016). Information provided by a communicator has greater warranting value when the communicator is perceived to be genuine in presenting his or her identity, but has lesser warranting value when he or she is perceived to be masquerading. When fake reviewers were suspected to be the source of online reviews, individuals rated the reviewed entity less favorably and were less likely to recommend it to others (DeAndrea, Van Der Heide, Vendemia, et al.,

2015). Similarly, the verisimilitude of reviewers who wrote positively about an individual influenced observers' perceptions of that individual: Observers perceived the discussed individual more favorably when reviewers were verified than when reviewers were unverified (DeAndrea et al., 2017).

In summary, research in modification control, dissemination control, and source obfuscation implies that when other-generated information seems manipulated (e.g., fake reviews, deleted comments), it has little warranting value.

The three mechanisms of modification control, dissemination control, and source obfuscation may apply differently depending on whether activities are conducted through an individual's own website or an external third-party platform (e.g., e-commerce sites, crowdfunding portals, review databases). On an individual's website, he or she has the ability to edit content (modification control); put content up, take it down, or restrict access to it (dissemination control); or hide his or her true identity (source obfuscation). However, an individual should have less control over modification and dissemination of other-generated information on an external third-party platform, which he or she does not own. For instance, a seller on crowdfunding platform Indiegogo is not able to edit, delete, or prevent access to comments that buyers wrote about him or her. Yet, buyers and reviewers may exercise source obfuscation (i.e., pretend to be who they are not) on Indiegogo, given the very real problem of fake reviews (Rubin, 2016; see also Malbon, 2013). In the present study, warranting theory is examined in the context of crowdfunding, where a seller promotes a product he is developing (see Method section for details). Therefore, self-claims are information provided by a seller, and other-generated comments are comments left by reviewers who are unaffiliated to the seller.

H2: Other-generated comments are perceived as less subject to (a) modification control and (b) dissemination control than are self-claims.

CHAPTER THREE: ADVANCING WARRANTING THEORY

Meta-Warranting

A communicator's knowledge that observers can corroborate a self-claim through access to the opinions of others may limit the communicator's propensity to misrepresent and lie (Walther & Parks, 2002). This can be described as a meta-warranting effect, whereby a communicator reduces the amount of information manipulation because he or she perceives that others have the potential to corroborate. In other words, communicators' awareness of warranting causes them to be more truthful, to the extent that they know the truth.

Unlike general warranting, which provides a principle on how observers assess the authenticity of information sources, meta-warranting suggests that communicators themselves moderate the truthfulness of their claims depending on the extent to which observers have the potential to corroborate those claims via other information sources. The potential for observers to be able to corroborate may be sufficient to deter an individual from freely lying or selectively self-presenting, without the need for anyone to make actual corroborative checks on the information provided.

A method of potential corroboration, as suggested by Walther and Parks (2002), involves having access to a communicator's social network. Walther and Parks (2002) proposed that "being aware of and being able to access a partner's social network should limit the degree of warrantlessness in an on-line relationship" (p. 553). One may have access to a communicator's offline social network because of mutual acquaintances. When communicators perceive that mutual acquaintances have the potential to corroborate with each other to assess their own authenticity, they may be inhibited from manipulating information. In this case, potential corroboration may take place online or offline.

However, potential corroboration may also take place solely online, when one has access to a communicator's online social networks, i.e., a communicator's social media profiles and the uncensored comments posted on them by his or her connections. Communicators perceive that observers who have access to their online social networks can corroborate their claims via their own connections, and communicators therefore perceive that observers are able to assess how authentic they are. In this regard, access to one's online social network enables comparisons between self-claims and other-generated information. As a result, communicators may be inhibited from committing certain types of deception if they know that the believability of their lies cannot be maintained in the presence of their social connections.

In a study by Toma, Hancock, and Ellison (2008), people who used online dating websites presented themselves using more accurate profile photographs as the number of their offline contacts (i.e., friends and family) who were aware of their online dating profile increased. In line with Walther and Parks' (2002) definition of a warrant as something that links an individual's online self to his or her offline self, Toma et al. (2008) argued that an individual's offline social network can be a warrant if members of the offline social network are aware of the individual's online activity. Although the results of Toma et al.'s (2008) study support warranting theory, the mechanism that drives their results is not perceived immunity to manipulation, which has been the focus of several other studies on warranting theory. Rather, the finding that users of online dating websites constrain their misrepresentations when their offline friends and family are aware of their dating profiles is closer to what meta-warranting describes. That is, communicators misrepresent themselves to a lesser degree when they know that others have the potential to corroborate than when they

know that others do not. In the Toma et al. (2008) study, a communicator's offline contacts can corroborate online information with their personal knowledge of the communicator. Alternatively, third-party observers should also be able to corroborate online information with the communicator's contacts if they have access to the communicator's online social network.

Another study found that people were more likely to lie about their history of work responsibilities in private resumes than in public resumes, and about interests and hobbies in public resumes than in private resumes (Guillory & Hancock, 2012). The authors reasoned that this is because one's work responsibilities, when listed on a public online social network like LinkedIn, can be verified or proven false by one's social connections. Conversely, interests and hobbies are relatively more subjective and less refutable, and therefore make lies relatively difficult to spot, even when publicly online (but see DeAndrea & Walther, 2011). Therefore, when observers have access to mutual acquaintances, individuals are likely to temper exaggerations, especially in relation to verifiable claims.

Meta-Meta-Warranting

The potential to corroborate may also augment observers' perceptions of the authenticity of a communicator if observers believe that communicators are less likely to engage in deception when their claims could easily be verified or disputed. In what can be described as a meta-meta-warranting effect, observers may think that a communicator reduces information manipulation when observers perceive that they themselves have been afforded the potential to corroborate. That is to say, when observers perceive that communicators have provided them the potential to corroborate, communicators seem aware of warranting, and so observers perceive that

communicators are truthful. As a result, observers perceive the communicators to be more authentic.

Because the potential to corroborate (e.g., access to an individual's online social networks) imposes a constraint that may limit misrepresentations and lies through a meta-warranting effect, it subsequently provides warranting cues for perceivers through a meta-meta-warranting effect. DeAndrea (2014) explained:

> Although people largely have the ability to post whatever they want online, viewers may perceive that individuals are constrained in what they post for a variety of reasons. When people are inhibited from writing whatever they like about themselves online, whether due to social pressures or features of a communication system, their self-claims may be perceived as having greater warranting value relative to when such constraints do not exist. (p. 194)

However, a meta-meta-warranting effect may be present without a meta-warranting effect. For a meta-meta-warranting effect to be present, perceivers need only to think that communicators have limited their misrepresentations and lies—communicators do not need to have actually done so.

Observers' access to communicators' online social networks is a means by which observers' potential to corroborate increases the meta-meta-warranting value of the original claim. Walther and Parks (2002) argued that "actors can undertake behaviors that may increase the apparent warrant of their performance for the receiver's benefit, through the presentation of warranting information" (p. 552). Similarly, communicators can attempt to increase how authentic observers perceive them to be by providing observers the means to corroborate, and giving an observer access to their social networks should be one such means. This study is interested in the hitherto untested meta-meta-warranting effect: An observer perceives a

communicator as more authentic because the observer perceives that the information can be corroborated with the communicator's social network contacts.

H3: Communicators are perceived as more authentic when access to a communicator's online social network is provided than when access to a communicator's online social network is not provided.

H4: The potential to corroborate information through a communicator's online social network mediates the relationship between access to online social networks and the communicator's perceived authenticity (specified in H3).

In summary, some clarifications about general warranting, meta-warranting, and meta-meta-warranting may be helpful. General warranting value is the extent to which information is perceived to be immune to manipulation by an individual who benefits from information manipulation. Meta-warranting value is the extent to which communicators perceive that others can corroborate their claims and therefore limit the manipulation of information. Meta-meta-warranting value is the extent to which observers perceive that communicators have limited the manipulation of information in their claims because observers perceive that they themselves can potentially corroborate the claims a communicator made.

Both meta-warranting and meta-meta-warranting directly build on general warranting, as they are assessments of the degree of manipulation of information. However, whereas general warranting and meta-meta-warranting are perceptions by an observer, meta-warranting results from a perception by a communicator. General warranting and meta-meta-warranting are also different: In general warranting, observers assess the degree to which information is perceived to be immune to manipulation and the extent to which a communicator is authentic by actual corroboration of information (e.g., comparing self-claims with other-generated

information). Meta-meta-warranting also leads to a judgment of authenticity but via the *potential* to corroborate information via other sources.

Although meta-warranting and meta-meta-warranting can occur together, their co-occurrence is not a necessary condition. Meta-warranting can take place without meta-meta-warranting: A communicator may genuinely constrain deception because observers have the potential to corroborate, but observers may not necessarily treat the potential to corroborate as an indicator of the communicator's authenticity, or even notice the potential to corroborate at all. Meta-meta-warranting can also take place without meta-warranting: Observers may think that a communicator has constrained deception because the communicator has provided them with the potential to corroborate information, but the potential to corroborate may be nothing more than a false appearance of transparency, in itself an act of deception by the communicator.

CHAPTER FOUR: WARRANTING THEORY AND PRODUCT RECOMMENDATIONS

Warranting Value and Comment Valence

Studies on online influence (e.g., Flanagin, Metzger, Pure, Markov, & Hartsell, 2014; Van Der Heide & Lim, 2016) have shown that other-generated information such as comments and reviews play a role in shaping peoples' perceptions of the entities they refer to. Although comments and reviews have been used to test warranting theory (e.g., Antheunis & Schouten, 2011; DeAndrea, Van Der Heide, Vendemia, et al., 2015), not every study involving comments or reviews is necessarily about warranting theory. Put differently, just because a study shows the influence of other-generated information on peoples' perceptions does not make it a study about warranting theory. For example, other-generated information can have influence through the endorsement (Metzger et al., 2010) or bandwagon heuristic (Sundar, 2008), which predict that as the opinions of a greater number of people converge, the more likely an observer will trust and agree with the collective opinion. With these considerations, before predicting the influence of other-generated information, the present study made a baseline prediction in H1 that other-generated information has greater warranting value than do self-claims, and also attempted to minimize any endorsement/bandwagon effects by having only one other-generated comment that refers to the self-claim (see Method section for details).

If H1 is supported, further investigation into the contents of the self-claim and the other-generated information is appropriate. Parks (2011) argued that one interesting application of warranting theory is when there is a discrepancy between a self-claim and an other-generated comment. In an e-commerce context, this discrepancy could occur in several ways. For instance, a seller could claim that his

product is the best, but an other-generated comment claims that there is a better product available. Alternatively, a seller could confer on himself or herself stellar attributes aimed at inspiring confidence in prospective clients, but an other-generated comment casts doubt on or undermines the seller's self-claims of outstanding attributes.

The present study, which is set in a crowdfunding context, creates discrepancies between a seller's self-claims and a reviewer's other-generated comment through manipulations involving product quality and seller attributes. Specifically, the seller claims that his product is the best and that he is highly qualified, and in one experimental condition, an other-generated comment contradicts the seller by claiming that another product is superior and casts doubt on the seller's identity by encouraging potential buyers to find out more about who the seller is. In another experimental condition, an other-generated comment supports the seller's self-claims. In order for warranting theory to be supported, H1 must be supported (i.e., other-generated comments must have greater warranting value than do self-claims), and there should be a difference in how the product and the seller are perceived depending on the valence of the other generated comment (i.e., whether the other-generated comment supports or contradicts the seller's claims). The Method section elaborates on how the discrepancy between a self-claim and an other-generated comment (or the lack thereof in certain experimental conditions) is crafted in the experimental stimuli.

Hypothesis 5 predicts that there is an effect of comment valence on product quality. Out of several possible dependent variables, product quality was selected as it is the most direct measure of the discrepancy between self-claims and other-generated information, given the context and experimental manipulation of this study (the seller claims his product is the best, but the reviewer says a better product exists). Intention

to purchase the product is another possible dependent variable, but it was ultimately rejected as it may involve predictors unrelated to comment valence. For example, interest in photography would influence intention to purchase if the product is a camera, as would ability to play the guitar if the product is a guitar. Although random assignment to conditions should nullify the effect of extraneous predictors, it is better to use the dependent variable that makes fewer assumptions.

> H5: Product quality is perceived to be better when reviewers' comments support sellers' claims than when reviewers' comments contradict sellers' claims.

Other-generated comments may not only influence what they describe, but they may also influence the claimant. Hypothesis 6 predicts that there is an effect of comment valence on how potential buyers of a product perceive the authenticity of its seller.

> H6: Sellers seem more authentic when reviewers' comments support their claims than when reviewers' comments contradict their claims.

CHAPTER FIVE: CREDIBILITY

Communicator Credibility

Communicator credibility refers to the extent to which a message sender can be believed to tell the truth. The more credible a communicator is, the more accurate and truthful his or her claims seem. Since the early days of persuasion and credibility research, researchers have identified many overlapping dimensions of communicator credibility such as authoritativeness, character, safety, qualification, dynamism, perceived ability, trustworthiness, expertness, objectivity, and so on (Applbaum & Anatol, 1972; Berlo, Lemert, & Mertz, 1969; Hu & Sundar, 2010; J. C. McCroskey & Teven, 1999). These many dimensions can be re-classified into two broad categories: expertise and trustworthiness (O'Keefe, 2016). Expertise is about knowing what the truth is—having the ability to tell apart truth from falsehood (O'Keefe, 2016). Hence, factors like educational or professional qualification, perceived ability, expertness, and experience fall under expertise. Trustworthiness is the likelihood that a communicator will tell the truth (O'Keefe, 2016), and includes factors like character, safety, objectivity, and honesty.

A communicator's credibility influences perceptions and attitudes about the contents of his or her message. As communicator credibility is independent of message content, identical messages from different sources are perceived differently, depending on how much credibility a communicator is deemed to possess (Hovland et al., 1953). Generally, messages from high credibility communicators seem more justified, and are more persuasive in changing people's opinions than low credibility communicators, especially in the short term (Hovland & Weiss, 1951). Hovland et al. (1953) argue that there are two possible reasons why a low credibility communicator is not persuasive. First, message receivers do not spend cognitive efforts to pay

attention to or understand messages because of their negative attitudes toward a low credibility communicator. Second, message receivers do not accept or believe messages because of their negative attitudes toward a low credibility communicator. The opposite should apply for why a high credibility communicator is persuasive.

When credibility is broken down into expertise and trustworthiness, a high rating on one dimension can be attenuated or reversed by a low rating on the other dimension. For example, in a study on product reviews, Willemsen, Neijens, and Bronner (2012) found that self-proclaimed experts were perceived to be more expert than laypersons, but untrustworthy because they were also perceived to have intentions to persuade. However, individuals who were rated as experts by others were perceived to be more expert than laypersons, and more trustworthy than self-proclaimed experts—rated experts' trustworthiness is not adversely influenced by self-promotion for potentially selfish reasons.

Credibility of a Communicator Influences His/Her Own Authenticity

In addition to warranting theory, two aspects of credibility influence the extent to which a communicator is perceived as authentic. The first of these two aspects deal with the credibility of the communicator. In warranting theory, the authenticity of a communicator is assessed through comparisons between the communicator's self-claims and other sources of information with greater warranting value (e.g., other- and system-generated information). Communicator credibility provides a different but complementary perspective: The authenticity of a communicator can also be assessed using various credibility heuristics (see for review Sundar, 2008). For example, going by the reputation heuristic (Metzger et al., 2010), if a communicator has a good reputation, he or she should be perceived as more authentic.

Credibility and warranting theory can work together to shape evaluations of a communicator's authenticity. Previous studies have explored the combined effects of the expertise dimension of credibility and warranting value on people's judgments. For example, Willemsen et al.'s (2012) findings can also be viewed from a warranting theory perspective: Rated experts are more trustworthy than self-proclaimed experts because a system-generated indicator of expertise that is created by an agglomeration of others' votes has greater warranting value than self-claims. In another study, Walther, Jang, and Edwards (in press) found a primary effect of warranting value and a secondary effect of credibility on perceived message quality: People rely on a system-aggregated rating score to judge the quality of advice (high scores indicate better advice than low scores), but when the scores are neutral, people turned to self-proclaimed experts over non-experts to make judgments (self-proclaimed experts supposedly give better advice than inexperienced laypeople).

Credibility of Commenters Influence Authenticity of a Communicator

The second aspect of credibility that influences a communicator's authenticity is the credibility of the people who comment on the communicator's claims. According to warranting theory, other-generated information has greater warranting value than do self-claims because the former is more immune to manipulation than the latter. Some research in warranting theory (e.g., Walther et al., 2009; Utz, 2010) has assumed that because other-generated information has greater warranting value than self-claims, other-generated information has greater influence than self-claims when individuals make evaluations and decisions. However, there are situations in which despite the greater warranting value of other-generated comments than self-claims, individuals may not rely on other-generated comments to make evaluations and decisions. This can happen when there is some means of information control (e.g.,

modification control, dissemination control, source obfuscation, etc.) that facilitate deception (DeAndrea & Carpenter, 2016). This can also happen when of the source of other-generated comments (i.e., a commenter) is not trustworthy. A study by DeAndrea and Vendemia (2016) found that when reviewers of a drug disclosed their affiliation to the organization that funded the research on the drug, people trusted the affiliated reviewers' social media praises (i.e., comments) of the drug less than the praises of unaffiliated reviewers. In addition, the drug research organization was rated as less trustworthy when affiliated reviewers praised the drug than when unaffiliated reviewers praised the drug. In the DeAndrea and Vendemia (2016) study, the comments from affiliated reviewers were less trustworthy than those from unaffiliated reviewers, and therefore the praises of affiliated reviewers had less warranting value than the praises of unaffiliated reviewers.

Building on the research of DeAndrea and Vendemia (2016), this study examines the effect of reviewer trustworthiness on perceptions of a reviewed product using both praises and critical comments. Instead of affiliation, this study uses self-interest and persuasive intent to induce perceptions of trustworthiness. Trustworthiness depends on, among other factors, the degree to which one is objective and free from competing self-interests (O'Keefe, 2016). The pursuit of self-interest is an accepted and expected norm in human behavior (Miller, 1999), and in the e-commerce setting of the present study, sellers can be reasonably expected to be self-interested to the extent that they desire to sell their products. However, acting in self-interest can hurt one's trustworthiness. In Willemsen et al.'s (2012) study, an overt expression of an apparent pursuit of self-interest (claiming to be an expert) decreases one's trustworthiness. In another study by Straughan and Lynn (2002), salesmen paid on commission were seen to be less honest than salesmen paid strictly on a fixed salary,

as the former group has greater self-interest to complete more sales than the latter group. The reverse also applies: Going against apparent self-interest increases one's trustworthiness. For example, a politician is perceived to be more trustworthy when he or she praises an adversary instead of attacking the adversary (Combs & Keller, 2010).

Another factor in e-commerce that affects the credibility of sellers is their persuasive intent. Although research in business and advertising have studied persuasive intent in numerous ways, including models with moderators (e.g., Reinhard, Messner, & Sporer, 2006) and mediators (e.g., van Noort, Antheunis, & van Reijmersdal, 2012), the most direct models exploring persuasive intent and credibility show that they have an inverse relationship to each other. In an advertising context, ads that were perceived as excessively manipulative were also perceived to be lower in ad credibility (Cotte, Coulter, & Moore, 2005). More broadly and across different media channels, commercial information was perceived to be less credible than news, entertainment, and reference information (Flanagin & Metzger, 2000). Research evidence suggests that sellers should seem less credible when they are excessively self-interested or blatant in their persuasive intents than when they are not. The Method section describes how self-interest and persuasive intent were manipulated in the study design to influence the way participants perceived the credibility of a fictitious seller.

Research in credibility indicates that a trustworthy communicator is more influential than an untrustworthy communicator (e.g., DeAndrea & Vendemia, 2016). Combining this postulate with the prediction from warranting theory that other-generated information is more influential than self-claims, H7 and H8 predict that the effect of comment valence is magnified when the reviewer is trustworthy, but not when the reviewer is untrustworthy.

H7: Reviewer trustworthiness moderates the influence of comment valence such that the quality of a product is perceived as best when a trustworthy reviewer supports its seller, followed by when an untrustworthy reviewer supports its seller, then followed by when an untrustworthy reviewer contradicts its seller, and worst when a trustworthy reviewer contradicts its seller.

H8: Reviewer trustworthiness moderates the influence of comment valence such that sellers seem most authentic when a trustworthy reviewer supports them, followed by when an untrustworthy reviewer supports them, then followed by when an untrustworthy reviewer contradicts them, and are least authentic when a trustworthy reviewer contradicts them.

Hypothesis 9 builds on H8 to reintroduce a previously discussed concept, access to social networks, and it is explained in more concrete terms in the Results section.

H9: Reviewer trustworthiness moderates the influence of comment valence (as specified in H8) and interacts with access to social networks (as specified in H3b) in an additive manner on perceptions of sellers' authenticity.

CHAPTER SIX: METHOD

Method

An experiment involving a fictitious crowdfunding campaign was designed to test the hypotheses. On the fictitious crowdfunding website, a seller is trying to find financial support for a new 360-degree camera (named the OmniSnap) he is developing. Participants saw a page that contained the seller's claim that his product is the best 360-degree camera for outdoor adventurists available. The experiment had four factors that varied according to experimental condition: social network access, comment valence, reviewer trustworthiness, and information source. For social network access, participants either saw links providing access to the seller's online social networks (namely, Facebook, Twitter, and LinkedIn), or they did not see any links. For comment valence, participants saw one of three conditions: one comment that supports the seller's claims, one comment that contradicts the seller's claims, or no comment. For reviewer trustworthiness, participants who saw a comment saw that it was written by either a trustworthy reviewer or an untrustworthy reviewer. As participants who did not see a comment did not see a reviewer, comment valence and reviewer trustworthiness were not completely crossed. For information source, all participants—except those who did not see a comment—were exposed to two sources of information: the seller and the reviewer. Participants who did not see a comment saw only one source of information: the seller. Expressed in the terms commonly used in warranting theory research, the seller is the source of self-claims, and the reviewer is the source of an other-generated comment. Social network access, comment valence, and reviewer trustworthiness are between-subjects factors, while information source is a within-subjects factor.

In summary, participants in this experiment were exposed to one of ten possible conditions. The ten conditions are as follows: (1) No social network access, trustworthy reviewer, supportive comment, (2) no social network access, trustworthy reviewer, contradictory comment, (3) no social network access, untrustworthy reviewer, supportive comment, (4) no social network access, untrustworthy reviewer, contradictory comment, (5) no social network access, no reviewer, no comment, (6) access to social network, trustworthy reviewer, supportive comment, (7) access to social network, trustworthy reviewer, contradictory comment, (8) access to social network, untrustworthy reviewer, supportive comment, (9) access to social network, untrustworthy reviewer, contradictory comment, and (10) access to social network, no reviewer, no comment. As information source is a within-subjects factor, all conditions—except conditions 5 and 10—contained both the seller and the reviewer as sources of information. See Figure 1 for a diagrammatic representation of all experimental conditions, and Appendix A for the full set of stimulus materials.

Crowdfunding was chosen as the context to test warranting theory as little information can typically be found about a seller (who tends to be starting a new entrepreneurial venture) and a product (which is typically in concept development or prototype stage when a crowdfunding campaign is launched) from sources other than the crowdfunding page. Crowdfunding contains some risk, as the product may fail to be manufactured or is manufactured but performs worse than promised, causing backers lose their money completely or pay for an underwhelming product, respectively. Potential crowdfunding buyers may therefore have to rely on warranting cues (e.g., other-generated information, access to seller's social network) and make credibility assessments to judge the authenticity of a seller.

Sample

Participants were recruited from an online panel managed by Qualtrics, a survey/questionnaire research company. Participants were recruited from a pool of U.S. respondents, and had to be at least 18 years old. After eliminating participants who failed manipulation checks or attention checks, a total of 279 participants remained. Participants' ages ranged from 18 to 82 years old (M = 49.8, SD = 15.7). There were more female participants (63.8%) than male participants (35.8%) or participants with other sex classifications (0.4%). Most of the participants identified as White (73.8%), followed by Black (10.4%), Hispanic/Latino (6.5%), Asian (4.7%), American Indian/Alaskan Native (1.8%), and Pacific Islander (0.4%). A further 2.5% of participants placed themselves into other ethnic categories.

Procedure

The entire experiment was conducted online. Participants joined by clicking on a link provided by Qualtrics that took them to the experiment webpage. There, participants had to first indicate consent, following which they were instructed to read a factsheet on what crowdfunding is about, in case they were unfamiliar with crowdfunding. After reading the factsheet, participants were randomly assigned into one of the ten conditions mentioned earlier, where they saw a fictitious crowdfunding campaign. They then answered a questionnaire related to the crowdfunding campaign.

To enhance the access to social networks manipulation, the factsheet stated that "crowdfunding sites may help to verify a seller by authenticating his or her identity. This information may include a seller's website, email, social media accounts, and social network activity." The portion of the factsheet about verifying/authenticating a seller was adapted from a real crowdfunding website, Indiegogo (About Verifications, n.d., para. 2). Refer to Appendix B for the factsheet.

Experimental Manipulations

Access to an individual's online social networks may increase the warranting value of his or her self-claims if observers think that he or she is less likely to manipulate information when corroboration of information with other people is possible. In the access to social network condition, the seller provides links to his social media accounts (the links were inactive). He invites people to connect with him on Facebook, Twitter, and LinkedIn, where he promises to share updates about his daily life with family and friends. To make the manipulation more salient, the logos of Facebook, Twitter, and LinkedIn were included beside their respective links. To show that corroboration is possible via social media, a Twitter feed with three tweets—one made by a potential buyer, another made by the seller's friend, and the last made by a former buyer—appeared in the stimuli. The tweets were designed to show the people with whom potential buyers may corroborate information about the seller or the product. The tweets were neutral in that they did not contain advocacy or dislike for any product. Therefore, the tweets should not influence the warranting value of the seller's self-claims or the reviewer's comment. In the no social network access condition, no links to any social media account were provided, and the seller did not promise to share any sort of updates.

Comment valence plays an important role in studies that involve warranting theory. Following Parks' (2011) recommendation of studying discrepancies between self-claims and other-generated information when doing research on warranting theory, the seller presents himself and his product in superlative terms, in order to create a large discrepancy between his self-claims and the reviewer's contradictory comment. That is, a larger discrepancy is created if the seller claims that his product is the best and the reviewer claims that another product is better, but a smaller

discrepancy is created if the seller claims that his product is good and the reviewer claims that another product is better. As opposed to humble self-claims (smaller discrepancy), extremely positive self-claims (larger discrepancy) are more likely to result in participants being impressed by the self-claims to the extent that they disregard the other-generated comment, which is the opposite of what warranting theory predicts. Extremely positive self-claims therefore allow a stronger test of warranting theory than humble self-claims because extremely positive self-claims are more likely to work against warranting theory than humble self-claims.

In all conditions, the seller described himself as highly qualified ("after winning an innovation award from MIT, I was a product engineer for an international camera brand") and the quality of his product as second to none ("the world's best 360-degree camera"). In the contradictory comment conditions, the reviewer contradicts the seller by disagreeing with the seller's claim that he is offering the best 360-degree camera for outdoor adventurists and by recommending an alternative 360-degree camera that is better than what the seller offers. The reviewer also gently casts doubt on the seller's self-glorified identity: "So before you back the Omnisnap, why not find out more… about who makes it?" Although casting doubt is not contradictory, participants may attribute malice to the reviewer if the reviewer challenged the seller's identity in a contradictory/more aggressive way, which is not what this study wants to do.

The other experimental conditions, with either a comment that supports the seller's claim or with no comment, serve as contrasts to the contradictory comment condition. The reviewer in the supportive comment condition supports the seller by praising his previous product rollouts and his expertise. The no comment condition permits a test of whether access to a communicator's social networks influences

perceptions of his or her authenticity that is unadulterated by comment valence and reviewer trustworthiness.

Although warranting theory predicts that other-generated comments have greater warranting value than do self-claims, the credibility of the reviewer who makes the other-generated comment should nevertheless influence overall perceptions of a communicator's authenticity. This study manipulated a specific dimension of credibility: trustworthiness. In the trustworthy reviewer condition, the reviewer began his comment with "I'm a professional photographer who regularly contributes to photography-related websites and magazines, advising consumers on their camera purchases." In the untrustworthy reviewer condition, the reviewer began his comment with "I am trained in optics and I have experience in the camera industry. I am honest in everything I say and you can definitely trust me," which should make him appear eager to persuade and therefore less trustworthy (Cotte, Coulter, & Moore, 2005; Flanagin & Metzger, 2000). When the reviewer's comment contradicts the seller's claim, a further trustworthiness manipulation was added. The untrustworthy reviewer who contradicts the seller's claim recommends a supposedly superior alternative 360-degree camera that the reviewer himself is selling, thereby making the reviewer seem less trustworthy as he has a self-interest (see for review O'Keefe, 2016), whereas the trustworthy reviewer who contradicts the seller's claim recommends the same alternative camera without mentioning who is selling it (therefore the reviewer's credibility is not diminished for having a self-interest).

Measures

Attention check. One attention check question was used to identify participants who did not pay attention to the stimuli. The question read: "The seller is selling a mobile phone," and had three options: *true*, *false*, and *I am not sure*. Data

from participants who answered *true* or *I am not sure* (both incorrect answers; n = 123) were excluded from further analysis.

Manipulation check. One question was used to test the success of the social network access manipulation. The question stem read: "The seller provides links for others to access his social media pages," and had two possible answers: either *true* or *false / I do not remember seeing any links to social media pages*. The correct answer depended on the condition to which each participant was assigned, and data from participants who answered incorrectly (n = 290) were excluded from analysis.

One question was used to test the success of the comment valence manipulation. The question stem read: "The reviewer claims that another product is better than the seller's product," and had three possible answers: *true, false,* or *I am not sure*. The correct answer again depended on the condition to which each participant was assigned, and data from participants who answered incorrectly (n = 164) were excluded from analysis. The last possible answer, *I am not sure*, was considered an incorrect answer.

In addition to the participants excluded through the attention check and the two manipulation checks, 18 participants were excluded for providing constant answers. The total number of excluded participants (n = 595) is more than double the remaining sample that was used for analysis (N = 279). One speculative reason for the large number of eliminated participants is that the stimuli were too lengthy and too visually complicated, resulting in the failure of some participants to notice aspects of the stimuli that were essential to the study. The median amount of time that participants in the final sample spent on the entire study is 11.0 minutes.

Several measures were used to ascertain if the credibility manipulations worked, including J. C. McCroskey and Teven's (1999) credibility scale. Their scale

has three subscales, measuring trustworthiness, goodwill, and expertise (which they named competence). All three subscales were used.

This study intended to manipulate only trustworthiness, but greater goodwill may be attributed to the trustworthy reviewer than the untrustworthy reviewer. J. C. McCroskey and Teven (1999) argue that goodwill, which they define as a sense of caring toward another party, is a legitimate and theoretically distinct dimension of credibility, but has been often erroneously absorbed into trustworthiness and expertise (cf. Hovland et al., 1953). Given the theoretical ambiguity, both the trustworthiness and goodwill subscales were used. Expertise was not manipulated, so the reviewer should not be perceived to have varying levels of expertise across experimental conditions. The competence subscale was therefore used to check that there were no significant differences on the expertise dimension.

The trustworthiness subscale comprised six semantic differential word pairs (*dishonest/honest*, *untrustworthy/trustworthy*, *dishonorable/honorable*, *immoral/moral*, *unethical/ethical*, *phoney/genuine*), Cronbach's $\alpha = .97$. The goodwill subscale consisted of six semantic differential word pairs (*doesn't care about me/cares about me, doesn't have my interests at heart/has my interests at heart, self-centered/not self-centered, unconcerned with me/concerned with me, insensitive/sensitive, not understanding/understanding*), $\alpha = .94$. The competence subscale, which measures expertise, consisted of six semantic differential word pairs (*unintelligent/intelligent, untrained/trained, inexpert/expert, uninformed/informed, incompetent/competent, stupid/bright*), $\alpha = .93$.

To measure homophily,[1] seven items from an attitude homophily scale by L. L. McCroskey, McCroskey, and Richmond (2006) were used. The seven items are: "The reviewer thinks like me," "The reviewer shares my values," "The reviewer is like me," "The reviewer is similar to me," "The reviewer behaves like me," "The reviewer has thoughts and ideas that are similar to mine," and "The reviewer has a lot in common with me." They were measured on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*), $\alpha = .98$.

Warranting value. DeAndrea and Carpenter's (2016) general warranting value scale was used to measure warranting value. The question stem to measure the warranting value of other-generated comments read: "Indicate the extent to which you agree/disagree with the following statements, which are about the comments written by the reviewer." The measure comprised four items on a 7-point scale from *strongly disagree* to *strongly agree*. The items were: "The seller manipulated the comments that appeared on the site about his product," "The seller influenced what comments appeared on the site about his product," "The seller controlled the comments appearing on the site about his product," and "The seller shaped the comments about his product appearing on the site," $\alpha = .91$.

The question stem to measure the warranting value of the seller's self-claims read: "Indicate the extent to which you agree/disagree with the following statements, which are about the descriptions written by the seller himself." The items, also

[1] In the confirmation report, manipulating homophily was suggested as one way to manipulate trustworthiness. A pretest showed that the proposed trustworthiness manipulation failed, and homophily was not a consideration when creating the final trustworthiness manipulation. Nevertheless, homophily was measured and tested in the final manipulations.

measured on a 7-point scale from *strongly disagree* to *strongly agree*, were: "The seller manipulated the descriptions that appeared on the site about his product," "The seller influenced what descriptions appeared on the site about his product," "The seller controlled the descriptions appearing on the site about his product," and "The seller shaped the descriptions about his product appearing on the site," $\alpha = .86$.

Modification control. DeAndrea and Carpenter's (2016) modification control scale was used to measure whether content is perceived to have been edited. The measure comprised four items on a 7-point scale from *strongly disagree* to *strongly agree*. Items that measured the modification control of other-generated comments were: "The seller edited what was written in the comments about his product," "The seller changed the content of the comments," "The seller wrote some of the comments about his product," and "The seller changed what the reviewer commented about his product," $\alpha = .96$. The question stem explicitly told participants that the comments were written by the reviewer.

Items that measured the modification control of the seller's self-claims were: "The seller edited what was written in the descriptions about his product," "The seller changed the content of the product descriptions," "The seller wrote some of the descriptions about his product," and "The seller changed what he wrote in the descriptions about his product," $\alpha = .84$. The question stem explicitly told participants that the descriptions were written by the seller.

Dissemination control. DeAndrea and Carpenter's (2016) dissemination control scale was used to measure whether the dissemination of content was perceived to have been controlled. The measure comprised four items on a 7-point scale from *strongly disagree* to *strongly agree*. Items that measured the dissemination control of other-generated comments were: "The seller controlled what comments appeared on

the site," "Only comments approved by the seller appeared on the site," "The seller picked what comments were presented on the site," and "The seller made sure viewers only saw what comments he wanted them to see," α = .97. The question stem explicitly told participants that the comments were written by the reviewer.

Items that measured the dissemination control of the seller's self-claims were: "The seller controlled what product descriptions appeared on the site," "Only product descriptions approved by the seller appeared on the site," "The seller picked what product descriptions were presented on the site," and "The seller made sure viewers only saw what product descriptions he wanted them to see," α = .96. The question stem explicitly told participants that the descriptions were written by the seller.

Source obfuscation. DeAndrea and Carpenter's (2016) source obfuscation scale was used to measure whether sources are perceived to be truly who they claim to be. The measure comprised four items on a 7-point scale from *very unlikely* to *very likely*. Items that measured the source obfuscation of other-generated comments are: "The reviewer who commented is hiding who he truly is," "The reviewer who commented is not really who he pretends to be," "The reviewer who commented is really who he appears to be," and "The reviewer who commented is misrepresenting who he really is," α = .87.

Items that measured the source obfuscation of the seller's self-claims were: "The seller is hiding who he truly is," "The seller is not really who he pretends to be," "The seller is really who he appears to be," and "The seller is misrepresenting who he really is," α = .87.

See Appendix C for DeAndrea and Carpenter's (2016) original scale items for warranting value, modification control, dissemination control, and source obfuscation.

Authenticity. Participants were asked to rate the authenticity of the seller. Five original semantic differential word pairs (*inauthentic/authentic, fake/real, unreliable/reliable, insincere/sincere, unbelievable/believable*), rated on a scale from 1 to 7, were created for this study, $\alpha = .93$.

Product quality. Participants were asked to rate the quality of the seller's product. The measure for product quality came from DeAndrea, Van Der Heide, Vendemia, et al. (2015). It consists of five pairs of semantic differential items (*bad/good, unappealing/appealing, low quality/high quality, unexceptional/exceptional, poor/great*) rated on a 7-point scale, $\alpha = .92$.

Potential to corroborate. The scale for potential to corroborate comprised four original items. The question stem read: "A potential buyer can find out what the seller's social media contacts…" The scale had four items: "think about the seller," "feel about the seller," "know about the seller," and "say about the seller." All items are rated from 1 (*strongly disagree*) to 7 (*strongly agree*), $\alpha = .98$.

Demographic information. Participants were asked for their age, sex, and ethnicity.

CHAPTER SEVEN: RESULTS

Results

Manipulation Check

For the factors of social network access and comment valence, participants who incorrectly identified the experimental condition to which they were assigned were excluded from analysis. For reviewer trustworthiness, four separate independent samples *t* tests were conducted to test if the manipulation worked as intended. Using McCroskey and Teven's (1999) trustworthiness scale, the reviewer who was intended to appear trustworthy (M = 5.16, SD = 1.43) was perceived as more trustworthy than the reviewer who was intended to appear untrustworthy (M = 4.59, SD = 1.76) at an overall level, $t(226) = 2.72$, $p = .007$. However, further investigation revealed that the trustworthiness manipulation worked only for the conditions in which the comment contradicted the seller. In the contradictory comment conditions, the trustworthy reviewer (M = 4.73, SD = 1.52) was indeed perceived as more trustworthy than the untrustworthy reviewer (M = 3.68, SD = 1.77), $t(96) = 3.17$, $p = .002$. In the supportive comment conditions, there was no significant difference between the trustworthy reviewer (M = 5.50, SD = 1.27) and untrustworthy reviewer (M = 5.25, SD = 1.44), $t(128) = 1.10$, $p = .28$. The Discussion section elaborates on the reasons for the manipulation failure. The manipulation failure also has implications (which will be discussed later) for the analysis of H7 and H8. In addition, the trustworthiness manipulation bled into three other dimensions of credibility: expertise, goodwill, and homophily.[2] As the manipulation check affected other dimensions of credibility,

[2] The reviewer who was intended to appear trustworthy (M = 5.48, SD = 1.10) was also perceived to have more expertise than the reviewer who was intended to appear untrustworthy (M = 5.04, SD = 1.34), $t(226) = 2.71$, $p = .007$. The reviewer who was

readers should note that whenever the reviewer trustworthiness manipulation is mentioned, expertise, goodwill, and homophily were also affected.

Hypothesis Tests

The analysis of H1, H2a, H2b, H5, H6, H7, and H8 require comparing self-claims to other-generated comments. Data from participants who were assigned to conditions without a comment were excluded from the analysis of these hypotheses because these participants did not view any other-generated comments, $n = 228$.

Hypothesis 1 predicted that other-generated comments have greater warranting value than self-claims. Warranting value was measured for self-claims and for other-generated comments, with a higher value on the scales indicating a greater perception of information manipulation (and therefore less warranting value). A paired samples *t* test was conducted to find out if the warranting value of other-generated comments was greater than the warranting value of self-claims. Other-generated comments ($M = 3.38$, $SD = 1.58$) were perceived as less manipulated than self-claims ($M = 4.63$, $SD = 1.44$), $t(227) = 10.9$, $p < .001$, $d = 1.45$, and therefore had greater warranting value, supporting H1.

Hypothesis 2 predicted that other-generated comments are perceived as less subject to (a) modification control and (b) dissemination control than are self-claims. Like the warranting value scale, higher values on the modification control and

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intended to appear trustworthy ($M = 4.61$, $SD = 1.43$) was also perceived to have more goodwill than the reviewer who was intended to appear untrustworthy ($M = 4.00$, $SD = 1.64$), $t(226) = 3.03$, $p = .003$. The reviewer who was intended to appear trustworthy ($M = 4.01$, $SD = 1.40$) was also perceived to be more homophilous to participants than the reviewer who was intended to appear untrustworthy ($M = 3.57$, $SD = 1.68$), $t(226) = 2.18$, $p = .030$.

dissemination control scales indicate greater manipulation in the areas of information modification and information dissemination. A paired samples *t* test showed that other-generated comments (M = 3.09, SD = 1.57) were perceived as less subject to the seller's modification control than self-claims (M = 4.32, SD = 1.34), $t(227) = 10.6$, $p < .001$, $d = 1.41$, supporting H2a. To test H2b, another paired sample *t* test was conducted. Other-generated comments (M = 3.78, SD = 1.76) were perceived as less subject to the seller's dissemination control than self-claims (M = 4.89, SD = 1.59), $t(227) = 9.7$, $p < .001$, $d = 1.29$, supporting H2b.

Hypothesis 3 predicted that communicators are perceived as more authentic when access to a communicator's online social network is provided than when access to a communicator's online social network is not provided. An independent samples *t* test showed that social network access did not have a significant effect on the authenticity of communicators, $t(277) = .05$, $p = .96$. Therefore, H3 was not supported.

Hypothesis 4 predicted a meta-meta-warranting effect, that is, the potential to corroborate information through a communicator's online social network mediates the relationship between access to online social networks and the communicator's perceived authenticity. Preacher and Hayes (2008) note that the lack of a significant total/main effect (as in H3) does not rule out the possibility of mediation effects. Therefore, model 4 of the PROCESS macro (Hayes, 2013) was used to analyze the mediation effects hypothesized in H4. The mediation test, based on 10,000 bootstrap samples and 95% bias-corrected confidence intervals, found a significant indirect effect between social network access and communicator authenticity through the potential to corroborate (point estimate = .47, SE = .12, 95% CI = [.25, .72], partially

standardized indirect effect = .38[3]). Compared to individuals who did not have access to a communicator's online social network, individuals who had access perceived greater potential to corroborate information about the communicator (b = 1.69, SE = .17, $t(277) = 9.88$, $p < .0001$, 95% CI = [1.35, 2.03], d = 1.19), and the greater potential to corroborate led to perceptions of greater authenticity (b = .28, SE = .05, $t(276) = 5.54$, $p < .0001$, 95% CI = [.18, .38], d = .67). However, when potential to corroborate was included in the model, a significant but unexpected direct effect of social network access on communicator authenticity emerged (b = -.46, SE = .17, $t(276) = -2.79$, $p = .006$, 95% CI = [-.79, -.14], d = .34). Despite the non-significant total effect, the mediation predicted in H4 was supported. But after partialling out the effect of the potential to corroborate, individuals who had access to a communicator's online social network actually perceived communicators to be less authentic than individuals who did not have access. This unexpected finding is discussed in greater detail in the Discussion section.

Hypothesis 5 predicted that the quality of a product is perceived to be better when reviewers' comments support, rather than contradict, its seller's claims. The result of an independent samples t test was significant, $t(226) = 3.14$, $p = .002$ (Bonferroni corrected to .025 as H5 and H7 are non-orthogonal), d = .42. Product quality was rated as better when comments support the seller (M = 5.77, SD = 1.07) than when comments contradict the seller (M = 5.30, SD = 1.16), supporting H5.

Hypothesis 6 predicted that comment valence influences how individuals perceive a seller's authenticity. Specifically, it predicts that sellers are perceived as

[3] Traditional effect sizes like Cohen's d are unsuitable for mediation tests (Preacher & Kelley, 2011). The partially standardized indirect effect, reported here, is one of several recommended by Hayes (2013).

more authentic when reviewers' comments support their claims than when reviewers' comments contradict their claims. An independent samples *t* test showed that sellers are indeed more authentic when a reviewer's comment supports the seller (M = 5.74, SD = 1.14) than when a reviewer's comment contradicts the seller (M = 5.14, SD = 1.43), $t(226) = 3.57$, $p < .001$ (Bonferroni corrected to .025 as H6 and H8 are non-orthogonal), $d = .47$. Therefore, H6 was supported.

Hypothesis 7 predicted that the effect of comment valence on product quality is magnified when the reviewer is trustworthy, but not when the reviewer is untrustworthy. A contrast test was conducted to test H7. Weights of +1 were assigned to all conditions with a comment valence that supported the seller, and weights of -1 were assigned to all conditions with a comment valence that contradicted the seller. Thereafter, the original plan was to assign additional weights of either +1 or -1 to conditions with a trustworthy seller, i.e., the trustworthy reviewer/supportive comment condition had an additional +1, and the trustworthy reviewer/contradictory comment condition had an additional -1. This means that according to the original analysis plan, the weights should be added such that product quality is predicted to be best when a trustworthy reviewer supports the seller (+2), followed by when an untrustworthy reviewer supports the seller (+1), then followed by when an untrustworthy reviewer contradicts the seller (-1), and worst when a trustworthy reviewer contradicts them (-2).

However, due to the failed manipulation check for trustworthiness in the supportive comment conditions, the trustworthy reviewer/supportive comment condition and the untrustworthy reviewer/supportive comment condition were collapsed into one supportive comment condition. The contrast weights were amended to the following: product quality is predicted to be best when a reviewer supports the

seller (+3), then followed by when an untrustworthy reviewer contradicts the seller (-1), and worst when a trustworthy reviewer contradicts them (-2). The contrast test was significant, $t(225) = 3.10$, $p = .003$ (Bonferroni corrected to .025), $r_{contrast} = .20$, $d = .41$. Although the contrast test was significant, the pattern of means did not fit the predicted weights perfectly. See descriptive statistics in Table 1.

Due to lack of fit between the weights and the means, a post hoc Scheffe test was conducted to explore pairwise relationships. A significant difference was found between the supportive comment condition and both the contradictory comment/trustworthy reviewer condition and the contradictory comment/untrustworthy reviewer condition, which did not significantly differ from each other. Considering the significant contrast test, H7 may be plausible, but the pattern of means suggests a more parsimonious explanation that was tested in H5: comment valence affects product quality.

Hypothesis 8 predicted that the effect of comment valence on perceived seller authenticity is magnified when the reviewer is trustworthy, but not when the reviewer is untrustworthy. Contrast weights were calculated through the same process as in H7. Sellers are predicted to be most authentic when a reviewer supports them (+3), followed by when an untrustworthy reviewer contradicts them (-1), and are least authentic when a trustworthy reviewer contradicts them (-2). The contrast test was significant, $t(225) = 3.40$, $p = .001$ (Bonferroni corrected to .025), $r_{contrast} = .22$, $d = .45$. Again, although the contrast test was significant, the pattern of means did not fit the predicted weights perfectly. See descriptive statistics in Table 2.

As the pattern of means again suggested that an explanation different from the hypothesized pattern was possible, a post hoc Scheffe test was conducted. The post hoc test found that the supportive comment condition had a significantly higher seller

authenticity than both the contradictory comment/trustworthy reviewer and contradictory comment/untrustworthy reviewer conditions, which did not differ significantly from each other. Taken together, H8 may be plausible, but the pattern of means gives greater credence to a simple effect of comment valence on seller authenticity, as predicted in H6.

Hypothesis 9 predicted that access to social networks works in an additive manner with the combined influences of reviewer trustworthiness and comment valence to influence seller authenticity. The intended contrast for H9 was to retain all weights in H8, then add a weight of +1 for all conditions in which social network access was provided and add a weight of -1 for all conditions in which social network access was not provided (see Table 3 for the weights of each condition). However, given that there was no main effect for social network access (H3 was not supported), there was no point in testing the proposed contrast weights for H9 in an additive manner.

CHAPTER EIGHT: DISCUSSION

Discussion

This research offers two important extensions to our understanding of how individuals assess the authenticity of others who they encounter online. First, this research extends warranting theory conceptually, through the definitions of novel theoretical mechanisms, meta-warranting and meta-meta-warranting. Second, it offers empirical support for meta-meta-warranting, showing that individuals perceive that a communicator is more authentic when they are afforded the potential to corroborate information about the communicator than when they are not.

In the context of a crowdfunding campaign, participants evaluated an unknown seller based on what he said and what a reviewer said. Hypothesis 1 provided a baseline prediction of warranting theory and H2 (both H2a and H2b) provided a baseline prediction of information control mechanisms known to influence warranting value. These hypotheses were supported, providing evidence that information source influences perceived immunity to manipulation and information control. That is, other-generated information on a crowdfunding platform is more immune to a communicator's manipulation, modification control, and dissemination control than are self-claims. These findings support and further establish the warranting theory mechanisms proposed by Walther and Parks (2002) as well as DeAndrea and Carpenter (2016).

Hypothesis 3 predicted that access to a claimant's social network makes him or her seem more authentic, and H4 proposed that a meta-meta-warranting effect exists in this relationship: the potential for observers to corroborate information about the communicator mediates the relationship between social network access and perceived authenticity. Hypothesis 3 was not supported, indicating that social network access is

insufficient to make a communicator appear more authentic to observers. However, the significant mediation results of H4 mean that a positive relationship between social network access and perceived authenticity exists if social network access allows a greater potential to corroborate information, and this greater potential to corroborate information leads to greater perceived authenticity. Therefore, this study provided support for the meta-meta-warranting argument that when individuals recognize that communicators have provided them with the potential to corroborate information, they may be less inclined to misrepresent themselves in their own favor. However, in the mediation model used to test H4, the direct effect of social network access significantly lowered perceptions of authenticity—an unexpected finding that was the opposite of what was predicted in H3.

One speculative reason for the significant negative direct effect on social network access on perceptions of the seller's authenticity may have to do with the context. As noted earlier in this paper, information that is perceived to have overt persuasive intent is judged unfavorably (Flanagin & Metzger, 2000; Metzger et al., 2010). There is a possibility that participants perceived the provision of social network access as an attempt to persuade them to buy the product. Although some sellers on crowdfunding sites provide links to their social media pages, this practice is absent in large e-commerce sites like Amazon. Participants may therefore be unfamiliar with the provision of social network access, and regard it with suspicion or attribute persuasive intent to it, resulting in negative perceptions about the seller's authenticity. Nevertheless, the finding that potential to corroborate can lead to perceptions of greater authenticity is an important one. Future research can strengthen the access to social networks manipulation, for example, to show one's mutual friends with the target individual, as the potential to corroborate information with a mutual friend

should be greater than that with a complete stranger. Changing the context is another possibility. In a crowdfunding context, attention may be divided between the legitimacy of the crowdfunded product and the authenticity of the seller. In another context like online dating, the focus of assessment is squarely on the individual. With fewer distractions that take attention away from the target individual, bigger effect sizes could potentially be observed. There may also be other ways to test potential to corroborate, such as referees on a resume—especially if the referees are well known.

Given the support for H1, which predicted that other-generated comments have greater warranting value than do self-claims, H5 and H6 predicted that the valence of other-generated comments influences how observers perceive what the comments referred to, namely the quality of the product for sale (H5) and the seller's perceived authenticity (H6). Hypothesis 5 and H6 were supported, allowing further tests to find out whether the effects of comment valence on product quality (H7) and on perceived seller authenticity (H8) are magnified when reviewers are trustworthy. That is, H7 and H8 predict that trustworthy reviewers who support a seller can make the seller (or the product) seem more authentic (or better in quality) than untrustworthy reviewers who support a seller; and trustworthy reviewers who contradict a seller can make the seller (or the product) seem less authentic (or worse in quality) than untrustworthy reviewers who contradict a seller.

Research in warranting theory has found that other-generated information is regarded as more reliable than self-claims because the former is more immune to manipulation than the latter (e.g., Antheunis & Schouten, 2011; Walther et al., 2009). Further research in warranting theory has attempted to qualify the assumption that other-generated information is less immune to manipulation than self claims, by introducing information control mechanisms that show how other-generated

information can sometimes be highly manipulated (e.g., DeAndrea et al., 2017; DeAndrea, Van Der Heide, & Easley, 2015). This study aimed to show that the credibility of the source of other-generated information—as a mechanism distinct from perceived immunity to manipulation—is also an important consideration when assessing the reliability of the information.

Focusing on the trustworthiness dimension of credibility, the ambiguity of support for H7 and H8 is exacerbated by the manipulation failure for reviewer trustworthiness in the supportive comment conditions. Despite significant contrast tests for both H7 and H8, the patterns of means suggest that no support was found for the moderating effect of trustworthiness on the relationship between contradictory comments and perceived authenticity. When reviewers contradict what the seller says, the seller's authenticity is equally dampened regardless of whether the reviewer is trustworthy or not.

The unexpected results for H7 and H8 suggest that when sources of other-generated information contradict a communicator, their trustworthiness does not seem to matter, as observers' perceptions of a communicator and of the claims he or she makes are poor regardless of how trustworthy reviewers are. The results of this study indicate that only comment valence matters. This result may be due to a negativity effect (Kellerman, 1989), as negative information is relatively infrequent in relation to positive information, and this infrequency is informative to the extent that it alerts individuals to possible deficiencies about a product or a seller, regardless of reviewer credibility. Although excessive speculation from non-significant results is ill-advised, a tentative plausibility is that individuals primarily make decisions based on information valence, and if negative information is present, they disregard the perceived trustworthiness of the source of the negative information. Future research

may study the possible reasons for this behavior, such as the desire to avoid losses (Kahneman, 2011).

There are several limitations to this study. First, the operationalization of authenticity may not have captured all of its dimensions. The semantic differential word pairs that measured authenticity (*inauthentic/authentic, fake/real, unreliable/reliable, insincere/sincere, unbelievable/believable*) were selected because they seemed to have face validity. But despite the measure's acceptable Cronbach's *alpha*, it did not go through accepted scale-testing procedures like confirmatory factor analysis, tests of convergent validity, and tests of divergent validity (see, e.g., Myers & Oetzel, 2003). Authenticity is an important concept in this study, and has potentially more dimensions than its current operationalization reflects. Future research that attempts to study warranting theory and credibility in a similar vein should consider additional explication and scale development for a more rigorous definition and operationalization of authenticity.

Second, the trustworthiness manipulation was too weak in the supportive comment conditions for participants to perceive a significant difference in reviewer trustworthiness. In supportive comment conditions, the trustworthy reviewer said: "I'm a professional photographer who regularly contributes to photography-related websites and magazines, advising consumers on their camera purchases," whereas the untrustworthy reviewer said: "I am trained in optics and I have experience in the camera industry I am honest in everything I say and you can definitely trust me." As the intention of this study was to manipulate trustworthiness instead of expertise, the untrustworthy reviewer still claimed some expertise, instead of none at all. However, the second part of the untrustworthy reviewer manipulation, where the reviewer claimed to be honest and urged others to trust him, generated insufficient perception of

persuasive intent for the manipulation to work. Why, then, did the trustworthiness manipulation work in the contradictory comment conditions? This is likely to be due to an additional manipulation that existed in the untrustworthy reviewer/contradictory comment conditions but not in the untrustworthy reviewer/supportive comment conditions: self-interest. In the untrustworthy reviewer/contradictory comment conditions, the reviewer is advocating that his own product is superior to the seller's product (signaling self-interest), but in the untrustworthy reviewer/supportive comment conditions, the reviewer is advocating a superior product that is not his own (without indication of self-interest). This also means that the manipulation of reviewer trustworthiness was conflated with the manipulation of comment valence. As previously noted, the result of the manipulation failure in the supportive comment conditions resulted in only a partial test of H7 and H8.

Another limitation of this study is that because H9 was not tested, the effects of meta-meta-warranting and trustworthiness on perceived authenticity were tested separately, and were not empirically integrated. The test of H9 was thwarted by the non-significance of H3 (which predicted that social network access influences perceived authenticity) and the unexpected result of H4, which found that social network access reduces perceived authenticity, via a direct effect, when social network access and perceived authenticity are mediated by the potential to corroborate information. Despite not testing for H9, it would be reasonable to conjecture that when observers have the potential to corroborate information about a communicator and trustworthy sources support what the communicator says about himself or herself, the communicator will appear authentic. Of greater interest are situations when either a trustworthy or untrustworthy source criticizes a communicator, but observers have the potential to corroborate what the communicator says with other people whom the

observers know and trust. Can criticism be mitigated by the potential to corroborate? This is one question that future research may attempt to answer.

This research also put forth two other theoretical propositions that were not tested in this study: (1) meta-warranting and (2) the credibility of a communicator and the warranting value of what he or she says influence his or her own authenticity. Future studies may test meta-warranting by investigating how communicators reduce the manipulation of their own claims, or attempt to be more authentic, when they know what observers can corroborate their claims with other sources. Future studies should also continue exploring the combined effects of warranting theory and credibility. For instance, what is the effect of the self-claims of a highly credible communicator on the believability of his or her claims? Credibility and warranting theory may be offered as competing hypotheses, when the self-claims of little warranting value are pitted against a highly credible communicator.

In the contemporary online environment, people have to make decisions whether to trust a variety of media platforms and the other people they interact with on those platforms. To what extent should one trust the crowdfunder on Kickstarter, the potential date on Tinder, the driver on Uber, the host on Airbnb, and even the journalist who writes the latest news stories? The novel theoretical propositions regarding warranting theory and credibility presented in this paper all but scratch the surface of a pertinent question that constantly evolves as technology takes our disparate lives to a more interconnected level.

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Table 1

Contrasts, Means, and Standard Deviations for Effects of Reviewer Trustworthiness and Comment Valence on Product Quality

	Supportive Comment	Contradictory Comment	
		Trustworthy Reviewer	Untrustworthy Reviewer
Contrast weights	+3	-2	-1
Mean	5.77	5.31	5.30
SD	1.07	1.12	1.22

Note. $p = .002$ (2-tailed, Bonferroni corrected to .025), df = 225.

Table 2

Contrasts, Means, and Standard Deviations for Effects of Reviewer Trustworthiness and Comment Valence on Seller Authenticity

	Supportive Comment	Contradictory Comment	
		Trustworthy Reviewer	Untrustworthy Reviewer
Contrast weights	+3	-2	-1
Mean	5.74	5.19	5.08
SD	1.14	1.42	1.46

Note. $p < .001$ (2-tailed, Bonferroni corrected to .025), df = 225.

Table 3

Intended Weights for H9

Condition	Weights from H8	Additional weight for social network access	Total weight
Contradictory comment/trustworthy reviewer/no social network access	-2	-1	-3
Contradictory comment/untrustworthy reviewer/no social network access	-1	-1	-2
No comment/no social network access	0	-1	-1
Contradictory comment/trustworthy reviewer/with social network access	-2	+1	-1
Contradictory comment/untrustworthy reviewer/with social network access	-1	+1	0
Supportive comment/untrustworthy reviewer/no social network access	+1	-1	0
Supportive comment/trustworthy reviewer/no social network access	+2	-1	+1
No comment/with social network access	0	+1	+1
Supportive comment/untrustworthy reviewer/with social network access	+1	+1	+2
Supportive comment/trustworthy reviewer/with social network access	+2	+1	+3

Social Network Access Not Provided					Social Network Access Provided				
Trustworthy Reviewer		Untrustworthy Reviewer		No Reviewer	Trustworthy Reviewer		Untrustworthy Reviewer		No Reviewer
+	-	+	-	No Comment	+	-	+	-	No Comment
1	2	3	4	5	6	7	8	9	10

Figure 1. Diagrammatic representation of all 10 experimental conditions. A plus sign indicates a comment that supports the seller and a minus sign indicates a comment that contradicts the seller. The numbers on the bottom row match the conditions described in the Method section and the figures in Appendix A.

Appendix A

Stimulus Materials

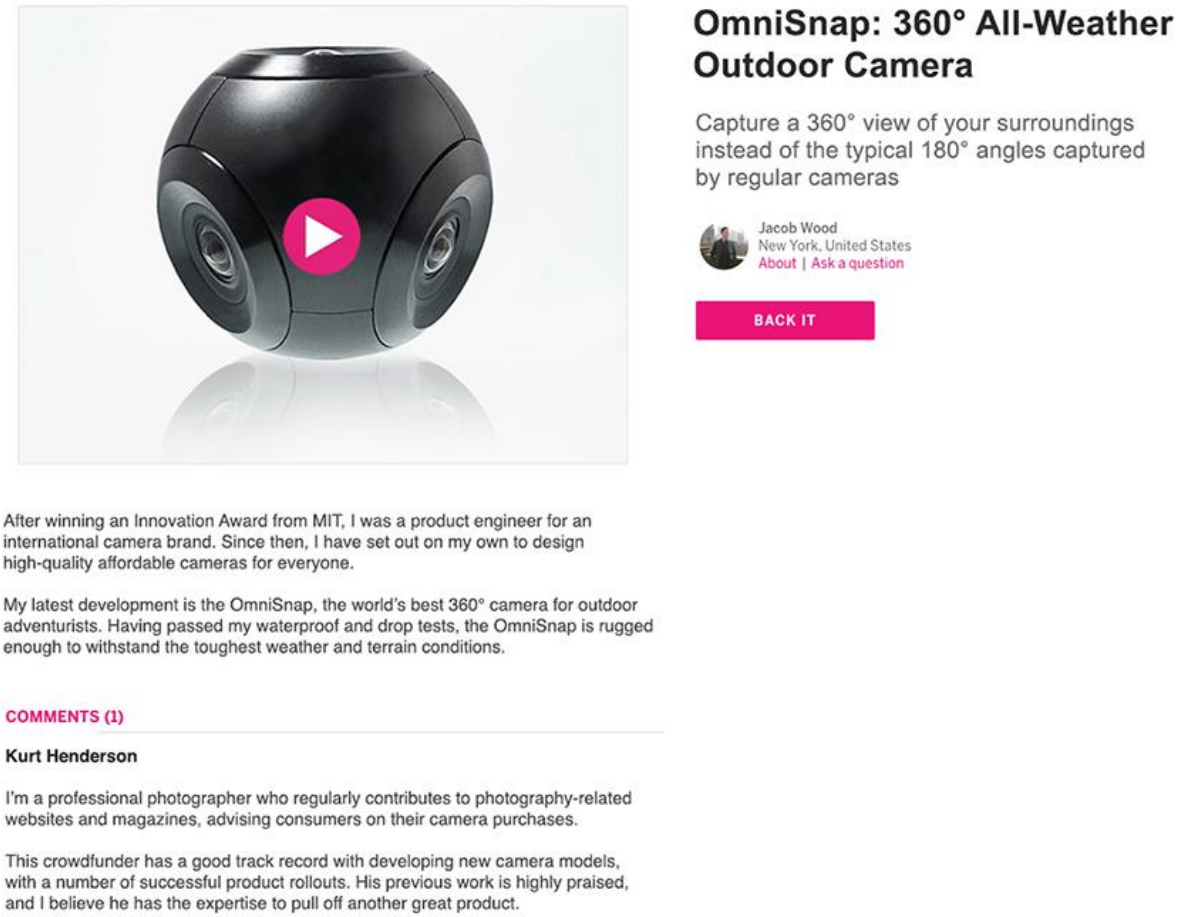

Figure A1. Stimulus for no social network access / trustworthy reviewer / supportive comment condition.

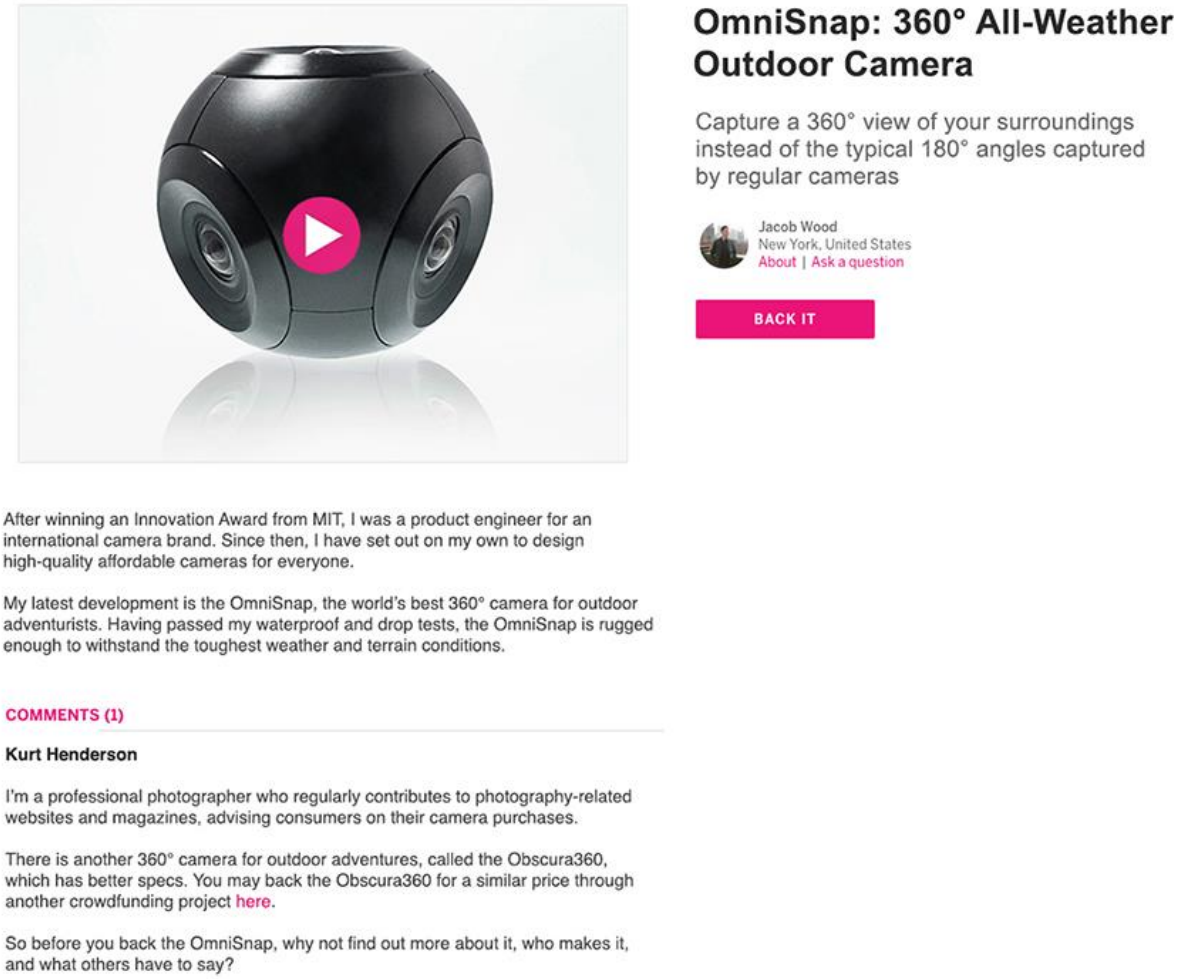

Figure A2. Stimulus for no social network access / trustworthy reviewer / contradictory comment condition.

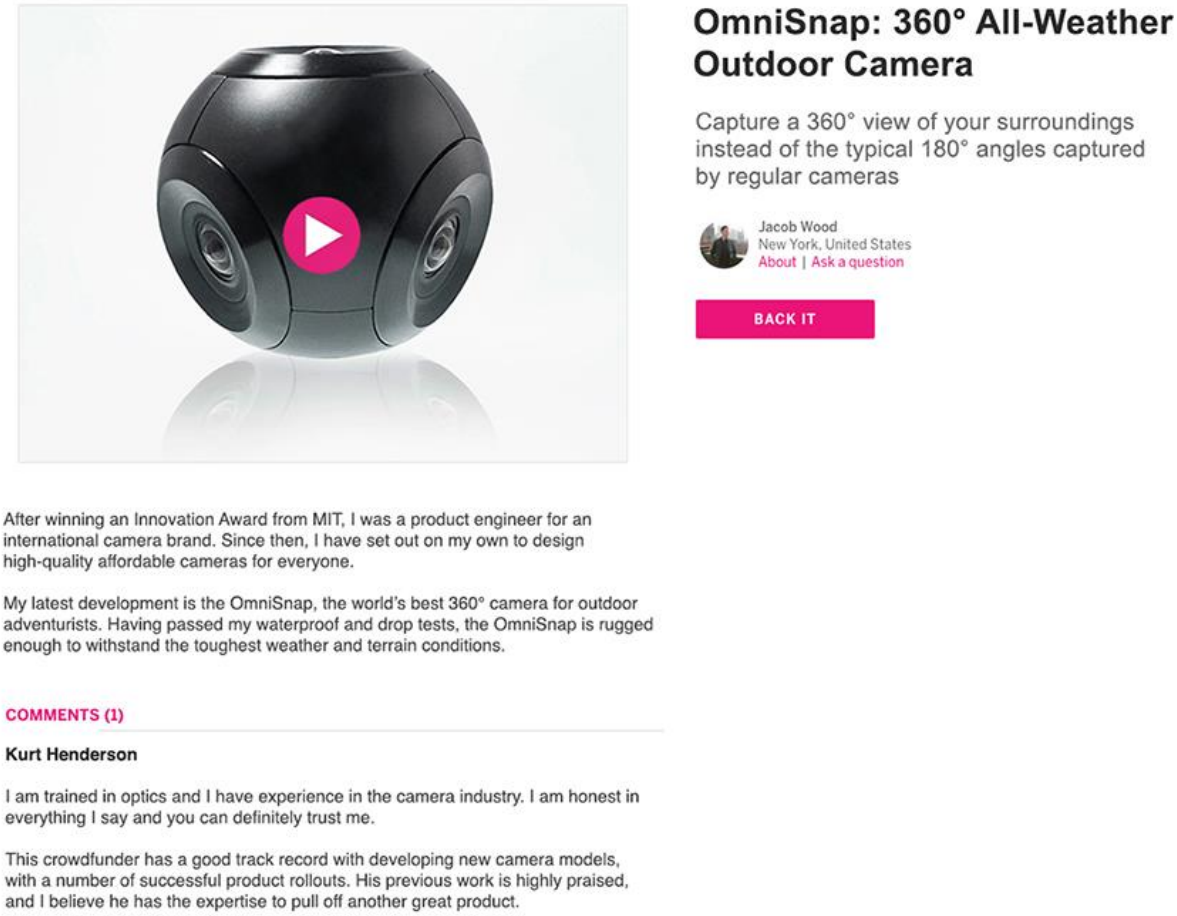

Figure A3. Stimulus for no social network access / untrustworthy reviewer / supportive comment condition.

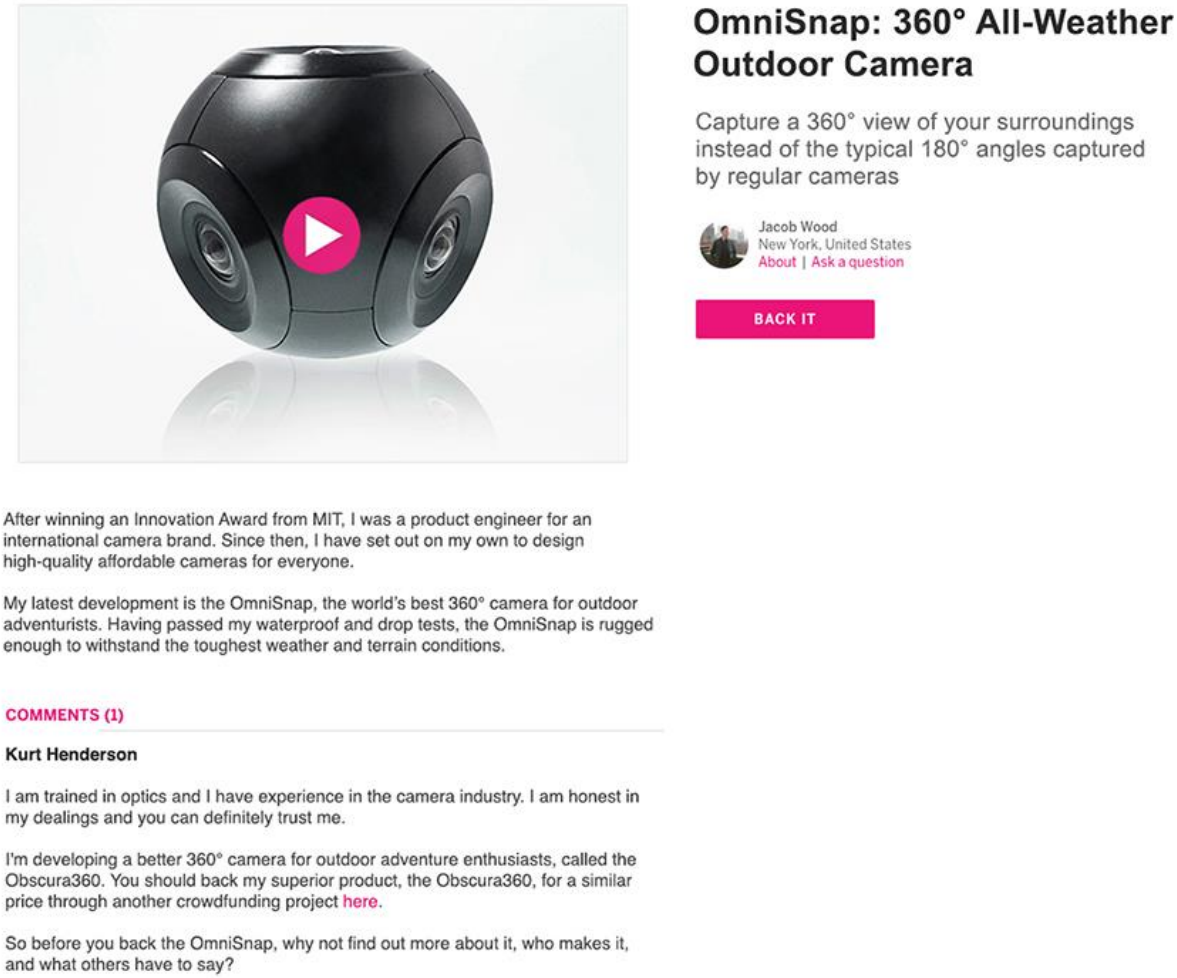

Figure A4. Stimulus for no social network access / untrustworthy reviewer / contradictory comment condition.

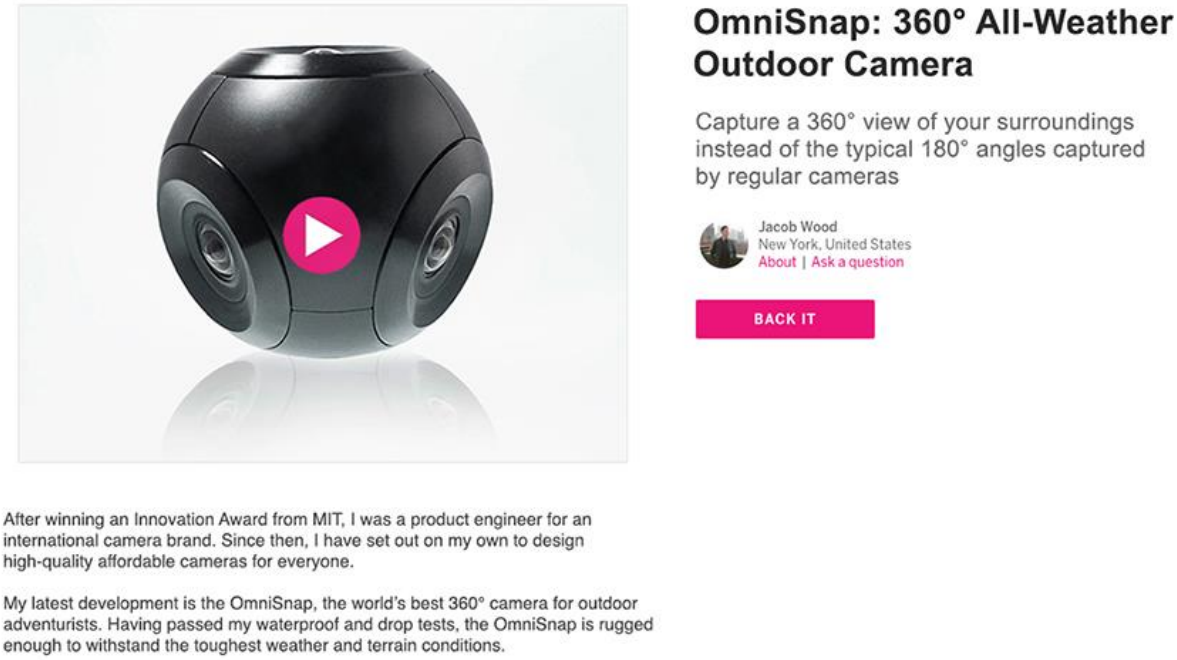

Figure A5. Stimulus for no social network access / no reviewer / no comment condition.

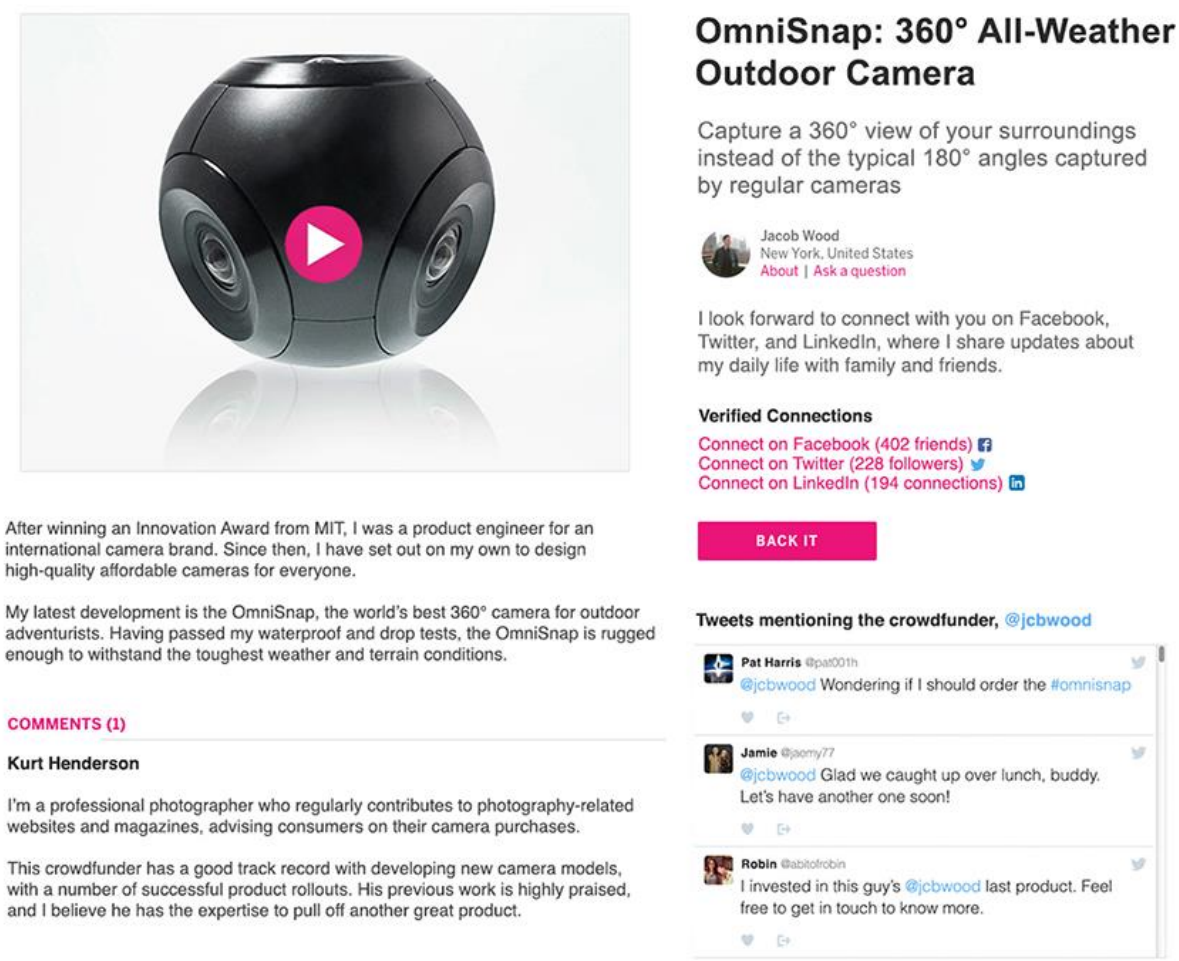

Figure A6. Stimulus for access to social network / trustworthy reviewer / supportive comment condition.

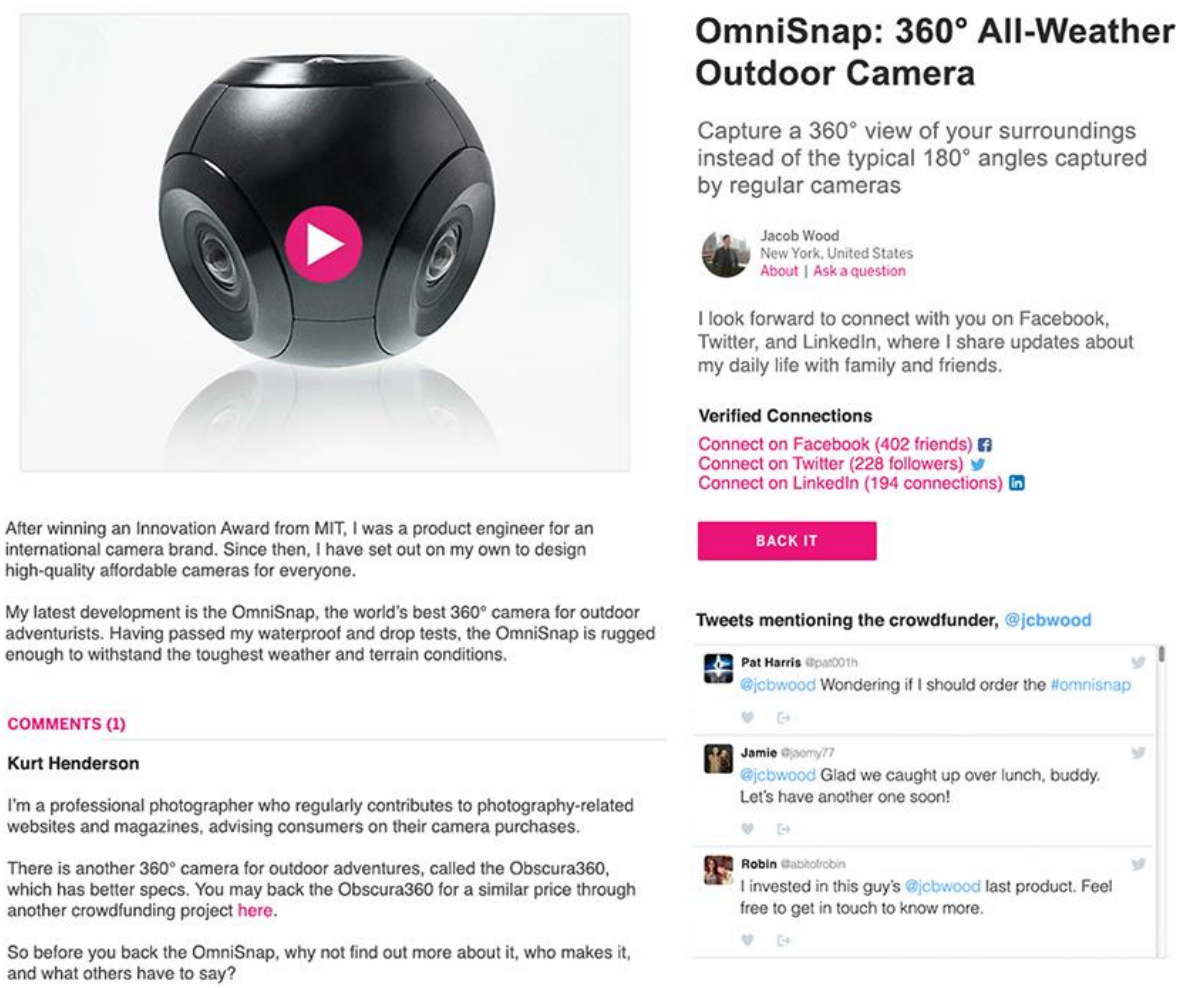

Figure A7. Stimulus for access to social network / trustworthy reviewer / contradictory comment condition.

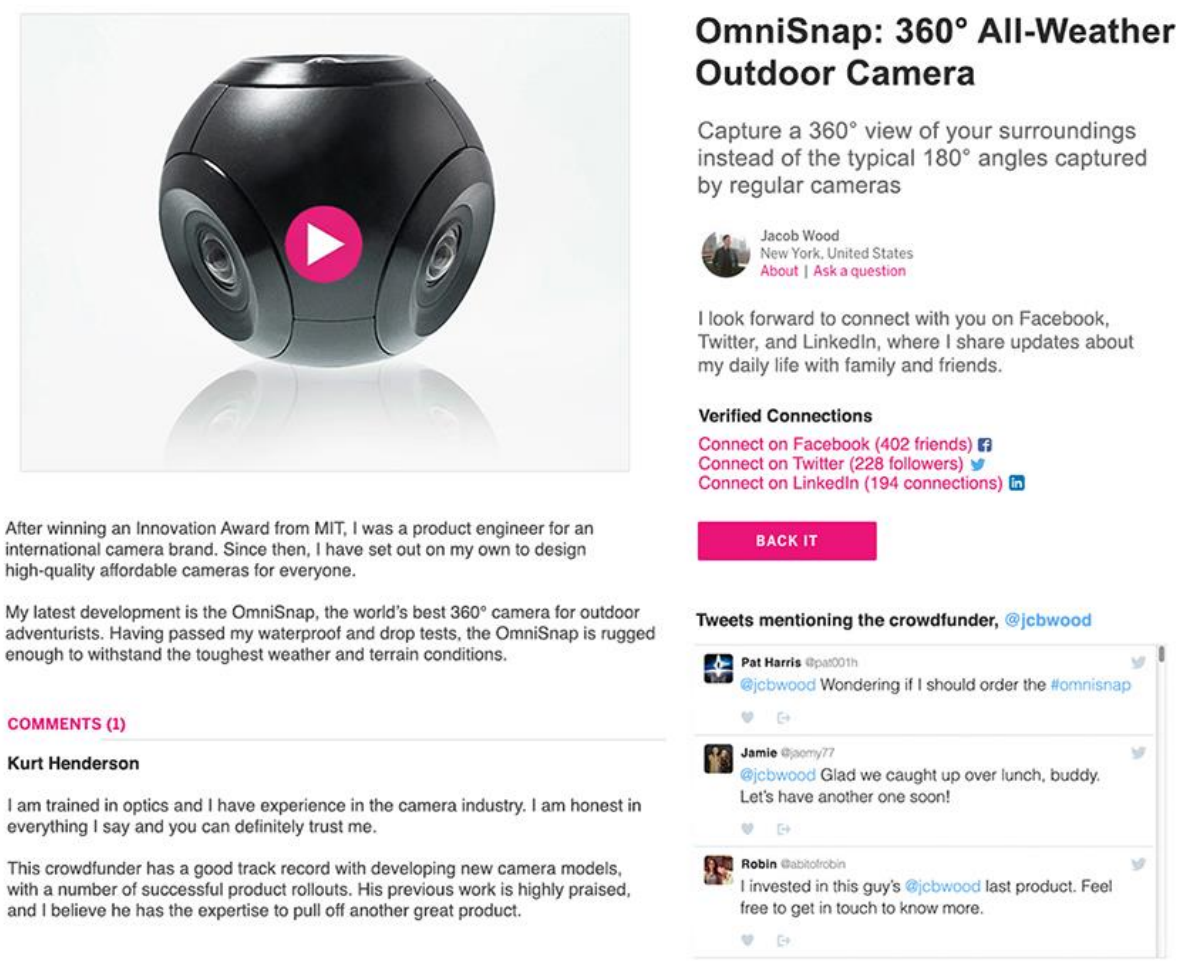

Figure A8. Stimulus for access to social network / untrustworthy reviewer / supportive comment condition.

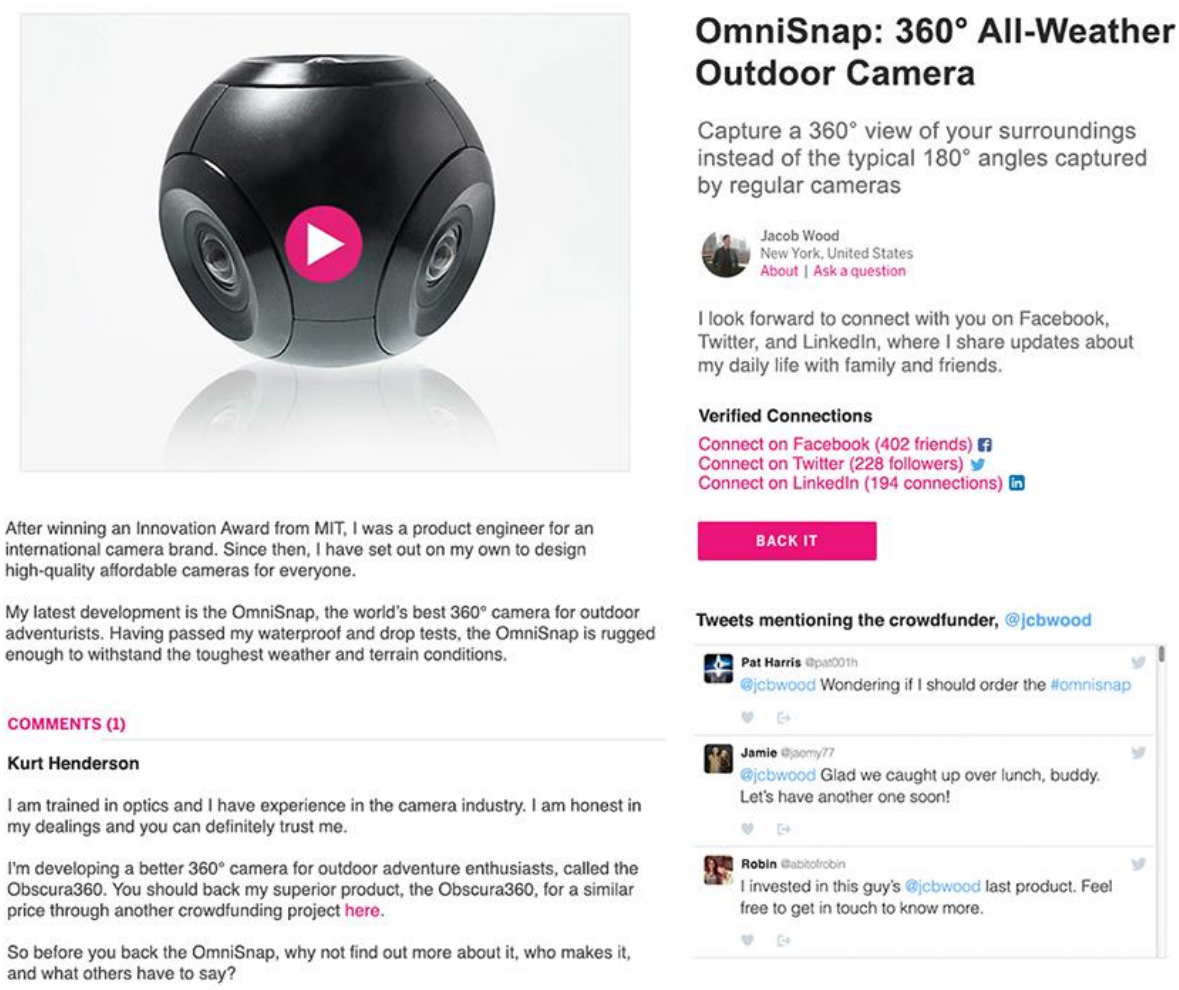

Figure A9. Stimulus for access to social network / untrustworthy reviewer / contradictory comment condition.

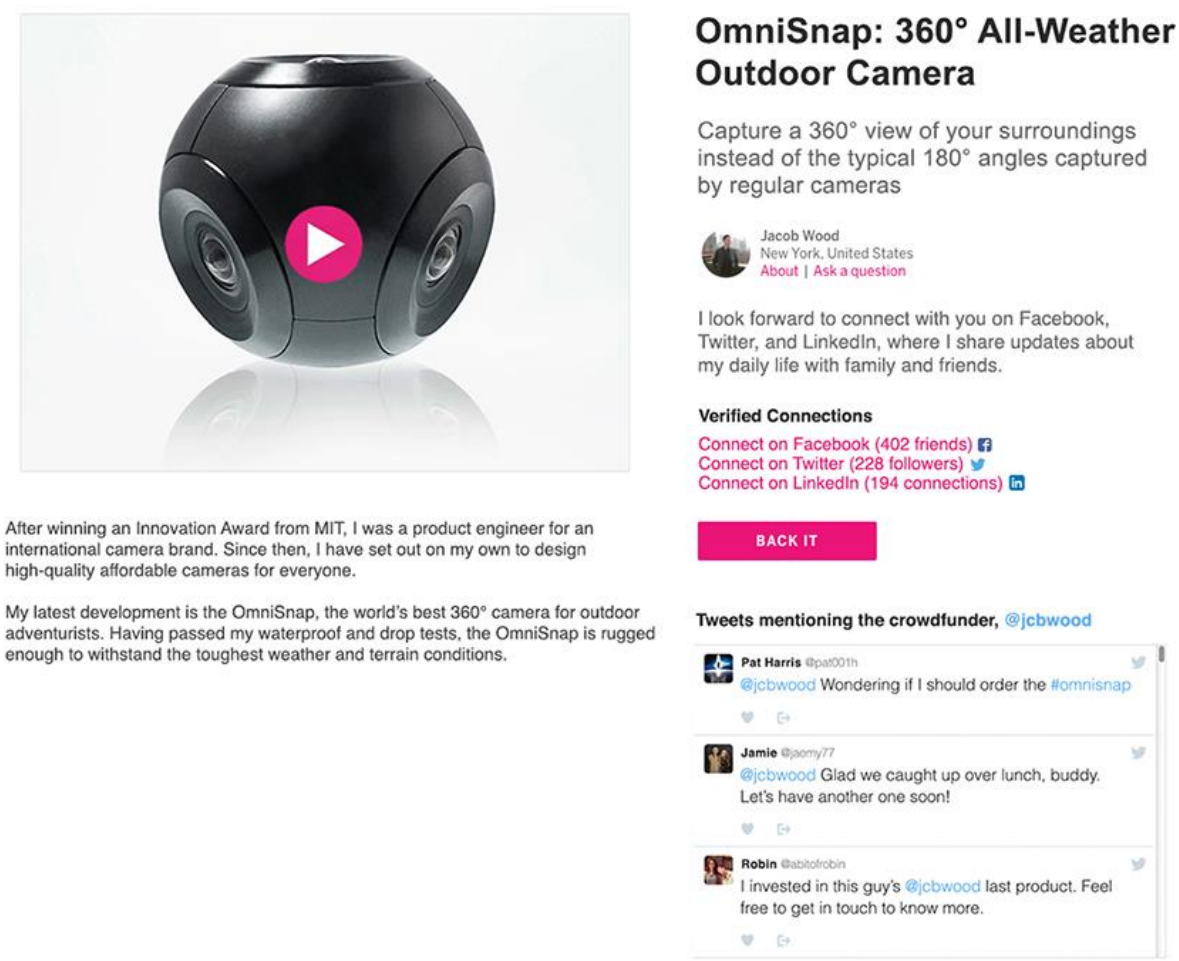

Figure A10. Stimulus for access to social network / no reviewer / no comment condition.

Appendix B

Factsheet on What is Crowdfunding

Participants were told to read the below factsheet to familiarize themselves with crowdfunding before they started the experiment.

What is crowdfunding?

Crowdfunding is a way for individuals and small businesses to raise funds from a large number of people. Those who seek funds typically sell a product that tends to be in concept development or prototype stage.

What does it mean to back a crowdfunding campaign?

People who back a campaign are usually making an advance payment to buy the product for a discount.

Are there risks involved?

Crowdfunding contains some risk, so buyers are responsible for evaluating the seller/product before contributing their money.

What are verified connections?

Crowdfunding sites may help to verify a seller by authenticating his or her identity. This information may include a seller's website, email, social media accounts, and social network activity.

Figure B1. Factsheet on what is crowdfunding.

Appendix C

Original Measures for Warranting Value and Information Control Mechanisms

The measures for warranting value, modification control, dissemination control, and source obfuscation used in this study were adapted from DeAndrea and Carpenter (2016). The original items appear in Table C1, below.

Table C1
Original Measures for Warranting Value, Modification Control, Dissemination Control, and Source Obfuscation

Warranting Value
(The target) manipulated the (information) that appeared on (the site) about (the target).
(The target) influenced what (information) appeared on (the site) about (the target).
(The target) controlled the (information) appearing on (the site) about (the target).
(The target) shaped the (information) about (the target) appearing on (the site).
Modification Control
(The target) edited what was (written) about (reflexive pronoun).
(The target) changed the content of the (information).
(The target) (wrote) some of the (information) about (reflexive pronoun).
(The target) changed what the (source) (wrote) about (reflexive pronoun).
Dissemination Control
(The target) controlled what (information) appeared on the (site).
Only (information) approved by (the target) appeared on the (site).
(The target) picked what (information) was presented on the (site).
(The target) made sure viewers only saw what (the target) wanted them to see.
Source Obfuscation
The (sources) are hiding who they truly are.
The (sources) are not really who they pretend to be.
The (sources) really are who they appear to be.[a]
The (sources) are misrepresenting who they really are.

[a]Reverse coded.