

Avatars and Expectations: Influencing Perceptions of Trustworthiness in an Online Consumer Setting

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ABSTRACT

This study investigates how individuals process an online product review when an avatar is included to represent the peer reviewer. The researchers predicted that both perceived avatar and textual credibility would have a positive influence on perceptions of source trustworthiness and the data supported this prediction. Expectancy violations theory also predicted that discrepancies between the perceived avatar and textual credibility would produce violations. Violations were statistically captured using a residual analysis. The results of this research ultimately demonstrated that discrepancies in perceived avatar and textual credibility can have a significant impact on perceptions of source trustworthiness. These findings suggest that predicting perceived source trustworthiness in an online consumer review setting goes beyond the linear effects of avatar and textual credibility.

Keywords: *Source trustworthiness, expectancy violations, online peer reviews, avatar credibility, residual analysis*

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1. Introduction

Today's consumers are afforded a wealth of knowledge regarding their purchasing decisions thanks to the breadth and depth of information available through various online websites (Schindler and Bickart, 2005). One of the most popular, useful, and influential forms of consumer information has become the online peer review (Willemsen, Neijens, Bronner, and de Ridder, 2011). A vast majority of today's most popular online stores (e.g.,

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Amazon, Walmart, E-Bay, etc.) offer customers a chance to provide feedback about a particular product they may have purchased or experienced. Consumer (or non-expert) reviews have long been a cornerstone of the consumer decision-making process, however, prior to the diffusion of the Internet, peer reviews were generally provided face to face, through word of mouth and offline social networks. Today, the Internet and its countless networks, provides consumers with electronic word of mouth, also known as eWOM (Park and Kim, 2008). Online consumer reviews are a type of eWOM where reviewers are typically anonymous and ties between sender and receivers are weak or even nonexistent. Therefore, consumers must make judgments about the motives and credibility of the source, as well as the quality of the review in deciding how much they will rely upon the review itself (Bailey 2005; Li and Zhan 2011).

Previous research suggests that people are increasingly using online peer reviews to gather information about products and to help with their purchasing decisions (Park and Kim, 2008; Smith, Menon, and Sivakumar, 2005). In addition to the popularity and ease in which consumers can now gather important feedback about products, research has shown that peer reviews are capable of having a significant influence on consumer decision-making (Park and Kim, 2008; Smith et al., 2005). Unlike professional or expert reviews that may be sponsored by a corporation and seen as having a corporate agenda, research suggests that peer reviews are often perceived as being more objective and therefore more trustworthy than their more professional counterparts (Bickart and Schindler, 2001). In these cases, the quantity of reviews available or the linguistic style of the review can predict consumer decision-making (Ludwig, et al., 2013; Park and Kim, 2008). Willemsen and colleagues (2011) found that the density and diversity of a review had a significant impact on its perceived usefulness. The presence of product recommendations has also been shown to build consumer trust with some products (Gershoff, Mukherjee, and Mukhopadhyay, 2003), and more importantly, peer reviews make consumers feel more comfortable purchasing products online (Dayal, Landesberg, and Zeisser, 1999).

While offline peer reviews often come from familiar sources, eWOM forces consumers to utilize only the cues that are available in the online interaction (Ambady, Hallahan, and Rosenthal, 1995; Wogalter and Mayhorn, 2008). In the world of online interactions, avatars can provide the type of visual cues online users rely upon when assessing source credibility (Nowak and Rauh, 2008). Avatars can also have a significant impact on

consumer's opinions of products, and influence a consumer's purchase intention (Holzwarth, Janiszewski, and Neumann, 2006; Smith et al., 2005). This may explain why more and more corporations are using avatars on their websites and allowing users to be represented digitally. For example, Amazon (the #1 online sales company according to Internet Retailer, 2013) now features member profiles, which provide an opportunity for users to include an avatar to represent themselves on the consumer website.

Assessing source trustworthiness in an online environment can be difficult given the lack of certain social cues (i.e., age, sex, or ethnicity) and this research seeks to explain how a defined set of visual and textual information may influence perceptions of source trustworthiness. Furthermore, it relies upon expectancy violations theory, which posits that any discrepancy between an expectation and what is actually observed will result in a violation. This study manipulates perceived expectations by modifying the visual characteristics of the source to determine if a discrepancy between the perceived credibility of the avatar and the textual review will have an influence on perceptions of source trustworthiness.

This paper is organized as follows. Section 2 highlights the existing literature surrounding the concepts of online trustworthiness in the context of electronic word of mouth. Section 3 provides an overview of the expectancy violation theory and its application to this study. Section 4 details the research methods applied in this research. Section 5 illustrates the results of this study, with a particular focus on the residual analysis procedure applied to the obtained data set. Section 6 discusses the practical and theoretical implications of our findings. Finally, section 7 addresses the limitations of this study.

2. Assessing Online Source Trustworthiness

Interpersonal communication and personalized, or targeted, messages are typically considered more persuasive than massively produced mediated messages (Webster, 1968). In the context of sales, face-to-face communication can be more effective not only because it is more complex and adaptive (Allen, Preiss, Gayle, and Burrell, 2002), but also because the consumer can use visual cues to make a personal decision about the trustworthiness of the message sender or sales agent. Certain characteristics of a source engender source credibility, which increases confidence and trust in their message

(Greenberg and Miller, 1966). Furthermore, research has also shown that perceptions of a source's credibility and trustworthiness will influence message acceptance and thus attitude change (Hovland, Janis, and Kelley, 1953).

However, the process of assessing trustworthiness may be different in an online environment, as certain characteristics and cues about a source are not always available to the message receiver. For example, today's online shopping environment provides an experience that is both unique and similar to offline word of mouth. Online shoppers can utilize eWOM to help make purchase decisions from a wide variety of sources, often in a fashion that is more convenient and efficient when compared to the offline alternative. The online process is different from the offline not only because of the differences in the way the information is presented but also because the consumer does not have an existing relationship with the reviewer and has very little information to make an assessment about the individual's trustworthiness. However, this is where the introduction of an associated image or avatar has been shown to influence this process by providing consumers more information about the source of the review (Holzwarth, Janiszewski, and Neumann, 2006; Smith et al., 2005).

2.1 Influence of avatar credibility on perceived source trustworthiness

Avatars can be defined as a digital model or representation (2D or 3D) of the individual they are representing and are commonplace in many different online networks (Bailenson, et al., 2006). While some use the term avatar to mean only images that are representing a person in real time (Blascovich and Bailenson, 2011), others have used the term more generically to include any visual representation of a person (Nowak, Hamilton, and Hammond, 2009; Nowak and Rauh, 2008). Regardless of the specific definition applied, research has shown that the presence of an avatar, in an online shopping forum can increase consumer satisfaction and influence consumer behavior (Holzwarth et al., 2006), but little is known about the impact of an avatar's credibility on the perception of a source's trustworthiness.

In some online environments, avatars are the only visual information people have, or use, to reduce uncertainty and form expectations about the source (Bailenson, et al., 2005; Hamilton and Nowak, 2010; Lee, 2004; Nowak, Hamilton, and Hammond, 2009; Nowak and Rauh, 2008; Ramirez, Walther, Burgoon, and Sunnafrank, 2002; Schroeder, 2002). An individual's avatar provides important information about the source of a

message and helps other users form expectations regarding the types of information a source may be aware of and what to expect from the interaction. If the avatar is the only visual association to the source, it likely means that the perception of an avatar's credibility will be based on the visual characteristics of the avatar, which in turn, influences the perception of the source's trustworthiness. Assuming receivers are going to utilize all available cues about a source in the process of attributing trustworthiness, it follows that within the context of peer reviews, the presence of an avatar will contribute to the perception of a source's trustworthiness.

Previous research demonstrates that the visual information provided by a user's avatar can have a significant influence on the attributions associated with that individual user (Bailenson et al., 2005; Nowak and Rauh, 2008; Seyama and Nagayama, 2007). In addition to this, people tend to feel comfortable about the completeness and confidence in the accuracy of their visual attributions (Ambady, et al., 1995). Therefore, the following is predicted:

H1: Perceived avatar credibility will have a positive influence on perceptions of source trustworthiness

2.2 Text-based Consumer Peer Reviews

Online peer reviews provide a unique vehicle for consumers to get important information about products. The peer aspect provides a word of mouth styled exchange, which is often considered as more trustworthy because it is based on another individual's experiences (Smith, 1993). In addition to the influence of avatar credibility on source trustworthiness, the perceived credibility of a textual peer review itself has been shown to influence perceptions of source trust (Smith, et al., 2005). Research also suggests that consumers will rely heavily on decision aids like peer reviews when making purchasing decisions in an effort to help preserve cognitive effort (Todd and Benbasatt, 1999).

However, the fact that the sources of peer reviews are not experts and the reviews are not professionally produced like an advertisement means eWOM can vary widely in terms of quality. The information provided by a peer reviewer is not subject to the same standards (i.e. editing, proofreading, etc.) that a professional or expert review would be. Instead, the quality of a peer review can range from very good to very poor, with various aspects of the review having an influence on its overall quality. One characteristic that may have a significant influence on the credibility of a peer review is the grammatical

correctness of the review itself. Research on the topic of evaluating the credibility of online information suggests that consumers pay close attention to a number of cues, especially the spelling and grammar of the message itself (Burbules, 2001; Greer, 2003). Based on these assertions, the following is predicted:

H2: Perceived textual credibility will have a positive influence on perceptions of source trustworthiness

3. Expectancy Violations in an Online Setting

Expectancy Violations Theory posits that individuals construct specific expectations through social norms and communication experience, and that each communicative event can either adhere to or violate these expectations (Afifi and Burgoon, 2000). Sometimes, information received after expectations have been formed does not meet the receiver's expectations, such as when a person's behavior or communication is not consistent with the expectation derived from a visual cue. A violation of this nature is predicted to have a strong and significantly negative influence on perceptions of the source's trustworthiness. For example, if a person expects a high level of credibility or social potential from an entity and subsequent behaviors or communication from the source are not perceived as credible, expectations will not be met, which may result in feelings of disappointment and ultimately lower source trust (Afifi and Burgoon, 2000). Alternatively, expectations are exceeded when an entity perceived to have low social potential or credibility behaves or communicates in a way that demonstrates high social potential or credibility. Exceeded expectations in a positive manner can produce high attraction, liking and credibility ratings, and can ultimately produce higher levels of source trust (Afifi and Burgoon, 2000; Burgoon and Hale, 1988).

Within the context of eWOM, people continue to make attributions of credibility and the potential for expectancy violations remains present, though the mediation influences the available information and process. Specifically, the inclusion of visual information accompanying the source (avatar) to supplement text-based communication (consumer review) can dramatically enhance the effectiveness of a retail website (Holzwarth et al., 2006). Consumers can now use the visual representation of the source (the avatar) to form an immediate impression and create expectations for the content of the source's message. Previous research has suggested more anthropomorphic avatars can create

higher expectations, which in turn may cause individuals to perceive the entity represented by the avatar as more credible (Nowak et al., 2009). However, in some cases, high expectations can be difficult to meet and can result in disappointment if not met.

Following from Expectancy Violations Theory, a positive evaluation of the source's appearance (avatar) should create high expectations for a source's message, while a negative evaluation of the source's appearance should create low expectations for the message. If a source's message matches the receiver's expectation, there is no discrepancy between perceived avatar credibility and perceived textual credibility, and therefore no expectancy violation has taken place. However, in situations where a discrepancy does take place, an expectancy violation has occurred, and we are predicting that these violations can be used as an additional predictor of source trustworthiness, above and beyond the linear predictability of perceived avatar credibility and perceived textual credibility as predicted in hypotheses 1 and 2. Based on this logic, the following is predicted:

H3: Individuals who perceive a discrepancy between the credibility of an avatar and an associated textual review will produce source trust residuals that are a significant predictor of source credibility

Finally, in an effort to examine the specific impact of expectancy violations on source trustworthiness the following research question is proposed.

Research question 1: Which of the four perceived credibility pairings (i.e. low credibility avatar paired with high credibility text) will produce the highest perceptions of source trust?

4. Methods

4.1 Design

This study utilized an experimental post-test only design featuring a 2 (avatar credibility) X 2 (textual credibility) design. Participants (N = 387) were randomly assigned to one of four conditions: low avatar credibility with low textual credibility (n = 118), low avatar realism with high textual credibility (n = 77), high avatar credibility with low textual credibility (n = 96), and high avatar credibility with high textual credibility (n = 96).

4.2 Participants

Participants were recruited from communication courses at a large public university in the United States. Participants received extra credit worth up to 1% of their final grade for participating. Participants ranged from 18-30 years ($M = 19.43$; $SD = 1.35$), and 234 (52.7%) of the participants were female.

4.3 Procedure

Information sheets about the study including a web address were delivered to communication courses at the participating university. Upon entering the web address, participants gave consent and were randomly assigned to one of the four conditions.

First, participants completed a short questionnaire, which contained questions about their demographics and experience with online shopping. After this, participants were shown the stimulus website which contained a photograph of a 26" LCD flat-panel television, along with a list of key features associated with the television. In addition to this, a peer review of the product was included underneath of the TV's image, along with a picture of one of the avatars next to the review. (See Figure 1 for example.)

PRODUCTS: HOME THEATER & ACCESSORIES: HDTV's

26" Flat Panel LCD HDTV
MODEL: RD1GR78T3 | SKU # 130748

FEATURES
720p Flat Panel LCD HDTV
HDMI, Component Video, & PC Inputs
Built-in HDTV Tuner
16:9 Aspect Ratio
160 Degree Horizontal & 120 Degree Vertical Viewing Angles
Ultra-Slim Design
Energy-Star Qualified Television.

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Posted By
Anonymous Reviewer
on 2/12/09 7:13 PM EST

I just purchased this TV a few days ago and so far I am pretty happy with it. The picture is quite sharp and looks good from far away, however, if you happen to be sitting at an angle it can be difficult to see. Also, if you sit too close you can see some slight fuzziness. The colors on the TV are very bright and make HD programming look awesome.

The sound is OK. Sounds good in my bedroom, but if you're looking for a TV that sounds great really loud, this isn't the one. The TV's style is great. It looks very sleek on our entertainment stand. As far as usability goes, it was a quick set-up and took only a few minutes. The menus are easy to read and work with, but the manual itself isn't very helpful. The TV has two HDMI inputs that are located in the back. It would be nice if there were some side inputs, however, it hasn't really been that big of a deal.

Overall, I'm happy with the purchase. This was my first HDTV purchase so I took it seriously and weighed the options. This TV compares relatively well with the other brands and is certainly worth considering.

Figure 1. Example of stimuli website (low avatar credibility paired with highly credible review)

The website was designed to look similar to several popular electronics websites in terms of layout and content. The brand name and price of the television was digitally removed from the photograph, and omitted from the product features.

After viewing the stimulus website, participants then completed the remainder of the questionnaire, which included measures of perceived avatar credibility, review credibility and overall source trustworthiness.

4.4 Stimulus Materials

Textual credibility was manipulated on the basis of the review's grammatical and syntactical proficiency and not on content. Pretests of the reviews confirmed a sample of participants perceived these to vary on credibility. The avatars associated with the product reviews are shown in Figures 2 and 3. These avatars were perceived as significantly different in terms of avatar credibility in an earlier study and a pilot study was conducted to ensure these avatars were perceived to be different (Nowak and Rauh, 2005).



Figure 2. High credibility avatar



Figure 3. Low credibility avatar

After viewing the stimulus, participants responded to questions about perceptions of the avatar, the review, and the source of the message.

4.5 Measures

Source trustworthiness was measured using nine items ($\alpha = .87$) on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Some of the items from this scale were adopted from Smith et al., 2005. Items in the scale included: “The reviewer is an expert on televisions”, “The reviewer provides an in-depth review”, and “I would trust the reviewer to make a decision for me”.

Review credibility was measured using five items ($\alpha = .88$). These items were also assessed on a 7-point scale. The items included on this scale were: “The review is well written”, “The review is easy to read”, “The review is communicated clearly”, “The logic of this review is easy to follow”, and “This is a high quality review”.

The perceived avatar credibility scale consisted of five 7-interval bipolar adjective items ($\alpha = .94$). Participants were asked to assess the credibility of the avatar using the following adjective descriptions: “unintelligent to intelligent,” “uninformed to informed,” “unreliable to reliable,” “incompetent to competent,” and “untrustworthy to trustworthy”.

5. Results

Independent samples t-tests were conducted to assess the validity of the individual manipulations in the experiment. A significant difference was identified between high ($M = 4.87$, $SD = 1.14$) and low ($M = 4.21$, $SD = 1.23$) textual quality manipulations on perceived review credibility [$t(381) = 5.37$, $p < .001$]. Additionally, a significant difference was identified between high ($M = 4.08$, $SD = 1.06$) and low ($M = 3.15$, $SD = 1.35$) avatar credibility manipulations on perceived avatar credibility [$t(385) = 7.54$, $p < .001$]. These results confirm that the experimental manipulations were effective.

Hypotheses 1 and 2 were tested using a multiple linear regression model. Hypothesis 1 predicted that perceived avatar credibility would have a positive influence on perceptions of source trust. Hypothesis 2 predicted that perceived textual credibility would have a positive influence on perceptions of source trust. Perceived source trustworthiness was entered as the dependent variable and perceived avatar credibility and perceived textual credibility were entered as independent variables. The multiple regression analysis returned a significant model, adjusted $R^2 = .30$, $F(2, 355) = 76.41$, $p < .01$, thus demonstrating support for hypotheses 1 and 2. Perceived avatar credibility had a

significantly positive influence on perceived source trust, $\beta = .16$, $t(355) = 4.0$, $p < .01$. Perceived textual credibility also had a significantly positive influence on perceived source trust, $\beta = .49$, $t(355) = 10.6$, $p < .01$. Based on the obtained beta weights we can also see that perceived textual credibility had a greater influence on perceived source trust compared to perceived avatar credibility in this model.

Support for hypotheses 1 and 2, as shown by the results of the multiple regression model, suggests that source credibility is predictable by the independent linear effects of avatar and text credibility. If we were to assume that these two variables were the only predictors of source credibility in this study then we could also presume that any residuals (error in prediction) of these predictors (avatar and text credibility) should be random and therefore unrelated to perceived source trust. However, the literature surrounding expectancy violations led us to predict in hypothesis 3 that individuals who perceive a discrepancy between the credibility of an avatar and an associated textual review will produce source trust residuals that are not random and are a significant predictor of source credibility.

A residuals analysis was selected for testing hypothesis 3 for specific reasons. First, like a hierarchical regression test that introduces a multiplicative interaction variable, the residuals analysis approach also provides an opportunity to detect a significant interaction between perceived avatar and text credibility. But instead of a general statement that there are interaction effects, hypothesis 3 predicts specifically that the residuals will be a significant predictor of perceived source trustworthiness. To test this idea, we used a residuals analysis that allows us to observe the influence of the residual values after the linear effects of text and avatar credibility have been removed. The residuals analysis permits us to not only test the specific prediction of hypothesis 3, but also research question 1. The research question requires that the magnitude of the residual error for each observation be available for descriptive and inferential analysis. It is important to note that an ANOVA interaction test, like a similar test done with hierarchical regression, would only provide a partial test of hypothesis 3 and would not provide adequate information to address research question 1. Since both perceived text and avatar credibility are scalar values, an ANOVA based on the 7-point scale values of the two independent variable scales is particularly problematic, as it would have 49 cells, many of which would have no observations, as subjects are not assigned to specific cells, as in a fixed effects experimental design, but are classified into cells by their observed scale

responses, as in a random effects design. To conduct an ANOVA, the two independent variables would have to be quantized into a smaller number of ordinal categories (like 2 x 2 or 3 x 3, etc.), which would be used as levels of the independent variables. This reduces the variance in the independent variables and cuts the statistical power of both the main effects and interaction effect tests, as compared to the residuals analysis. For these reasons we will conduct a residuals analysis, which provides the necessary data values at the individual level that are necessary to fully test hypothesis 3 and answer research question 1.

The “source trust residuals” were obtained and saved from the regression analysis used for hypotheses 1 and 2. This variable labeled “source trust residuals” represents all of the variance within the source trust variable not accounted for by the two (linear) predictors from hypotheses 1 and 2 (perceived avatar and textual credibility). Therefore, this residual variable captures any unexplained variance within the source trust variable that may have been due to an expectancy violation.

A median split was applied to both the perceived avatar credibility scale and the perceived textual credibility scale in order to operationalize the concept of perceived discrepancy. Each individual was coded as high (1) or low (0) for both perceptions avatar and textual credibility. This approach was more sensitive to the data, given that it relied upon the perceptions of the manipulations as opposed to the manipulations themselves. Upon assigning each individual with a high or low coding, a new variable was created called “expectancy violations” and was coded as “violation” (1) for those who perceived discrepancy between the credibility of the avatar and text, and “no violation” (0) for those who did not experience a violation.

An independent samples t-test was used to compare the violation and no violation groups, with the obtained source trust residual variable as the dependent variable. Levene’s test for equality of variances was not significant; therefore, the results are interpreted using the output for equal variances assumed. The results of the t-test demonstrated support for Hypothesis 3, as the two groups were found to be significantly different, $t(356) = 2.03, p < .05$.

The obtained significant difference between these two groups on the dependent variable of the perceived source trust residuals demonstrates empirical support for the hypothesis that expectancy violations are also significant predictors of source trust. The individuals who perceived a discrepancy between the credibility of the avatar and the associated text,

experienced some type of violation and this violation appears to have had an influence on their perception of source trustworthiness. This finding suggests that predicting source trustworthiness in an online setting goes beyond the effects of just the avatar and the text’s credibility, and can also be influenced by the discrepancy between these two variables.

Finally, a research question was proposed to determine which of the four perceived credibility pairings (i.e., hi/lo textual credibility; hi/lo avatar credibility) would produce the highest level of perceived source trust. The four perceived credibility variables were entered into an ANOVA as independent variables with perceived source trust entered as the dependent variable.

The results of the ANOVA demonstrated that there was a significant difference amongst the four different perceived “pairing” variables that were entered, $F(3, 365) = 24.27, p < .01$ (see Table 1 for details). A Scheffe post-hoc comparison demonstrated that the high perceived textual credibility and high perceived avatar credibility pairing produced the largest mean value of perceived source trust ($M = 3.96, 95\% \text{ CI } [3.75, 4.16]$) which was significantly different from the other three groups at $p < .05$. This finding was not surprising since this pairing featured high levels of perceived avatar and textual credibility.

<i>Perceived Credibility</i>	<i>Perceived High Text</i>	<i>Perceived Low Text.</i>
High Avatar	3.96	3.03 _{ab}
Low Avatar	3.47 _a	2.9 _b
Means that do not share subscripts differ at $p < .05$ in the <i>Scheffe</i> post-hoc comparison tests.		

Table 1. Influence of perceived credibility pairings on perceived source trust

However, the variable (pairing) that produced the second highest level of perceived source trust was the pairing of the high-perceived textual credibility and low perceived avatar credibility ($M = 3.47, \text{ CI } 95\% [3.3, 3.7]$), which was significantly different from two of the other three variables at $p < .05$, except for the low perceived textual credibility and

high perceived avatar credibility pairing ($M = 3.03$, CI 95% [2.7, 3.3]). The variable used to represent the pairing of the high-perceived textual credibility and low perceived avatar credibility exemplifies the process of expectancy violations where the participant's perception of the avatar's credibility did not match their expectations for the subsequent perception of the associated textual credibility. In this particular pairing, participant's expectations were violated in a positive manner, which in turn had an influence on their perception of the source's trustworthiness. The implications of these findings are discussed in the following section.

6. Discussion

The goal of this research was to examine the influence of perceived avatar and textual credibility on perceived source trustworthiness in an online consumer setting. This research also set out to test the extent by which this process is predicted by the theory of expectancy violations, which predicted that any discrepancies between perceived avatar and textual credibility would result in violations, and as a result would have an influence on perceived source trustworthiness beyond the direct effects of perceived avatar and textual credibility alone. The data provided clear support for our predictions that both perceived avatar credibility and perceived textual credibility would have a direct effect on perceived source trustworthiness. The results demonstrated that our manipulations did cause discrepancies and ultimately our prediction that expectancy violations would lead to significant differences in perceptions of source trustworthiness was supported.

The results suggest that the influence of perceived textual review credibility on source trust is more substantial than the influence of perceived avatar credibility on perceived source trust, given the larger beta weight obtained in the analyses for hypotheses 1 and 2. This suggests that the perception of a text's credibility is more influential in terms of predicting the source's trustworthiness than the perceived credibility of the avatar that source has chosen to represent him/herself. One interpretation of this finding might be that an individual's comprehension of a textual review is a much more cognitive process than simply glancing at an avatar, and therefore the information which is processed in a more cognitive fashion has a greater influence on source trust.

Arguably, the most important discussion point for this piece of research is the prediction and finding surrounding the theory of expectancy violations. The process examined in this

research is an important one that goes beyond the consumer context in which these particular variables were tested. The expectancy violations theory predicts that discrepancies between what is expected and what is actually perceived may have an influence on outcome variables. The residual analysis approach allowed the researchers to determine which individuals perceived a discrepancy between the textual and avatar manipulations, which allowed us to group together those individuals who did perceive a discrepancy, and those who did not. By saving the residuals from the analysis used for hypotheses 1 and 2, we were able to examine the variance in our dependent variable of source trust that had gone un-accounted for. The un-accounted for variance, or error, should have been un-related to any other variable if perceived textual and avatar credibility were truly the only predictors of source trust, however, this was not the case. As predicted, those individuals who perceived a discrepancy between their perceptions of the text and avatar's credibility had significantly different attitudes towards the source's trustworthiness when compared to those who did not perceive a discrepancy. This finding suggests that expectancy violations took place for those individuals who felt that the credibility of the text and avatar did not match in terms of expectations. However, this finding does not necessarily distinguish whether it was the perception of the text that set-up expectations for the avatar or if it was perceptions of the avatar that drove expectations for the text. This is an important question that arises from this finding and is addressed below.

The goal of the manipulation in this study was to create perceived discrepancies between the credibility of the textual review and the associated avatar. The manipulations were successful and as a result we were able to capture and demonstrate the influence of expectancy violations on source trustworthiness. Yet, the question of how expectations were formed still remains. Previous research has found that avatars are used in a similar fashion to the way nonverbal cues are relied upon in offline settings, (Bailenson, et al., 2006; Hamilton and Nowak, 2010; Nowak and Rauh, 2008) Therefore, one interpretation could be that the avatar was processed before the textual review, thus the visual information dictated expectations for the source of the review and their behavior (review). It is possible that the avatar was processed first due to it requiring less cognitive attention than the textual portion of the stimuli, thereby setting expectations for the textual review. Previous researchers have also suggested that most individuals will have a visual bias, such that an avatar's appearance will be processed before subsequent behavior, which

lends further support to this interpretation (Nowak and Rauh, 2008). Furthermore, past research has also shown that individuals place a great deal of confidence in the visual information they obtain (Burgoon, 1994). Since the avatar was the only visual cue linked to the source of the review, it stands to reason that consumers would place a great deal of faith in this information in terms of attributing characteristics about the source.

Based on this interpretation, avatars could be implemented in various online consumer settings to influence perceptions of source credibility and trustworthiness, and certain features or characteristics of the avatars could be manipulated in an effort to set-up expectations in a certain manner. For example, avatar anthropomorphism has been shown to influence the attributions people make about avatars and their sources (Nowak, 2004). Anthropomorphism can be defined as the visual closeness an avatar might have with characteristics typically associated with humans, or in other words, the degree to which an avatar looks like a human being (Nowak et al., 2009). Avatars and their anthropomorphism can range from relatively non-human looking to highly human looking and everywhere in between. Research suggests that higher levels of anthropomorphism can also increase perceptions of realism, homophily and ultimately, credibility (Hamilton and Nowak, 2010; Nowak et al., 2009). In addition, avatars that are considered to be more “anthropomorphic” are also perceived to have higher social potential and are considered to be capable of behaving in socially appropriate ways (Nass and Moon, 2000; Reeves and Nass, 1996), thus setting higher expectations. Therefore, based on the results of this research, individuals interested in using avatars to control expectations could consider manipulating the anthropomorphic qualities of their chosen avatars. In addition to this, consumers of online information should keep a critical eye on their own perception of avatars ensuring that they are aware of how the visual information might be influencing their perception of subsequent behaviors associated with the source the avatar represents.

Finally, the research question in this study asked which of the four perceived credibility pairings (textual credibility and avatar credibility) would produce the greatest perception of source trust. The results of this question provide some key insight in terms of answering the bigger question of how expectations were formed. The data demonstrated that the high perceived textual credibility and high perceived avatar credibility pairing produced the greatest levels of perceived source trust. However, the second highest perception of source trust was produced by the pairing of low perceived avatar credibility and high

perceived textual credibility. This pairing represents a positive violation in terms of expectations, such that, participant's expectations for the textual review were lower after viewing the relatively un-credible (dinosaur) looking avatar. Yet, when the associated textual review was subsequently perceived as being well written it exceeded their initially low expectations, thus producing an evaluation of source trust that was significantly higher than two other pairings (low perceived textual credibility/low perceived avatar credibility and low perceived textual credibility/high perceived avatar credibility).

This finding seems to suggest that in an online consumer setting, the avatar is processed before other information such as the textual review, and used in the initial process of forming expectations which is similar to the way visual or nonverbal information is used in an offline setting (Bailenson, et al., 2006; Bente, Ruggenberg, Kramer, and Eschenburg, 2008; Hamilton and Nowak, 2010; Nowak and Rauh, 2008; Schroeder, 2002). In some online environments, avatars are the primary source of visual information users rely on to form expectations about the source; therefore, future research should continue to test these assumptions surrounding expectancy violations and the order in which information is processed.

7. Limitations

There are some key limitations to this research that must be acknowledged. To begin, the added control of an experimental setting also functions to limit external validity; while the online interface used in this research closely mirrored online sales sites, no manipulation can create the degree of investment associated with an individual actively preparing for (and researching) a major purchase. In addition to common limitations associated with experimental research, the use of a convenience sample should also be acknowledged. The ability to generalize from this college student sample may be somewhat limited, however, we do believe that this sample would be sensitive to the product being reviewed (television) and the context of the research itself. Future research should make an effort to replicate these findings while using a more randomly acquired participant pool.

In addition to these limitations, this study also made a unique choice in selecting a human and non-human avatar for the avatar credibility manipulation. In this case, the avatars were perceived to be significantly different in terms of credibility, however, it is

worth acknowledging that these avatars may have differed on other dimensions too. Future research in this area should continue to investigate the unique influence of different types of avatars, especially those that are “non-human”.

8. Conclusion

Given the pervasiveness of online shopping in our contemporary culture, consumers are looking for new means of evaluating products. The peer product review system seems to have become the most common source for consumer insight on a majority of today’s most popular consumer websites. In addition to this, previous research also indicates that perceived trust of a product review can positively influence purchase intention (Smith et al., 2005). This research set out to explore the predictors of source trustworthiness while also examining the possibility of an expectancy violations effect.

Previous research has shown that highly anthropomorphic avatars usually lead individuals to having higher expectations for an associated source; which can eventually result in disappointment or lower source trust when the source fails to live up to the elevated expectations (Shneiderman, 1988). This logic, along with the results of this research, seems to suggest that there may be a linear relationship between anthropomorphism and expectations. However, expectancy violations theory would also suggest that designers could successfully use any type of image, anthropomorphic or not, as long as there is consistency between the visual characteristics and the associated behaviors or communication.

Given the detected influence of perceived avatar credibility on perceived source trustworthiness, the credibility of an associated avatar should be carefully considered whenever constructing an online message, especially in the context of a consumer setting. The results of this research also provide some very useful and practical information for those individuals who are interested in increasing their online persuasiveness or “selling” power. This research suggests that the most important element of the review is the credibility of the text itself, but it also tells us that reviewers can intentionally lower a consumer’s expectations via an avatar that is perceived to have low credibility and then exceed expectations with a well written textual review. This tactic could be employed in a number of online settings where the reviewers are anonymous and the sales setting is a relatively open forum, such as Ebay or Amazon.

9. References

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