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BYPASSING TRUST IN ONLINE PURCHASE DECISIONS BY ESTABLISHING COMMON GROUND

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Completed Research Paper

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Abstract

Revenue from ecommerce represents a multi-billion dollar industry in rapid expansion. Old and new players in this burgeoning market must foster purchase intentions in potential consumers in order to stay afloat. Until now, trust has acted as the lone gatekeeper to purchase intentions. In this study we suggest an alternative gate through establishing common ground with product reviewers. Common ground is a multidimensional construct from the fields of cognitive science that refers to the mutual knowledge, beliefs, and assumptions shared during communication (Clark 1996; Clark et al. 1983). Using PLS to analyze results from 102 online surveys, we distinguish between common ground and homophily (similarity of attributes), and show what role each plays in ecommerce. Our findings support our recommendation to measure common ground and homophily separately. Lastly, we find that purchase intentions can be fostered in potential customers through establishing common ground—regardless of levels of trust.

Keywords: Common ground, Homophily, Trust, ecommerce, Avatars, Purchase intentions, Customer reviews

Introduction

Revenue from online transactions represents an enormous and quickly growing market. In the U.S. alone, over $42 billion was spent online just during the fourth quarter of 2009 (Winters et al. 2010). Total annual online sales in the U.S. are projected to reach nearly $250 billion in the next 3-4 years (RetailRefugees 2010). Additionally, of those who have access to the internet in the U.S., 94% report having made purchases online (Reuters 2008). Thus, although ecommerce is only just over a decade old, it has become a major part of modern life, and commonplace among citizens of developed countries. New sites designed to capture some of this vast cash flow are showing up regularly. In order to stay afloat, the countless new and existing sites need to foster trust and purchase intentions in potential customers – in the hopes that these will result in actual purchases (Lim et al. 2006). To accomplish this, many sites have implemented customer feedback, reviews, ratings, and more recently, avatars to establish trust and foster purchase intentions in potential customers.

Many researchers have taken up the cause to help explain and predict how to establish trust and foster purchase intentions (e.g., Handy 1995; Jarvenpaa et al. 2000; Kuan et al. 2007; Lim et al. 2006; Lowry et al. 2008; McKnight et al. 2002; Pavlou et al. 2006; Stewart 2003), often through the use of avatars and various feedback mechanisms. In our study, we focus particularly on those that employ avatars and feedback. In these studies, the avatars and feedback are manipulated across different variables in order to influence the trust of the potential customer. For example, feedback can be either positive or negative, and can include personal information and group identifiers (e.g., Lim et al. 2006). Avatars can vary in terms of realism, anthropomorphism (human-ness), gender, and

attractiveness (e.g., Nowak et al. 2005). These factors have been shown to effect levels of trust in potential customers.

In most studies explaining trust and purchase intentions in online contexts, trust acts as the gatekeeper for explaining purchase intentions. For example, unless customer feedback and/or avatar appearance increase trust, they will not increase purchase intentions. Thus trust acts as the great mediator between independent variables and purchase intentions. But establishing trust in an online context, especially in first time consumers, is at very least, problematic (Kuan et al. 2007; Lowry et al. 2008) because no physical products, salespersons, or physical interaction can be used to establish that trust. An unexpected finding from our study suggests that there is another path to purchase intentions through a construct called *common ground.*

Common ground is a construct from the fields of cognitive science and linguistics that refers to the mutual knowledge, beliefs, and assumptions shared by communicators (Clark 1996; Clark et al. 1991; Clark et al. 1983). In an online shopping scenario, the two communicators are the prior customer who has left feedback about a product, and the potential customer. Online retailers have recognized the benefits of establishing common ground through the use of avatars and personal and group identifiers in feedback and reviews. For example, if a potential customer can identify with one of the groups (such as gender, position, institution, etc) that the reviewer reveals through his/her avatar or feedback, the potential customer can rely on this perception of same-group affiliation, and will assume mutual knowledge, beliefs, and assumptions based on this common membership. If this is the case, we say that these two share some common ground. However, researchers have lumped these measures and perceptions of common ground in with measures and perceptions of homophily (perceiving someone to be similar to you in appearance and characteristics) (e.g., Lim et al. 2006; Nowak et al. 2009).

In this paper we distinguish between homophily (similarity of person) and common ground (similarity of perspective). We develop a new scale for common ground and adapt an existing scale for homophily (McCroskey 1975), and show, through use of partial least squares (PLS), that these two scales are measuring two distinct phenomena. Our findings further suggest that these two variables play distinctly different roles in explaining and predicting trust and purchase intentions in online contexts.

In order to familiarize the reader with the research that has already been done in this area, and to strengthen our position in this set of literature, we briefly review prior research on trust, feedback, and avatars in ecommerce. We then devote our efforts to introducing and explaining the construct of common ground which we have appropriated from the fields of cognitive science and linguistics, and explain how pieces of this construct have found their way into the ecommerce research measures and manipulations, but have not been accounted for. After which we speculate on the relationships among these constructs: anthropomorphism, homophily, common ground, trust, and purchase intentions. Our theoretical model is tested using PLS. We conclude by discussing findings and implications.

Background

Trust, Feedback, and Avatars in eCommerce

Trust in online shopping scenarios has been a well-studied relationship. By trust we mean willingness to rely on another based on perceptions of credibility (Kuan et al. 2007; Lim et al. 2006; Nowak et al. 2009; Pavlou et al. 2006). Specifically we are interested in trust based on customer feedback and/or avatar appearance. In our study, we looked at both. However, "developing trust in online shopping environments is especially challenging, because of the lack of direct contacts with the physical stores, salespeople, and physical products in the digital world" (Lim et al. 2006). In online commerce, purchase decisions are made based on the images and text provided by the seller. These images and texts can either increase or decrease the seller's perceived trust.

Lim et al (2006) conducted a two stage experiment to test a theoretical model predicting the effect of customer feedback on potential customers' purchase intentions. This relationship was mediated by trust. Feedback providing positive endorsement of the seller increased potential customers' trust and, in turn, purchase intention. Kuah and Bock (2007) also studied building trust in online shopping scenarios. Their findings suggest that potential customers trusting beliefs are more influenced by other customers' opinions than by marketing, products, or sales representatives.

Pavlou and Dimoka (2006) have also examined how customer comments and feedback texts can engender trust in online shopping experiences. However, their focus was on trust in the seller based on the comments and feedback provided by others. Conversely, whereas their analysis was on trust in sellers dependent upon comments of former customers, our analysis is on trust in former customers in order to strengthen purchase intentions of potential customers. Nevertheless, they also found the text of customer feedback to significantly influence potential customers' trust during the online shopping experience.

Avatars, images used to represent oneself (McGloin et al. 2009), have become more prevalent in a diverse array of online contexts, including ecommerce. Researchers have responded to this movement by studying the effect of avatar appearance on perceptions of trust. Homophily – the extent to which one is perceived to be similar to the perceiver (McCroskey 1975; Nowak et al. 2005) – and anthropomorphism – the visible characteristics that make an image more human in appearance (Heddens 2008; Nowak et al. 2005) – are the two main constructs of interest with regards to avatar appearance in ecommerce research. For example, McGloin et al (2009) tested, among other things, the effect of anthropomorphism and homophily on trust, and trust on purchase intention, by administering a treatment (varying avatar gender, realism, and anthropomorphism) to 450 individuals in a real shopping scenario (i.e., purchases were actually made). Both of these relationships were found to be significant and positive. Other studies (e.g., Heddens 2008; Nowak et al. 2009; Nowak et al. 2005) have also examined the effects of avatar appearance on perceptions of trust in ecommerce.

Thus, this area of interest is not new or unique to our study. However, we believe there is a key component missing in all of these studies, possibly confounding their results. This key component is the construct *common ground* explained next.

Common Ground

Common ground is a multidimensional construct from the fields of cognitive science and linguistics that refers to the mutual knowledge, beliefs, and assumptions shared during communication (Clark 1996; Clark et al. 1983). Common ground includes all knowledge that can be presupposed, or taken as given, for all communicators in a given context due to what knowledge is readily available (i.e., visible or audible in the environment), what has already been said, and what is understood about the communicators themselves (Clark et al. 2002). These three sources of common ground are explained by Clark et al (1983) as: 1) perceptual evidence – what communicators have jointly experience or are jointly experiencing at the moment; 2) linguistic evidence – what communicators have jointly heard said or are now jointly hearing as participants in the same communication; and 3) community membership – what the communicators believe is universally known about the various communities and subcommunities to which they mutually believe they both belong.

Thus, whereas homophily has been termed as a similarity of person, common ground can be termed as a similarity of perspective. The distinction is subtle and not mutually exclusive (Lyons et al. 2008). Homophily is established based on similarity of characteristics; whereas common ground is established based on similarity of experience and environment. Those who share common ground share a commonness of perspective on the topic of communication. In synchronous and collocated communication, environmental context provides much common ground. If I am collocated with you, we can see what each other see, and hear what each other hear, and thus many words can go unspoken because they are given (Clark et al. 1992). For example, if I am talking to you at a street corner, I can say, "man, when's it going to turn green?" and you know that I'm talking about the streetlight without me having to say anything about the streetlight, because the streetlight is in our immediate environment. Common ground makes it possible to coordinate the meaning and intent of the communicators without having to explicitly state meaning and intent (Clark 1996).

Given the nature of common ground, it is difficult to share common ground with someone whom you have not met previously and with whom you are not communicating synchronously. Thus our context of potential customers viewing online customer reviews is particularly problematic for establishing common ground with regards to Clark's first two sources of common ground. However, if we consider his third source – community membership – we can establish common ground on assumed similarities of experience and perspective based on similarities of communities. For example, if I read a customer review that reveals the customer's needs or requirements, and I have those same needs and requirements, then I can feel some form of community and common ground with that customer, because I understand "where he's coming from". That customer and I have the same needs when it comes to product XYZ, thus I may feel that this customer's evaluation of the product would probably reflect my own

evaluation of the product. Similarly, if a customer review reveals the reviewer's occupation, and it is similar to my own, I have immediate common ground established through feelings of community. I feel like I know how this person thinks and what criteria he may have when purchasing a particular product or service. Notice these feelings of common ground may bypass trust and directly affect purchase intentions: while I might not necessarily trust the reviewer, I still think we have the same needs because we are part of similar communities. This may be somewhat like voting for a politician or employing a lawyer; although you don't necessarily trust either, both represent your interests.

Other sources for building common ground in customer reviews can come from avatar images. If the avatar is male, and I'm male, we are part of the same community of gender. If the avatar is humorous in appearance, and I consider myself to be a humorous person as well, then we are part of a community of humorous people. All these and other points of commonality between the reviewer and the potential customer provide common ground for the potential customer to understand and assume much more than is explicitly conveyed by the reviewer (Clark et al. 1992).

This construct, however, is missing from studies of avatars, feedback, and ecommerce. Traces of it have slipped in and muddied the construct homophily. For example, Nowak et al (2009) manipulate and measure homophily not only by personal characteristics, but by group identifiers such as being a skateboarder or being a particular gender. Lim et al (2006) similarly slip common ground into their manipulations of customer endorsements without explicitly measuring it. For example, one endorsement states that the endorser is "Mike C., graduate student". From this simple label of identification, we can see that the endorser is part of two communities: males and graduate students. We argue that this manifestation of community will affect the potential customer's feelings of trust. Thus, in these endorsements, common ground is explaining some of the variance in trust, but that variance is either not being accounted for, or is being attributed to another variable. In the case of Lim et al (2006), the intent of the label was to increase homophily. However, as we will show, homophily and common ground are distinct variables that have separate roles in ecommerce.

This neglect of accounting for common ground may be why in some studies, avatars believed to be more anthropomorphic have been rated as more credible, engaging, and likeable than less anthropomorphic images (Koda et al. 1996; Wexelblat 1998), while other studies (Nowak 2004) have found the opposite to be true (Nowak et al. 2005).

We next explain our theoretical model by proposing hypotheses related to common ground as well as replicating hypotheses from other ecommerce studies needed to round out our theory. The constructs we've reviewed here are summarized in Table 1.

Table 1. Construct Definitions		
Construct	**Definition**	**Source**
Anthropomorphism	Having visible characteristics that make an image appear human	(Heddens 2008; Nowak et al. 2005)
Homophily	The perceived degree of psychological similarity between the images and the human psyche, or the extent to which one is perceived to be similar to the perceiver	(McCroskey 1975; Nowak et al. 2005)
Trust	Willingness to rely on another based on perceptions of credibility	(Kuan et al. 2007; Lim et al. 2006; Nowak et al. 2009; Pavlou et al. 2006)
Common Ground	The mutual knowledge, beliefs, and assumptions shared by the speaker and addressees	(Clark 1996; Clark et al. 1983)
Purchase Intention	Willingness to buy a product or service	(Lim et al. 2006)

Theory Development

The motivation for our theory is to account for variance in trust and purchase intention in ecommerce scenarios involving feedback and avatars by including a wholly neglected construct – common ground. Nevertheless, in order to round out the ecommerce scenario, we also include hypotheses related to anthropomorphism and homophily, which are mostly replications of prior work done by other researchers.

We first replicate hypotheses regarding the positive correlation between anthropomorphism and homophily. More anthropomorphic avatars are more human in appearance. Thus naturally, a human customer will perceive a more anthropomorphic avatar to be more similar to him than a less anthropomorphic one. For example, a customer would perceive more homophily in an avatar that looked like a human than an avatar that looked like a rat, and much less an avatar that looked like a toaster. Nowak and Rauh (2005) and Nowak et al (2009) both report on the significant positive correlation between anthropomorphism and homophily. McGloin et al (2009) also found supporting evidence for this correlation. We replicate these studies:

> *H1. Anthropomorphism is positively correlated with Homophily.*

Independent from perceptions of homophily, anthropomorphism has a direct, positive correlation with feelings of trust. More anthropomorphic avatars invoke greater feelings of fondness and persuasiveness than less anthropomorphic avatars (Heddens 2008), and thus likely increase feelings of trust. Customers may be more likely to trust avatars that appear more anthropomorphic because they portray images of sentient beings, rather than irrational animate or inanimate objects. In Nowak and Rauh's (2005) study of 30 variations of avatar anthropomorphism, they found support for strong positive correlation between perceived anthropomorphism and ratings of avatar credibility. Along this vein we replicate and hypothesize:

> *H2. Anthropomorphism is positively correlated with Trust.*

Homophily can be thought of as a similarity of self (McCroskey 1975; Nowak et al. 2005); whereas common ground can be thought of as a similarity of perspective (Clark 1996; Clark et al. 1983; Cogburn et al. 2002). In ecommerce literature, homophily is often used to account for both of these constructs (e.g., Lim et al. 2006; Nowak et al. 2009). This common mistake of using one to account for both or the other indicates that there is likely some correlation, or overlap, between the constructs. Lyons et al. (2008) explains this overlap by referring to common ground as "cognitive homophily"—a similarity of cognitive understanding or reference. Similarly, Cogburn et al. (2002) recognize that while different in definition and composition, homophily and common ground are similar in effect. For example, the more one feels similar to another the more one can relate to that person. I am apt to feel more homophily with an avatar that is of my same gender, but at the same time, this similarity of gender establishes some common ground through our membership in the same gender community. Given these arguments we hypothesize:

> *H3. Homophily is positively correlated with Common Ground.*

Lim et al (2006) argued that "people who share common characteristics tend to perceive each other in a positive light and, hence, are more likely to trust each other." The assumption here is that potential customers trust prior customers who they perceive as similar to them. Thus if a potential customer sees that a prior customer very similar to them has had trust in the product, service, or store, they transfer their trust in the prior customer to the product, service, or store (p. 239). In Nowak and Rauh's (2005) study of 30 variations of avatar anthropomorphism, participants who ranked an avatar first in homophily, also ranked it first in credibility; the inverse was also found – that the avatar ranked lowest in homophily was also ranked lowest in credibility. The argument behind this finding is that perceptions of avatar homophily increase perceptions of competence, which will increase trust (Nowak et al. 2009). Nowak et al (2009) found homophily to have an indirect effect on trustworthiness through feelings of perceived confidence in the avatar. However, no direct effect was tested. Additionally, feelings of competence are built into our trust measures ("This person seems to have sound judgment." "I feel comfortable making relevant decisions based on the information provided by this person." See Table 2.).

> *H4. Homophily is positively correlated with Trust.*

Common ground has not been empirically tested in relation to trust in online shopping scenarios. However, in Lim et al (2006)'s study, customer feedback was shown to have a strong positive correlation with trusting beliefs. Their feedback manipulations all included group identifiers. For example, one of these feedback manipulations states, "In the past, I never shopped in the Internet because of the security problem. But this site is secure. I feel comfortable

with its security level. Now I just visit iBook. (Rachael I., instructor and former student)". These group identifiers create the opportunity to establish common ground on the basis of membership in a community of students, instructors, females, and those who worry about internet security. Thus, although common ground was not measured, it played a major role in the manipulations that were found to establish trust. Similarly, Kramer (1994) found that MBA students, despite having no interaction history, had high levels of trust among one another – simply because they were part of the same community of MBA students (although, they did not call this "common ground"). We find it easier to trust those with whom we share common community membership because we feel they understand our own perspective and would act in a similar way we would act. Therefore, if they were able to trust a product, service, or online store, we can probably trust their judgment, because we are coming from a similar community.

> *H5. Common Ground is positively correlated with Trust.*

We hypothesize that common ground also has a direct effect on purchase intention. Those who share common ground see from the same perspective, they understand where each other is coming from, and they understand the motivations behind each other's behaviors and communications (Clark et al. 1983; Koschmann et al. 2001). Those who share common ground are part of the same community or group, and likely have some similar requirements, needs, and expectations (Clark et al. 2002). People form intentions and act on those intentions based on group norms (Ajzen 1991; Fishbein et al. 1975). Thus, if I feel I can identify with one or more of the groups manifested by the customer reviewer, I am more likely to intend to behave in a way that is normal for members of our group. For example, the customer reviewer purchased the product, so I am unlikely to feel this type of behavior violates the norms for our group. Therefore, if I form intentions based on the norms of my group, I will also intent to purchase this product.

> *H6. Common Ground is positively correlated with Purchase Intention.*

Trust is known to positively affect intentions (McKnight et al. 2002). Several studies have argued and confirmed the relationship between trust and purchase intentions in online shopping scenarios (Everard et al. 2006; Jarvenpaa et al. 2000; Lim et al. 2006; Lowry et al. 2008; Stewart 2003). These arguments are usually based on the theories of reasoned action (TRA) and planned behavior (TPB) (Ajzen 1991; Fishbein et al. 1975) which state that beliefs drive intentions. In an online shopping scenario, a trusting intentions would be the intent to act upon your trusting beliefs (i.e., to intend on purchasing). We replicate these studies:

> *H7. Trust is positively correlated with Purchase Intention.*

These hypotheses are summarized in our theoretical model shown in Figure 1.

Figure 1. Theoretical Model
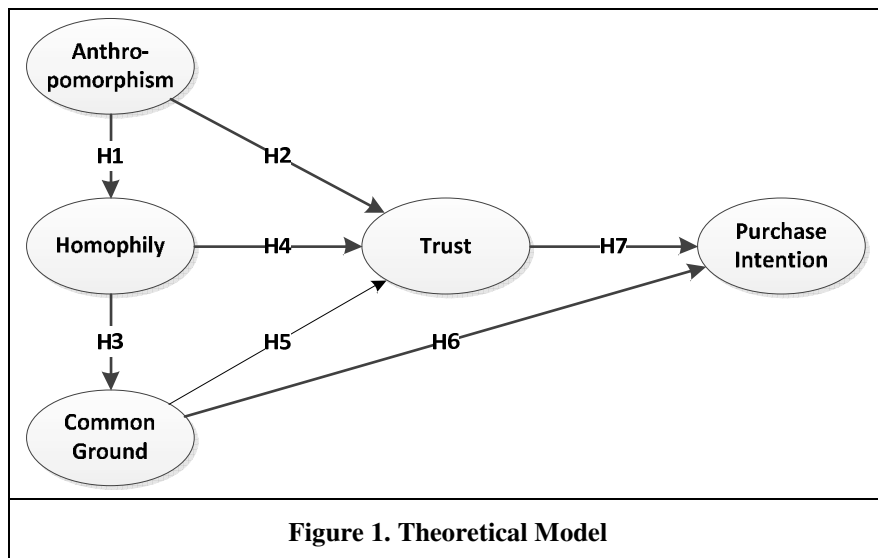
Research Design and Method

To test this theoretical model we administered an online survey to students in four business school courses: two graduate level business courses at a large public university in the mid-east United States, and two undergraduate information systems course—one from a large public university in the eastern United States and one from the southern United States. Of the 172 potential respondents, 102 completed the survey and provided usable results. Of those, 59 were male and 43 female. No incentives or benefits were offered to participants. Participation was completely voluntary.

Instrument

Eighteen variations of the survey shown in Figure 2 directly manipulated anthropomorphism (variations in the image), homophily (variations in image, gender, and feedback), and common ground (variations in feedback). Feedback was given from the perspectives of three different social groups: students, workers, and spouses. These three social groups were chosen because they most adequately capture the expected variance in social classification among our sample (students were used, some of whom have, or do currently work, and many of whom are likely married). Thus, including these three social groups enabled greater potential feelings of common ground and homophily; however, the 18 treatments were assigned at random, i.e, no attempt was made to match the social group of the participant with the social group represented in the treatment. Treatments were administered at random in order to capture a richer spectrum of variance in responses, rather than "herding" data to either end of the spectrum.

2 Terabyte External Hard Drive

Quick Specs

Model:	ST320005FDA2E1-RK
Interface:	USB 2.0
Capacity:	2TB
Form Factor:	3.5"

Works Great

+Reviewed By: *John* on 11/9/2009

My coworker's computer crashed the other day and wiped out all his work on his hard drive, so I thought it was probably time for me to back up my computer. This hard drive hasn't given me any trouble at all. I can fit all my stuff on it and I haven't even used up half of it yet.

Example treatment

Variations in Image (Gender specific and neutral; and High, Medium, Low, and No anthropomorphism)

1. I started my junior year at college this semester and I knew I'd need more space for all my projects,

	pictures, music, and videos. This hard drive hasn't given me any trouble at all. I can fit all my stuff on it and I haven't even used up half of it yet.
2.	My coworker's computer crashed the other day and wiped out all his work on his hard drive, so I thought it was probably time for me to back up my computer. This hard drive hasn't given me any trouble at all. I can fit all my stuff on it and I haven't even used up half of it yet.
3.	My husband hasn't gotten around to backing up our family pictures and home videos yet, so I thought I'd take matters into my own hands. This hard drive hasn't given me any trouble at all. I can fit all our stuff on it and I haven't even used up half of it yet.
	Variations in Feedback (other slight adjustments were made to match gender)

Figure 2. Treatment Variations

The survey items asked students to rate the degree to which they agreed with statements about homophily, common ground, trust, and purchase intentions (5 point Likert scale strongly disagree – strongly agree). Other questions were asked about computer self-efficacy, computer experience, and online shopping comfort in order to control for confounding factors in the analysis. The survey questions used for this study are shown in Table 2.

Table 2. Scales For Key Constructs
For the sake of this study, let's say you are in the market for an external hard drive   *and you intend on buying one from an online store.*   *The following statements are in reference to the customer review person.*   *Please indicate to what extent you agree or disagree with these statements.*
Items (all items rated on 5-point Likert scales: Strongly Disagree – Strongly Agree) *item-level reliability in italics*

Homophily – partly adapted from (McCroskey 1975)
   1. This person is like me. *0.820*
   2. I can identify with this person. *0.862*
   3. This person represents something in me. *0.795*
   4. I have something in common with this person. *0.812*
   5. This person is similar to me. *0.836*

Common Ground
   1. We have similar backgrounds. *0.693*
   2. We have similar needs. *0.786*
   3. We have experienced similar things. *0.766*
   4. We are part of similar communities. *0.708*
   5. We are in similar situations. *0.787*

Trust
   1. This person seems to be trustworthy. *0.816*
   2. I feel I can trust this person's judgment. *0.879*
   3. I feel comfortable making relevant decisions based on the information provided by this person. *0.814*
   4. This person seems to have sound judgment. *0.820*

Purchase Intention   1. I would probably purchase this product.

Analysis

We used PLS-GRAPH version 3.0 to analyze our theoretical model using partial least squares rather than using traditional covariance based SEM tools such as LISREL or AMOS. PLS is especially well-suited for developing theory, as we are doing, working with new measures (such as common ground), and for analyzing formative measures (Chin et al. 2003), whereas covariance based techniques are better suited to confirmatory analyses (Chin 1998). To confirm that our new scale for common ground is valid, and is distinct from homophily, we test for convergent and discriminant validity. To test for convergent validity items in each construct must have reliabilities over 0.5 (Fornell 1982; Hair et al. 1995) as shown in Table 2, construct composite reliabilities over 0.8 (Nunnally et al. 1994) as shown in Table 3, and the average variance extracted maximized (minimum of 50%) (Barclay et al. 1995) as shown in Table 3. Discriminant validity is established by showing that the correlation between any two constructs is less than the square root of the average variance extracted by the measures of that construct (Lim et al. 2006) as shown in Table 3. All of our constructs and items have met the thresholds for establishing convergent and discriminant validity. Thus we have statistically distinguished homophily from common ground.

Because we collected data using a single method (online surveys), we tested for common methods bias to establish that there was no common factor biasing our data collection. This is done by examining the correlation matrix of the latent constructs for correlations above 0.90, which is strong evidence that common methods bias exists (Pavlou et al. 2007). No correlations approached this threshold, indicating that there was no common factor biasing our data collection. For our analysis, we ran 100 bootstraps and controlled for Computer Self-Efficacy (CSE), Computer Experience, and Online Shopping Comfort. However, controlling for these factors did not change any path's significance.

Table 3. Measurement Model Statistics, (n=102)								
Measure	**μ**	**SD**	**CR**	**AVE**	**Anthropomorphism**	**Homophily**	**Common Ground**	**Trust**
Anthropomorphism*	2.82	1.07	1.00	1.00	**1.00**			
Homophily	3.41	.910	.913	0.682	0.121	**0.826**		
Common Ground	3.25	1.03	.865	0.561	0.023	0.625	**0.749**	
Trust	3.27	.909	.900	0.693	0.204	0.336	0.243	**0.832**
Purchase Intention*	3.17	.891	1.00	1.00	0.021	0.231	0.270	0.415

*Single Item (Anthropomorphism was directly manipulated as part of the survey with values 1-4: low-high)
Square root of the average variance extracted on the diagonal.

Table 4 summarizes the hypotheses, path coefficients, and *t*-values for the hypotheses, and whether each was supported. A summary of our tested model is depicted in Figure 3.

Table 4. Summary of Results			
Tested hypotheses / paths	**Path coefficient**	**t-statistic**	**Supported?**
H1. Anthropomorphism ➔ Homophily.	.142*	1.49	Yes
H2. Anthropomorphism ➔ Trust.	.169*	1.46	Yes
H3. Homophily ➔ Common Ground.	.600***	8.02	Yes
H4. Homophily ➔ Trust.	.275*	1.6	Yes
H5. Common Ground ➔ Trust.	.065(ns)	.41	No
H6. Common Ground ➔ Purchase Intention.	.157**	1.87	Yes
H7. Trust ➔ Purchase Intention.	.374***	4.04	Yes

*p<0.1, **p<0.05, ***p<0.01

Figure 3. Final Measurement Model (Significant Paths Only)
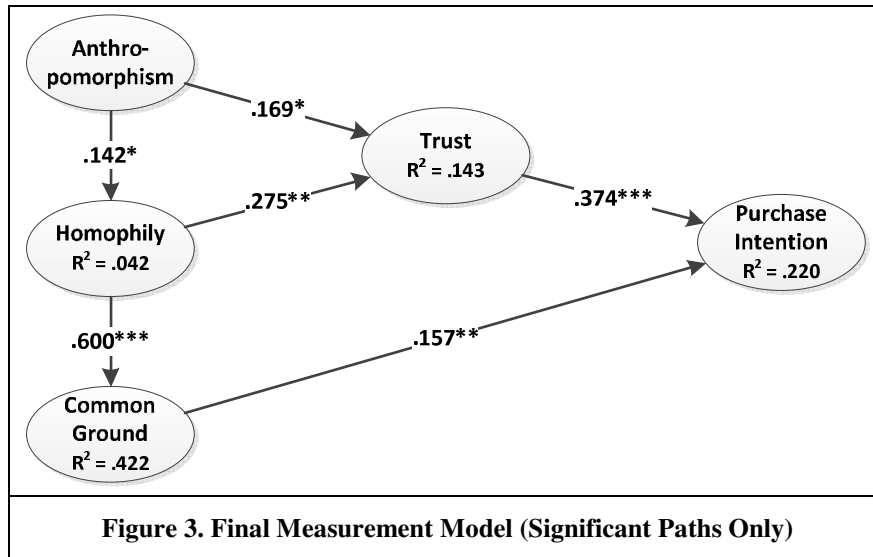
Discussion and Implications

In this paper we have proposed and tested a model that builds on many common models of avatars and trust in online purchase decisions. The unique contribution of our model is in the introduction of a new construct into the model – common ground. Past research on avatars, trust, and ecommerce have implicitly and inadvertently included elements of common ground in their surveys and other treatments, but have not accounted for it separately. We review, define, and explain common ground in the context of ecommerce and show that a direct relationship exists between common ground and purchase intentions. In prior research, all independent variables (such as homophily, anthropomorphism, feedback valence, realism, etc), with the exception of attitude (Lim et al. 2006), have affected purchase intentions only indirectly through trust. However, Lim et al (2006) found trust to be highly correlated with attitude, thus still playing a crucial role in affecting purchase intentions.

In our tested model, common ground was <u>not</u> found to have a positive and significant direct effect on trust, contrary to our hypothesis (H5), but was found to have a positive and significant direct effect on purchase intentions. Thus, common ground provides a way to bypass trust altogether. An example may be the best means of explaining this unexpected finding. Let's say I am a potential customer in the market for an external hard drive, and I read the following review. "*After my coworker's hard drive crashed I started to worry that the same thing might happen to me. My coworker lost all his work because he hadn't backed up his hard drive. I sure don't want that to happen to me, so I bought this external hard drive for back up purposes. (John J., Financial Advisor)*" Now let's say that I also know people who have lost data due to hard drive crashes, and I'm also worried about my own hard drive crashing. I have automatic common ground with this customer reviewer. He has the same requirements as me, and has managed to satisfy those requirements by purchasing this product – we are in a common community of experiences and requirements. We have the same perspective on the situation. Thus, I am more willing to purchase this product because I feel that if it can satisfy the requirements of someone who has the same requirements as me, it can satisfy my requirements as well. And, if it worked for him, it will probably work for me, since he and I are in the same boat. This chain of logic completely ignores whether or not I actually have trust in the reviewer. I may not trust him at all as a person – aside from believing the text in his feedback is not a lie – but I may still intend to purchase what he purchased simply because we are coming at this situation from the same perspective and we have the same requirements.

This means that as long as the potential customer can establish some sort of common ground with the reviewer, he/she can form intentions to purchase a product online even if he/she doesn't trust the reviewer. This has significant implications. Online stores cannot fully control what kind of feedback is left by reviewers, or what kind of reviewers

leave feedback. Thus, they cannot actually control trust in these scenarios. But trust is the hinge upon which the door of purchase intentions swings. Stores can, to some extent, control common ground, or at least provide more opportunities to establish common ground through design strategies – nudging that door of purchase intentions in a more favorable direction.

Web designs for feedback mechanisms can be structured in such a way as to maximize the likelihood of establishing common ground. For example, most online stores require those who want to leave feedback to set up an account. When setting up the account, the user usually has the opportunity to include some information about him/herself and provide an avatar to represent him/her. During these account set up processes, users should be encouraged to select or input group identifiers such as gender, occupation, and affiliated institutions. Users should also be given a choice of highly anthropomorphic avatars (rather than allowing them to simply upload whatever avatar or photo they please), since greater anthropomorphism leads to greater homophily, which has a powerful effect on common ground.

Some websites, such as Amazon.com, store information about customers, and use that information to personalize the shopping process. This should also be done for determining which review to display to the customer (not all reviews are immediately visible – usually just one or two). For example, if customer X has an account with our store, and we know he is a male in his mid-twenties doing his undergrad at a large public university on the western U.S., then we can search through our database of reviews to find the most similar reviewer, and display that review for this particular customer. This method of personalizing, not only what products are displayed to the customer, but which reviews are brought to the foreground, maximizes the likelihood of establishing common ground between the customer and the reviewer.

In this study we have also distinguished (both statistically and in argument) between homophily and common ground to show that they are two separate constructs with different roles in online shopping scenarios. Prior research has included elements of common ground in measures of homophily (Lim et al. 2006; Nowak et al. 2009). Future research needs to take common ground into account and measure it separately in order to accurately explain the distinct effects of both variables.

Conclusion, Limitations, and Future Research

We have shown that various aspects of avatars and feedback in online shopping scenarios effect trust and purchase intentions. More importantly, we have introduced common ground, a construct appropriated from cognitive science and linguistics, to explain the feelings of mutual knowledge, beliefs, and assumptions shared between reviewers and potential customers. Contrary to our expectations, common ground was found to have a direct relationship with purchase intentions, independent of trust – implying that potential customers can intend on purchasing despite a lack in trust.

One limitation of our study is that we did not account for attitude as tested by Lim et al (2006). Attitude is the only variable in the literature (as far as we know) that has been shown to have a direct effect on purchase intention, aside from trust. Thus, constructing a model with common ground, trust, and attitude may have resulted in a greater explanatory power of our dependent variable.

Another limitation of our study is that all the feedback variations were positive endorsements. No negative feedback was presented to the participants acting as potential customers. Therefore we can only generalize the relationships in this model to situations in which positive feedback is presented. Future research may want to discover the effect negative feedback has on common ground, and whether this negative feedback also affects the effect of common ground on purchase intentions and trust. Our initial impression is that negative feedback should have no effect on common ground, since the sign (positive vs. negative) of the feedback is not the source of the common ground. Rather, common ground is established through group identifiers in the feedback.

In this study our sample came from the student population. This may confound our results as students are usually more technologically oriented. Our students were also mostly in their low to mid-twenties, and while this demographic does represent a fair portion of online consumers, it by no means represents enough to make claims of generalization to the general population of online consumers.

Future research may want to examine whether our findings may also apply to other situations outside of ecommerce. For example, trust has been thoroughly examined in virtual teams literature (e.g., Bente et al. 2008; Lowry et al. 2009; Piccoli et al. 2003), but sometimes trust may be difficult to establish in diverse teams where team members don't perceive themselves to share much homophily. When this is the case, it may be fruitful to discover if efforts can be made to establish common ground as a means of bypassing the need to establish trust.

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