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Breaking the Ice in B2C Relationships: Understanding Pre-Adoption E-Commerce Attraction

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This research proposes that the forming of a business-to-consumer (B2C) customer relationship is part of a multiphased technology adoption process where attraction is the first step in this sequence. A conceptual model, called the electronic commerce (e-commerce) attraction model (eCAM), offers a theoretical foundation for guiding two empirical studies ($N = 345$ and $N = 240$, respectively) investigating how initial customer perceptions of a website influence attraction toward this website. The results support the eCAM as a new theoretical lens for understanding electronic commerce-based attraction. Comparisons are made between the proposed eCAM and previously established adoption models (i.e., the Technology Acceptance Model and WebQual) as well as the discriminant validity of the constructs in these models. Results demonstrate that the eCAM provides additional insights for understanding how website design influences e-commerce attraction and adoption. The implications of these results for future research and website design are discussed.

Key words: attraction; competitive impacts of IS; electronic commerce; field experiments; IT adoption; laboratory experiments; questionnaire surveys
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Introduction

The rapid growth of electronic commerce (e-commerce) has driven most organizations to use information technology (IT) to facilitate business-to-consumer (B2C) interactions through a wide range of online environments (e.g., corporate websites, social networking sites, virtual worlds). Industry trends are to minimize the customer acquisition costs and raise customer retention rates (Hanssens et al. 2008). Some companies and industries still suffer from rising e-commerce customer acquisition costs (e.g., upwards of 40%) and falling sales (e.g., 6%) (Brohan 2011), whereas others have been able to establish effective strategies (Martinez-Jerez et al. 2007). Attracting and retaining new online customers[1] can be expensive because customers have very low switching costs. Organizations are exploring a variety of ways (e.g., innovative site designs and promotions) to drive Web traffic to their sites with the hope of attracting new customers and recouping the cost of ongoing investments. At least part of recovering these costs relies on influencing users to adopt an e-commerce website and fostering their e-loyalty. Arguably, this adoption process hinges, at least in part, on the initial challenge of effectively attracting customers. Although there have been many suggestions and strategies offered for attracting e-commerce customers (e.g., Boyer and Hult 2005, Watson et al. 1998), there is little theoretical understanding regarding what initially brings a potential customer to an e-commerce website and how organizations could leverage this understanding within a broader B2C strategy.

Website pre-adoption (i.e., attraction) can be conceptualized as being a part of a multiphased technology adoption process. This view is consistent with the trend of focusing on different phases of adoption (e.g., pre-adoption, use, continued use) within a broader adoption process. For instance, the e-commerce adoption literature acknowledges the important role of perceptions and attitudes (Pavlou and Fygenson 2006), and the broader IS literature emphasizes the need to carefully qualify user attitudes when viewed across pre-adoption versus continued use perspectives (Venkatesh et al. 2003). Likewise, there exists

[1] This paper uses the terms user, consumer, and customer synonymously.

mature streams of research focused on predictors of behavior, such as intention to use (Gefen et al. 2003, Van der Heijden 2004), reuse (Loiacono et al. 2007), or revisit a website (Bhattacherjee 2001, Cenfentelli et al. 2008). Consequently, positioning attraction as a pre-adoption attitude is theoretically consistent with the vast body of IS adoption literature, where attitudes are considered to be key predictors of user adoption intention (Davis et al. 1989).

Attraction has also been found to be a precursor in a broad range of multiphased relationships outside the IS domain (Dwyer et al. 1987, Levinger and Huesmann 1980, Levinger 1980, Wilson 1995). For instance, prior research on various types of relationships (e.g., buyer-seller, interpersonal) has acknowledged the importance of attitudes (e.g., attraction) in an evaluative phase that manifest prior to later phases, such as commitment (Dwyer et al. 1987, Levinger and Huesmann 1980, Levinger 1980, Wilson 1995). Thus, leveraging a relationship perspective to examine attraction as a pre-adoption attitude within a B2C e-commerce domain has theoretical merit. Prior research provides a rich foundation for identifying specific variables (e.g., website design characteristics) that precede and predict attraction as part of a multiphased adoption process (Campbell et al. 2009, Levinger 1980). Gaining a better understanding of website attraction is thus of interest to both research and practice.

The purpose of this paper is to develop and test a model for online customer attraction. We first review research related to relationships in various fields to identify the importance of e-commerce attraction and the related key factors. Our model, termed the e-commerce attraction model (eCAM), is tested using a laboratory experiment (focusing on precise and controlled theory testing) and a survey (focusing on generalizability and realism). Additionally, to demonstrate that it provides unique insights for understanding website attraction, eCAM is contrasted with previously established adoption models. These efforts provide unique insights into customer acquisition based on a relationship theoretical orientation.

Literature Review and Theoretical Development

Our conceptualization of online B2C attraction is based on literature from the areas of IT adoption, interpersonal relationships, B2C relationships, and attraction. Here, we will review the IT adoption research that acknowledges the importance of pre-adoption in a multistaged phenomenon. Additionally, we examine interpersonal relationship and marketing literature that identifies attraction as a key pre-adoption stage in various types of relationships. Finally, we review the attraction literature to define and identify its antecedents as a model from which e-commerce attraction can be examined.

Pre-Adoption and IT Adoption

Research in the area of IT adoption is robust, with an initial focus on adoption and use. Over the years, the adoption literature has focused on various important dependent variables, such as use, reuse, and continuance. This progression is obvious when looking at the literature in that there are many different stages of use from early adoption (Wu and Chen 2005) to continued use (Bhattacherjee 2001) to habitual use (Limayem et al. 2007). This focus on different stages of the adoption process has shown that variables and relationships differ depending on the state of progression. Although adoption and post-adoption research has been extensive, researchers have also begun to acknowledge and examine pre-adoption (e.g., Karahanna et al. 1999, Pavlou and Fygenson 2006, Venkatesh et al. 2003). Given that pre-adoption is a specific stage within a broader, multiphased process, we next look more closely at the IT adoption literature that identifies and qualifies this stage.

Roger's (1983) diffusion of innovations theory has been foundational in IS adoption and innovation research (Agarwal and Prasad 1998, Cooper and Zmud 1990, Kwon and Zmud 1987, Moore and Benbasat 1991); it acknowledges five stages for innovation adoption: knowledge, persuasion, decision, implementation, and confirmation. Further, Rogers indicates that adoption (or rejection) does not occur until the decision stage, indicating that the first two stages point to pre-adoption as important precursors to understanding user adoption. Although prior work has acknowledged a multistage adoption process, work focusing specifically on pre-adoption has used the theory of reasoned action (TRA)[2] (Fishbein and Ajzen 1975, Pavlou and Fygenson 2006). Likewise, past research has pointed to a need to carefully qualify user attitudes when viewed across pre-adoption versus continued use perspectives (Karahanna et al. 1999, Pavlou and Fygenson 2006, Zhang et al. 2008, Zhang and Sun 2009). This is because attitude constructs fundamentally differ depending on the object of the attitude (e.g., toward a behavior or an object) and other influencing factors, such as previous experience with the object of the attitude. However, most prior research has operationalized attitudes toward the technology use within a given stage (e.g., the technology is good/bad, effective/ineffective,

[2] Theory of reasoned action supports the view that a person's volitional behavior is predicted by attitudes and how this person believes others would view her if she indeed performed the behavior.

fun/boring) rather than on attitudes that are *specific* to the adoption context (e.g., pre-adoption versus continued use).

Attraction as a Pre-Adoption Attitude

Given the multi-phased nature of IT adoption, any theoretical perspective that is applied to a pre-adoption context should acknowledge the unique characteristics within this phase. Various relationship theories offer a viable theoretical lens because they are oriented toward conceptualizations for multi-staged, progressive processes with increasing levels of commitment (Altman and Taylor 1973, Scanzoni 1979, Thibaut and Kelley 1959). The impetus of this work began with Thibault and Kelley's (1959) social exchange theory. Altman and Taylor (1973) as well as Scanzoni (1979) built on this work by identifying various stages of relationship development. Additionally, Levinger's (1980) stage theory extended the incremental exchange theory of relationships and identified five relationship stages ranging from attraction to ending. Subsequent research in the area of long-term relationships offered a valuable framework for understanding long-term buyer-seller relationships (Dwyer et al. 1987, Powers and Reagan 2007, Wilson 1995). Research in the area of online B2C relationships has also uncovered similar life cycles (Fung and Lee 1999; Ives and Learmonth 1984; Parsons et al. 1998; Siau and Shen 2003; Simeon 1999, 2010). Focusing on early attraction stages may thus provide theoretical insight for understanding both pre-adoption and downstream perceptions and behavior.

Prior research has supported attraction being the initial step in a multiphased relationship process. Stage theories in interpersonal relationships specifically label this *attraction* (Levinger 1980). Likewise, buyer-seller relationship research labels this initial stage *awareness* (Dwyer et al. 1987) or *partner selection* (Powers and Reagan 2007, Wilson 1995). The e-commerce literature refers to this initial stage as *attraction* (Parsons et al. 1998), *attracting* (Simeon 1999, 2010), and *reward attraction* (Fung and Lee 1999, Siau and Shen 2003). Additionally, attraction has been perceived and defined as an attitude in past research (Montoya and Horton 2004, Segal 1979): "Like other attitudes, attraction may be either positive or negative and may vary in extremity. Also, like other attitudes, attraction has cognitive, affective, and behavioral components" (Segal 1979, p. 253). Therefore, based on this literature, attraction appears to be a viable attitude that can provide a deeper understanding of pre-adoption within a broader IT adoption process.

Attraction is defined here as *an overall evaluation or attitude toward a potential relationship*, which is theoretically consistent with prior literature. In addition to the research already examined in these areas, TRA and the theory of planned behavior[3] acknowledge attitude as the focal antecedent to behavior (Ajzen 1991, Fishbein and Ajzen 1975). Thus, all of these areas of research converge to indicate that attitude formation is the focal driver of a pre-adoption stage for multiphased relationships within a B2C e-commerce domain. To gain a richer understanding of attraction, we will identify and discuss its antecedents.

Antecedents of Attraction

Research on interpersonal attraction has found that the primary antecedent to attraction is the overall *perceived rewards* of the relationship (Aronson and Linder 1965). This research is mature and well established and provides insight into the antecedents of attraction. Perceived rewards are a product of a multifaceted evaluation of possible gains versus losses that a relationship may provide (Huston 1974). Although there are many possible areas in which a relationship may provide rewards, this assessment is focused on the overall aggregate of possible gains or losses. To illustrate these types of rewards further, we look to Feingold's (1992) meta-analysis in which he identifies important aspects of evaluating potential relationships. The preference categories identified in this meta-analysis include socioeconomic status, ambitiousness, character, intelligence, humor, and personality. Each of these areas provides opportunities for potential gains or losses. Perceived rewards are focused on the aggregate potential over all areas for possible rewards or risks when engaging in a relationship. Past research offers the following determinants of perceived rewards: *good appearance*, *competent behavior*, *compatibility*, and a level of *responsiveness* (Huston and Levinger 1978, Levinger 1980). Each determining factor will now be described.

Good appearance has been observed to be determined by perceptions of another's beauty based on physical attributes and has shown to be a strong predictor of attraction in interpersonal relationships (Huston and Levinger 1978). Appearance is often the first attribute that others can evaluate, and past research shows that people make many attributions based on appearance (Huston and Levinger 1978). For instance, those with good appearance are often regarded in higher favor (Dion et al. 1972), are viewed as more responsible (Seligman et al. 1974), are more influential (Sigall and Aronson 1969), are perceived as better performers (Landy and Sigall 1974), are pleasing to the eye (Feingold 1992), and are more recognized by others

[3] Like TRA, the theory of planned behavior suggests that a person's volitional behavior is predicted by attitudes and how this person believes others would view her if she indeed performed the behavior as well as how this person perceives her ability to perform this behavior.

(Barocas and Karoly 1972). These evaluations would likely increase perceptions of possible rewards from a potential relationship.

Competent behavior refers to perceptions of one's ability to behave according to the norms of social appropriateness, given a specific context and role (Huston and Levinger 1978). Competent behavior has also been observed to be a strong factor in determining the possible rewards of a relationship (Huston and Levinger 1978) because perceptions of future behavior are often based on past behavior. Appropriate socially normed behavior similarly encourages attraction (Chelune 1976). Also, certain behaviors, such as disclosing personal information in inappropriate circumstances, discourage attraction (Derlega and Chaikin 1976). Other studies have found that perceptions of another's "ability to obtain and willingness to invest the resources necessary for the survival and success" (Buston and Emlen 2003, p. 1) influence evaluations of future rewards (Feingold 1992). Therefore, the assessment of one's behavior is another primary factor for understanding perceptions of potential rewards of a relationship.

Compatibility involves perceptions of similarity (Craig and Duck 1977) and likeness of values (Johnson and Tesser 1972) and is an integral part of interpersonal relationship attraction (Byrne 1969, Sussmann and Davis 1975). Compatibility reflects perceptions regarding the amount of contradiction between the two parties' values. A compatibility in values has been found to reinforce one's self-concept (Clore and Byrne 1974), indicate that others are good (Arrowood 1973, Leonard 1975), and enhance one's self-esteem (Leonard 1975). In sum, compatibility is also likely to increase a relationship's perceived rewards.

Responsiveness to the relationship indicates that one is open to and reciprocates a willingness and desire to engage in a mutual relationship. Research shows that these evaluations of future interactions do influence attraction (Huesmann and Levinger 1976). Overall, individuals are more likely to be attracted if assured that the other accepts them (Huston 1973, Levinger and Snoek 1972) and not attracted if assured that they are not acceptable or valued (Shanteau and Nagy 1976). These types of evaluations lead to a perception of greater ability to provide future rewards (Brickmann et al. 1975). As such, the prospect that others highly regard the opportunity of a future relationship influences perceptions of such a relationship's potential rewards.

Applying Attraction to B2C E-Commerce: Research Model Development

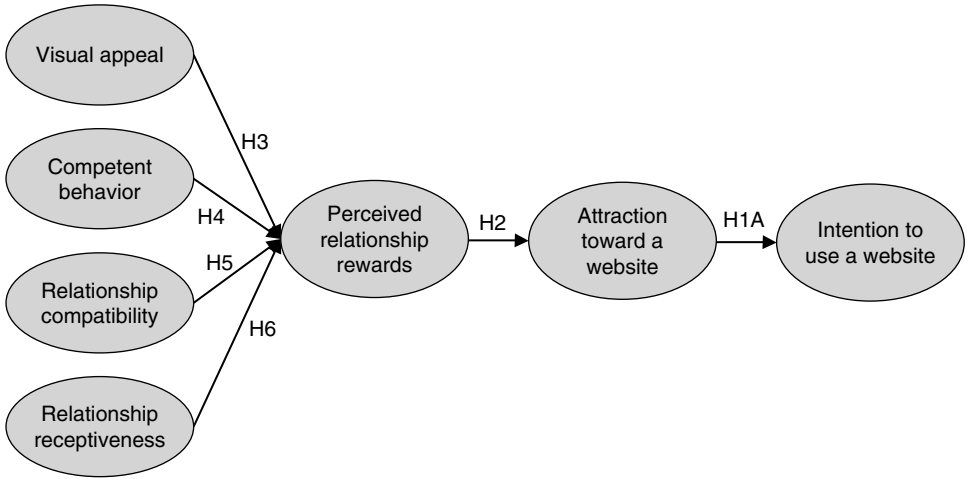
In focusing on literature related to the area of e-commerce, prior research has placed an emphasis on understanding pre-adoption perceptions and stages in various e-commerce life cycle models. Ives and Learmonth (1984) offer a life cycle model that stresses the importance of a pre-acquisition stage as it applies to the area of IT-driven customer support. Additionally, other multistage frameworks have focused on attraction as the key pre-adoption stage in e-commerce adoption: specifically, attraction (Parsons et al. 1998); attracting (Simeon 1999, 2010); and reward attraction (Fung and Lee 1999, Siau and Shen 2003). Other research has offered specific strategies for facilitating attraction to encourage website adoption (Watson et al. 1998). Although these researchers focused on attraction (i.e., early stages of e-commerce), none has used a relationship perspective to frame attraction as a key attitude for understanding pre-adoption behavior. Past research has acknowledged attitude as being meaningful to understanding specific stages; however, no known prior work has investigated the key antecedents to attraction in an e-commerce context. We do refer to the initial stage of an e-commerce B2C relationship as *attraction* but draw on prior relationship-related research to further our understanding of pre-adoption perceptions in an e-commerce context.

In this section, we describe the core theoretical attributes of the attraction stage to an e-commerce context to aid us in developing the e-commerce attraction model (eCAM) (see Figure 1). To build this model, relevant constructs from the prior attraction literature have been adapted to an e-commerce domain (see Table 1 for a summary). This approach of extending psychology frameworks into an IS context has a long history in the IS domain (e.g., the extension of TRA into the technology acceptance model). Such extensions have also been created in the area of online B2C relationships (Campbell et al. 2009). The key constructs of eCAM and their interplay in predicting website attraction are discussed next.

Justification for the development of eCAM is supported by the integration of both relationship theory as well as previous IS literature because website adoption carries consideration for both technology factors with the website and relational factors with the organization. Previous IS literature has proposed similar constructs as the underlying factors also identified in previous attraction research (e.g., website visual appeal equals good appearance). Drawing on this prior research, we support the inclusion of these constructs in the model and the related hypotheses.

We reiterate that *attraction toward a website* is defined as an attitude or summary evaluation of the overall initial appeal of a website. Prior research has demonstrated that many types of attitudes can influence B2C interactions. Each attitude is defined by the associated attitude object, in this case an organization's

Figure 1 Research Model: E-Commerce Attraction Model (eCAM)



website. This construct has been used in previous research in the area of employee attraction where perceptions of organizational websites have been shown to significantly influence attraction toward an organization, showing that attraction toward a website predicts employee recruitment (Cober et al. 2003, 2004).

When considering the context of e-commerce and B2C relationships, we believe pre-adoption attitudes gain greater importance in website interactions. As we have discussed, attitudes, such as attraction, have theoretical importance in (1) predicting intentions consistent with a TRA perspective and (2) evaluating a potential B2C relationship as seen in the buyer-seller and interpersonal relationship literature. Previous technology acceptance model (TAM) studies also acknowledged the role of attitudes as a precursor to behavioral intentions and as a mediator between behavioral beliefs and intentions (Yang and Yoo 2004). Therefore we propose that attraction manifests as a significant pre-adoption attitude. Thus, we hypothesize

Hypothesis 1A (H1A). *Attraction toward a website positively affects intentions to use a website.*

With attraction being positioned as a focal attitudinal construct, it is important to reconcile our use of this construct in our research model with previous adoption research. Technology adoption has been an area of interest and focus for IS researchers since the introduction of the technology acceptance model (TAM; Davis et al. 1989). The inclusion of attitude in TAM has been less consistent across various adoption

Table 1 Attraction Constructs Identified in Interpersonal Attraction Instantiated to Online B2C Customer Relationships

Interpersonal relationship construct	Definition	E-commerce related construct	Definition
Attraction	An attitude of initial appeal of another party	Attraction toward a website	An attitude or summary evaluation of an overall initial appeal of a website
Perceived rewards	Overall perception of potential rewards from a relationship that is a product of a multifaceted evaluation of possible gains or losses	Perceived relationship rewards	Perceptions of overall possible benefits from interactions with a Web-based organization in an online B2C relationship
Good appearance	Perceptions of another's beauty based on physical attributes	Visual appeal	Overall perceptions of a website's aesthetics and appearance
Competent behavior	Perceptions of one's ability to meet needs in a relationship	Competent behavior	Perception of competence of the IS interface and its functionality
Similarity of values	A perception of an insignificant amount of contradiction between values held by two parties	Relationship compatibility	Perception that the website content communicates values and beliefs that are compatible with the values and beliefs of the customer
Positive responsiveness	Perceptions that one is open to and reciprocates a willingness and desire to engage in a mutual relationship	Relationship receptiveness	Perception of an organization's desire to enter into a customer relationship

contexts, an exclusion attributed to attitude's inability to mediate the relationship between beliefs (e.g., perceived usefulness and perceived ease of use) and behavioral intention when tested in more involuntary settings (Venkatesh 1999, 2000). The exclusion of the attitude construct is largely attributed to the strength of the effect of effort expectancy when tested in involuntary work contexts (Venkatesh et al. 2003). The affective component, which attitude captures, was not a primary focus in the early technology adoption literature focusing on involuntary work contexts. "If affect is not fully activated when deciding whether to use a particular system, one's attitude would not be expected to completely capture the impact of performance considerations on one's intention" (Davis et al. 1989, p. 986). Venkatesh et al. (2003, pp. 455–456) state, "We consider any observed relationship between attitude and intention to be spurious and resulting from the omission of the other key predictors (specifically, performance and effort expectancies). This spurious relationship likely stems from the effect of performance and effort expectancies on attitude (see Davis et al. 1989)... despite the fact that this finding is counter to what is theorized in TRA." We believe these statements are accurate in certain contexts in which performance outcomes are paramount (e.g., involuntary or work contexts), where affective evaluations are not as predictive of behavior (Venkatesh et al. 2003, 2007). Later research has shown the importance of attitude in the relational context of e-commerce adoption in particular (Heijden 2003, Pavlou and Fygenson 2006) and consumer adoption of technology in general (Brown and Venkatesh 2005, Venkatesh and Brown 2001), in contrast to the adoption of other types of technologies (Venkatesh 2000). An e-commerce B2C context is voluntary where attraction attitudes are likely to be more salient. The mediating role of attraction is further supported considering the necessary time order between these constructs. We expect the formation of attraction as an attitude to be influenced by user perceptions of the interface characteristics (e.g., usefulness) rather than before such perceptions are formed. Thus, we hypothesize the following

Hypothesis 1B (H1B). *Attraction toward a website mediates the effect of perceived usefulness and perceived ease of use on intentions to use a website.*

Given our relationship-oriented theoretical perspective focusing on the context of e-commerce attraction, we offer a fresh set of drivers to inform website adoption. Similar to a TRA framework, we acknowledge that attitude's role in the model is key. The relationship literature proposes a similar linkage between antecedent perceptions and attraction that is offered here. The following constructs have been identified as antecedents to attraction by extending the concepts identified by attraction literature to an e-commerce context.

Perceived relationship rewards are defined as the perception of the overall future gains or benefits from interactions with an online organization in a B2C relationship. Theoretically, this definition is predicated on the core logic positing an individual's assessment of the collective costs and benefits of engaging in a relationship, with higher perceived benefits resulting in a higher level of attraction toward the potential relationship. The use of similar perceptions is not foreign to the IS and adoption literatures. Specifically, the model of personal computer utilization considered the importance of evaluating long-term consequences for IS use (Thompson et al. 1991). Likewise, outcome expectations have also been shown within social cognitive theory to influence IS use (Compeau and Higgins 1995). Further, such perceptions not only pertain to evaluating characteristics of the website but also could be affected by other aspects of the B2C relationship (e.g., price, enjoyment). As a result, there are many possible rewards that a potential B2C interaction can provide that could include transactional rewards (e.g., financial savings) as well as others that have been the focus of e-commerce research (e.g., satisfaction). Thus, we hypothesize

Hypothesis 2 (H2). *Perceived relationship rewards positively affect the attraction toward a website.*

Determinants of Perceived Relationship Rewards

Fundamentally, *visual appeal* is based on a principle found in the attraction research that asserts that individuals make attributions about potential relationship rewards based on appearance, particularly because such attributes are often readily available and easy to assess. For instance, research has shown that positive atmospherics (e.g., a nice-looking hotel lobby) can prompt individuals to form more positive evaluations of an organization (Kotler 1973–1974). In an e-commerce context, visual appeal can be viewed as a perception of the aesthetics and overall appearance of a website and has been used in many previous e-commerce research studies (e.g., Loiacono et al. 2007). In turn, visual appeal is often the first website characteristic to be evaluated by a customer, and it can be assessed in as few as 50 milliseconds (Lindgaard et al. 2006). Further, IS research has found that users make attributions of unrelated factors based on the appearance of an interface. One of the most telling of these attributions is the finding that what is beautiful is usable (i.e., evaluations of interface appeal correlated higher to evaluations of IS usability than the objective usability standards; Tractinsky et al. 2000). In sum, when assessing possible rewards of a relationship, increased visual appeal

not only can affect attributions of many objectively unrelated rewards (e.g., usability and organizational effectiveness) but also is a positive atmospheric benefit in a virtual context where a user is interacting with a website. Thus, we hypothesize the following

Hypothesis 3 (H3). *Visual appeal positively affects perceived relationship rewards.*

Competent behavior is based on the premise that a factor in assessing a potential relationship is whether an individual's behavior meets commonly accepted norms and expectations. When applied to an e-commerce context, competent behavior reflects the perceived competence or functionality of a website. For instance, does the system do what is expected (i.e., normed), and does it perform as it should (e.g., security)? This general assessment of the website is similar to other macro constructs in the literature (e.g., support services functionality) in that it provides a general assessment of many areas of a website (Cenfentelli et al. 2008). Prior research points out that website users often make similar assessments about future interactions based on previous performance of an interface. For example, website characteristics, such as download delay (Galletta et al. 2006), security and navigability (Salisbury et al. 2001), and usefulness (Van der Heijden 2004), have been found to influence the positive appraisal of online organizations. Such perceptions have also been found to be influenced by Web seals (e.g., VeriSign; Odom et al. 2002). Competence has long been used in trust-related IS research (Mayer et al. 1995, McKnight et al. 2002), where perceptions of competence have been found to predict other macro evaluations (i.e., trusting beliefs). Thus, consistent with relationship theory, assessments of a website's competent behavior influence evaluations of future interactions and possible rewards of a B2C relationship. Such perceptions can present possible gains (e.g., increased satisfaction) and a mitigation of possible losses (e.g., security) when assessing overall gains and losses. Thus, we hypothesize the following

Hypothesis 4 (H4). *Competent behavior positively affects perceived relationship rewards.*

Relationship compatibility is considered the degree of similarity (versus contradiction) between two parties' values/beliefs, where similarity is expected to foster higher perceived relationship rewards. From an e-commerce perspective, the concept of relationship compatibility is the perception that a website communicates values and beliefs that are compatible with those of its customer. A comprehensive review of compatibility research suggests that compatibility of values can affect user evaluations of future interactions with a technology (Karahanna et al. 2006). Other research in this area has also shown that compatibility is an important factor in initial technology use (Moore and Benbasat 1991). In a B2C context, if an organization's website conveys beliefs and values compatible with those of a potential customer, similar effects are expected. For example, customers have seen organizational interaction to be rewarding when values (e.g., environmental friendliness) are shared compared to when values are incompatible (Laroche et al. 2001). In their conceptual review, Karahanna et al. (2006, pp. 785–786) indicate many of the possible rewards that compatibility of values present, including the potential to fulfill individual needs. In accordance with interpersonal relationship theory, we posit assessments of relationship compatibility influence perceptions of rewards in a relationship (i.e., need fulfillment and congruence). Thus, we hypothesize the following

Hypothesis 5 (H5). *Relationship compatibility positively affects perceived relationship rewards.*

Relationship receptiveness is based on the basic premise that individuals find potential relationships more rewarding when the other party makes it clear that they will be accepted and valued. In an e-commerce context, website content is expected to be especially influential in portraying these types of cues. Further, a customer is more interested in an organization that is proactive in developing a B2C relationship (e.g., buying incentives) than one that is not (e.g., no-return policy). Extending attraction theory's emphasis of such cues from interpersonal relationships, an organization can communicate to potential customers the willingness to reduce many of the possible inhibitors (e.g., poor customer service) associated with B2C interactions. With current technology capabilities, organizations are able to communicate one-to-one with customers (Wells et al. 1999) and customize content to individuals (Palmer and Griffith 1998, Watson et al. 1998). In turn, such cues portrayed in a website can act as a signal to customers of an organization's receptiveness to a potential relationship. Consequently, interfaces that portray a message of relationship receptiveness should influence a customer's overall perception of relationship rewards. Thus we hypothesize the following

Hypotheisis 6 (H6). *Relationship receptiveness positively affects perceived relationship rewards.*

Method

We test our model in two studies: a controlled laboratory experiment and a field survey. The goal of utilizing these two methodological approaches is to overcome their inherent tradeoffs related to precision, realism, and generalizability (e.g., Dennis and Valacich 2001). The experimental method employed

in study 1 emphasizes internal validity (i.e., precision) through the use of a homogeneous participant pool, tightly controlled procedures, and researcher-designed websites. Study 1 was also used to test the discriminant validity of the eCAM constructs by comparing them with others widely used in the technology adoption literature (i.e., TAM and WebQual). Study 2 was designed to emphasize realism and generalizability by surveying a more heterogeneous pool of e-commerce customers who interacted with commercial websites. Analyses were conducted using structural equation modeling (SEM) with EQS 6.1 and SPSS 12.0 software. Together, these two studies provide a robust initial assessment of our research model.

Instrument Development and Pilot Studies

The development of the scales measuring the new constructs in the eCAM followed a standard process: item generation, factor analysis, reliability analysis, and validity analysis (Shadish et al. 2002). Two separate and independent samples (not included in the following two studies) were used in this process. An exploratory data analysis was performed on the first sample, and the second sample was used to confirm the results of the first (Byrne 2006). As the first step, a bank of items was generated that could potentially measure the constructs of interest. To ensure content validity, items were generated and subsequently vetted by independent researchers, resulting in more than 30 items each for the constructs of interest. The first sample of 395 undergraduate students was analyzed with an exploratory factor analysis and a second sample of 275 undergraduate and graduate students was used to validate the results of the first sample using a confirmatory factor analysis. These two preliminary studies indicate that the measures are psychometrically sound; results from the measurement model for the second of these studies (e.g., standardized loadings, AVE analysis, composite reliabilities, etc.) can be found in the online appendices (available at http://dx.doi.org/10.1287/isre.1120.0429). Further, similar psychometric assessments were performed for the two primary studies in this paper (i.e., studies 1 and 2) with converging results and are reported below.

Measurement Instruments. Included in the online appendices are the scales used that were taken or adapted from previous research, including visual appeal (Loiacono et al. 2007), attraction toward the website (Fisher et al. 1979, Highhouse et al. 2003, Turban and Keon 1993), and perceived ease of use and usefulness (Venkatesh and Davis 1996). This instrument contained only reflective measures of these latent variables (Jarvis et al. 2003). Additionally, items associated with Loiacono and colleagues' (2007) WebQual model were also included in this survey to assess the discriminant validity of the constructs proposed in the eCAM to those previously established scales because WebQual was developed from an extensive literature review on the topic of interface characteristics.

Study 1

Website treatments were developed to represent a fictitious collegiate T-shirt company. Twelve treatment websites were created to introduce variance in the levels of the antecedent constructs in the eCAM (visual appeal, competent behavior, relationship compatibility, and relationship receptiveness). Participants were randomly assigned to one of the 12 different treatments.

Task. To simulate a situation consistent with initial attraction of an e-commerce website, a scenario-based task was used in conjunction with the websites of a fictitious e-commerce organization. The participants were given a scenario designed to expose them to various aspects of the website and increase the realism of the experience (see online appendices). This scenario included a search for and design of a t-shirt to give as a gift and included specific instructions to visit various areas of the website associated with their assigned treatments. After exposure to a specific treatment, participants completed the survey instrument.

Manipulations. Visual appeal was manipulated in the website treatment by having a high/low level of website aesthetics (see Figure 2). Please note that all other aspects of the website (images and text) were controlled. Competent behavior was manipulated with a three- to five-second download delay (present/absent). The constructs of relationship receptiveness and relationship compatibility were manipulated using consumer reports regarding the company's stance on child labor (see the online appendices for an example of this relationship compatibility manipulation) and the company's return policy (supportive/unsupportive for relationship receptiveness manipulation; see the online appendices), respectively. Participants receiving these manipulations were directed via task sheets to read the related content on the website.

Manipulation checks showed that these manipulations significantly influenced participants' perceptions on these variables: competent behavior $F(1,114) = 9.359$, $p = 0.003$; visual appeal $F(1,114) = 11.813$, $p = 0.001$; relationship compatibility $F(1,112) = 38.182$, $p = 0.000$; and relationship receptiveness $F(1,113) = 9.032$, $p = 0.003$. Perceptual measures were given to all participants regardless of the assigned treatment. Treatments were designed to introduce variance, not to act as comparisons across interfaces. Standard deviations and means are reported in Table 2.

Participants. The participant pool for this experiment consisted of 345 out of 445 college undergraduate students from a sophomore level introductory

Figure 2 Screen Shots of Visual Appeal Manipulation (Left: High, Right: Low)

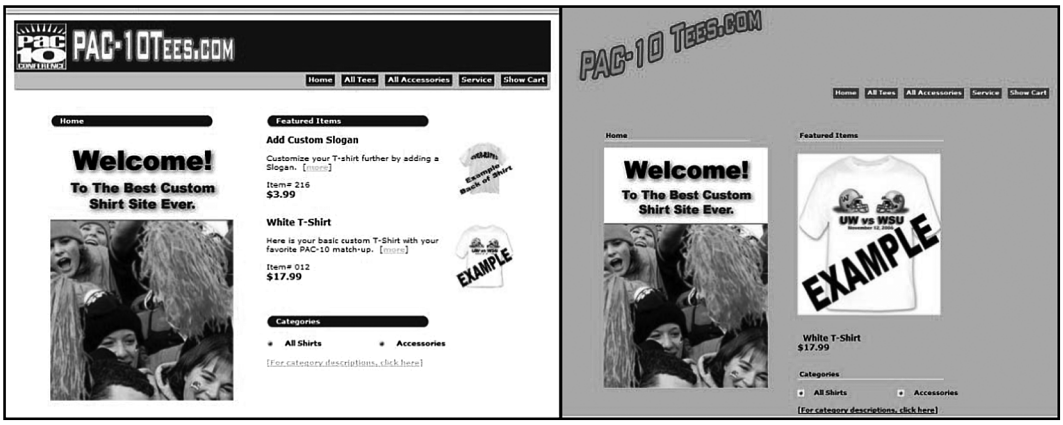


Table 2 Means and Standard Deviations Used in Manipulation Check (Study 1)

Manipulation	*N*	Mean	Standard deviation
High CB[1 and 2]	62	6.36	1.34
Low CB[3 and 4]	54	5.54	1.51
High VAP[1 and 3]	68	5.64	2.01
Low VAP[2 and 4]	48	4.29	2.17
High CMP[5 and 6]	58	4.98	1.26
Low CMP[7 and 8]	56	3.16	1.84
High RR[9 and 10]	57	5.11	1.94
Low RR[11 and 12]	58	3.96	2.16

Notes. Manipulations used by treatment (12 interfaces denoted by superscript): High CB/High VAP[1], High CB/Low VAP[2], Low CB/High VAP[3], Low CB/LowVAP[4], High CB/High VAP and High CMP[5], Low CB/Low VAP and High CMP[6], High CB/High VAP and Low CMP[7], Low CB/Low VAP and Low CMP[8], High CB/High VAP and High RR[9], Low CB/Low VAP and High RR[10], High CB/High VAP and Low RR[11], and Low CB/Low VAP and Low RR[12]. Manipulations were randomly assigned and used to introduce variance, not for comparison purposes across groups.

IS course. The average age of the participants was 20.57, and 67% were men. Students received course credit, approximately 1% of their final grade, for participating.

Results. EQS 6.1, a covariance-based SEM software package, was used to perform this analysis. Table 3 reports an assessment of the measurement model fit for the eCAM. The reliability analysis of the scales was assessed using the composite reliability scores calculated from standardized factor loadings[4] (Werts et al. 1974). Convergent validity was assessed by examining the factor loadings in SEM (see Table 3) and the average variance extracted[5] (AVE) of each construct (see Table 4). Discriminant validity was assessed by comparing the AVE of each construct with the squared correlation of other constructs in the model. Convergent validity, discriminant validity, and reliability of the scales were demonstrated in this sample when using generally accepted thresholds noted in Tables 3 and 4. Also, the measurement model demonstrated good fit. It can be seen in Table 4 that some of the correlations can be considered high. These must be tempered with the understanding that the analysis demonstrates discriminant validity, the theoretical relationships hypothesized in this study, and the results of the common method variance test. The common method test indicates that all the correlations remain significant when controlling for the correlation of another variable in the data set that acts as a proxy for common method variance (see the online appendices; emphasis added).

Figures 3 and 4 show the results of the structural model (i.e., standardized regression weights, variance explained, and fit statistics) for the for the proposed research model as well as an alternative model that includes commonly used constructs from TAM.

The structural model in Figure 3 indicates support for Hypotheses 1A and 2–6.[6] However, a mediation test is needed to specifically test H1B as well as to rule out possible alternative models. Therefore, a Sobel test was conducted to test the mediation of the attitude variable (H1B) as well as the implied mediation of perceived relationship rewards as depicted in the research model (MacKinnon et al. 1995). The results of this mediation test can be found in Table 5. In each case, the test supports mediation at a significance level of $p < 0.001$. Thus, these results support H1B as well as the implied mediation by perceived relationship rewards.

Testing Discriminant Validity Within Nomological Network. The eCAM uses a fresh theoretical perspective to identify some new and similar constructs

[4] Composite reliability scores were calculated as $(\Sigma\lambda_i)^2/[(\Sigma\lambda_i)^2 + \Sigma_i \mathrm{Var}(\varepsilon_i)]$ where λ_i is the indicator loading and $\mathrm{Var}(\varepsilon_i) = 1 - \lambda i^2$.

[5] AVE were calculated as $(\Sigma\lambda_i^2)/[(\Sigma\lambda_i^2) + \Sigma_i \mathrm{Var}(\varepsilon_i)]$ where λ_i is the indicator loading and $\mathrm{Var}(\varepsilon_i) = 1 - \lambda i^2$.

[6] Common method bias was statistically controlled. See the online appendices.

Table 3 Measurement Model: Standardized Loadings (all loadings $p < 0.05$), Composite Reliabilities, and Fit Statistics for Study 1

Construct	Items	Standard loadings	Composite reliabilities	Construct	Items	Standard loadings	Composite reliabilities
Relationship receptiveness	RR1	0.844	0.930	Competent behavior	CB1	0.711	0.793
	RR2	0.930			CB2	0.818	
	RR3	0.934			CB3	0.715	
Attraction toward a website	ATTW1	0.948	0.952	Perceived relationship rewards	PR1	0.907	0.938
	ATTW2	0.838			PR2	0.929	
	ATTW3	0.952			PR3	0.905	
	ATTW4	0.905		Visual appeal	VAP1	0.961	0.985
Relationship compatibility	RCP1	0.843	0.948		VAP2	0.991	
	RCP2	0.956			VAP3	0.982	
	RCP3	0.976		Intention to use a website	BI1	0.980	0.989
					BI2	0.988	
					BI3	0.982	
Fit statistics							
X^2/df		332.788/188		SRMR		0.030	
GFI		0.921		CFI		0.986	
AGFI		0.894		RMSEA		0.047 (0.039, 0.055)	

—The comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) are used to evaluate the fit of the measurement and structural models presented in this analysis. The criteria used to evaluate model fit will be that CFI values must be 0.95 or higher, SRMR values must be 0.08 or lower, and the RMSEA values must be 0.08 or lower (Hu and Bentler 1999). Also reported here are the commonly used goodness of fit index (GFI) and adjusted goodness of fit index (AGFI).

—Composite reliabilities should be above 0.70 (Hair et al. 1998).

—Factor loadings met the threshold of 0.707 for convergent validity (Chin 1998, Hair et al. 1998, Segars 1997).

that complement various streams of research. Therefore, it is valuable to investigate the discriminant validity of the newly proposed constructs with previously established constructs within the nomological network. An AVE analysis was conducted between all of the constructs in the eCAM, TAM, and WebQual. Table 6 summarizes the results of this analysis and shows all constructs within these three models to be discriminant.

Exploratory Analysis Mapping Interface Characteristics to eCAM Antecedents. This supplemental analysis was conducted using four stepwise regression analyses. These regressions were performed with the interface characteristics identified by WebQual as independent variables and the four antecedents in the eCAM as dependent variables, respectively. Stepwise regression was chosen as an exploratory analysis in order to identify patterns suggested by the data of which interface characteristics in this sample significantly influenced the antecedents of the eCAM. Therefore the predictors in the model are ranked by the amount of variance explained in the dependent variable.

The stepwise regression with visual appeal as the dependent variable showed that innovativeness, emotional appeal, tailored information, and information fit-to-task were the only significant predictors with an adjusted R^2 of 0.613. The stepwise regression with competent behavior appeal as the dependent variable revealed that information fit-to-task, response time, trust, and ease of understanding were significant predictors with an adjusted R^2 of 0.415. The stepwise regression with relationship compatibility as the dependent variable indicated that trust and emotional appeal were significant predictors with an adjusted R^2

Table 4 EQS Estimated Squared Correlations and (AVE)* (Study 1)

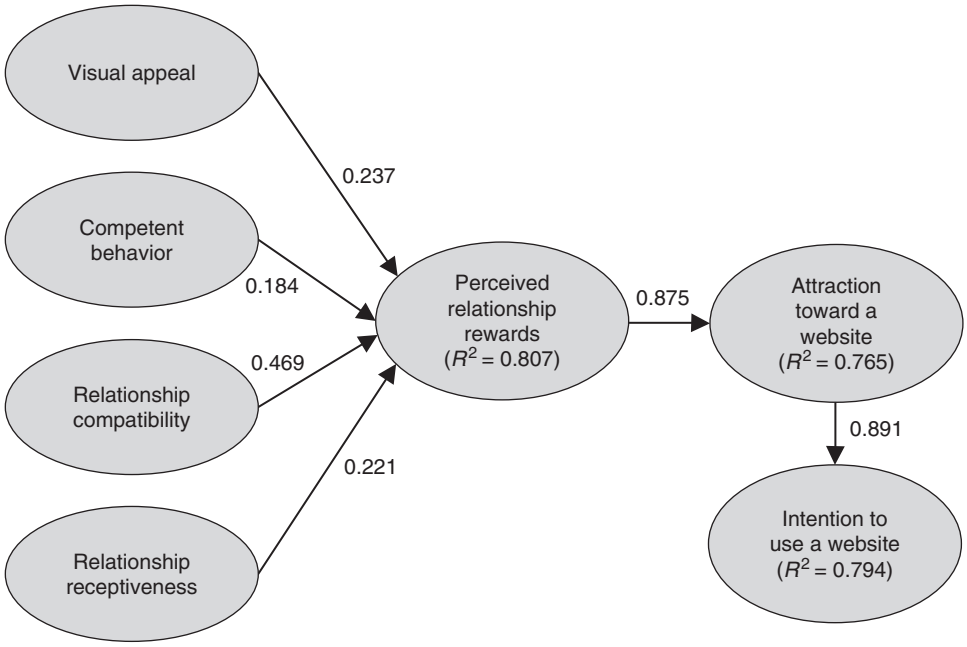
	BI	ATTW	CB	PR	RCP	RR	VAP	USFL	EUSE
Intention to use a website (BI)	**0.967**								
Attraction toward a website (ATTW)	0.781	**0.832**							
Competent behavior (CB)	0.370	0.349	**0.562**						
Perceived relationship rewards (PR)	0.650	0.723	0.426	**0.835**					
Relationship compatibility (RCP)	0.382	0.415	0.256	0.629	**0.859**				
Relationship receptiveness (RR)	0.333	0.413	0.280	0.526	0.336	**0.817**			
Visual appeal (VAP)	0.445	0.596	0.266	0.373	0.171	0.347	**0.957**		
Perceived usefulness (USFL)	0.425	0.462	0.379	0.487	0.285	0.284	0.386	**0.929**	
Perceived ease of use (EUSE)	0.228	0.218	0.347	0.266	0.162	0.161	0.194	0.371	**0.874**

*AVE figures are shown in bold along the diagonal.

—Each construct's AVE should be above 0.50 for convergent validity (Fornell and Larcker 1981).

—Each AVE should be greater than the squared correlations with other constructs for discriminant validity (Anderson and Gerbing 1988).

Figure 3 Structural Model: Standard Regression Weights, Variance Explained, and Fit Statistics for Study 1



Fit statistics			
X^2/df	507.735/197	SRMR	0.061
GFI	0.883	CFI	0.970
AGFI	0.850	RMSEA	0.068 (0.060, 0.075)
All path significant at $p < 0.05$			

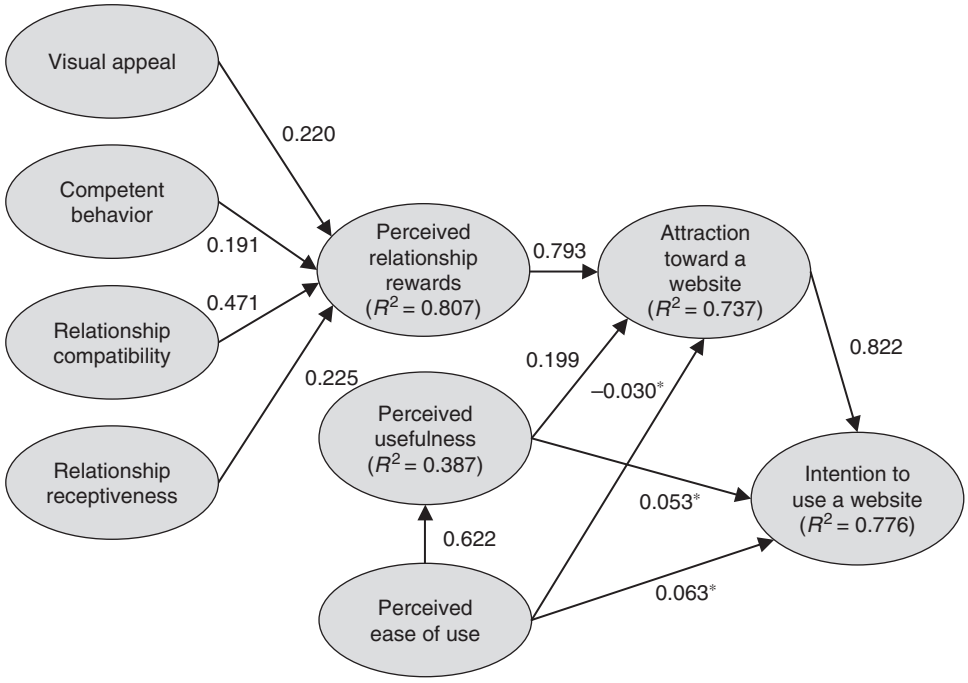
of 0.528. Finally, the stepwise regression with relationship receptiveness as the dependent variable showed that emotional appeal, tailored information, trust, ease of understanding, and intuitive operations were significant predictors with an adjusted R^2 of 0.494.

Discussion of Results. The fit thresholds were met for the structural model proposed in the eCAM when analyzed with the data collected from study 1 (see Figure 3). The results of this study support the proposed hypotheses. The results of the structural model tests suggest that for this sample the most influential antecedent was relationship compatibility (0.469). This suggests that this construct, which is more focused on specific content in the website (e.g., policy statements), may be more influential to perceived relationship rewards than the interface characteristics of visual appeal (0.237), competent behavior (0.184), or the perception of relationship receptiveness (0.221). Another noteworthy result relates to the variance explained in the endogenous variables. More than 80% of perceived relationship rewards was explained by its antecedents. Also, more than 76% of attraction toward a website and 79% of intention to use a website was explained. Of course, the interpretation of these percentages should be tempered with the findings of the common method bias analysis. Although the results of the common method test based on the Lindell and Whitney (2001) approach indicate they are not a serious threat to the results, there may be artificial inflation of these correlations. With these data, knowing the exact amount of bias is impossible. The correlations with the proxy variables (i.e., online completeness and consistent image from Webqual were used because of their low correlations) represent the level of bias and any observed relationship between the sets of variables. Thus, the test provides an especially stringent test to common method bias by partialling out the entire correlation but makes identifying the exact level of bias impossible. In summary, the results from this analysis help alleviate any significant concerns regarding common method bias (see the online appendices for details).

Results of the Sobel tests support the mediation of attitude between commonly held adoption variables (i.e., *perceived ease of use* and *perceived usefulness*) as well as the structural model that included these variables because all these tests indicated significant mediation (see Figure 4). These results support H1B.

The results of the nomological validity tests show that the eCAM constructs are discriminant from previously established IS constructs. Interpretation of the results from the stepwise regression analyses should

Figure 4 Structural Model: Standard Regression Weights, Variance Explained, and Fit Statistics for Study 1



Fit statistics			
X^2/df	847.952/356	SRMR	0.120
GFI	0.862	CFI	0.965
AGFI	0.831	RMSEA	0.063 (0.058, 0.069)

*Not significant at $p < 0.05$

be tempered in that they were exploratory. However, in the vein of exploratory research, such results can be used to inform future theory development. As such, it can be seen how website designers can use the eCAM to identify important relationships between interface characteristics and important e-commerce attraction variables. For example, in these analyses the variable *relative advantage* was found not to be a significant predictor to any of the eCAM antecedents. Similarly, only two predictors, *trust* and *emotional appeal*, were found to significantly predict relationship compatibility.

Study 1 was designed to maximize the internal validity and control as an initial assessment of the variables of interest. As such, this study offers support for the model yet possesses some fundamental limitations. First, as is inherent with laboratory experiments, this study was limited in the generalizability of its findings given the sample used. Second, the controlled nature of the experimental treatments (i.e., Web interfaces) came at the expense of some realism. Therefore, study 2 was developed to inject more realism into the research context as well as to strengthen the generalizability of these results by going beyond a student sample and fictitious websites.

Table 5 Sobel Test Results for H1B and Perceived Relationship Rewards (Study 1)

Mediating relationship	Sobel test statistic	*p*-value
ATTW mediating USFL and BI	8.556	< 0.0001
ATTW mediating EUSE and BI	12.628	< 0.0001
PR mediating VAP and ATTW	10.530	< 0.0001
PR mediating CB and ATTW	10.648	< 0.0001
PR mediating RCP and ATTW	12.596	< 0.0001
PR mediating RR and ATTW	11.867	< 0.0001

Study 2

Study 2 was a survey designed to address the generalizability and realism limitations of study 1 by using a snowball sampling technique. A snowball sample is a chain-referral sampling method that originates with a seed sample (Coleman 1958). This type of sampling technique uses a convenience sample of participants as seeds. These seeds recruit participants based on a set of criteria to participate. As such, a more heterogeneous sample is tapped; this is a technique commonly used in marketing research (e.g., Mick 1996). Snowball samples, however, are not considered to be truly random samples (Heckathorn 1997, 2002; Salganik and Heckathorn 2004). Nevertheless, this sample was

Table 6 Estimated Squared Correlations and (AVE)*

Label	CB	VAP	RCP	RR	PR	BI	TalorInfo	USFL	OnlinCompt	Info/task	RelAdv
CB	**0.560**										
VAP	0.269	**0.958**									
RCP	0.225	0.144	**0.856**								
RR	0.230	0.304	0.317	**0.807**							
PR	0.432	0.372	0.624	0.496	**0.834**						
BI	0.371	0.445	0.362	0.303	0.651	**0.967**					
TalorInfo	0.377	0.426	0.248	0.368	0.466	0.444	**0.830**				
USFL	0.384	0.387	0.260	0.242	0.487	0.425	0.415	**0.931**			
OnlinCompt	0.123	0.082	0.068	0.065	0.124	0.089	0.105	0.106	**0.701**		
Info/task	0.475	0.338	0.309	0.334	0.591	0.520	0.551	0.508	0.114	**0.896**	
RelAdv	0.177	0.080	0.108	0.089	0.218	0.123	0.203	0.144	0.259	0.216	**0.782**
EUSE	0.349	0.200	0.137	0.108	0.281	0.237	0.327	0.393	0.158	0.471	0.219
EaseUnd	0.310	0.263	0.102	0.181	0.310	0.228	0.323	0.292	0.212	0.372	0.174
IntOpp	0.232	0.109	0.098	0.053	0.186	0.132	0.252	0.240	0.183	0.311	0.289
Trust	0.348	0.248	0.490	0.289	0.692	0.510	0.417	0.398	0.142	0.514	0.158
RsTm	0.242	0.157	0.011	0.021	0.192	0.142	0.198	0.215	0.141	0.245	0.138
PE	0.371	0.457	0.361	0.387	0.738	0.607	0.531	0.489	0.083	0.602	0.184
Innov	0.223	0.561	0.178	0.242	0.364	0.386	0.436	0.331	0.094	0.261	0.081
EmApp	0.255	0.471	0.281	0.384	0.561	0.438	0.441	0.401	0.066	0.448	0.111
Const_Img	0.034	0.106	0.092	0.129	0.144	0.107	0.122	0.065	0.073	0.082	0.187
ATTW	0.349	0.593	0.393	0.382	0.719	0.780	0.503	0.461	0.070	0.516	0.102

Label	EUSE	EaseUnd	IntOpp	Trust	RsTm	PE	Innov	EmApp	Const_Img	ATTW
EUSE	**0.825**									
EaseUnd	0.407	**0.870**								
IntOpp	0.740	0.359	**0.893**							
Trust	0.295	0.246	0.211	**0.950**						
RsTm	0.276	0.352	0.230	0.181	**0.825**					
PE	0.366	0.268	0.223	0.569	0.210	**0.866**				
Innov	0.158	0.250	0.082	0.219	0.122	0.347	**0.896**			
EmApp	0.227	0.271	0.131	0.353	0.159	0.585	0.506	**0.894**		
Const_Img	0.068	0.082	0.068	0.115	0.040	0.122	0.136	0.154	**0.792**	
ATTW	0.223	0.220	0.112	0.520	0.143	0.706	0.501	0.573	0.158	**0.842**

Notes. *AVE figures are shown in bold along the diagonal.

Key to construct labels: *eCAM Constructs*: competent behavior = CB; visual appeal = VAP; relationship compatibility = RCP; relationship receptiveness = RR; perceived relationship rewards = PR. *Endogenous variables*: behavioral intention to use = BI; attraction toward a website = ATTW. *TAM constructs*: perceived usefulness = USFL; perceived ease of use = EUSE. *WebQual constructs*: tailored Information = TalorInfo; online completeness = OnlinCompt; information fit to task = Info/task; relative advantage = RelAdv; ease of understanding = EaseUnd; intuitive operations = IntOpp; trust = Trust; response time = RsTm; innovativeness = Innov; emotional appeal (Flow) = EmApp; consistent image = Const_Img; perceived enjoyment = PE.

much more diverse and generalizable than that of study 1.

A core group of students from an introductory IS course was selected as the seed sample. These core participants were given an incentive (extra credit worth approximately 1% of the final grade) to recruit other, nonstudent participants. Each student was instructed to solicit 10 other individuals who were of diverse backgrounds and who used the Internet for online purchases. Those who were recruited were not solicited to recruit others (i.e., the "chain" included only one link).

Participants. The sample consisted of 240 nonstudent respondents who completed surveys. All reported to have used the Internet for e-commerce purposes and, therefore, are considered to be actual e-commerce customers. The minimum age reported was 14[7] and the maximum was 81. The average age was 36.65, and 36.25% of the participants were men. A diverse set of occupations was reported by the participants.

Experimental Task and Procedures. Each participant was given a search scenario. As part of the scenario, the participants were given a list of websites and asked to choose one they had never previously visited. For each website, the participants were given a task that required a search for a particular product to be used as a gift for a fictitious situation. The online appendices detail the exact instructions given to the participants. After exposure to the website via the

[7] Research has shown that respondents as young as seven years old have found to be sufficiently reliable in survey research (Olson et al. 2007).

Table 7 Measurement Model: Standardized Loadings (all loadings $p < 0.05$), Composite Reliabilities and Fit Statistics for Study 2

Construct	Items	Standard loadings	Composite reliabilities	Construct	Items	Standard loadings	Composite reliabilities
Relationship receptiveness	RR1	0.772	0.925	*Competent behavior*	CB1	0.881	0.877
	RR2	0.937			CB2	0.798	
	RR3	0.972			CB3	0.835	
Attraction toward a website	ATTW1	0.949	0.956	*Perceived relationship rewards*	PR1	0.899	0.939
	ATTW2	0.860			PR2	0.921	
	ATTW3	0.953			PR3	0.926	
	ATTW4	0.913		*Visual appeal*	VAP1	0.981	0.988
Relationship compatibility	RCP1	0.807	0.944		VAP2	0.980	
	RCP2	0.978			VAP3	0.984	
	RCP3	0.972		*Intention to use a website*	BI1	0.984	0.989
					BI2	0.995	
					BI3	0.973	
Fit statistics							
X^2/df		394.247/188		SRMR		0.055	
GFI		0.876		CFI		0.973	
AGFI		0.833		RMSEA		0.068 (0.058, 0.077)	

Table 8 EQS Estimated Squared Correlations and (AVE)* (Study 2)

	BI	ATTW	CB	PR	RCP	RR	VAP	USFL	EUSE
Intention to use a website (BI)	**0.968**								
Attraction toward a website (ATTW)	0.810	**0.845**							
Competent behavior (CB)	0.306	0.312	**0.703**						
Perceived relationship rewards (PR)	0.582	0.714	0.465	**0.838**					
Relationship compatibility (RCP)	0.296	0.411	0.184	0.561	**0.851**				
Relationship receptiveness (RR)	0.257	0.315	0.231	0.420	0.267	**0.806**			
Visual appeal (VAP)	0.570	0.734	0.298	0.548	0.295	0.194	**0.964**		
Perceived usefulness (USFL)	0.588	0.602	0.257	0.504	0.189	0.210	0.479	**0.937**	
Perceived ease of use (EUSE)	0.464	0.449	0.325	0.426	0.232	0.157	0.462	0.430	**0.912**

*AVE figures are shown in bold along the diagonal.

scenario, the same survey instrument given in study 1 was administered.

Four websites were chosen as stimuli for this task. Any participant who reported to have seen any one of the websites previously was dropped. These websites were chosen to introduce variance in the responses. Two were chosen to represent a high-quality website and two others were chosen to represent a low-quality website. These sites were identified from the preliminary tests conducted during the instrument development phase of this research.[8] All were real and active e-commerce websites.

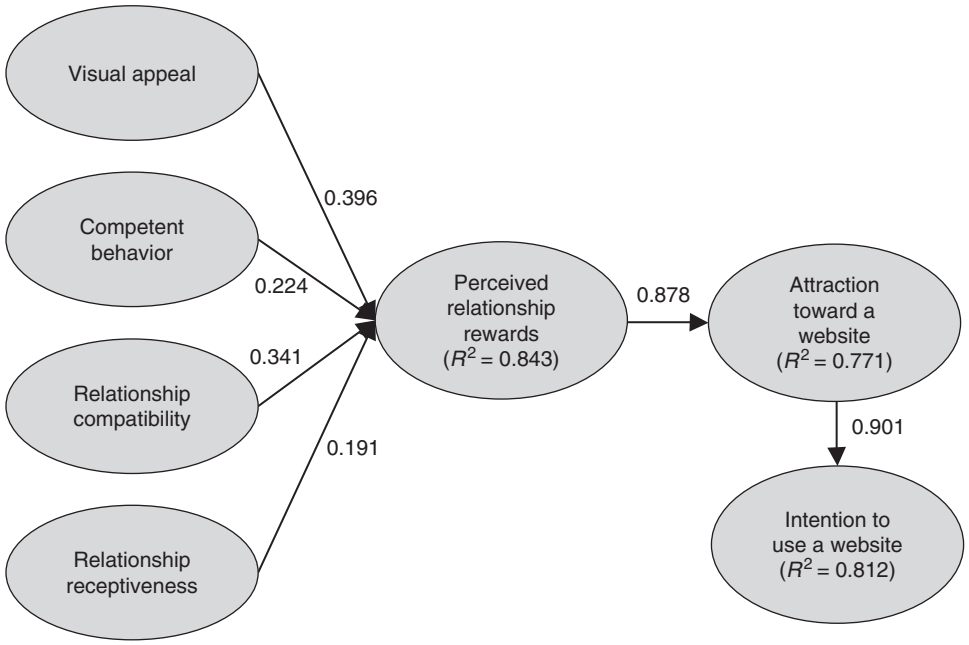
Results. Table 7 shows the measurement model fit for the eCAM. Assessment of the measurement model's fit statistics shows that they met the threshold standards. Thus, an assessment of the measurement instruments was conducted by examining their reliabilities (see Table 7), level of convergent validity (Table 7), and level of discriminant validity (Table 8). All reliabilities and validity results were within acceptable parameters. Similar to study 1, Table 8 reports correlations that may be considered high. These must be tempered with the understanding that the analysis demonstrates discriminant validity, the relationships hypothesized, and the results of the common method variance test, which do converge with the results reported here for study 2 and are similar to the results of study 1 (see the online appendices for details). Similar to study 1, the common method test indicates that all the correlations remain significant when controlling for the correlation of another variable in the data set that acts as a proxy for common method variance.

Figures 5 and 6 show results of structural model tests (i.e., standardized regression coefficients, variance explained, and fit statistics) for the proposed research model (Figure 5) as well as an alternative model that includes commonly used constructs from TAM (Figure 6).

The structural model in Figure 5 indicates support for Hypotheses 1A and 2–6. Similar to study 1, a series of Sobel tests was also conducted to specifically test H1B as well as rule out possible alternative models.

[8] These websites rated as high or low quality from a pool of 20 sites in preliminary testing of the research design. In these preliminary tests, subjects rated the websites on many different dimensions such as navigability, aesthetics, usability, security, and ease of use. The four sites selected were rated consistently as the two highest and two lowest on these different dimensions.

Figure 5 Structural Model: Standard Regression Weights, Variance Explained, and Fit Statistics for Study 2



Fit statistics			
X^2/df	491.464/197	SRMR	0.067
GFI	0.849	CFI	0.962
AGFI	0.807	RMSEA	0.079 (0.070, 0.088)
All path significant at $p < 0.05$			

The results of this mediation test can be found in Table 9. In each case, the test supports mediation at a significance level of $p < 0.0001$. Thus, these results support H1B as well as the implied mediation of perceived relationship rewards.

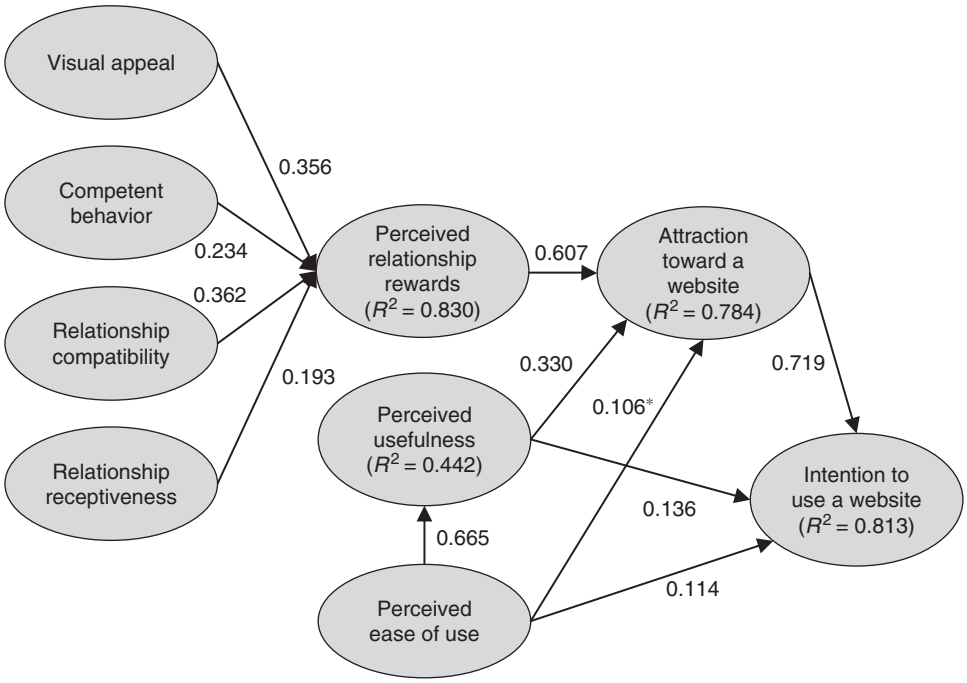
Discussion of Results. Although the results of study 2 replicate the results found in study 1, the results from study 2's structural model differ slightly from those of study 1. For instance, the path weights from the antecedents of the eCAM to perceived relationship rewards adjusted slightly (*visual appeal*: 0.396 versus 0.237; *relationship receptiveness*: 0.191 versus 0.221; *relationship compatibility*: 0.341 versus 0.469; and *competent behavior*: 0.226 versus 0.184). In study 1, relationship compatibility was the dominant antecedent. In study 2, however, both visual appeal and relationship compatibility were relatively equally valued. This suggests that different antecedents will vary in their importance in different situations. For instance, within study 2, participants valued visual appeal when interacting with actual commercial websites, whereas in study 1, this antecedent was not as valued by participants operating in the controlled environment interacting with websites representing a fictitious firm. Further theoretical and empirical investigation may be needed to flesh out the differing roles of these antecedents depending on factors such as product type and task.

Nevertheless, the variance explained in the endogenous variables was very similar to that of the first study, with *perceived relationship rewards* at 84% (versus 81% in study 1), *attraction toward a website* at 77% (versus 76.5% in study 1), and *intention to use* a website at 81.2% (versus 79.4% in study 1). Additionally, results from the common method bias analysis converge with these results, lending further support to the research model (see the online appendices for details). Results of the Sobel tests support the mediation of attitude between commonly held adoption variables (i.e., *perceived ease of use* and *perceived usefulness*), as well as the structural model that included these variables (see Figure 6). These results support H1B. Interpreting the results of both studies together does offer promising support for the proposed eCAM. These studies not only replicate findings but also show that the results are generalizable to a certain degree based on the differences in the methods, websites, and samples used.

Discussion

The results from these studies provide valuable insight into the pre-adoption stage of B2C e-commerce website adoption. Drawing from various

Figure 6 Structural Model: Standard Regression Weights, Variance Explained, and Fit Statistics for Study 2



Fit statistics			
X^2/df	725.054/356	SRMR	0.097
GFI	0.837	CFI	0.966
AGFI	0.800	RMSEA	0.066 (0.059, 0.073)
*Not significant at $p < 0.05$			

relationship theories, the concept of attraction is applied to identify and understand the characteristics that affect how and why consumers react to a B2C website prior to adopting it. In turn, this research offers important contributions to both the academic and practitioner communities, which will be discussed next.

Theoretical Contributions

The primary theoretical contributions of this work are threefold. First, we offer a fresh theoretical perspective concerning technology adoption, with a focus on pre-adoption that goes beyond previous work on this topic in IS (Karahanna et al. 1999, Pavlou and Fygenson 2006). Second, this research supports the viability of attraction as an important attitudinal factor for understanding pre-adoption. Third, related to the prior two contributions, this study offers a valuable theoretical foothold for understanding the multiphased nature of IT adoption and use, particularly from a B2C e-commerce perspective. Each of these contributions is elaborated below.

Table 9 Sobel Test Results for H1B and Perceived Relationship Rewards (Study 2)

Mediating relationship	Sobel test statistic	*p*-value
ATTW mediating *USFL* and *BI*	10.834	< 0.0001
ATTW mediating *EUSE* and *BI*	11.674	< 0.0001
PR mediating *VAP* and *ATTW*	8.685	< 0.0001
PR mediating *CB* and *ATTW*	9.716	< 0.0001
PR mediating *RCP* and *ATTW*	10.110	< 0.0001
PR mediating *RR* and *ATTW*	9.869	< 0.0001

First, consistent with the recent calls for the need to study technology adoption from fresh theoretical perspectives (Benbasat and Barki 2007), our work leverages core interpersonal relationship theory to highlight the importance of pre-adoption attitudes prior to more commonly studied adoption stages, such as initial use and continuance. Our results provide support for pre-adoption perceptions and attitudes as predictors of users' intentions to use an e-commerce website. The support for H1A and H1B indicates not only that attraction is a predictor of behavioral intention but also that attraction mediates the effects of perceived ease of use and perceived usefulness that have been shown to be the key predictors of adoption in a variety of contexts. Therefore, we have made an important contribution to the technology adoption literature by theoretically framing a pre-adoption attitude (i.e., attraction) as a predictor of

behavioral intention to use in the initial stages of an e-commerce B2C context.

Second, we have shown that attitudinal variables may warrant added focus in various IT adoption contexts. Seminal technology adoption research has often excluded attitude, mainly because it failed to mediate various beliefs-to-intentions when tested in more involuntary settings (Venkatesh et al. 2003). Yet some subsequent research argued for the inclusion of attitude into the research model when it was relevant for the domain of interest (Brown and Venkatesh 2005, Chau and Hu 2001, Venkatesh and Brown 2001) and individual beliefs stimulated more affective reactions to the technology (Davis et al. 1989). Our findings support an added emphasis on attitude variables in voluntary settings that may be more affective in nature (e.g., relational contexts). For example, we would expect attitudes, such as attraction, to be similarly important in the diffusion of innovations (e.g., smart phones) when the context is voluntary, thus introducing the importance of the affective component during technology assessments and evaluations. The framing of our study provides the theoretical rationale for leveraging the outcome from the pre-adoption (i.e., attitudes of attraction) stage as a logical segue for understanding subsequent technology adoption stages.

Third, our study supports previous conceptual work that emphasizes the appropriateness of qualifying stages of use (e.g., pre-adoption, early adoption, continued use, habitual use) as applicable to e-commerce B2C relationships. We have shown that pre-adoption attitude influences behavioral intentions of future adoption. This study emphasizes a focus on the role of attitudes and attitude formation as a starting point for B2C e-commerce. Additionally, our theoretical focus indicates that attitude variables can be operationalized to be specific to the adoption context, which in the case of our study focused on pre-adoption context using attraction as a context-specific attitude. Continuing with the smart phone example, our results suggest that it is important to operationalize the attitude variable at a more specific level (e.g., attraction: Are you excited about learning more about this smart phone? What is the likelihood you will tell a friend about this smart phone?) rather than the more widely used attitude scales that are more general in orientation (e.g., Is this smart phone: good . . . bad, effective . . . ineffective, fun . . . boring).

Practical Contributions

This work offers insight into the areas of e-commerce website adoption, e-commerce customer relationship management (eCRM), and website design. This research provides practitioners with a much needed orientation for how to attract and interact with online consumers from a relationship perspective. For example, the manipulations used in study 1 show how policies of the company and the overall tone of such text can increase perceptions of relationship compatibility and relationship responsiveness. By emphasizing a relational orientation, managers can inform their customer acquisition strategy to attract long-term customers. Such a shift in focus will emphasize possible additional metrics oriented toward psychological or relational factors (e.g., attraction, perceived rewards, relationship compatibility, relationship responsiveness) that complement and support traditional e-commerce metrics for long-term customers (e.g., conversions for upsell offers or return visits to the site). Although the purpose for business remains unchanged (i.e., facilitate long-term returning profitable customers), the relationship perspective may provide additional insight into how to achieve these goals.

Additionally, these results indicate how a developer may be able to increase perceived relationship rewards as well as attraction toward a website by manipulating specific interface characteristics. This type of information may assist managers in making strategic investment decisions. When faced with finite financial resources targeted toward website development, the eCAM can provide insight as to how to enhance important consumer perceptions by investing in specific areas. For example, the results here show that investment in response time (making websites run faster) may not influence many areas of attraction, and resources may be more effectively directed to other areas of the website, such as visual appeal.

Limitations and Future Research

Both studies were conducted to minimize possible threats to the interpretation of the results. Although study 2 adds to the generalizability of the results, the reliance on students as a seed to the ultimate samples does create a potential bias. This type of respondent-driven sampling has shown not to be truly random (Heckathorn 2002). Interpretation of these results should be tempered with this limitation. Nevertheless, given the limitations of our samples, both represent important segments of the overall online consumer population. Thus, we see no a priori evidence or rationale to suggest that our findings would not be applicable to broader and more diverse segments.

This research also used a survey method that has known limitations. Although common method variance was statistically controlled using the Lindell and Whitney (2001) method, these results could be strengthened if tested using alternative approaches. Additionally, other types of methodological

approaches can be used to replicate these findings and increase aspects of realism. Study 1 provides a controlled experiment and study 2 provides supporting results with added realism and generalizability. Interpreting the results of both studies together provides an adequate initial empirical assessment of the eCAM.

Our study supports previous conceptual work that relationship theory is applicable to e-commerce B2C relationships (Campbell et al. 2009). We have shown that pre-adoption attitudes are predictive of behavioral intentions of future adoption. The framing of our study provides the theoretical rationale for leveraging the outcome from the pre-adoption stage as a logical segue for understanding subsequent technology adoption stages. In turn, relationship theory also identifies other stages, namely build-up, continuance, deterioration, and ending, in relationships that may also provide important insights if extended to technology use contexts where the relationship metaphor is appropriate (e.g., website use, continued use, e-loyalty) (Levinger 1980). Future research can extend this work by examining the transition points from one stage to another in addition to focusing on relevant factors of subsequent stages. Implicit in this call for research is to eventually examine the entire B2C relationship process (i.e., all stages) in a longitudinal framework. With insights from this type of research, eCRM strategies could be developed from a relationship perspective rather than a purely economic perspective. Such strategies may provide a competitive advantage because they would be more focused on strengthening the long-term relationship rather than short-term profitability.

Conclusion

This study offers a unique insight into the phenomenon of e-commerce attraction. We have shown the theoretical link between relationship theory and technology adoption research in the context of online B2C relationships. In this context, attraction has shown promise in explaining important adoption variables, behavioral intentions to use a website. The results indicate that these relationship-oriented constructs explain significant variance in this context. Additionally, this research complements existing technology adoption research by integrating and testing the eCAM with existing adoption constructs. Thus, assimilating the relational perspective with existing adoption literature provides new conceptual insights into this phenomenon. This study also provides theoretical and empirical support for the inclusion of attitude in research models applied within more voluntary contexts, highlighting the need to leverage specific, rather than general, operationalization of the attitude construct. Finally, we find support for the inclusion of the identified predictors of attraction in the context of e-commerce B2C relationships. Examining pre-adoption with a conceptual understanding of attraction and relationship theory is an important step in a broader and more profound understanding of B2C e-commerce adoption.

Supplemental Material

Supplemental material to this paper is available at http://dx.doi.org/10.1287/isre.1120.0429.

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