

Different Views and Evaluations of IT Artifacts

Research-in-Progress

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Abstract

The introduction and adoption of a multitude of new and interactive information technology (IT) artifacts has impacted adoption research. Rather than solely functioning as productivity tools, new IT artifacts assume the roles of interaction mediators and social actors. This paper describes these varying roles, and discusses the type of perceptions users form when using them. Further, the paper proposes and distinguishes between four foci of how the different types of artifacts are evaluated across cognitive, relational, social, and emotional beliefs. A theoretical model is developed that maps the different views of IT artifacts to the four distinct types of evaluations, and a number of propositions are presented.

Keywords: IT adoption, IT artifact, human-computer interaction, productivity tool, interaction mediator, social actor

Introduction

Electronic commerce (e-commerce) has changed the research emphasis associated with the adoption of, and interaction with new information technology (IT). In this online setting, the IT artifact itself became an instrumental player whose design can affect not only its adoption and usage, but also the nature of the unfolding relationship between the user and the online store.

Initially adopting a transactional perspective, early research has focused on the study of e-commerce exchanges and ways of improving their speed, accuracy, and efficiency. This limited focus on transactions that are characterized by distinct beginnings, short durations, and clear endings (Morgan and Hunt 1994), has quickly shifted in recent years towards an increased focus on relationship-building strategies. The latter include a range of processes encompassing all activities directed toward establishing, developing, and maintaining successful relational exchanges between customers and online stores.

Online vendors as well, due to the high costs of attracting and retaining customers, have realized the importance of building ongoing relationships with their customers, as well as providing them with a gratifying shopping experience. Consequently, a multitude of new IT artifacts were introduced that support different aspects of the customer-online store relationship; encompassing activities from the pre-purchase to the post-purchase stages (Cenfetelli et al. 2008). As a result, researchers have shifted their attention to investigating issues related to these new IT artifacts. This was accomplished through focusing on issues of communication between the customer and the online company, including the personnel and other customers of this company (Benbasat 2006).

In an effort to adapt traditional models of adoption to better suit these new contexts, a substantial amount of research has attempted to supplement these models with one or more types of social or relational constructs that were often confined to the interpersonal settings. For example, trustworthiness, a social

attribution often confined to human-like entities, has been studied in regards to IT artifacts such as websites (Gefen et al. 2003) and online recommendation agents (Wang and Benbasat 2005). Additionally, researchers have attempted to study other social dispositions, such as social presence manifested by avatars representing service personnel (Qiu and Benbasat 2005), and the role of the IT artifact's design characteristics in affecting perceptions of telepresence and interaction enjoyment when communicating with other shoppers (Zhu et al. 2010) or service personnel (Qiu and Benbasat 2005).

In light of the above analysis, the current paper has two objectives. First, we provide a typology of the different types of evaluations users apply to IT artifacts. Second, we describe the different roles that IT artifacts assume, and illustrate how these views of the artifact determine the types of salient perceptions users form about these artifacts, which subsequently determine their evaluations. In so doing, we seek to make the following contributions: 1) presenting an integrative view of how IT artifacts are treated in the literature, 2) formalizing the relationships between these different perspectives, and 3) developing an integrative framework that can be used to derive testable hypothesis concerning how users use and treat IT artifacts, and subsequently evaluate them.

To guide our theoretical development, we adopt the definition of an IT artifact as “the application of IT to enable or support some task(s) embedded within a structure(s) that itself is embedded within a context(s).” (Benbasat and Zmud 2003; p. 186) In other words, we view an IT artifact as any manifestation of information technology that can be employed to support a meaningful and distinguishable task that is embedded within a specific structure and context. Compared to alternative and broader definitions (e.g., for a review see, Alter 2006), the adopted definition emphasizes the functional role of an IT artifact, while recognizing the structural, social and contextual nature of its use. This is consistent with our primary thesis that users form varying perceptions of an IT artifact from using it, which subsequently affect the type and nature of the evaluations they make. Depending on how the artifact is used, and based on the structure in which the artifact is embedded and the context in which it is employed, users will form relevant types of perceptions that give rise to pertinent types of evaluations.

The Different Evaluation Foci

Driven by the changing nature of user-artifact interactions, researchers have supplemented traditional models of adoption with new types of beliefs. In addition to adopting a utilitarian focus, in which cognitive beliefs and extrinsic benefits and costs are proposed to determine adoption and use, additional foci are introduced that help researchers capture the relational and experiential aspects of these interactions.

The resultant new belief types can be classified into three categories: 1) social beliefs, which concern the social outcomes of using the system to communicate with others (or the system itself), excluding any outcomes pertaining to the exchange itself (e.g., social presence; Qiu and Benbasat 2005), 2) emotional beliefs, which concern users' affective states while using the system (e.g., perceived enjoyment; Venkatesh 2000), and 3) relational beliefs, which concern the exchange aspects of the customer's interaction with the IT artifact (e.g., trust; Wang and Benbasat 2005).

Table 1 describes the main features of the four evaluations foci. First, cognitive evaluations are distinguished by their focus on the extrinsic rewards that are obtained at the end of the interaction. Hence, they take a cross-sectional view of such interactions, which are assumed to be transactional in nature. The relational view of user-artifact interactions, however, emphasizes both the user experience and the outcomes of the interaction. In essence, this view assumes that the interaction itself is rewarding, yet also facilitates the attainment of extrinsic benefits at the end of the interaction. Similarly, both the social and emotional foci emphasize the role of the user experience in determining adoption and use decisions. Yet, unlike the relational view, the social and emotional views assume that users are intrinsically motivated, and the benefits obtained are intangible and attained during the interaction itself.

Different Views of Artifacts and Relevant Evaluations

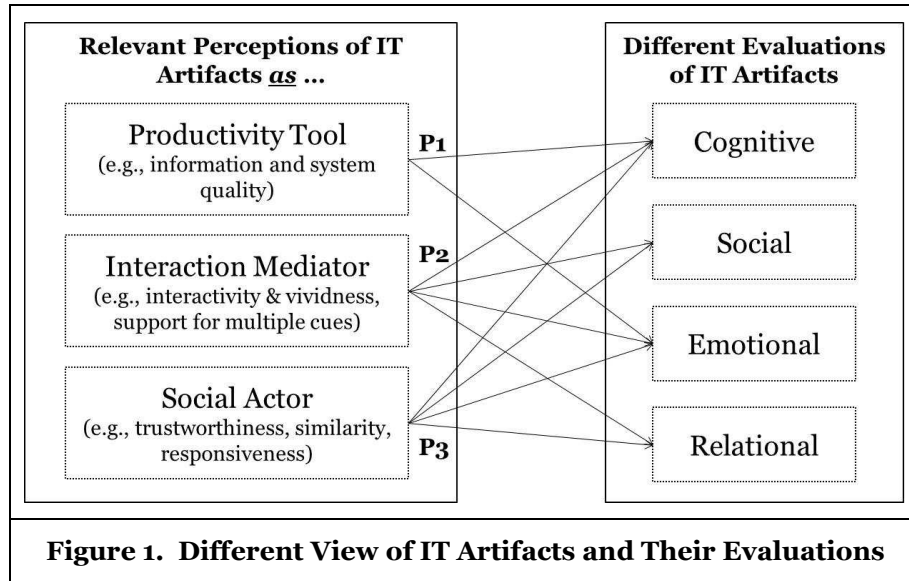
The theoretical model in Figure 1 posits that IT artifacts can be viewed in different ways. More specifically, when mediating interactions between a customer and another entity (e.g., other customers, service personnel, the company), the artifact is viewed as an interaction mediator. Alternatively, the same IT artifact can also be used in ways other than that of facilitating communication with the company, its

employees, or other shoppers. More specifically, these artifacts can perform the function of supporting the customer when performing a certain task and enhancing her performance, thus, acting as a productivity tool. For example, while a website serves to mediate a customer’s interaction with an online vendor when placing an order, it also functions, through its informational content and search functionality, as a productivity tool that enhances the customer’s performance in choosing a suitable product.

Table 1. Different Foci of IT Artifact Evaluations	
Focus	Characteristics
Utilitarian	<ul style="list-style-type: none"> • Premise: Using IT artifacts (behavior) can be rewarding (outcome). • Focus on utilitarian benefits. • Uses “<i>cognitive</i>” beliefs to predict adoption (e.g., PU). • Users are assumed to be <i>extrinsically motivated</i>. • Benefits achieved at the end of the interaction. • <i>Cross-sectional</i> focus (ignores post-adoption behavior and repeated use). • Emphasizes the “<i>exchange</i>” part of the interaction, and hence, the “<i>transactional</i>” aspects of the interaction.
Relational	<ul style="list-style-type: none"> • Premise: Using IT artifacts (behavior) allows users to form relationships (outcome). • Focus on <i>relational benefits</i>. • Uses “<i>relational</i>” beliefs to predict adoption (e.g., Trust). • Users are both <i>intrinsically</i> and <i>extrinsically motivated</i>. • Benefits achieved <i>during</i> or at the <i>end</i> the interaction (or even in <i>subsequent interactions</i>). • Mainly a <i>temporal</i> focus. • Emphasizes the “<i>relationship</i>” part of the interaction. While this is formed through the “<i>experience</i>”, it is manifested through the “<i>exchange</i>”.
Social	<ul style="list-style-type: none"> • Premise: Using IT artifacts (behavior) allows users to engage in social interactions (outcome). • Focus on <i>social benefits</i>. • Uses “<i>social</i>” beliefs to predict adoption (e.g., Social Presence). • Users are assumed to be mostly <i>intrinsically motivated</i>. • Benefits achieved <i>during</i> the interaction. • Some <i>temporal</i> focus (can be connected to post-adoption behavior and repeated use). • Emphasizes the “<i>customer experience</i>” part of the interaction, and hence, the “<i>experiential</i>” aspects of the interaction.
Emotional	<ul style="list-style-type: none"> • Premise: Using IT artifacts (behavior) can change users’ affective states (outcome). • Focus on <i>hedonic</i> (emotional) <i>benefits</i>. • Uses “<i>emotional</i>” beliefs to predict adoption (e.g., PE). • Users are assumed to be <i>intrinsically motivated</i>. • Benefits achieved <i>during</i> the interaction. • <i>Cross-sectional</i> focus (ignores post-adoption behavior and repeated use). • Emphasizes the “<i>customer experience</i>” part of the interaction, and hence, the “<i>experiential</i>” aspects of the interaction.

The third role that IT artifacts are proposed to assume directly relates to the other two. In addition to enhancing the customer’s performance, an IT artifact can be perceived as a social actor that acts as an interaction partner in and of itself. In other words, the social actor view of IT artifacts extends the view of them as productivity tools, by proposing that an artifact is a social actor that acts as an interaction partner that has the ability to enhance the productivity of its interaction partner (i.e., the user). In the same vein, while the interaction-mediator view assumes that the artifact is mediating interactions between human

entities, the social actor view concerns communications that occur between the customer on one hand, and the artifact on the other, where the artifact is assumed to possess the ability to communicate autonomously. Hence, in this view, the artifact is assumed to possess a number of social characteristics that allow for its evaluations to extend beyond those that relate to its function as a productivity tool or an interaction mediator (e.g., evaluations of its similarity to the user).



As illustrated in Figure 1, based on the user’s perspective of the role of the IT artifact (it could be perceived to assume multiple roles), the user forms perceptions concerning the artifact’s characteristics (e.g., information quality, interactivity, trustworthiness) that relevant to the perceived role. These perceptions, which are termed object-based beliefs, then determine the type and nature of the user’s evaluations of the IT artifact. Such evaluations can be cognitive, relational, social, or emotional in nature. Worth noting is that this proposed causal link is consistent with the one described in Al-Natour and Benbasat (2009), where an artifact’s appropriation in terms of function was proposed to impact the type and nature of beliefs users form about the artifact, which then affect its evaluation.

Table 2 summarizes how the different types of behavioral beliefs used to evaluate IT artifacts are differently conceptualized for the three views of IT artifacts.

Technology Artifacts as Productivity Tools

The view asserting that IT artifacts primarily function to enhance users’ performance has gained early acceptance in adoption research. Within this view, the focus has typically been on beliefs that are salient for an extrinsically motivated user, such as beliefs about the different quality dimensions of the artifact, or characteristics that affect the costs and benefits associated with its use. Adopting this view, researchers have adapted many of the constructs used to assess the quality of traditional information systems to the e-commerce context (e.g., information and system quality; DeLone and McLean 1992).

Evaluations of artifacts within this view have typically been limited to cognitive beliefs, which specifically address the artifact’s efficacy in performing the role of enhancing the productivity of its users. Nonetheless, few studies have successfully incorporated a number of emotional beliefs that address aspects of the experience of interacting with the artifact (e.g., perceived enjoyment; Qiu and Benbasat 2005), while others have defined a number of emotional beliefs that refer to a behavior other than that of using the artifact (e.g., shopping experience; Koufaris 2002). Additionally, attempts have also been made to integrate this view of IT artifacts with that of the interaction-mediator view to facilitate the inclusion of some of the relational beliefs, which were conceptualized as evaluations of the interaction partner’s relational characteristics (e.g., trustworthiness of a vendor; Gefen et al. 2003). Understandably, these

studies have shied away from conceptualizing their relational beliefs to address outcomes that directly relate to the artifact (e.g., the trust-relevant outcomes of using a recommendation agent), as doing so, makes these studies ascribe to the social actor view of IT artifacts.

P1: Perceptions of an IT artifact as a productivity-tool will affect its evaluations across a number of cognitive (*benefits/costs associated with the outcome of using the artifact*) and emotional (*affect associated with the outcomes of using the artifact*) beliefs.

Table 2. IT Artifact Evaluations			
	Productivity Tool	Interaction Mediator	Social Actor
Cognitive Beliefs	Beliefs concerning the benefits/costs in terms of productivity and performance gains from using the artifact to help accomplish a task.	Beliefs concerning the benefits/costs of using the artifact to communicate with others.	Beliefs concerning the benefits/costs in terms of productivity and performance gains from interacting with the artifact as a social partner.
Relational Beliefs		Beliefs in regards to the extent to which using the artifact allows the user to make relational evaluations of the interaction partner.	Beliefs concerning the relational aspects of the artifact as an exchange partner based on the experience of interacting with it.
Social Beliefs		Beliefs in regards to the extent to which the experience of using the artifact to communicate with others feels like a real social experience.	Beliefs in regards to the extent to which the experience of interacting with the artifact feels like a real social interaction.
Emotional Beliefs	Beliefs concerning affect associated with the outcomes of using the artifact to help accomplish a task.	Beliefs concerning affect associated with the experience of using the artifact to communicate with others.	Beliefs concerning affect associated with the experience of interacting with the artifact as a social partner.

IT Artifacts as Interaction Mediators

Studies affirming that IT artifacts, such as websites, have the primary function of mediating social interactions between inherently social entities often rely on theories of social presence (Short et al. 1976) and media richness (Daft et al. 1986). These theories presuppose that IT artifacts are interaction mediators, and are not social entities in and of themselves. Social presence theory, for example, addresses how successfully an artifact conveys a sense of the participant being physically present, using face-to-face communication as the standard for assessment (Preece 2000). In evaluating the role of technology in mediating communication, an emphasis is not only placed on the words spoken by people, but also on the conveyance of verbal and nonverbal cues, body language, and context. Media richness theory is similar to social presence, but takes a media perspective by describing a medium’s capacity to provide immediate feedback, its ability to convey cues, the quantity of senses involved, and the manner in which they are stimulated (Daft et al. 1986).

Within this view of the interaction-mediator, the emphasis is typically on beliefs that address the characteristics of the artifact that are salient within the context of using it as a tool to enable effective communication with others. Examples of such beliefs are the artifact’s level of interactivity and vividness (Qiu and Benbasat 2005), the artifact’s ability to support immediacy of feedback, multiple cues, and

language variety (Daft et al. 1986), or its ability to convey a vivid and accurate representation of the product (Jiang and Benbasat 2007).

Cognitive, social, as well as emotional beliefs have been used to assess users' evaluations of interaction-mediating IT artifacts. More specifically, while the cognitive beliefs have been typically used to assess users' perceptions in regards to the utilitarian benefits and costs of using the artifact to communicate with others (e.g., the perceived usefulness of a website when communicating with the company, the perceived usefulness of a collaborative shopping medium when shopping with a friend in a distant location), the social and emotional beliefs have been used to assess users' perceptions of factors that are salient throughout the interaction experience (e.g., telepresence when using a communication medium, interaction enjoyment when using a collaborative shopping medium). While relational beliefs (e.g., trust) have been used to assess users' evaluation of e-commerce IT artifacts when these are used to mediate interactions (e.g., the use of a website to place an order), the conceptualizations of these beliefs typically do not explicitly refer to a specific behavior, or when they do, they refer to a behavior different from that of using the artifact.

We believe that relational beliefs are important evaluations to consider when studying interaction-mediating IT artifacts. Their role, as we see it, is that of addressing the relational-based outcomes of the behavior of using the system. For example, trust in the context of using a medium to communicate with a serviceperson should refer to the extent to which using the artifact allows the user to make relational evaluations of the interaction partner (e.g., using the artifact allows the user to detect deception on the part of the interaction partner; Xu et al. 2012).

P2: Perceptions of an IT artifact as an interaction-mediator will affect its evaluations across a number of cognitive (*benefits/costs of using the artifact to communicate*), relational (*the ability to make relational evaluations*), social (*extent to which using the artifact allows for a social experience*), and emotional (*affect during the interaction experience*) beliefs.

Technology Artifacts as Social Actors

In addition to mediating social interactions between human entities or acting as productivity tools, IT artifacts can be seen as social actors in and of themselves. Under the "Computers Are Social Actors" paradigm (Nass et al. 1993), researchers have consistently demonstrated that individuals unconsciously attribute human-like characteristics (e.g., gender) to technology, and apply social rules and expectations when interacting with IT artifacts. The application of these social categories and rules has been demonstrated to affect judgments about, and responses to the IT artifacts (Lee and Nass 2003).

Empirical research suggests that the primary characteristics of media that seem to cue these social responses are the use of language (Clark 1999), interactivity (Nass and Moon 2000), and voice (Nass and Steuer 2000). The most accepted explanation of this phenomenon asserts that when interacting with IT artifacts, users experience a state of *mindlessness*, which occurs as a result of conscious attention to a subset of contextual cues (Langer 1992). These cues trigger various scripts, labels, and expectations on the part of individuals, which in turn focus attention on certain information while diverting attention away from other (Nass and Moon 2000).

Studies adopting this paradigm have: 1) investigated the types of social characteristics that can be manifested by IT artifacts, and the conditions under which these manifestation are likely (e.g., Nass et al. 1995), or 2) examined the ways in which users process their perceptions of these characteristics, and the effects of that on user's evaluations (e.g., Hess et al. 2006).

Within the first stream of research, researchers have used a number of characteristics that were shown to be salient within the context of interpersonal interaction. These beliefs can be categorized into two groups (Byrne and Griffitt 1973): 1) individual-level constructs, which are beliefs concerning specific characteristics of the target individual (e.g., physical appearance), and 2) relationship-level constructs, which are beliefs concerning specific characteristics of the of the target individual within the context of the relationship (e.g., openness, leadership).

Within the second stream of research, studies have focused on investigating the ways in which these perceptions are processed by users, and are likely to affect their subsequent evaluations. In social psychology research, both person-level and relationship-level beliefs have been investigated using either

individualistic (focusing on one person's unilateral awareness of another) or dyadic (focusing on reciprocal behaviors between the interacting partners) approaches. In an individualistic approach, beliefs about characteristics that the target is perceived to possess, inherently (person-level) or in the context of the interaction (relationship-level), are assumed to act as direct antecedents to subsequent evaluative beliefs. For example, in an individualistic approach, both a target's physical appearance, as well as her perceived level of openness in the context of her interaction with the evaluator, act as individualistic beliefs that are proposed to be direct antecedents to evaluations. On the other hand, within a dyadic approach, beliefs about characteristics of the target, whether at a person or a relationship level, are assumed to be processed by the evaluator in relation to her own characteristics, resulting in dyadic beliefs that we term interpersonal variables. For example, in a dyadic approach, it is the similarity of the physical appearance between the target individual and evaluator that is assumed to affect subsequent evaluation, rather than beliefs about the physical appearance of the target alone. Similarly, within this approach, beliefs about characteristics of the target within the context of the interaction, such as the target's perceived level of openness, are assumed to be assessed by the evaluator in relation to her own characteristics before they affect subsequent evaluations.

Adopting a social actor view of IT artifacts, a number of studies have shown how both person-level (e.g., ethnicity) and relationship-level (e.g., benevolence) perceptions that are typically used in interpersonal contexts, can act as predictors of users' evaluations of IT artifacts. For example, Holzwarth et al. (2006) have provided evidence that the perceived expertise and physical attractiveness of an automated sales agent affect perceptions of its effectiveness. Additionally, the similarity between a user and an IT artifact (e.g., recommendation agent), a dyadic belief, has been shown to be an influential antecedent of a number of behavioral beliefs that concern evaluations of the utilitarian outcomes of using an artifact (e.g., effects of decision strategy similarity on perceived usefulness; Al-Natour et al., 2011a, effects of ethnic similarity on usefulness; Qiu and Benbasat 2010), or those that address aspects of the interaction experience and relational factors (e.g., effects of personality similarity on interaction enjoyment; Al-Natour et al., 2011a, effects of ethnic similarity on social presence and trust; Qiu and Benbasat 2010).

A number of challenges have arose as a result of these attempts to incorporate interpersonal constructs as antecedents to evaluative beliefs, especially in the case of newly introduced constructs that were exclusively studied within interpersonal contexts (e.g., personality similarity; Al-Natour et al. 2006; Hess et al. 2006). The skepticism with which these attempts have been met is somewhat justified, because many of these new constructs have been added to adoption models without much care. For such constructs to be meaningful within an adoption model, many of the existing constructs have to first be re-conceptualized to fit the social actor view. For example, in the case of interacting with a recommendation agent, the relationship between perceived similarity and trust is only meaningful if the trust construct is re-conceptualized to refer to trust in the recommendation agent (Wang and Benbasat 2005) rather than the e-vendor (Gefen et al. 2003).

Similarly, other emotional and social evaluative beliefs need to be re-conceptualized to refer to the salient outcomes of engaging in the behavior of interacting with the IT artifact itself. For example, social presence, which traditionally has been used to assess the degree to which a medium allows its users to establish personal connections with other people in distant locations (Short et al. 1976), needs to be re-conceptualized to refer to the extent to which an artifact is perceived as sociable, warm, personal or intimate when a user interacts with it (Gefen and Straub 2003). This introduces the need to distinguish between the IT artifact that is acting as a social actor (e.g., automated service person), and the interface used in communicating with it (e.g., live chat medium). Likewise, the emotional belief of perceived enjoyment needs to be re-conceptualized to refer to the enjoyment derived from interacting with the artifact (Al-Natour et al. 2011a) rather than that derived from the shopping experience (Koufaris 2002).

In general, we believe that a large number of the beliefs that have been shown to be salient and influential in the context of interpersonal interaction (both person-level and relationship-level) are relevant to the context of user-artifact interactions. Of these, probably the most applicable are those concerning perceptions of the artifact's characteristics that relate to its ability to perform its role and how it performs it, and those concerning inherent characteristics of the artifact that affect the social interaction with its user (e.g., gender, personality type). Many of these perceptions we proposed can be processed both individually, where they directly affect subsequent evaluations (e.g., physical appearance, gender), or in a dyadic manner, where they are assumed to interact with the customer's own characteristics,

subsequently affecting evaluations of the artifact. The resultant individualistic or dyadic object-based beliefs are proposed to affect all four types of subsequent evaluations of the artifact. Thus, we propose that both individualistic and dyadic object-based beliefs will act as antecedents to cognitive, social, emotional and relational beliefs when the artifact is viewed as a social actor.

P3: Perceptions of an IT artifact as a social actor will affect its evaluations across a number of cognitive (*benefits/costs of interacting with the artifact*), relational (*concerning the artifact as a relational partner*), social (*extent to which interacting with the artifact feels like a social experience*), and emotional (*affect associated with interacting with the artifact*) beliefs.

Testing of the Model and Concluding Remarks

The changing nature of IT artifacts has given rise to a number of challenges concerning how these are viewed and evaluated. This paper proposes a theoretical model of the views users adopt when interacting with IT artifacts. Depending on the view(s) adopted, different artifact characteristics are salient and different relevant beliefs are formed. These subsequently not only drive and affect utilitarian evaluations of the artifact, but likely evaluations of the artifact that are social, relational and emotional in nature.

Of the three views of IT artifacts, the social actor view is most recent and potentially offers the most promise. Specifically, and as discussed earlier, this view is the most comprehensive and captures the essential elements of the other two perspectives, since a social actor artifact can be an interaction partner that enhances the user's productivity. Furthermore, the social actor view supposes that interactions with IT artifacts are interpersonal in nature, and hence allows for the incorporation of a number of evaluation and adoption determinants that have been used to assess interpersonal interactions. These additional predictors hold the potential to further clarify our understanding of users' adoption and use decisions.

The conceptual model presented in Figure 1 is a causal model, and its propositions should be tested as such. Hence, it is more appropriately tested utilizing a laboratory or a field experiment to facilitate the manipulation of a number of design characteristics that can effect desired perceptions of the artifact's characteristics, which can then help in predicting users' cognitive, relational, social and emotional evaluations.

The model proposes that the same artifact can be viewed as a productivity tool, an interaction mediator, and a social actor. While this paper has described a number of studies that examined characteristics of this artifact acting in one or another of these distinct roles, no study to date has integratively studied perceptions of an IT artifact as all three, as well as the resultant cognitive, relational, social and emotional beliefs. As suggested by Al-Natour and Benbasat (2009), the extent to which the same artifact is perceived in these three distinct capacities varies with how the artifact is designed, presented, and appropriated. We believe a complete test of the model is possible in the context of e-commerce IT artifacts. These are typically endowed with autonomy and human-like characteristics that allows for attributions of social action. They further, function to mediate interactions between customers and online vendors.

Product recommendation agents are an example of such an artifact. They are primarily used as productivity tools to obtain more suitable product recommendations, but are also perceived as social actors (Al-Natour et al. 2006; 2011a; 2011b), or even mediators of the interaction with the online vendor, or the interaction between the user and themselves. Specifically, we propose to manipulate the design of a product recommendation agent in terms of decision process, physical embodiment, communication modality, and decisional guidance to effect changes in users' perceptions of the agent as a productivity tool (information quality, system quality), an interaction mediator (sociable, rapport), and social actor (openness, similarity). These perceptions of the agent's characteristics we hypothesize will affect its evaluations across a number of cognitive (usefulness), relational (trustworthiness), social (social presence), and emotional (interaction enjoyment) beliefs.

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