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What Is Interactivity and Is It Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness

Yuping Liu and L. J. Shrum

Most perceptions of interactivity are that it is an inherently good thing, that it will change marketing and advertising as we know it. However, though there are obvious and intuitive advantages to interactivity, it may pose a disadvantage for marketing and advertising in some conditions. In this article, we explore the nature of interactivity and its underlying processes to determine the conditions in which interactivity may be both useful and detrimental in an advertising context. We first discuss the multidimensional nature of the interactivity construct as it has appeared in the literature. We then provide a concrete conceptualization and definition of interactivity that encompasses these various dimensions. We argue that inconsistencies between the definitions and operationalizations found in previous studies make it difficult to draw firm conclusions about the role of interactivity but that these inconsistencies can be at least partly explained by a focus on the different dimensions of interactivity. Finally, drawing on theory and research in cognitive, social, and personality psychology, we suggest that the influence of interactivity on advertising effectiveness may be a function of both the person and the situation. We offer a program of research, in the form of testable propositions, to explore these boundary conditions and discuss implications for Internet advertising strategy.

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Everyone seems excited about the "interactive revolution" that is apparently upon us. In its May 31, 1993, issue, *Newsweek* proclaimed the virtues of an "interactive life" and explained how interactivity would change the way we "shop, play, and learn" (Jensen 1998, p. 185). Colleges and universities are on the fast track to providing the latest in interactive courses, and academic researchers are similarly anxious to explore the nuances of interactivity. Moreover, nary a negative word can be heard about interactivity, or at least so it seems.

Yet, in reading across the rapidly growing literature in both the academic and lay press, it is unclear that anyone really knows what interactivity is. Or, perhaps better put, everyone has their own idea about what interactivity is, but these ideas seldom appear to be consistent across people. There are at least two relatively innocuous and interrelated reasons for these inconsistencies. First, the word is a fairly common one that has taken on a technical definition. Second, the construct is a complex and (we argue) multidimensional one. Consequently, the inconsistencies across definitions may result from two people simply talking about different aspects of interactivity. In other words, both may be accurate.

In this article, we argue that a thorough understanding of the complexities of interactivity and a precise, concrete conceptualization and definition of the construct is crucial to advancing research in the area. In the first portion of the paper, we make this argument by reviewing the many definitions of interactivity that have appeared in the literature. We then integrate this literature into a precise but multidimensional definition of interactivity. We conclude the first portion of the paper with a review of selected research on interactivity effects and the implications of our definition of interactivity for reconciling disparate findings. In the second portion of the paper, we address the consequences of our conceptualization of interactivity for the effectiveness of Internet adver-

tising. In particular, we explore the processes that likely underlie interactivity and show that these processes have implications for both enhancing and inhibiting the effectiveness of persuasive communications. In doing so, we offer a program of research in the form of a series of testable propositions.

What Is Interactivity?

Interactivity has been defined in many ways. For example, Blattberg and Deighton (1991) define interactivity as the facility for persons and organizations to communicate directly with one another regardless of distance or time. Deighton (1996) considers interactivity to have two primary features: the ability to address a person and to gather and remember the response of that person. Steuer (1992, p. 84) suggests that interactivity is "the extent to which users can participate in modifying the format and content of a mediated environment in real time."

On closer examination, these different definitions can be classified by whether they focus on user-machine interaction, user-user interaction, or user–message interaction (Cho and Leckenby 1997). User-machine interaction was the focus of early definitions of interactivity, in which the emphasis was on human interaction with computers. To be interactive, a computer system must be responsive to users' actions. However, though user-machine interaction is an important aspect of interactivity, it alone is not adequate to capture the concept of interactivity since the emergence of more advanced technology such as the Internet. As a result, researchers have turned to two other types of interaction: user-user interaction and user-message interaction.

User-user interaction is most often discussed from an interpersonal communication perspective. The more that communication in a computer-mediated environment resembles interpersonal communication, the more interactive the communication is (Ha and James 1998). However, one problem with looking at interactivity from the angle of interpersonal communication is that it ignores the ability of a medium such as the Internet to break the boundaries of traditional interpersonal communication. Not only do people no longer need to be at the same place, they do not even need to be communicating at the same time. With on-line translation service, people also do not need to understand each other's language to be able to communicate. Furthermore, research has shown that computer-mediated communication and face-to-face communication are not functional alternatives (Flaherty, Pearce, and Rubin 1998).

From a user-message interaction perspective, interactivity is defined as the ability of the user to control and modify messages (Steuer 1992). Whereas people have little control over messages in traditional media, the Internet gives users much more freedom in controlling the messages they receive and allows users to customize messages according to their own needs.

Although attempts to define interactivity abound, research on the effects of interactivity has been sparse and relatively inconclusive. Some researchers have found interactivity to have a positive impact on user attitudes (Cho and Leckenby 1999; Wu 1999), whereas others have concluded that it has no significant effect on customer satisfaction (Shankar, Smith, and Rangaswamy 2000) and that it may even be detrimental to advertising effectiveness (Bezjian-Avery, Calder, and Iacobucci 1998). These conflicting results may be partly due to the lack of a clear definition of interactivity and the resulting very different operationalizations of the construct. To advance our understanding of the new media and how marketing communications should evolve in the new environment, a clarification of the construct and formal programmatic research on its influence is needed.

Defining Interactivity

Although each of the three aspects of interaction just mentioned (user-machine, user-user, user-message) is an important component of interactivity, few definitions have incorporated all of them. Here we propose a three-dimensional construct of interactivity that captures all three types of interaction. The emphasis of the current definition is on providing a concrete picture of consumers' on-line experiences. In doing so, we can identify the potential benefits and limitations of interactivity in on-line communication.

We define interactivity as follows:

> The degree to which two or more communication parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized.

In addition, we specify three dimensions of interactivity: active control, two-way communication, and synchronicity.

Active Control. Active control is characterized by voluntary and instrumental action that directly influences the controller's experience. The Internet features a network of linked contents (Hoffman and Novak 1996), which is a parallel, nonlinear structure. In controlling such a nonlinear structure, users are able to customize the information flow and jump from one location in the network to another. In contrast,

the linearity of a medium such as television makes it possible for a person to watch television without taking any action except to switch channels once in a while. Although he or she still has some control, the control is not absolutely necessary and does not effectively change his or her viewing experience.

The control an Internet user exerts is voluntary. While surfing the Internet, the user acts according to his or her own goals and wills. This is best illustrated by looking at banner advertising versus advertising on television. Because television commercials forcibly interrupt viewing, viewers must involuntarily switch channels to avoid commercials. Even for magazine advertising, where readers have more control over whether they read an ad or not, most times readers still must turn an ad page to go to the content they want to read. This behavior is totally different from banner advertising. Because banner ads are put on the same page, Web surfers do not need to do anything to avoid advertising. If surfers are interested in an ad, they can click on the ad to obtain more information. If not, they can simply ignore the ad without doing anything special. Therefore, Web surfers control their experience on the basis of their own preferences and volition.

Two-Way Communication. Two-way communication refers to the ability for reciprocal communication between companies and users and users and users. Traditional media are somewhat effective in transmitting company messages to consumers but can hardly pass on messages in the other direction, from consumers to companies (Hoffman and Novak 1996). To gather information from consumers, a company must rely on other tools. The Internet changes this old way of marketing communication and makes instant feedback possible. Consumers can now give instant feedback to companies implicitly or explicitly while on the Internet. Implicit feedback is facilitated by techniques that track consumers' on-line behavior. By recording a banner ad's click-through rate or tracking the time a visitor stays at a Web site, companies can effectively gauge consumers' interest in their messages and products. Consumers can also provide explicit feedback to a company by sending an e-mail or filling out a form on the company's Web site. Internet technology makes both giving and collecting feedback very easy, which further encourages two-way communication.

Another important aspect of two-way communication is the ability to make transactions directly on-line. Although they have long been used to sell products, none of the traditional media can fulfill transactions alone. Consumers must either mail or telephone in their orders. The Internet is the only medium that can be used for transactions without the help of other tools. Necessary activities in a transaction, such as product display, order placing, and payment, can all be done on the Web. For digital products, even delivery can be made on-line. The ability to conduct transactions on-line greatly enhances the two-way communication between companies and consumers and makes it easier for companies to understand consumer purchase behavior.

Synchronicity. Synchronicity refers to the degree to which users' input into a communication and the response they receive from the communication are simultaneous. Traditional media provide few channels for audience input. Even when they do (e.g., through readers' letters or telephone calls), the time elapsed between sending the input and receiving a response is usually quite long. In contrast, the Internet is able to make the communication much more synchronized. It takes only seconds from inputting a piece of information on the Internet (such as typing in a search keyword on a search engine) to getting a response (such as the search results based on the keyword). Many Web sites also allow users to customize pages. Users can indicate what content and layout they like and immediately be able to see the page exactly as they want it.

System responsiveness is essential to this dimension of interactivity. To achieve synchronicity, the system, whether it is a Web site or an e-mail server, must be able to respond to user actions and requests in a timely matter. Because of technology limitations and the pitfalls of human fulfillment of technology, there are occasions when synchronicity cannot be achieved even on the Internet. For example, a user may click on a link and receive nothing more than a "Page Not Found" error message. Another example would be a significant delay in e-mail communication because of a server error. Therefore, maintaining a responsive system is important to create a synchronous and interactive on-line experience.

Structural Versus Experiential Aspects of Interactivity

In defining interactivity, it is necessary to distinguish between structural and experiential aspects of the construct. The structural aspect of interactivity refers to the hardwired opportunity of interactivity provided during an interaction, whereas the experiential aspect of interactivity is the interactivity of the communication process as perceived by the communication parties. For example, from a structural perspective, synchronicity may involve maintaining appropriate server structure, providing adequate

bandwidth, and ensuring correct linkage between documents. Felt synchronicity, in contrast, is how synchronized users feel the communication is. This may be influenced by the speed of the users' Internet connection or the users' expectations, which cannot be controlled by the company.

Similar distinctions exist for active control and two-way communication. On one hand, companies can offer consumers more control opportunities by making the structure of their Web sites more flexible and avoiding annoying pop-up ads; on the other hand, consumers may not always be motivated to exert control efforts and thus do not feel a higher level of control. Similarly, not all consumers will take advantage of on-line feedback mechanisms made available to them. This may be because they do not feel the need to communicate with the companies or because they are concerned about privacy. By distinguishing between the two aspects of interactivity, companies can better utilize the controllable elements of interactivity and understand the uncontrollable elements, which may produce effects different from company expectations.

Applying the Definition of Interactivity to Theory and Practice

Although important, merely providing a definition of interactivity is limited in its contribution to knowledge. In the following sections, we demonstrate the usefulness of our conceptualization of interactivity by relating it to current practice. In the first section, we provide a comparison of different Internet marketing tools in terms of the degree to which they differ on the three dimensions of interactivity we have proposed. In the second section, we review selected scholarly research on the effects of interactivity, with an eye toward studies that appear to produce conflicting findings. We then use the different dimensions of interactivity to attempt to reconcile these findings by showing how the various studies differ in their focus on the interactivity dimensions.

Comparing Popular On-Line Marketing Tools on Interactivity

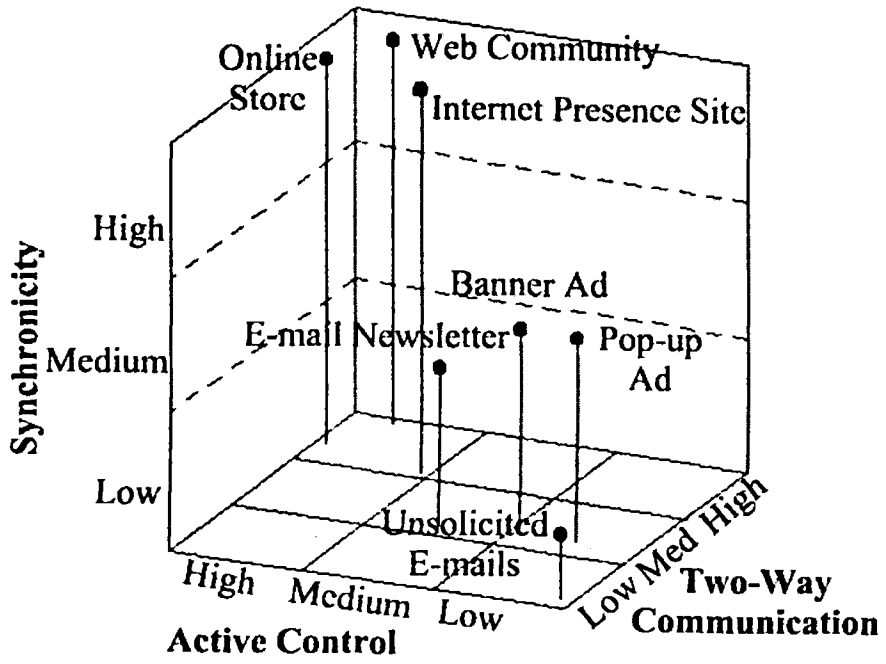
Not only is interactivity a fundamental difference between traditional media and on-line media, but the various on-line tools also differ in their degree of interactivity. To illustrate the dimensions of interactivity better, we compare the seven most popular forms of on-line marketing tools on their degree of interactivity as defined by the three dimensions. These seven most popular tools are Internet presence sites (company Web sites), Web communities (Web sites that serve as a channel for information exchange between people with similar interests or beliefs), on-line stores, banner ads, pop-up ads, e-mail newsletters, and unsolicited e-mails (spam). Figure 1 provides a graphical representation of the seven tools on the three dimensions of interactivity.

Active Control. Web sites, including Internet presence sites, on-line stores, and Web communities, feature the highest levels of active control. Users choose to go to a Web site in which they are interested, and while surfing the site, they are constantly controlling their experiences. Among different Web sites, on-line stores offer the most active control. Compared with merely surfing a Web site, shopping tends to be more focused and demanding. Users need to pay closer attention and make comparisons and choices all the time. E-mail newsletters also provide users with some degree of active control, though not as much as that offered by Web sites. A major advantage of e-mail newsletters is that users decide whether to subscribe. Those who subscribe are usually interested in the company's products and services. Banner or pop-up ads, in contrast, use forced exposure. Worse yet, pop-up ads directly interfere with users' on-line activities. To avoid a pop-up ad, users must manually close the pop-up window. Therefore, from an active control point of view, pop-up ads are less interactive than are banner ads. Finally, unsolicited e-mail provides the least amount of active control and is probably the most unwelcome type of on-line marketing, as users have little control over such junk e-mails.

Two-Way Communication. On the two-way communication dimension, Web communities rank the highest. An essential property of Web communities is interaction (Kozinets 1999). Community members can interact with one another through chat rooms and discussion groups. Although such communication often occurs among customers, it offers companies great insight into their customers' attitudes and preferences. Other types of Web sites can also foster two-way communication, as they carry customer feedback forms, company contact information, or a customer satisfaction survey. With the ease of use of these feedback tools, two-way communication tends to be encouraged. The emergence of Web tracking techniques further enables companies to gather implicit feedback from site visitors.

Similar tracking techniques can also be used with banner and pop-up ads. By recording click-throughs, companies can obtain information on customer interests. However, banner and pop-up ads usually need to be combined with Web sites to respond to users'

Figure 1
Comparison of Popular Online Marketing Tools on Interactivity



Note: The three dimensions are shown to be orthogonal for ease of representation. In reality, they can be correlated with one another.

actions, making them rank lower on the two-way communication dimension than do Web sites. E-mail newsletters offer similar levels of two-way communication as banner and pop-up ads. Companies can track user responses to these promotional e-mails by embedding links in the messages, and users can offer explicit feedback by choosing the kind of newsletters to which they want to subscribe. Conversely, unsolicited e-mails offer virtually no two-way communication, as the recipient can rarely have input through such devices.

Synchronicity. As for synchronicity, e-mail newsletters do not perform as well as Web sites and on-line ads because of the delay inherent in e-mail communication. Banner and pop-up ads are also less synchronous than Web sites, as users must click on a banner ad to obtain detailed information. Well-designed and maintained Web sites, however, offer seamless communication with users. Although the company usually puts the materials on a Web site onto the Web well in advance, by designing a responsive system, the company can promote a sense of real-time communication.

Implications for Research and Practice

As should be clear from the previous discussion and Figure 1, Web sites can differ drastically not only in terms of the *level* of interactivity they offer (i.e., quantity of features), but also in the *nature* of the interactivity (i.e., quality of features as a function of the different dimensions of interactivity). The distinction is an important one. For example, in terms of trying to improve "interactivity" (however defined), a company might focus on simply adding more features. However, some features may be more interactive than others or may at least be perceived as such by the user. Moreover, among features perceived to be equal in interactivity, some features may be valued more highly than others. Consequently, it is important for companies to determine which features are more highly valued and which are perceived as dispensable.

This is also true in terms of research on the effects of interactivity. As we discuss in more detail in the next section, it is tempting to operationalize the degree of interactivity of a stimulus Web site as the presence or absence of particular features or the quantity of features present. However, without valid manipulation checks, it is impossible to determine what the participants in the study actually think. It may be that certain dimensions of interactivity are weighted more heavily than others, and thus, the features associated with these dimensions may be perceived as not only more interactive, but also more

useful. Without an understanding of how participants perceive the actual interactive features, researchers run the risk of creating an invalid operationalization of interactivity.

Examining Conflicting Research Findings

To date, research findings on the effects of interactivity on various measures of marketing and advertising effectiveness (e.g., attitudes, purchase behavior, recall) have been remarkable for their lack of consistency across studies. As always, there are several possible explanations for these inconsistencies. However, we focus on the key independent variable, interactivity, and examine how different conceptualizations of the construct, particularly within the scope of the three dimensions of interactivity that we have described, may contribute to the disparate findings. In addition, we note how the structural and experiential aspects within each dimension have produced differences in research findings.

Active Control. The active control dimension of interactivity has received by far the most attention among the three dimensions. Researchers have studied the effects of active control on end variables such as attitudes and decision-making accuracy (e.g., Ariely 2000; Bezjian-Avery, Calder, and Iacobucci 1998), as well as intermediary variables such as telepresence (e.g., Coyle and Thorson 2001; see also Shih 1998). In experimental studies, active control has been manipulated mainly in two ways. The first method creates high control by allowing study participants to choose the path they take when going through the information, whereas the second method manipulates control by offering more or less choice availability in the form of the number of clickable links.

Ariely's (2000) work clearly falls into the first category. The author used a computer simulation of an interactive home shopping experience for a camera to approximate the on-line experience and manipulated the control that participants had over the information to which they had access. In the low control condition, participants had no freedom in determining the sequence of the information they received; in the high control condition, they had complete freedom to choose which information to access. The task for the participants was to rate the quality of a set of cameras. Over five experiments, Ariely (2000) observed that greater control of information was generally associated with better memory and learning. However, this advantage disappeared (and in fact was reversed), at least initially, when demands on processing resources were high (e.g., a novel or difficult task).

Bezjian-Avery, Calder, and Iacobucci (1998) investigated interactivity by manipulating whether participants had control over the ads they viewed ("interactive," by clicking on icons, which simulated a Web site) or did not have control ("linear," simulating advertising through traditional media such as television). The results showed that interactivity actually had a detrimental effect. Those in the interactive condition spent less time viewing the ads and indicated less of an intention to purchase the advertised product than did those in the linear condition.

At first glance, it would appear that the Ariely (2000) and Bezjian-Avery, Calder, and Iacobucci (1998) studies provide conflicting results on the dimension of active control. However, there is an important difference between the two studies. Whereas participants in Ariely's (2000) experiments were clearly informed prior to accessing product information that they would be making decisions about the cameras, participants in Bezjian-Avery, Calder, and Iacobucci's (1998) study were merely asked to go through the information provided and then rate their attitudes and purchase intention. Thus, the two studies likely differed in goal orientation. Not unexpectedly, active control does not work independently of other variables.

Sundar, Brown, and Kalyanaraman's (1999) study is an example of the second method of control manipulation. They manipulated interactivity as the type of interactive feature: no extra links (low interactivity), a "more information" link (moderate interactivity), and two additional information links that were "layered" (i.e., the participant could only get to the second link via the first one). Only partial support for the benefits of interactivity was found. Results showed that participants in the moderate interactivity condition judged the political candidate to be more caring and more qualified than did participants in the low interactivity condition but that those in the high interactivity condition judged the candidate as less caring and less qualified than did those in either the moderate or low interactivity condition. This may be due to the extra effort needed to navigate too many layers of information without the actual benefit of obtaining more information. No significant differences were found for judgments of charisma or appeal.

Coyle and Thorson (2001) also manipulated interactivity by varying the number of clickable links on the first page of a Web site. Although interactivity led to a heightened sense of telepresence, it had no impact on attitude toward the site. The lack of support for interactivity effects in this second method of control manipulation suggests that different ways of

implementing active control may have different effects on users. Although active control can satisfy heterogeneity in information needs (Ariely 2000), it may be contingent on the users' goals and the extra effort sometimes needed to manage the enhanced control.

Two-Way Communication. Although two-way communication is frequently mentioned as a component of interactivity, research focusing on its effects has been surprisingly sparse. The only research that explicitly has studied the effect of two-way communication is Sundar and colleagues (1998). They conducted their study on the effects of interactivity in the context of attitudes toward a political candidate. They manipulated two-way communication through the presence or absence of an e-mail link. No overall effect of two-way communication was found. However, when the effects of interactivity were considered as a function of participant apathy, a different pattern emerged. Apathetic participants were positively affected by level of two-way communication, but nonapathetic participants were either not or somewhat negatively affected. The authors posit that interactivity serves as a peripheral cue and, as such, has an effect only on those who are relatively less involved.

Two questions are relevant for further research on two-way communication. First, what techniques will users perceive as facilitating two-way communication? Obviously, the mere presence of an e-mail link is not enough, though from a structural perspective, an e-mail link provides more opportunities for two-way communication. This calls for the extrication of experiential interactivity from the mere opportunity of interaction and an accurate measure of two-way communication (or interactivity in general) as perceived by the user. Second, what are the conditions in which users are likely to utilize the two-way communication opportunities provided to them? This may include users' privacy concerns and technical fluency at using the two-way communication tools.

Synchronicity. Research on synchronicity has been less ambiguous compared with the other two dimensions. Sears, Jacko, and Borella (1997) simulated Internet delay by a trace-driven simulation technique. In the short-delay condition, downloading was delayed for an average of 575 milliseconds; in the long-delay condition, the delay averaged 6750 milliseconds. They found that, for documents with both text and graphics, a longer delay resulted in less favorable attitudes. For text-only documents, however, a longer delay generated more positive attitudes toward the document. The authors attributed this finding to users' appreciation of the use of plain text when substantial delay is involved. Because most Web sites now have graphics, the negative influence of delays is probably more relevant to companies. However, when significant delay is unavoidable because of a speed bottleneck at the users' end, using plain text may be helpful.

Dellaert and Kahn (1999) also investigated the effect of synchronicity by adding a waiting time to information downloading. In four experiments, participants viewed and evaluated an Internet magazine. The results are particularly revealing of the difference between actual synchronicity and perceived synchronicity. For participants not informed of possible delays, delay had a negative influence on their evaluation of their experience. For participants told in advance of the possible delays, however, waiting had a less salient effect. Moreover, negative affect generated from the waiting was transferred to the evaluation of the magazine itself, but only for participants who were not informed of possible delays. In the informed-delay condition, participants had expectations of delay. Therefore, the actual lack of synchronicity became less salient perceptually, in contrast with the uncertainty uninformed participants felt.

Experiential Interactivity. Several researchers have looked at the effects of interactivity purely from an experiential point of view. In these studies, interactivity is usually measured rather than manipulated. For example, Wu (1999) measured participants' attitudes toward and their perceived interactivity of particular Web sites. Results showed a strong correlation between the two (r=.64 and .73 for two different sites). Similarly, Cho and Leckenby (1999) measured participants' intention to interact with a target (banner) ad and found positive relations (correlation coefficients ranged between .30 and .75) between intention to interact with the ad and attitudes toward the ad, attitudes toward the brand, and purchase intention. Yoo and Stout (2001) also observed this general pattern of results. Although this body of research has shown encouraging signs of the usefulness of perceived interactivity, the results should be treated with caution, because the studies all used different measures of interactivity and the measures tended to be confounded with affect or behavioral intentions. It seems likely that a better understanding of the nature of perceived interactivity, and thus what interactivity means to users, might be accomplished through qualitative research methods that investigate the user's point of view.

Integrating the Results. Is there a discernable pattern to the results just discussed? One of our stated goals for this review was to reconcile apparent conflicting findings in terms of the three dimensions of interactivity that we have proposed. Some conclu-

sions, however tentative, can be reached. On the one hand, active control seems to be useful, but only in certain conditions such as goal-directed searches (Ariely 2000) and not while surfing for pleasure (Bezjian-Avery, Calder, and Iacobucci 1998). Moreover, there seems to be a limit to the positive effects of active control. Sundar and colleagues (1998) found that moderate levels of interactivity (in the form of the active control dimension) were more effective than either low or high levels. On the other hand, synchronicity seems generally to enhance users' experiences with such things as downloading, but forewarning can lessen this advantage (Dellaert and Kahn 1999). Finally, it seems clear that, regardless of how researchers manipulate interactivity in an objective way, the perception of increased interactivity (whatever that may mean to users) has a positive effect on users' attitudes and behavior (cf. Cho and Leckenby 1999; Wu 1999; Yoo and Stout 2001).

Is Interactivity Always a Good Thing?

As a central characteristic of on-line media, interactivity has important implications for Internet users' behavior. It is usually assumed that interactivity is a good thing to have, it can make surfing a more satisfying experience to users, and the more of it the better. As we argue in the following discussion (and as is suggested by the reviewed studies), though this may often be true, there are exceptions to this notion. These exceptions represent boundary conditions that involve aspects of the person (user) and the situation.

We consider the effects of interactivity and these boundary conditions by examining the individual dimensions of interactivity we previously proposed. As we show, whereas some of the dimensions may have a positive influence on a particular variable, other dimensions may have no relationship with the variable at all. This is a potentially important concept that has implications for the measurement, operationalization, and interpretation of interactivity. For example, if interactivity is treated as a sum of the three dimensions, important relations between a variable and a particular dimension may be obscured simply because the other two dimensions showed no relation with that variable. Similarly, when effects are noted, they may be attributed to a global concept of interactivity when only one or two dimensions of interactivity are driving the relations. For these reasons, it is important to isolate and investigate the effects of individual dimensions of interactivity.

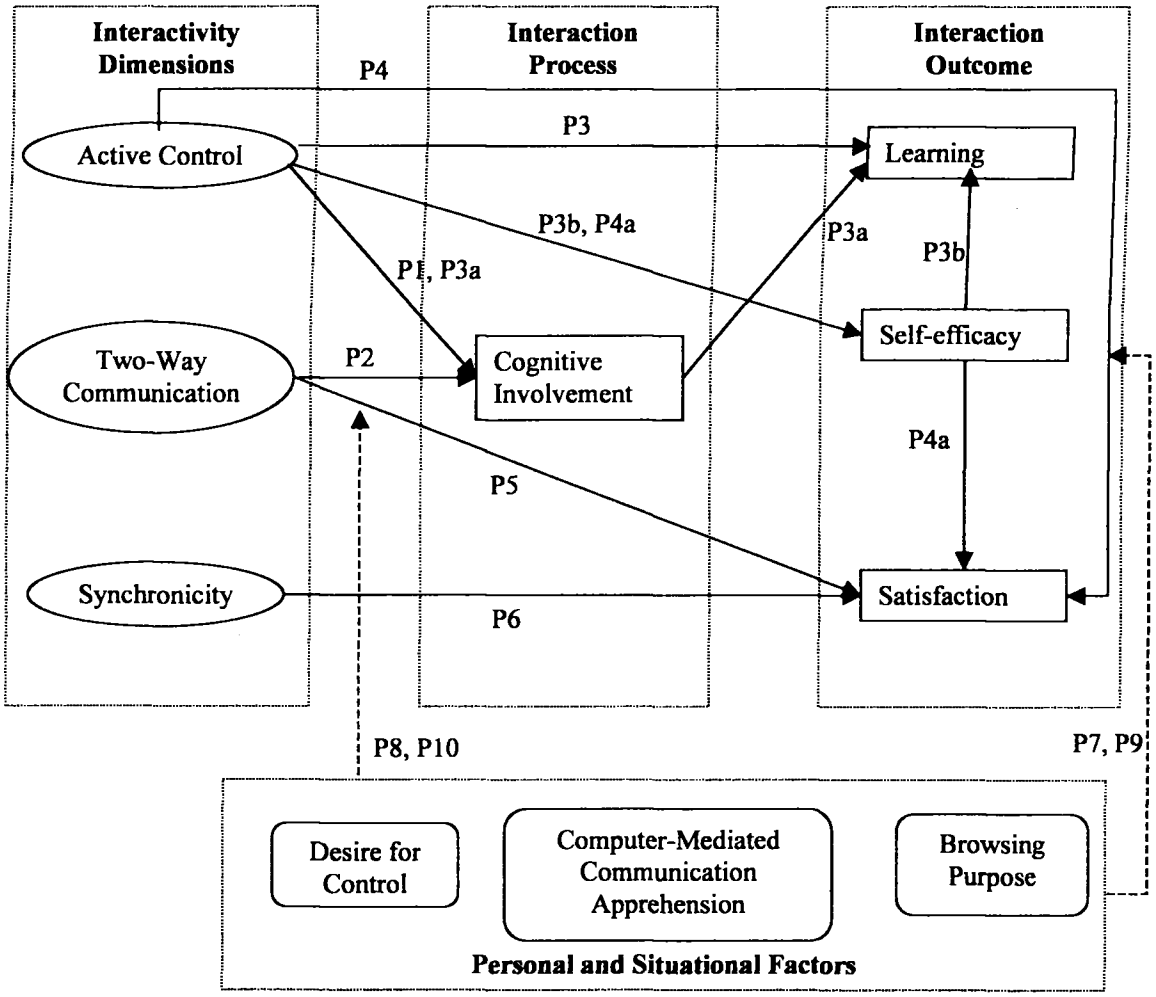
In the following section, we present a framework of interactivity effects that is derived from theory and research in cognitive, social, and personality psychology. As shown in Figure 2, the framework deals with processes that occur during the interaction and consequences resulting from the interaction. In particular, we consider one process variable (cognitive involvement) and two outcome variables (user learning and satisfaction). Although there are other aspects of the interaction that may be influenced by interactivity, we chose these three variables because of their importance in the communication process. Not only do these variables represent the essential process of a communication, they also play a pivotal role in persuasion and attitude formation (Eagly and Chaiken 1993; MacKenzie and Lutz 1989; Petty, Wegener, and Fabrigar 1997). Furthermore, these variables have been largely ignored in previous interactivity effects research.

User Cognitive Involvement

The term "involvement" has been given diverse meanings in psychological and consumer behavior research and has often caused confusion (Cohen 1983). Therefore, it is necessary to clarify first what we mean by cognitive involvement in the present context. For our purposes, cognitive involvement refers to the extent of cognitive elaboration that occurs in a communication process. It is different from the enduring involvement people have with an object, which is the popular concept of product involvement. Rather, it is a situational construct that starts and ends with the communication process and is more in line with Batra and Ray's (1985) conceptualization of involvement as an elaboration process.

Interactivity creates cognitively involving experiences through active control and two-way communication. Active control requires users to be cognitively active and make choices. A highly interactive on-line experience requires users' closer attention and more cognitive processing than is needed for traditional media or low interactive on-line experiences. Furthermore, two-way, synchronized communication is potentially more engaging than one-way, unsynchronized communication. On the one hand, in traditional media, the communicator encodes the message and sends the encoded message to the audience. The audience then receives and decodes the message. In this one-way communication, the audience consists of passive message receivers. The Internet, on the other hand, engages the audience in the communication process. Internet users are not only message receivers, but also active message creators. By engaging users in an

Figure 2
A Theoretical Framework of Interactivity Effects



Note: Dashed lines with arrows represent moderating effects.

active dialog, higher interactivity should lead to higher user involvement. This leads to our first two propositions:

P1: Active control is positively related to user cognitive involvement.

P2: Two-way communication is positively related to user cognitive involvement.

User Learning

A direct result of the more cognitively involving experience induced by higher interactivity is better user learning. It invites users to engage in deeper cognitive processing. Through such deeper cognitive processing, messages are likely to be better understood and remembered. Furthermore, being in control enables users to obtain information in a way most suitable to them. This satisfies heterogeneity in information needs across consumers and across time, making information acquisition more effective for a consumer (Ariely 2000). Finally, higher interactivity can lead to better learning by enhancing users' self-efficacy. Self-efficacy is an important motivational factor in learning and has been found to contribute to better learning performance (Mitchell et al. 1994; Zimmerman 2000). The active control dimension of interactivity enables users to control their own com-

munication experiences, which potentially leads to higher self-efficacy beliefs (Gist and Mitchell 1992; Tafarodi, Milne, and Smith 1999). With increased self-efficacy beliefs, users will be more likely to be confident in themselves and more motivated to learn, which will result in better learning. These provide the basis for the following propositions:

P3: Active control is positively related to user learning.

P3a: The relationship between active control and user learning is at least partially mediated by cognitive involvement.

P3b: The relationship between active control and user learning is at least partially mediated by self-efficacy.

User Satisfaction

Interactivity can enhance user satisfaction through active control. Controllability, or the feeling of being in control, has been considered a desirable psychological state. The feeling of being in control has been found to lead to increased self-efficacy beliefs (Gist and Mitchell 1992; Tafarodi, Milne, and Smith 1999), less stress (Amirkhan 1998), and higher satisfaction (Judge, Bono, and Locke 2000). Lack of control, however, produces stress and lower perceived competency (Amirkhan 1998; Judge, Bono, and Locke 2000). By giving users the power to control their on-line experiences actively, interactivity can enhance users' self-efficacy beliefs and lead to higher satisfaction. Thus, our next two propositions are as follows:

P4: Active control is positively related to user satisfaction.

P4a: The relationship between active control and user satisfaction is at least partially mediated by self-efficacy.

In addition to the benefits provided by active control, two-way communication and synchronicity can result in higher user satisfaction (Dellaert and Kahn 1999). A highly interactive on-line experience responds quickly to users' actions and requests, treats users as active participants in the communication, and ensures that their opinions are heard. This reduces the frustration associated with waiting and feeling ignored and manipulated by the company, potentially resulting in a more satisfying communication experience. This leads to the next two propositions:

P5: Two-way communication is positively related to user satisfaction.

P6: Synchronicity is positively related to user satisfaction.

Interactivity May Not Always Be Good

The first six propositions suggest advantages for interactivity. However, there are aspects of both the person and the situation that may circumscribe these advantages.

Personal Factors

The relationship between interactivity and user satisfaction is likely to be constrained by user idiosyncratic characteristics. In other words, not all users will prefer high levels of interactivity. It is impossible to exhaust all factors that can play a role in this process. Here, we focus on two enduring personal variables that reflect a person's motivation and affective state in communication, which are important moderators of communication effectiveness.

One relevant motivational factor is a user's desire for control (Burger and Cooper 1979). Desire for control refers to "the extent to which people generally are motivated to see themselves in control of the events in their lives" (Burger 1992, p. 6). People with high desire for control often ask themselves how much control they have over a situation. They attend to control-relevant information closely, process the information in great detail, and tend to seek to obtain control actively during an interaction (Burger 1993). When unable to control their life events, people with high desire for control are likely to feel depressed (Burger 1984). As a result, the active control dimension of interactivity is likely to have a significant effect on these people's communication experiences and on their satisfaction. Conversely, people with low desire for control do not attend to and process control-relevant information as diligently as people with high desire for control (Burger 1993), and thus, active control is not likely to make such a salient difference. They may even feel uncomfortable with exerting too much control. This interaction between desire for control and active control forms our next proposition:

P7: Higher active control will produce more satisfaction for people with high desire for control than for people with low desire for control.

Computer-mediated communication apprehension (CMCA) is another relevant user variable that may moderate the relationship between interactivity and satisfaction. It refers to the level of anxiety associated with communicating with others via a computer (Clarke 1991). People with high levels of CMCA can be novice computer users who are anxious about using computers, or they may simply have high levels of

general communication anxiety (Flaherty, Pearce, and Rubin 1998). These people tend to avoid interaction in a computer-mediated environment and are less likely to enjoy the two-way communication on the Internet (Clarke 1991). Therefore, people with high levels of CMCA may be less satisfied with highly interactive on-line experiences that involve a lot of two-way communication than will people with low levels of CMCA, and they may be more likely to enjoy less interactive on-line experiences than their counterparts. This reasoning suggests an interaction between two-way communication and CMCA that forms the basis of our eighth proposition:

P8: More two-way communication will produce more satisfaction for people with low levels of CMCA than for people with high levels of CMCA.

Situational Factors

The purpose for which a user is surfing the Internet is a situational factor that can influence the user's preference for interactivity. We can broadly categorize browsing purposes into two types: for information and for pleasure. When users browse for information, they usually have a very clear utilitarian purpose in mind, such as obtaining information on a product they are planning to buy (Hoffman and Novak 1996). With such information needs, the ability to control the way they obtain information becomes important. The active control offered by interactivity can satisfy heterogeneity in information needs both across users and within users over time, thereby helping them better fulfill their purpose (Ariely 2000). Other cosmetic features of a Web site, however, will not be as attractive. Sometimes such cosmetic features may even be distracting to users. Consider Google's Web site, for example. Compared with other Web sites, Google features a seemingly too simplistic user interface. However, it still draws heavy traffic because users go to Google to search for specific information. The users presumably appreciate the ease of control and ability to fulfill their goals on Google.

When users browse merely for pleasure or for wasting time, however, they tend to seek hedonic benefits and experiential surfing experiences (Hoffman and Novak 1996). In such conditions, the ability to look around and experience the features of a Web site may be important, much as people derive excitement from window shopping. Interactions facilitated by two-way communication can increase the fun and excitement during this process. Users browsing for pleasure are more likely to experience and enjoy such fun to a fuller degree than when they surf the Web for utilitarian reasons. As a result, they are likely to derive more satisfaction from a highly interactive surfing experience that facilitates two-way communication than from one that has less two-way communication. This suggests an interaction between interactivity and motivation for Web site use:

P9: Higher active control will produce more satisfaction when a user browses a Web site for information than when the user browses for pleasure.

P10: More two-way communication will produce more satisfaction when a user browses a Web site for pleasure than when the user browses for information.

Conclusion

In this paper, we argue that a clear definition of interactivity is crucial to valid operationalizations of the construct. We provide a multidimensional definition of interactivity and attempt to demonstrate its utility by reviewing previous work on interactivity effects within a marketing context. We argue that at least one important explanation for the disparate results regarding interactivity effects can be traced directly to how the construct is defined and operationalized.

We also propose a research program that makes use of the concepts we delineate in the first portion of the paper. In particular, we were interested in understanding both the benefits and the limitations of using interactivity in a marketing and advertising context. We admit, however, that this proposed program of research is a limited one and by no means encompasses any more than a small portion of potential areas of investigation. As just one example, we propose two individual difference variables (desire for control and CMCA). Clearly, there are many other potential individual difference moderators of interactivity effects. In fact, two of the studies we reviewed included such individual difference moderators (visual versus verbal style of processing, Bezjian-Avery, Calder, and Iacobucci 1998; apathy, Sundar et al. 1998). Likewise, there are likely many other situational variables that might moderate interactivity effects.

In conclusion, we reiterate our initial claim that the rush to implement interactivity features into a marketing situation must be tempered, or at least mediated, by consideration and understanding of precisely what interactivity is, what it can do well, and, just as important, what it cannot do. Such consideration is often absent from marketing strategies, as companies rush ahead for fear of being left behind. This situation reminds us of a television ad that appeared a few years ago. We share this ad to illustrate our point about

rushing blindly toward the latest technological fad without understanding both its advantages and limitations. In the ad, two executives are shown talking to each other about company strategy, and one says to the other, "We *have* to get a company Web site." The other asks "Why?", at which point the first says, "I don't know."

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