THE IMPACT OF SMART DEVICE'S INTERACTIVITY ON CUSTOMER

ACTIVITY IN THE SPORTS INDUSTRY

DAE EUN KIM

A thesis presented to the faculty of Arkansas State University
in partial fulfillment of the requirements for the Degree of

MASTER OF SCIENCE IN SPORTS ADMINISTRATION

Arkansas State University
December 2014

Approved by
Dr. Claudia Benavides Espinoza, Thesis Advisor
Dr. Tom Adams, Committee Member
Dr. David LaVetter, Committee Member
Dr. Lance Bryant, Committee Member

UMI Number: 1565044

UMI

Dissertation Publishing

UMI 1565044

ProQuest®

ABSTRACT

DAE EUN KIM

THE IMPACT OF SMART DEVICE'S INTERACTIVITY ON CUSTOMER

ACTIVITY IN THE SPORTS INDUSTRY

The purpose of this study is to investigate the impact of smart device's interactivity on customer value co-creation in the sports industry through bridging social capital and collective efficacy. A total of 262 students participated in the study, and a structural equation modeling (SEM) was carried out to measures the relationship between variables in the conceptual model. The results revealed that interactivity consisting of user control, responsiveness, and synchronicity had a significant impact on bridging social capital. In addition, both technological interactivity and bridging social capital were positively associated with collective efficacy. Lastly, collective efficacy had a positive influence on co-creation value, but bridging social capital did not appear to directly affect co-creation value. Based on these results, this study suggests the need to take advantage of new platforms that can build value co-creation with customers in the rapidly changing marketing environment.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I
INTRODUCTION

In the 1980's, the emergence of personal computers changed our lives in many ways. People can collect, store, and analyze massive amounts of data on personal computers (Lane & Manner, 2011). Since the mid-1990's, the Internet has created a fundamental shift in the variety of industries including distribution, education, finance, information technology, and similar to that of the Industrial Revolution (Sharma & Sheth, 2004). It has created new ways for people to communicate, congregate, and share a great deal of information with one another, and has also had a visible influence on the performance of business and consumer behavior (Lane & Manner, 2011; Litan & Rivlin, 2001).

As we entered the 21st century, a variety of portable smart devices started to emerge. They allow people to use more advanced computing ability and offer instantaneous connectivity more so than an ordinary personal computer (Chen, Yen & Chen, 2009). Moreover, these smart devices provide a platform where people can easily access to the optimal information that they need (Lee, 2005) and real-time information can be exchanged anywhere at anytime (Hennig-Thurau et al., 2010).

One of the popular smart devices is the smartphone, and it represents the most recent innovation in the progress of portable smart devices (Oulasvirta, Rattenbury, Ma & Raita, 2012). According to the Nielsenwire (2012), the growth in the use of smartphone

continues to increase, and 54.9 percent of Americans possess a smartphone as of June 2012. In addition, Microsoft Tag forecasted Internet usage by smartphone will exceed desktop Internet usage within the near future (Richmond, 2011).

In line with current environment that the usage of portable smart devices is becoming common, a lot of companies develop their marketing management from a mass-market perspective to a customer-centric perspective (Sheth, Sisodia & Sharma, 2000). In the traditional marketing environment, firms had focused on the products and services they offer, and the customer was only regarded as demand target for their staple commodities (Prahalad & Ramaswamy, 2004b; Sharma & Sheth, 2004). In addition, the customer's role was passive, and the direction of interaction between the firm and the customer was one-way in that the flow of communications was from the company to the customer (Prahalad & Ramaswamy, 2004a; Sawhney, Verona & Prandelli, 2005).

In the networked world, the management for value creation is rapidly changing from a supplier perspective to a customer perspective (Prahalad & Ramaswamy, 2004a; Sawhney et al., 2005; Sharma & Sheth, 2004; Sheth et al., 2000; Wind & Rangaswamy, 2001). The customers are not passive recipients of innovation but partners in the innovation process, and the direction of interaction between the firm and the customer is also evolving to a two-way interactive dialogue for value co-creation (Prahalad & Ramaswamy, 2004a; Sawhney et al., 2005).

In the case of Threadless which is an Internet-based T-shirt company in Chicago, unlike traditional management concentrated companies' attention on the products or services that they offer, the company introduced the crowdsourcing system for turning innovative ideas into tangible products which make a difference. This system involves

outsourcing tasks to a large group of customers (Brabham, 2008, 2009; Howe, 2006). The change in the company's management led a great number of potential customers to participate in their production process. Then, by producing quality products picked from the best shirt designs customers created, submitted, and voted themselves on, the company has become a great success in a short period of time. In another case, customers participation in the value chain operation has also occurred in online application stores. People who use sports applications to improve their health comment on system problems or inconveniences and post various solutions or idea on the app review board. After that, the program developers in firms improve the application to meet the needs of users. In this sense, by applying these changes to the nature and the process of value creation in virtual environment, customers can have a helpful influence on the value chain operation. Additionally, customers can play a leading role overall in the firm's management such as manufacturing, distribution, and service process, and firms can also progressively learn about and learn from their customers (Sawhney et al., 2005).

According to Lin and Huang (2006), individual customers yielded value and services for and from each other by participating in communities of customers. In addition, the information provided by them was more timely, complete, and personalized information than the information by commercial media (Schwabe & Prestipino, 2005). Customer participation in the value chain operation also led to improving productivity, customer satisfaction (Miller & Monge, 1986; Mills & Morris, 1986), and product differentiation (Song & Adams, 1993). As a result of these positive studies about customer participation, many corporations realize the importance of the management

strategies that allow customers to participate more actively in the process of value creation (Sigala, 2009).

As for the impact of interactivity by wireless devices, the interactivity is operated very differently from the wired environment (Lee, 2005; Siau, Lim & Shen, 2001). According to a study by Siau et al. (2001), wireless environment is able to provide customers with the (a) individualized/customized, (b) relationship-based, (c) timely, and (d) location-specific packets of information. In addition, Lee (2005) asserted ubiquitous computing environment improves the interactivity more so than computer-based online environment because it can offer seamless interaction to users when they search and exchange information or data under an ubiquitous network. "Ubiquitous Computing (UbiCom) is used to describe ICT (Information and Communication Technology) systems that enable information and tasks to be made available everywhere, and to support intuitive human usage, appearing invisible to the user" (Poslad, 2009, p. 2).

However, despite the importance of interactivity in the smart device-based environment, most of the research on interactivity has focused on the computer-based environment. Moreover, the research based on the impact of smart device's interactivity on customer participation in the sports industry is still quite insufficient.

Therefore, the primary purpose of this study is to examine how interactivity in smart devices influences customer value co-creation in the sports industry through bridging social capital and collective efficacy. Specifically, the study examines the components of smart device's environments that strengthen the impact of customers, and how these environmental factors build bridging social capital. Also, this study explores how the bridging social capital developed within the interactive smart device-based

environment influences on collective efficacy of customers, and leads to customer participation in marketing activities of firms. Moreover, the study investigates how perceived collective efficacy brought about bridging social capital affects co-creation value in the corporate management activity.

CHAPTER II

REVIEW OF THE LITERATURE

New Media Environment in Modern Society

New media is described as a catchall term for diverse forms of communication that use various digital devices such as computer, smart devices, and etc. with Internet access in the networked world (Smith, 2005). This term, new media, was first used by McLuhan to describe the communication technology related to electronic information collection and dissemination in 1953 (Peters, 2009). It was used to distinguish the digital media from the old media such as publishing, print communication and so on using the analog signals until the 1980s (Hendricks, 2010).

Since the rapid advancement of communication technologies in the 21st century, the term of new media has indicated more complicated meaning than before (Hendricks, 2010; Manovich, 2002). Lister, Dovey, Giddings, Grant, and Kelly (2003) mentioned "new media actually refers to a wide range of changes in media production, distribution and use. There are more than technological changes, they are also textual, conventional and cultural" (p. 13). In addition, according to Hennig-Thurau et al. (2010), "new media are websites and other digital communication and information channels in which active consumers engage in behaviors that can be consumed by others both in real time and long afterwards regardless of their spatial location" (p. 312). In this way, we can find out the definition of new media has moved with the demands of time little by little and shows

distinction depending on scholars' points of view. These kinds of changes will be continued daily, and new media will also evolve continuously.

In order to figure out the term of new media in modern society, it is needed to look at characteristics of new media. Hennig-Thurau et al. (2010) introduced (a) digital, (b) pro-active, (c) visible, (d) real-time and memory, (e) ubiquitous, and (f) networks to discuss the characteristics of new media. Specifically, these properties are as follows:

First, the digital is the key characteristics of new media. It does not require marginal costs to produce additional copies. Furthermore, individual users can post own creations without any difficulty and draw attention of audiences all around the world (Hennig-Thurau et al., 2010). Whomever has accessibility to the Internet can easily provide feedback to the creators and share information or data with each other.

Second, another important characteristic of new media is pro-active. Consumers can take parts in some parts of the value chain directly or indirectly using new media. Their contributiveness can also cover from simple comments, rating about products, or reviewing on the retail or fan websites to extensive co-creation as a tester of new beta products, as a participant for creating new product design, or a provider of innovative ideas (Hennig-Thurau et al., 2010; Hoyer, Chandy, Dorotic, Krafft & Singh, 2010; Krishnamurthy, 2009).

Third, visible is other significant feature of new media. New media activities of the users, such as making blogs, discussing in the online forum, or participating social network or social communities, can be observed and traced by other users as well as companies (Hennig-Thurau et al., 2010). In the mobile environment, user's spatial information sent from devices by the Global Positioning System or telecommunication

networks such as 3G or 4G differentiation can be used for creating location-sensitive information or market differentiation (Hennig-Thurau et al., 2010).

Fourth, real-time and memory are considered properties of new media. Customers can access instantly to new media when it is created. Customers are also able to review, share their experience, and form a consensus of customers with Facebook, Twitter, or blogs at the same time (Hennig-Thurau et al., 2010). Moreover, once electronic files are loaded on the websites, customers can utilize information provided by others in the future so long as the information is not deleted. In these reasons, these real-time feedbacks, responses, and memory are regarded crucial properties of new media.

Fifth, using smart devices increases the accessibility to new media. Consumers can easily keep in touch with other customers or companies whenever they want, anywhere in the world through these devices. This innovative feature is named ubiquitous. Users can search and access information and customer reviews of the product when they are shopping. In addition, they can post their reviews, opinions, or impressions while watching sport games, movies, or news events (Hennig-Thurau et al., 2010).

The last characteristic of new media is networks. New media users can participate in social networks, create their pages, and share their stories, photos, or opinions. They can also build relationships and communicate with one another by new media (Gordon, 2010; Hennig-Thurau et al., 2010; Libai et al., 2010). These activities can help new media users build networks.

As a result, by looking at these characteristics, new media can be considered as a new platform that allow customers to engage in interactive dialogue with both other customers and organizations.

One of the most popular channel in new media is Facebook. It ranked the second most visited site both in the United States and the world (Alexa, 2012), and the number of active users have surpassed 750 million (Martin, 2012). Twitter is also considered as a favorite platform in the world and is growing quickly. Its users send approximately 200 million messages a day (Twitter, 2011). Specifically, 42% of Twitter users exchanged information to learn about products/services, and 41% of them used it to provide opinions about products/services, and 31% used it to ask for opinions about products/services (Webster, 2010).

In line with the new media environment social network services (SNSs) can be used as a new platform for interactivity with customers, a large number of organizations have operated official SNS channels to communicate with their customers. According to a report compiled by Burson-Marsteller and Proof Digital Media (2009), 60% of Fortune 100 companies were using a social media channel such as Twitter, Facebook, and Blogs; of those companies, 76% were using Twitter over Facebook and Blogs. In addition, the study found that about 94% of the companies that use Twitter accounts distributes industry or company news and announcements about products or events, 67% partially use it for customer service/direct marketing responses, and 57% provide this channel for information about promotions, deals, or contests.

As well as business fields social network services have been effectively used by a large number of sport organizations to communicate with their customers or fans. Recently, Facebook, Twitter, and Blogs in diverse social media channels are almost used by 30 Major League Baseball (MLB) franchises, 32 National Football League (NFL) teams, 30 National Basketball Association (NBA) teams, and 30 National Hockey

9

League (NHL) teams. A lot of athletes have also attracted largest following to their personal SNSs channels. According to Tweeting-Athletes.com (2012), 7217 sports athletes are using Twitter, and more specifically, 1857 NFL players, 509 NBA players, 518 MLB players, 345 NHL players, and 1176 players in Soccer Leagues are currently using it to communicate with their fans. In addition, The diverse online websites for sports news have operated blogs where fans can get information about games or athletes and can react to posts (Martin, 2012). In this way, new media is considered as a core platform where sports organizations, teams, and individual athletes interact with their fans or customers (Flew & Smith, 2011). Through portable smart devices, new media are also making interactivity with organization-customer and customer-customer stronger (Lee & Lan, 2007).

Unlike previous consumers, they can directly engage in communication with organizations and customers through new media with various digital devices in the virtual environment. Moreover, they can have a huge amount of influence on management and consumer behaviors. This rapid growth of new media requires to change the way organizations have been operated traditionally (Hennig-Thurau et al., 2010). Accordingly, a large number of organizations have recognized the need to evolve platforms that can make value co-creation with customers in the virtual environment (Sawhney et al., 2005), and they focus on management for value creation by interactivity and co-creation with their customers (Prahalad & Ramaswamy, 2004a).

The study supposes these rapid changes in the new media environment through smart devices help users build social capital and reinforce collective efficacy. In addition, the study will identify customers' active participation through social capital and collective

efficacy in the corporate management activity. More specific background information related to variables in the study is included in the following sections.

Interactivity

Interactivity definitions

It is not difficult to encounter the term interactivity in modern society. Interactivity in traditional human communication based on sociological perspectives is considered as "the relationship between two or more people who, in a given situation, mutually adapt their behavior and actions to each other" (Jensen, 1998, p. 188). The meaning of interactivity has been also used differently in diverse academic fields, such as advertising, communication, educational psychology, marketing, information systems, arts, and computer technology, as well as our daily lives (Domagk, Schwartz & Plass, 2010; Johnson, Bruner & Kumar, 2006; Quiring & Schweiger, 2008). Specifically, interactivity studied by researchers in the marketing field has been viewed as an important variable that has played a supportive role in relationship with customers (Hoffman & Novak, 1997; Hoffman, Novak & Chatterjee, 1995; Sheth & Paravatiyar, 1995) and advertising effectiveness (Hoffman & Novak, 1996; Lee, 2005; Liu and Shrum, 2002). In addition, in the communication and information systems field, the studies on interactivity have been mainly conducted for the content of a mediated communication environment, computer-mediated communication (CMC), and conceptualization of itself (Burgoon et al., 2002; Heeter, 2000; Kiousis, 2002; McMillan, 2002; Steuer, 1992) .

As mentioned above, the term interactivity has been used differently by researchers with diverse perspectives in various academic fields. For this reason, the broad use of the meaning of interactivity gave rise to inconsistent uses of the concept

(Betrancourt, 2005; Domagk et al., 2010; Johnson et al., 2006; Kennedy, 2004; Kiousis, 2002; Rafaeli, 1988; Wagner, 1994; Yun, 2007; Quiring & Schweiger, 2008). In this sense, it is needed to classify the multi-faceted definitions of interactivity and to distinguish multi-dimensional constructs in an extensive literature (Kiousis, 2002; Rafaeli & Sudweeks, 1997).

A wide variety of studies about the definition of interactivity can be distinguished largely in three sections: (1) interactivity viewed as a factor which are related to the communication context, (2) a property of mediated communication or quality of media, it can be considered as technological and functional perspective, (3) interactivity combining the former two perspectives.

The first part of them focused on interactivity as quality of communication. Rafaeli (1988) defined interactivity as "an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions" (p. 111). In addition, Ha and James's (1998) definition was used as "the extent to which the communicator and the audience respond to, or are willing to facilitate each other's communication needs" (p. 462). According to study by Williams, Rice, and Rogers (1988), it can be defined in terms of " the degree to which participants in a communication process have control over, and can exchange roles in, their mutual discourse" (p. 10). In the same vein, DeFleur and Ball-Rokeach (1989) suggested interactivity is "the processes of communication that take on some of the characteristics of interpersonal communication" (p. 341). In this way, many of these studies emphasized

the communication context such as message exchange among participants (Kiousis, 2002; Rafaeli, 1988).

From the approach viewed as a property of mediated communication or quality of media, Steuer (1992) defined interactivity as "the extent to which users can participate in modifying the form and content of a mediated environment in real-time" (p. 84), consisting of speed of response, range, and mapping. In addition, Jensen (1998) proposed interactivity as "a measure of a media's potential ability to let the user exert an influence on the content and/or form of the mediated communication" (p. 201). In the study by Markus (1990), interactivity was regarded as a property of technologies in interactive media that allow multidirectional communication. In this way, these studies have been preoccupied with technological structure (Steuer, 1992). Specifically, interactivity has been largely categorized as delivery media, such as the web; input devices, such as the keyboard, or mouse; and properties provided from system, such as hypertext, simulations, or multimedia (Domagk et al., 2010; Johnson et al., 2006; Sims, 1997).

Lastly, in the context of interactivity combining previous perspectives of quality of interpersonal communication and mediated communication or quality of media, Kiousis (2002) argued that "communicators can be human or machine, often contingent upon whether they can function as both senders and receivers" (p. 368). In addition, he redefined interactivity as "the degree to which a communication technology can create a mediated environment in which participants can communicate (one-to-one, one-to-many, and many-to-many) both synchronously and asynchronously and participate in reciprocal message exchanges (third-order dependency)" (p. 379). In this definition, synchronous communication are Internet Relay Chat (IRC) like a messenger program and Multiple

13

User Dialogue (MUD), and it can occur when users log in to same websites synchronously. In contrast, asynchronous communication are Email, File Transfer Protocol (FTP), World Wide Web (WWW), or Usenet (Morris & Organ, 1996). According to Domagk et al. (2010), they defined interactivity as "reciprocal activity between a learner and a multimedia learning system, in which the [re]action of the learner is dependent up the [re]action of the system and vice versa" (p. 1025). They also insisted that interactivity is neither only a function of system nor simply a function of user's activity. To complete this concept, it is needed to integrate the dynamic process between the system and user.

In this sense, studies on the definition of interactivity viewed as quality of communication have been focused on reciprocity and participation, mutual action, action-reaction, and two-way communication (Johnson et al., 2006). Furthermore, studies that considered interactivity as a property of mediated communication or quality of media have been focused on aspects of technology or system function. Unlike the two previous perspectives, studies combining communicational perspective and mechanical perspective suggested a hybrid definition integrating both perspectives of interactivity.

As a result, we can figure out that the definitions of interactivity can be distinguished differently by many scholars who have diverse perspectives about it. In addition, the definitions of it have been classified in three sections: user-to-user, user-to-technology, and combining both predated approaches. After the advent of new media, however, the need for investigating new approaches that can explain interactivity in the new media environment was suggested by other researchers (McMillan, 2002). It is important to explore other approaches of interactivity in the new media environment

14

because new media adding technology in human communications brought about many changes (Chilcoat & DeWine, 1985; McMillan, 2002). Thus, the following section will investigate the concept of interactivity in new media that are classified into three part constructs : user-to-user, user-to-documents, and user-to-systems.

Interactivity dimensions in new media

Interactivity in the new media environment can be traditionally classified as three types : user-to-user, user-to-documents, and user-to-systems. Szuprowicz (1995), Kayany, Wotring, and Forrest (1996), and McMillan (2002) distinguished the dimensions of interactivity in the new media environment into the three constructs mentioned above. In addition, Barker and Tucker (1990), Haeckel (1998), and Jensen (1998) have also sorted the interactivity into similar three dimensional types. Moreover, Cho and Leckenby (1997) identified user-machine interaction, user-user interaction, and user-message interaction. In this way, the dimensions of interactivity in the new media environment has been classified differently by many researchers but in the big picture, it can be identified as these three types of interactivity.

First of all, research articles related to user-to-user interactivity in new media have been studied for investigating interactivity between users in computer-mediated communication (CMC) environment (McMillan, 2002). CMC is any form of communicative transaction, such as instant messaging, email, or chatting, between users via utilizing two or more computers connected to the Internet (McQuail, 2005). In this sense, computer-mediated human interaction (Domagk et al., 2010), behavioral interactivity (Johnson et al., 2006), interpersonal interactivity (Massey & Levy 1999),

and person interactivity (Hoffman & Novak, 2000) can be largely regarded as user-to-user interaction.

Direction of communication

	One-way	Two-way
High	Feedback	Mutual discourse
	S ← R	P P
Level of receiver control	Monologue	Responsive dialogue
	S → R	S ← R
Low		
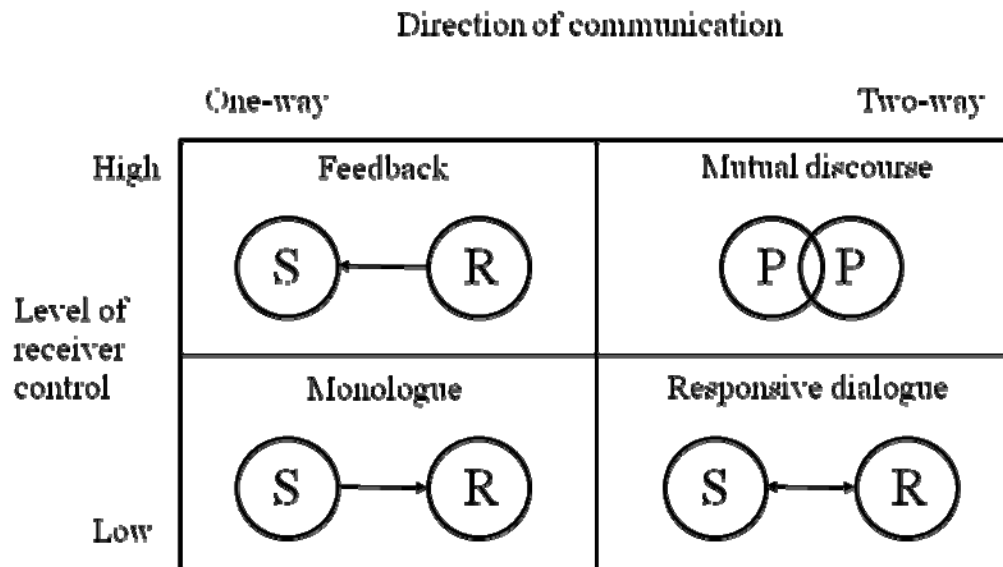
Figure 1. Four models of user-to-user interactivity. S = sender, R = receiver, P = participant (sender/receiver roles are interchangeable).

McMillan (2002) suggested the specific models of user-to-user interactivity are shown in Figure 1 (p. 169). To put it briefly, the difference between the responsive dialogue model and the mutual discourse model is that the sender still keeps the principal control than the message receiver in the responsive dialogue model. In contrast, as for the mutual discourse model, all users who are the senders and the receivers, have equal control level so that it becomes unable to distinguish their roles. The equal control level that the senders and receivers have is considered as a key characteristic in user-to-user interactivity since the emergence of new media. According to the study by McMillan (2002, p. 168), in research articles based on effects of interactivity, many researchers

16

have studied the effects related to idea generation and group participation (Bikson, Eveland & Guetek, 1989; DeVries, 1996; Romiszowski, 1993; Valacich, Paranka, George & Nunamaker, 1993; Walther, 1996), personal identity and decision-making (Bezjian-Avery, Calder & Lacobucci, 1998; Cooley, 1999; Sherblom, 1988; Yom, 1996), and sociability and engagement (Ha & James, 1998; Kiesler, 1986; Rafaeli & Sudweeks, 1997).

Second, the research articles related to user-to-documents interactivity have asserted that users also interact with both contents and people who create those documents (Cho & Leckenby, 1997; Massey & Levy, 1999; Jensen, 1998; McMillan, 2002). In addition, many researchers regarded participants as active co-creators of information in the new media environment (Barak & Fisher, 1997; Bezjian-Avery et al., 1998; Hanssen, Jankowski & Etienne, 1996; McMillan, 2002; Morrison, 1998; Steuer, 1992; Street & Rimal, 1997), and new media has provided these forms that can enable many-to-many communication (Rafaeli & LaRose, 1993).

McMillan (2002, p. 172) proposed a model about user-to-documents in the new media environment by using two dimensions: participant control and the nature of audience (see Figure 2). In this model, he said that a stream of information in traditional mass media can be illustrated by the packaged content model. This model can also illustrate that creators send the content that they produce to passive audiences through online newspapers, magazines, and so on in the new media environment. The content-on-demand model interprets that the audiences are passive and do not create content but they customize it to satisfy their preferences (McMillan, 2002).

17

In his content exchange model, he suggested that the role of participants can be changed depending on the circumstances in that they can be not only the sender of content but also the receiver of content. Moreover, he insisted that Bulletin boards can be an example of this model, and information exchange frequently takes place asynchronously. Co-created content model explains that senders and receivers in all users participate in producing content, and group decision support systems can be an example of this model (McMillan, 2002). Through this model, we can find out yet again that many-to-many communication can be provided to many people via new media (Rafaeli & LaRose, 1993).

Nature of audience

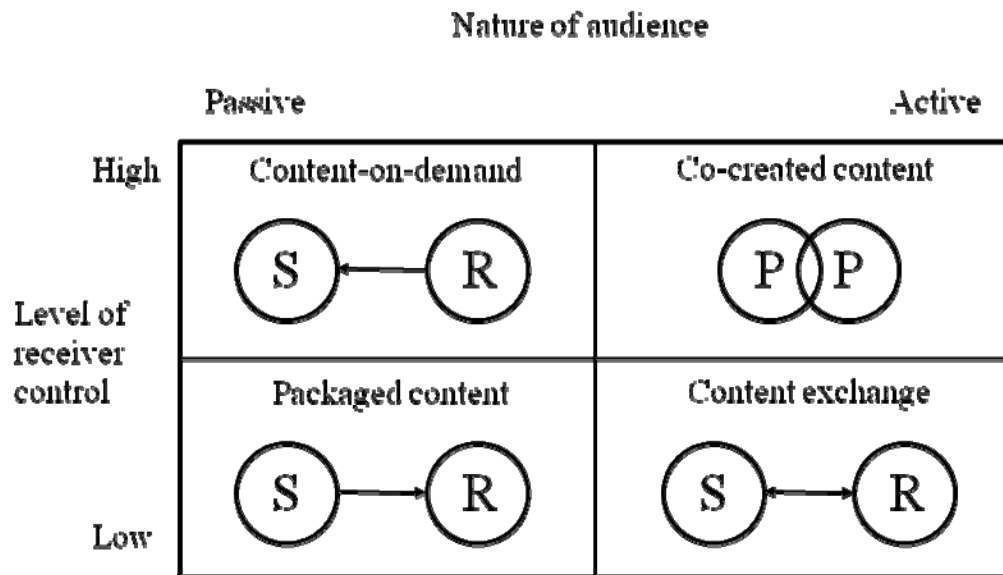|	Passive	Active
High	Content-on-demand	Co-created content
	S → R	P P
Level of receiver control		
	Packaged content	Content exchange
	S → R	S ↔ R
Low		

Figure 2. Four models of user-to-documents interactivity. S = sender, R = receiver, P = participant (sender/receiver roles are interchangeable).

The last form of interactivity in the new media environment is user-to-systems interactivity that has focused on the interaction between human and the new media systems such as a computer, a mobile device, or other type of systems (McMillan, 2002). These research articles related to user-to-systems interactivity have been studied in the field of human-computer interaction (HCI) research (Burgoon et al., 2000; Hanssen et al., 1996; Huhtamo, 1999; Murray, 1997; Reardon & Rogers, 1998). Specifically, these researches have been conducted in two aspects focused on human side and computer side. According to McMillan (2002, p.173), the studies related to human side in HCI research articles investigated how individuals interpret computer personality (Moon & Nass, 1996), the level of agency that individuals perceive they have in working with the computer (Huhtamo, 1999; Murray, 1997), individual decision styles (Vasarhelyi, 1977), and goals that the individual brings to the system (Belkin, Marchetti & Cool, 1993; Xie, 2000). In addition, McMillan (2002, p. 174) said that on the machine side, issues such as interfaces and input devices (Baecker, 1980; Biocca, 1993; Laurel, 1990; Naimark, 1990; Nielsen, 2000; Sims, 1997), navigation tools (Heeter, 2000; Nielsen, 2000), interactive features that allow for user choice and input (Belkin et al., 1993; Daft, Lengel & Trevino, 1987; Durlak, 1987; Hanssen et al., 1996; Looms, 1993; Steuer, 1992; Zeltzer, 1992), and system activity (Milheim, 1996; Valacich et al., 1993) are relevant (p. 174).

This chapter examined three forms of interactivity: user-to-user, user-to-documents, and user-to-systems interactivity, in diverse fields. According to Lee (2012), these three forms of interactivity influence each other in the new media environment, and the technological advancements of new media systems can contribute effectually toward various user-to-user and user-to-documents interactivity occurring in the new media

19

environment. In the study by Kiousis (2002), he said that "communication technology can create a mediated environment in which participants can communicate (one-to-one, one-to-many, and many-to-many), both synchronously and asynchronously, and participate in reciprocal message exchanges" (p. 372). For this reason, he suggested that it is needed to distinguish the interactivity occurring between user and systems from other interactivity such as user-to-user and user-to-documents interactivity, and defined this user-to-systems interactivity as a technological interactiveness.

This classification is related to user-to-systems interactivity among types of interactivity in the study by McMillan (2002) and is in line with the studies by Domagk et al. (2010), Steuer (1992), and Rice and Williams (1984) that considered the definition of interactivity in light of the quality of media. In other words, the technological improvement of systems in the new media environment will bring about various interactivity between user and user and user and documents, and by this influence, it is expected that the relationship with users and users' perception of collective efficacy in mediated environment will be changed.

In this sense, this study focuses on properties of user-to-systems interactivity as mediated technological environment in the multidirectional concept of interactivity to figure out effects on user's participation and perception associated with participation by current changes in utilization of the internet through smart devices. The study also centers on changes in the environment where user-to-system interactivity occurs by smart devices, and it defines these interactivity as technological interactivity.

The components of technological interactivity

Many researchers have conceptualized interactivity and examined the components of interactivity consisting of a multi-dimensional concept in diverse fields. In the studies by Johnson et al. (2006), Kiousis (2002), Lee (2012), and Zafiropoulos, Vrana, and Karystinaiou (2007), they reviewed several studies dealt with the components of interactivity based on diverse dimensions, and the components are listed in Table 1.

Table 1

Different components of interactivity in the literature

Name	Components
Dholakia, Zhao, Dholakia, and Fortin (2000)	User control, personalization, responsiveness, connectedness, real time interaction, and playfulness.
Ha and James (1998)	Playfulness, choice, connectedness, information collection, and reciprocal communication.
Heeter (1989)	Complexity of choice available, effort that users must exert, responsiveness to the user, monitoring of information use, ease of adding information, and facilitation of interpersonal communication.
Johnson et al. (2006)	Reciprocity, responsiveness, speed of response, and nonverbal information.
Kalyuga (2007)	Control, flexibility, and dependency.
Ku (1992)	Immediacy of feedback, responsiveness, source diversity, communication linkage, equality of participation, and ability to terminate.
Liu and Shrum (2002)	Two-way communication, active control, and synchronicity.
Downes and McMillan (2000)	Direction of communication, timing flexibility, sense of place, level of control, responsiveness, and the perceived purpose of communication.
McMillan and Hwang (2002)	Direction of communication (encompassing the concepts of responsiveness and exchange), user control, and time.
Moreno and Mayor (2007)	Dialoguing, controlling, manipulation, searching, and navigation.
Sohn and Lee (2005)	Control, responsiveness, and interaction efficacy.
Williams, Rice, and Rogers (1988)	Control, exchange of roles, and mutual discourse.
Wu (2000)	Perceived control, perceived responsiveness, and perceived personalization.

There are various components to constitute interactivity including user-to-user, user-to-documents, and user-to-systems interactivity in the Table 1. This study brings into focus properties of user-to-systems interactivity as mediated technological environment and changes in the environment where technological interactivity happens by smart devices. The study, therefore, chooses three components associated with machine interactivity among the components examined by researchers in diverse fields as variables, and the components are user control, responsiveness, and synchronicity.

The first key component to comprise technological interactivity is user control. It means "the extent to which an individual can choose the timing, content, and sequence of a communication" (Dholakia et al., 2000, p. 6). Heeter (1989) defined it as "the degree to which users can add information to the system that a mass undifferentiated audience can access" (p. 224). Williams et al. (1988) said that when users can select between text only and text with graphics or can choose the language, or a search engine, they will enter into the feeling of control. In the virtual communication environment, it may also be related to minimizing effort in the achievement of task (heeter, 1989), control over the role to be a sender or a receiver (Fortin, 1997). Through new media, many users can have control in the virtual communication environment where they can select the timing, content, and sequence of a communication, and in this study, this could bring about the distinct effect compared to the old media environment.

The second component is responsiveness, and it is connected with a response to earlier messages (Dholakia et al., 2000). Rafaeli and Sudweek (1997) defined it as "the extent to which messages in a sequence related to each other, and especially the extent to which later messages recount the relatedness of earlier message" (Interactivity in

23

introduction section, para. 2). Furthermore, Dholakia et al. (2000) mentioned that "users gauge responsiveness of a system from direct communication as in a reply to an email; or indirectly from actions taken as in changes in the website because of an expressed opinion" (p. 7). In this way, users can get information that they want through Real Simple Syndication (RSS), email, or smart devices in the new media environment, and it could be a primary factor that they can interact with information or contents much more efficiently than in the old media environment.

The last component of machine interactivity is synchronicity. The term of synchronicity relates to " the speed with which communication takes place, particularly response time" (Dholakia et al., 2000, p. 7). Steuer (1992) regarded speed of interaction or response time as a key component of an interactive media system. The study by Dholakia et al. (2000) also considered real time interactions as an important component, and they mentioned "faster the response, greater the perception of interactivity" (p. 7). In this sense, customers participate in the environment where communication takes place coincidentally with others, and they can receive responses from others in real time.

The use of smart devices can improve technological interactivity even more than the computer based environment. The reason is that information can be spread quickly and widely through mobile devices (Kim, Park & Lee, 2010), and the properties of mobile devices improve Internet based interactivity much more (Lee, 2005). Therefore, through the literature, it is conformed that ubiquitous connectivity and contextual offer, new components of interactivity in the mobile commerce environments proposed by Lee (2005), can have a positive influence on user control and responsiveness of technological interactivity through smart devices. It is also verified that contextual offer can have a

24

positive effect on speed and user control of machine interactivity through offering immediate feedback information on the basis of user profile such as localization and personal identity (Lee, 2012).

Social Capital

Social capital definitions

Social capital has been used widely as a popular concept by sociologists, political scientists, and economists in their own fields since 1990s (Adler & Kwon, 2002; Hazleton & Kennan, 2000; Putnam, 2000). The term of social capital has been defined diversely by scholars who study in various academic fields, and these definitions are different points of view defending on what they bring into focus, such as the substance, the sources, or the effects of social capital (Adler & Kwon, 2002; Claridge, 2004; Eastis, 1998; Field, Schuller & Baron, 2000; Robison, Schmid & Siles, 2002). The definition of social capital, therefore, is not conceptualized clearly and is not commonly agreed upon yet for substantive and ideological reasons (Dolfsma & Dannreuther, 2003; Foley and Edwards, 1997; Robinson et al., 2002).

The first systematic contemporary analysis of social capital was developed by French sociologist Pierre Bourdieu (Portes, 1998). According to the study by Bourdieu (1986), he defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (p. 248). His definition has a significant meaning theoretically because it distinguished social capital into two critical elements: "first, the social relationship itself that allows individuals to claim access to resources possessed by their associates, and second, the amount and quality of those

resources" (Portes, 1998, p. 3). In other words, it is meaningful that he discriminated the resources from the ability to get those resources through virtue of actors in various social structures or relationships (Portes, 2000).

After the study by Bourdieu, a number of theoretical analyses related to social capital began to emerge in the 1990s (Portes, 1998), and these definitions suggested by social scientists are listed in the Table 2 (Adler & Kwon, 2002, p. 20). The definitions seem broadly similar, but these definitions show some delicate nuances. As shown in the table below, Adler and Kwon (2002) suggested to classify the various definitions of social capital into three groups: external relation, internal relation, and both. The first group, focused on external relations that have also been called the bridging views, puts more weight to a resource located in the social network connecting focal actors with other actors (Adler and Kwon, 2002). In contrast, the second group of definitions focused on internal relations, the bonding views, foregrounds the structure of relationships among actors or groups within the collectivity (Adler and Kwon, 2002). The last group of definitions in the Table 2 focused on synthetic relations that include the view of external and internal relations.

Particularly noteworthy in this regard is, despite multidimensional definitions of social capital in the literature, these definitions have commonly focused on social relations that bring about productive benefits (Claridge, 2004). According to Dekker and Uslaner (2001) and Uslaner (2001), social capital was considered as the value caused by social networks, bonding similar people, and bridging between various people (Claridge, 2004). Portes (1998), who defined the term of social capital as "the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (p.

6), mentioned the concept of social capital is grounded on a staple notion that group involvement and participation can produce positive consequences for individuals and groups. Furthermore, Heywood (2008), who suggested the term of social capital more simply, defined it as "the levels of trust and sense of social connectedness that help to promote stability, cohesion, and prosperity; what turns the 'I' into 'we'" (p.46). In this sense, although the definitions of social capital vary depending on what the analysis has focused on, they have fundamentally focused on social relations (Adler & Kwon, 2002; Claridge, 2004; Eastis, 1998; Field et al., 2000; Robison et al., 2002).

Table 2

Definitions of social capital

External versus internal	Authors	Definitions of social capital
External	Baker (1990)	"a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors" (p. 619).
	Beliveau, O'Reilly & Wade (1996)	"an individual's personal network and elite institutional affiliations" (p. 1572).
	Bourdieu (1986)	"the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (p. 248).
	Bourdieu & Wacquant (1992)	"the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 119).
	Boxman, De Graaf & Flap (1991)	"the number of people who can be expected to provide support and the resources those people have at their disposal" (p. 52).
	Burt (1992; 1997)	"friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital" (1992, p. 9). "the brokerage opportunities in a network" (1997, p. 355).
	Knoke (1999)	"the process by which social actors create and mobilize their network connections within and between organizations to gain access to other social actors' resources" (p. 18).
	Portes (1998)	"the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (p. 6).
Internal	Brehm & Rahn (1997)	"the web of cooperative relationships between citizens that facilitate resolution of collective action problems" (p. 999).

	Coleman (1990)	"Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure" (p. 302).
	Fukuyama (1995)	"the ability of people to work together for common purposes in groups and organizations" (p. 10).
	Portes & Sensenbrenner (1993)	"those expectations for action within a collectivity that affect the economic goals and goal-seeking behavior of its members, even if these expectations are not oriented toward the economic sphere" (p. 1323).
	Putnam (1995)	"features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (p. 67).
	Thomas (1996)	"those voluntary means and processes developed within civil society which promote development for the collective whole" (p. 11).
Both	Loury (1992)	"naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace... an asset which may be as significant as financial bequests in accounting for the maintenance of inequality in our society" (p. 100).
	Nahapiet & Ghoshal (1998)	"the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network" (p. 243).
	Schiff (1992)	"the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function" (p. 160).
	Woolcock (1998)	"the information, trust, and norms of reciprocity inhering in one's social networks" (p. 153).

Bridging Social capital in new media environment

People interact with others and build a network of individuals and social groups in the communication environment mediated by social software giving rise to positive affective bonds (Steinfield, Ellison & Lampe, 2008; Williams, 2006). These in turn lead to creating positive outcomes such as encouraging, supporting social interaction, and mobilizing others in online communities (Lee, 2012; Williams, 2006). In other words, characteristics of the new media environment have an influence on taking form of media sociability and facilitate to build social capital.

This social relation based on weak ties in the new media environment build the new form of social capital unlike social relation in prior media environment (Resnick, 2002). As mentioned in the previous section, the prior type of social capital can be largely classified as bonding and bridging social capital (Ellison, Steinfield & Lampe, 2007; Gittell & Vidal, 1998; Kobayashi, 2010; Putnam, 2000; Williams, 2006, 2007).

Gittell and Vidal (1998) defined bonding social capital as "the type that brings closer together people who already know each other" (p. 15). In addition, Yuan and Gay (2006, p. 1067) mentioned that "bonding social capital refers to resources that people can obtain from within-group ties (Adler & Kwon, 2002; Kavanaugh, Reese, Carroll & Rosson, 2005; Leonard, 2004; Putnam, 2000). That means bonding social capital has a focus on internal relations and is based on emotional or strong ties (Beane, 2012; Granovetter, 1973; Kobayashi, 2010; Putnam, 2000; Williams, 2006, 2007). Furthermore, social networks occurred between strongly tied individuals, such as family and close friends, are made up of small groups, and social actors based on bonding capital have stronger relations like homogeneity (Putnam, 2000; Williams, 2006). Due to the feature

30

of strong group cohesion, these reinforced relations like sameness create access to few external resources and come into antagonism with outside groups (Beane, 2012; Kobayashi, 2010; Putnam, 2000; Williams, 2006).

In contrast, bridging social capital was defined by Gittell and Vidal (1998) as "the type that brings together people or groups who previously did not know each other" (p. 15). Moreover, Yuan and Gay (2006, p. 1067) asserted that "bridging social capital refers to resources that people can gain from their ties with people from the outside" (Adler & Kwon, 2002; Kavanaugh et al., 2005; Leonard, 2004; Putnam, 2000). It has a focus on external relations with a large number of actors who have different backgrounds, and it is based on functional, informational, and weak ties without thick trust (Beane, 2012; Granovetter, 1973; Kobayashi, 2010; Putnam, 2000; Williams, 2006, 2007; Woolcock, 1998). This means that these social networks based on bridging social capital can not only create access to actors who have diverse social, religious, or political points of view but also expand actors' social horizons or world views (Coleman, 1988; Putnam, 2000; Williams, 2006). Therefore, these actors who made connections between each other without thick trust in diverse social networks often have tentative relationships based on weak ties (Putnam, 2000; Williams, 2006), and the resultant social networks are characterized by heterogeneity and variety of actors (Choi, Kim, Sung & Sohn, 2011; Putnam, 2000; Williams, 2006).

According to Putnam (2000), bridging social capital originated in weak ties is "better for linkage to external assets and for information diffusion" (p. 22). In the new media environment, bridging social capital can be generated by weak ties without thick trust, and social networks based on this social capital help people create the information,

form and maintain huge personal networks between others who have different

backgrounds, and diffuse reciprocity with them (Donath & Boyd, 2004; Williams, 2006).

Ultimately, such environmental structures of new media contribute to expanding bridging

social capital (Lee, 2012). Ellison, Steinfield, and Lampe (2007) who studied about the

benefits of Facebook friends also asserted that usage of Facebook site help users accrue

and maintain bridging social capital, since this social network site allows participants to

build social supernets of numerous social relations (Donath, 2007) and to maintain such

connections cheaply and easily (Donath & Boyd, 2004).

For these reasons, this study focuses on bridging social capital of the actors based

on weak ties in the new media environment. Furthermore, it expects bridging social

capital of users derived from same interest will have a positive influence on reinforcing

collective efficacy, and will also act as the power to have a voice in the marketing

activity of sport firms.

Collective Efficacy

In social cognitive theory, self-efficacy which is considered as not only the basis

of human agency (Fernandez-Ballesteros, Diez-Nicolas, Caprara, Barbaranelli & Bandura,

2002) but also playing a critical part in person functioning (Bandura, 2000) is defined as

"people's beliefs about their capabilities to produce designated levels of performance that

exercise influence over events that affect their lives" by Bandura (1994, p. 71). This

individual efficacy has an influence on the decision making and human behavior such as

how individuals feel, think, motivate themselves, and act (Bandura, 1993, 1994; Betz &

Hackett, 1981; Schwarzer & Fuchs, 1995). In addition, it has been known to "facilitate

goal-setting, effort investment, persistence in the face of barriers, and recovery from

setbacks" (Ahmad & Sadaria, 2013, p. 23; Armitage, Conner, Loach & Willetts, 1999;

Scholz, Gutierrez-Dona, Sud & Schwarzer, 2002).

Specifically, unlike individuals who have a low level of self-efficacy representing

depression, anxiety, and helplessness such as low self-esteem and disbelief about the

accomplishment of their purpose, people with a high level of self-efficacy have

characteristics to make plans to carry out more challenging task (Bandura, 1986;

Schwarzer & Fuchs, 1995). Moreover, this high self-efficacy enables individuals not only

to set and to reach higher goals but also to stick to them than a low sense of self-efficacy

(Locke & Latham, 1990). For these reasons, the level of self-efficacy has an effect on

motivating people to act in optimistic or pessimistic ways (Schwarzer & Fuchs, 1995).

Studies about perceived efficacy have been largely carried out to investigate the

exercise of personal agency (Fernandez-Ballesteros et al., 2002). Through shared beliefs

by diverse members who have different backgrounds in groups, however, social cognitive

theory extends the concept for mechanisms in human agency to collective efficacy

(Bandura, 1997, 2000). Bandura (1977) referred to collective efficacy as an extension of

the self-efficacy construct and defined perceived collective efficacy as "a group's shared

belief in its conjoint capabilities to organize and execute the course of action required to

produce given levels of attainments" (Bandura, 1997, p. 477). Furthermore, he interpreted

it as not an aggregation of perceived individual efficacies but a group-level property

because it accompanies interactive, coordinative, and synergetic social dynamics that is

not found in individual efficacy (Bandura, 2000, 2001). Zaccaro, Blair, Peterson, and

Zazanis (1995) also defined collective efficacy as "a sense of collective competence

shared among individuals when allocating, coordinating, and integrating their resources

in a successful concerted response to specific situation demands" (p. 309).

In this way, people's shared beliefs play a key role in a group which requires

interaction, interdependence, and cooperation between members to perform tasks

(Martinez, Guillen & Feltz, 2011). Gibson (1999) asserted that when collectivism is high,

group efficacy is positively correlated with group effectiveness, and other researchers

also demonstrated collective beliefs in groups have a positive influence on group

effectiveness or performance (Chen et al., 2002; Earley, 1999; Kaplan, 1997; Little &

Madigan, 1997; Mulvey & Klein, 1998). Similarly, Gully, Incalcaterra, Joshi, and

Beaubien (2002) who used meta-analytic techniques to investigate relationships between

team-efficacy, potency, and performance found that at the team level, the relationship

between team-efficacy and performance is positive. For these reasons, shared beliefs in

collective efficacy allow people to pool knowledge, capability, and resources they have,

to rely on each other for support and mutual backing, and to work together to make a

solution and to seek a better life (Fernandez-Ballesteros et al., 2002). In other words,

collective efficacy of group members have an effect on the types of futures they

endeavor to attain through group effort and action (Bandura, 2000).

In the new media environment, customers can easily participate in diverse

communities to seek their purpose, and through the properties of mediated

communication such as information openness, connectedness, and community interaction,

their beliefs in collective efficacy improve their participations in marketing process of the

corporation (Lim & Yang, 2006). In this process, collective efficacy plays a predominant

role that leads to customer participation in reverse marketing activities as a major mediating variable (Lim & Yang, 2006).

Consequently, this study focuses on collective efficacy in the new media environment, and it expects properties of media interactivity that comprise user control, responsiveness, and synchronicity will bring about information sharing and improve collective efficacy in groups. The reinforced collective efficacy, in turn, will lead to customer participation in marketing activities of firms.

Co-Creation Value

The traditional market concept is firm-centric, and in this perspective, the process of value creation arose from companies (Prahalad & Ramaswamy, 2004a; Sharma & Sheth, 2004). Their roles between firms and customers were also clearly distinguished into producers and consumers (Prahalad & Ramaswamy, 2004a; 2004b). Therefore, the firm carried out the whole process of product design, product development, and creating marketing strategies for sales with little or no interaction with their consumers (Normann & Ramirez, 1994; Prahalad & Ramaswamy, 2004a; Wikstrom, 1996).

Table 3

Key differences between customer collaboration in physical and virtual environments

	The traditional perspective-Customer engagement in physical environment	The co-creation perspective-Customer engagement in virtual environment
Innovation perspective	Firm-centric	Customer-centric
Role of the customer	Passive-customer voice as an input to create and test products	Active-customer as a partner in the innovation process
Direction of interaction	One way- firm to customer	Two way-dialogue with customers
Intensity of interaction	Spot- on contingent basis	Continuous- back-and-forth dialogue
Richness of interaction	Focus on individual knowledge	Focus on social and experiential knowledge
Size and scope of audiences	Direct interaction with current customers	Direct as well as mediated interactions with prospects and potential customers

The role of customers between them and firms in the new media environments, however, became more significant in innovation and value creation with the development of new communication technologies (Bitner, Brown & Meuter, 2000; Dahan & Hauser, 2002; Nambisan & Baron, 2009; Sawhney et al., 2005; Thomke & Hippel, 2002). Firms recognized the power of the new media as a platform for co-creating value with their customers (Sawhney et al., 2005), and the process of value creation shifted from a firm-centric perspective to personalized customer experiences by informed, networked, empowered, and active customers (Prahalad & Ramaswamy, 2004a). Several key

differences between customer collaboration in the traditional perspective and the co-creation perspective are listed in Table 3 (Sawhney et al., 2005, p. 4).

In the virtual environments, customers participate in product design, product testing, and product support activities through online services for customer discussion provided from new media (Nambisan, 2002; Nambisan & Baron, 2009). For example, Microsoft collected suggestions for product improvement from their expert customers in Virtual Customer Environments that "provide services ranging from online discussion forums to virtual design and prototyping centers" (Nambisan & Baron, 2009, p. 389). In turn, collected valuable ideas for system tools were applied to the next-generation product, PowerPoint 2000, without substantial developmental costs (Nambisan & Baron, 2009).

In addition, customers participation in co-creation value has also occurred in online application stores. People who use sports applications to improve their health by their smart devices review the applications that they downloaded. They can easily comment on system problems or inconveniences on the app review board through smart devices. Furthermore, they post various solutions or idea on the board, after that, the program or system developers use information sent from users to improve the application in order to meet the needs of users. Other industries such as automobile, fashion, manufacture, and et al. have used knowledge, suggestions and ideas generated from their customer discussion for collaborative innovation and value creation (Algesheimer & Dholakia, 2006; Jeppesen & Molin, 2003; Nambisan & Baron, 2009; Verona, Prandelli & Sawhney, 2006).

According to Lin and Huang (2006), customers generates value and services for and from each other by participating in diverse communities. These forms of customer participations can be divided into largely two parts: passive participation that customers only share the information they have each other and active participation that they suggest marketing strategies or innovative ideas directly (Lim & Yang, 2006). This study selects active customer participation in marketing activities for the firms and regards these customer participation as co-creation value.

In the literature, in digital environment, collective efficacy is one of primary factors that have a positive influence on customer participation (Lim & Yang, 2006), and bridging social capital based on weak ties has a positive effect on value creation (Nahapiet & Ghoshal, 1998). Moreover, conversational knowledge by interaction with customers through extended enterprise supplier networks improves collaborative intelligence (Lee & Lan, 2007; Dyer, 2000). Thus, this study expects bridging social capital and collective efficacy respectively have a positive influence on co-creation value.

Hypothesis

In the study, the environment of technological interactivity based on smart devices provides the participants with responsiveness according to the high degree of user control and acquisition of non-linear information. Moreover, it enables customers to exchange more resources and to develop their network. Therefore, it is predicted that technological interactivity will be positively correlated with bridging social capital of the customers through the networked world and will improve collective efficacy in a group.

Second, customers with same interest build the bridging social capital based on weak ties and exchange information developed within the environment of technological

interactivity. In addition, the bridging social capital with weak ties brought about interactivity in the networked environment increases the involvement of peripheral users and helps coordination and cooperation for the communication needs and mutual benefits. Therefore, it is hypothesized that the bridging social capital of customers will be positively correlated with collective efficacy and the co-creation value with firms.

Lastly, collective efficacy in groups developed within the interactivity of new media improves collaborative intelligence and leads to customer participation in the process of product development. Thus, it is predicted that the reinforced collective efficacy that is people's shared beliefs in groups will be correlated with the customer participation like idea suggestion in the co-creation value with the corporation.
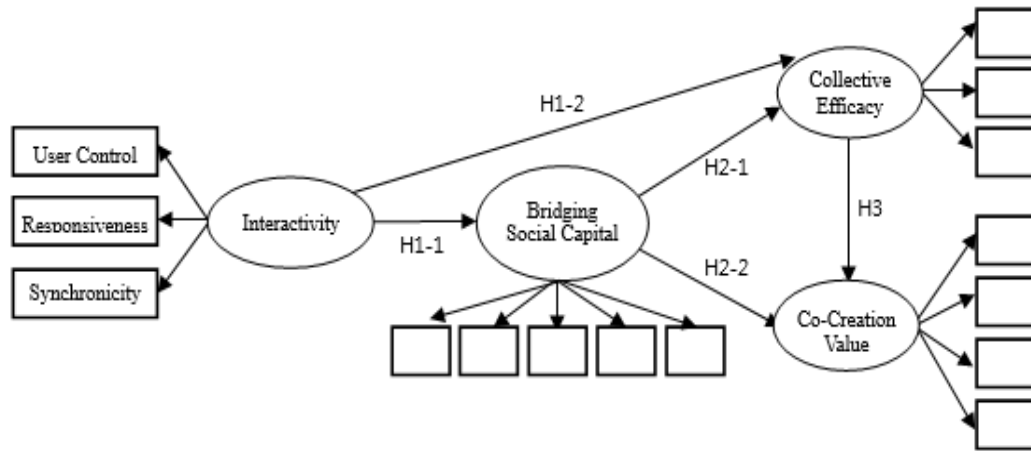
Figure 3. The conceptual model of the study.

CHAPTER III

METHOD

Procedure

The preliminary questionnaire was modified for item adequacy, factor relevance, and word clarity. With the modified questionnaire, a pilot study was carried out from a small sample (n=30) of students to estimate the content reliability and validity. In the pilot study, items loadings of six factors were greater than .40 ranging from .943 to .651, and explanation of variance also exceeded a total of 60% variance among the variances. In addition, Cronbach's alpha values were greater than .60 ranging from .908 to .751.

The study used the convenience sampling method which is one of non-probability sampling type to recruit research participants. For the data collection, the study used face-to-face self-administered and online self-administered surveys as major survey modes because a mixed-mode survey in social science research is frequently utilized as a way to minimize likelihood of mode effects and biases on the study results (Groves et al., 2004).

To estimate differences between means of both groups, a means comparison test was conducted. As a result, although the means of the traditional survey mode by the paper-and-pencil ranging from 5.04 to 5.98 were slightly greater than the online survey mode ranging from 4.96 to 5.80, the differences between both groups were not significant. Therefore, the participants who responded to the paper-and-pencil and the online survey were treated as a single sample.

Participants were recruited through visiting the campus library, gym, and dining areas where there are students who have diverse majors on campus and distributing e-mail including a message to request for participation in the survey. They were given a consent form stating the purpose of the study, the voluntary nature of participation, confidentiality, and instructions. Data collection was conducted after obtaining approval from the Institutional Review Board.

Measure Development

To measure characteristics of respondents, demographic questions consist of 10 items: gender, major, age, academic classification, ethnicity/race, marital status, number of people in household, household income, smart device possession, and type of smart devices.

A total of 22 measures was used for the four variables: technological interactivity , bridging social capital, collective efficacy, and co-creation value, and the items were adapted from various existing scales. The committee members, four university professors, examined the preliminary questionnaire for item adequacy, factor relevance, and word clarity keeping the nature of items. Participants rated each item on a 7-point Likert type scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree.

In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and communicate with others through smart devices (e.g., (a) Online Bulletin Board or Posting Board for sports products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments).

Technological interactivity was divided into three sub-variables: user control, responsiveness, and synchronicity. To measure user control, three items are taken from Liu(2003): (1) I felt that I had a lot of control over my visiting experiences at the community web site (e.g., specifically, I can access, participate, and select the contents in this community site according to my needs), (2) While I was on the community web site, I could choose freely what I wanted to see, and (3) While surfing the community web site, my actions decided the kind of experiences I got.

Responsiveness was measured by the three items adopted from Johnson et al. (2006) : (1) The community web site had the ability to respond to my specific question relevantly, (2) The community web site had the ability to respond to my specific question appropriately, and (3) When you clicked on the specific information in the community web site, you expected to get information that met your expectations.

Synchronicity questions were adapted from Liu (2003) consisting of four items: (1) The community web site processed my input very quickly, (2) Getting information from the community web site is very fast, (3) I was able to obtain the information I want without any delay, and (4) When I clicked on the links, I felt I was getting instantaneous information.

Lee (2012) adopted five items from the study by Steinfield et al (2008) consisting of nine items in bridging social capital. This is because the study by steinfield et al (2008) included three items of bridging social capital for the specific university context. Therefore, the study chose only five items related to the study subject like the study by Lee (2012): (1) I feel I am part of the community, (2) I am interested in what goes on at the community, (3) Interacting with people at the community make s me want to try new

things, (4) Interacting with people at the community makes me feel like a part of a larger community, and (5) I am willing to spend time to support general activities of the community.

The measures for collective efficacy consisting of three items were based on Bandura (1986) referring to more recent studies by Riggs et al. (1994) and Jung and Sosik (2002) : (1) The community web site I participate in has above average ability, (2) The members of the community web site has excellent ability, and (3) Community members can find solutions to problems with their performance.

Co-creation value scales were based on Bettencourt (1997), and those scales include four items : (1) I let the webmaster know of ways that they can better serve my needs (e.g., posting them on the board, or sending messages), (2) I make constructive suggestions to the webmaster on how improve their products or services, (3) If I have a useful idea on how to improve products or services, I give it to the webmaster, and (4) When I experience a problem about the products or services, I let the webmaster know so they can improve service.

Data Analyses

Frequency analysis was examined to measure individual characteristic of participants. An exploratory factor analysis (EFA) was conducted using the IBM SPSS version 18.0, and the factor structure, reliability, and content and discriminant validity of measures were evaluated based on EFA results in addition to Cronbach's alpha. After this process was completed, a confirmatory factor analysis (CFA) was carried out to estimate the factor structure, reliability, and convergent and discriminant validity of measures via the computer program Amos version 18.0 package. Composite reliability was evaluated

based on CFA results. Goodnesses of fit of both confirmatory factor models and structural equation models were assessed by using multiple fit indexes including Chi-square statistics, Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), Root mean square error of approximation (RMSEA), Probability of close fit (PCLOSE).

CHAPTER IV

RESULTS

Participants

Research participants were randomly selected students from a university in the Southern United States. The target population was those who have a smart device that can be connected to the internet anywhere at anytime. Moreover, the study included students who have used the community web sites related to the sports industry in the virtual environments where people get and create resources and communicate with others through smart devices (e.g., (a) online bulletin board or posting board for sports products, events, or mobile apps, (b) blogs or review websites, (c) social network services such as Facebook or Twitter, or (d) anywhere that customers can suggest their opinions in networked environment).

According to the study by Gorsuch (1983), he suggested that for each measured variable, at least 5 respondents are required. However, the study consisting of 22 items decided to target a minimum number of 220 participants for the accuracy and quality of data, and as a result, 274 questionnaires were collected. Specifically, 92 questionnaires were collected by the face-to-face self-administered survey. Furthermore, of 4000 e-mail recipients, 182 students voluntarily completed and returned the online self-administered survey. Of those, 12 questionnaires were discarded due to incomplete information and missing values, and the characteristics of participants are listed in Table 4.

Table 4

Frequency distributions for the sociodemographic variables (N=262)

Variables	Category	Frequency	Cumulative
Gender	Male	118(45.0)	45.0
	Female	144(55.0)	100
Major	Agriculture	5(1.9)	1.9
	Architecture/Planning	1(0.4)	2.3
	Arts	13(5.0)	7.3
	Biological Sciences	17(6.5)	13.7
	Business	55(21.0)	34.7
	Communications	21(8.0)	42.7
	Computer/Information Sciences	13(5.3)	47.7
	Education	16(6.1)	53.8
	Engineering	20(7.6)	61.5
	Health Care	35(13.4)	74.8
	Languages/Literature	3(1.1)	76.0
	Law	5(1.9)	77.9
	Mathematics/Statistics	4(1.5)	79.4
	Mechanics/Repair	2(0.8)	80.2
	Philosophy/Religion	1(0.4)	80.5
	Physical Sciences	2(0.8)	81.3
	Protective Services	3(1.1)	82.4
	Psychology/Counseling	16(6.1)	88.5
	Recreation/Fitness	11(4.2)	92.7
	Services	1(0.4)	93.1
	Social Sciences/Liberal Arts	5(1.9)	95.0
	Social Services	10(3.8)	98.9
	Transportation	3(1.1)	100.0
Age	18-22	186(71.0)	71.0
	23-30	52(19.8)	90.8
	31-40	15(5.7)	96.6
	41-50	5(1.9)	98.5
	51-65	4(1.5)	100.0
Academic classification	Freshman	53(20.2)	20.2
	Sophomore	52(19.8)	40.1
	Junior	64(24.4)	64.5
	Senior	77(29.4)	93.9
	Graduate Student	15(5.7)	99.6
	Other	1(0.4)	100.0

Variables	Category	Frequency (%)	Cumulative (%)
Ethnicity / Race	Caucasian	182(69.5)	69.5
	African American	30(11.5)	80.9
	Hispanic	8(3.1)	84.0
	Asian/Pacific islander	27(10.3)	94.3
	American Indian	2(0.8)	95.0
	Interracial	4(1.5)	96.6
	Other	9(3.4)	100.0
Marital status	Single	221(84.4)	84.4
	Married	37(14.1)	98.5
	Divorced	4(1.5)	100.0
Number of people in household	1	64(24.4)	24.4
	2	45(17.2)	41.6
	3-4	102(38.9)	80.5
	5-6	45(17.2)	97.7
	7-8	5(1.9)	99.6
	9 or more	1(0.4)	100.0
Household income	Below $20,000	86(32.8)	32.8
	$20,000-39,999	49(18.7)	51.5
	$40,000-59,999	24(9.2)	60.7
	$60,000-79,999	29(11.1)	71.8
	$80,000-99,999	23(8.8)	80.5
	$100,000-149,999	31(11.8)	92.4
	$150,000-199,999	9(3.4)	95.8
	Above $200,000	11(4.2)	100.0
Smart device possession	Yes	262(100.0)	100.00
	No	0(0)	100.00
Type of smart devices	Smart phone	153(58.4)	58.4
	Portable smart devices	10(3.8)	62.2
	Both	99(37.8)	100.00

The online response rate of 5% was relatively low. It may happened because respondents participated in the survey voluntarily, and the study did not offered monetary or some other type of incentive to them. Also, the study stopped to collect data after reaching a target sample size. However, Templeton, Deehan, Taylor, Drummond and

Strang (1997) asserted that a low response did not affect the validity of the data collection, and to improve accuracy, higher response also did not necessarily.

Participations consisted of 118 males (45.0%) and 144 females (55.0%) containing 53 freshmen (20.2%), 52 sophomores (19.8%), 64 juniors (24.4%), 77 seniors (29.4%), 15 graduate students (5.7%), and 1 other (.4%). The mean age of them was 22.996 years ranging from 18 to 63 ($SD = 6.94$). In addition, of the 262 participants who had at least one smart devices, 153 participants (58.4%) owned only smart phones, 10 (3.8%) had portable smart devices, and 99 (37.8%) possessed both of them.

Exploratory Factor Analysis

A exploratory factor analysis was carried out to estimate the factors structure of the measure. In the EFA, the KMO measure of sampling adequacy value was .877 (i.e., >.70) (Kaiser, 1974), and BTS was 3018.464 ($p < .001$). In addition, six factors emerged explaining 60.36% of the variance. Items loadings were greater than .40 ranging from .996 to .466. Cronbach's alpha values were greater than .70 (Nunnally & Bernstein, 1994) ranging from .769 to.877 indicating the measures were internally consistent and reliable (see Table 5).

Table 5

Factor pattern matrix and Cronbach's alpha (n=262)

	Factor					
	1	2	3	4	5	6
Cronbach's alpha	.842	.877	.848	.804	.769	.822
Bridging social capital						
BSC4	.871					
BSC3	.795					
BSC2	.680					
BSC5	.638					
BSC1	.596					
Synchronicity						
Syn2		.959				
Syn1		.833				
Syn3		.662				
Syn4		.613				
Co-creation value						
CV2			.847			
CV3			.779			
CV4			.737			
CV1			.675			
Responsiveness						
Res1				.892		
Res2				.861		
Res3				.466		
User Control						
Con1					.821	
Con3					.811	
Con2					.481	
Collective efficacy						
CE2						.995
CE3						.606
CE1						.521

Confirmatory Factor analysis

A confirmatory factor analysis (CFA) was used to estimate the factors structure, reliability, and validity of measures. In the CFA, Average Variance Extracted (AVE) value of bridging social capital (.458) was slightly low than the recommended standard (i.e., equal to or greater than .50) (Bagozzi & Yi, 1988). To establish convergent validity,

the study sequentially removed items with low loadings, and the decision was made to remove two items in bridging social capital that are BSC3 and BSC5. Furthermore, to estimate the potential impact of a common method bias because DV and IV collected using same instrument, the study used common latent factor (CLF). No common method bias was observed. Finally, CFA was reexamined with items bridging social capital containing the items with high loadings.

Table 6

The values of factor loadings, critical ratios, construct reliability, and AVE (n=245)

	Factor loadings	Critical ratios	Construct reliability	AVE
User Control			.807	.586
Con3	.805			
Con2	.609	9.231***		
Con1	.782	11.509***		
Responsiveness			.842	.648
Res3	.579			
Res2	.838	9.518***		
Res1	.888	9.638***		
Synchronicity			.866	.618
Syn3	.780			
Syn2	.853	13.117***		
Syn1	.798	14.539***		
Syn4	.780	13.477***		
Bridging Social Capital			.772	.531
BSC4	.752			
BSC2	.784	11.519***		
BSC1	.765	11.308***		
Collective Efficacy			.810	.588
CE3	.721			
CE2	.794	11.504***		
CE1	.817	11.730***		
Co-Creation Value			.834	.557
CV4	.760			
CV3	.743	11.504***		
CV2	.835	12.720***		
CV1	.722	11.185***		

***$p < .001$.

Internal consistency was estimated using Construct Reliability (CR) and Average

Variance Extracted (AVE) illustrated in Table 6. Specifically, the construct reliability

values exceeded the recommended standard (> .70) ranging from .772 to .866 (Fornell &

Larcker, 1981). All of the AVE values were also greater than .50 ranging from .531

to .648. Furthermore, the items' loadings were significant with the critical ratios ranging

from 9.231 to 14.539 ($p < .001$). For these reasons, based on the overall values of

reliability, the measures were deemed to have reliable levels of convergent validity.

Table 7

Construct correlation matrix (square root of the AVE on the diagonal)

	AVE	1	2	3	4	5	6
User control	.586	**.766**					
Responsiveness	.648	.614	**.805**				
Synchronicity	.618	.658	.646	**.786**			
Bridging social capital	.531	.448	.375	.536	**.729**		
Collective efficacy	.588	.437	.465	.590	.729	**.767**	
Co-creation value	.557	.304	.254	.320	.413	.432	**.746**

To support the evidence of discriminant validity, the AVE values are required to

be greater than the squared values of the correlation in the measurement model,

respectively (Hair, Black, Babin, Anderson & Tatham, 2006). As each AVE value was

compared with the squared phi correlations between the two constructs, the measures

were found to possess acceptable levels of discriminant validity except for the value

between bridging social capital and collective efficacy (see Table 7). Although the AVE

value for bridging social capital (.531) was not be greater than the squared phi

correlations (.531) between bridging social capital and collective efficacy, the AVE value

revealed the same value comparing to the squared phi correlations between them.

According to the study by Kline(2005), discriminant validity can be established when the

value for an inter-factor correlation is below .85. For the theoretical relevance to the

study, the factor was retained.

Chi-square value ($X^2 = 287.685$, $df = 155$, $p < .001$) was significant, and the

normed chi-square ($X^2 / df = 1.856$) met the suggested value (i.e., < 3.0) (Bollen, 1989).

All other multiple fit indices indicated an acceptable model fit: comparative fit index

(CFI) = .949; standardized root mean square residual (SRMR) = .048; root mean square

error of approximation (RMSEA) = .057, Probability of close fit (PCLOSE) = .121.

Structural Equation Modeling

A structural equation modeling (SEM) was carried out to measures the

relationship between variables in the conceptual model by the computer program Amos

version 18.0 package. The same model indices adopted in the CFA were used for

estimating the model fit. The Chi-square value was significant, and the normed chi-

square was lower than the 3.0 cutoff threshold ($X^2 = 119.460$, $df = 60$, $p < .001$, $X^2 / df =$

1.991). Although the RMSEA was slightly low than an ideal threshold (Hu & Bentler,

1999), other indices revealed a satisfactory model fit for the data (see Table 8).

The path coefficients among the variances and their significance were illustrated

in Figure 4. The direct path from interactivity to bridging social capital was significant

(H1-1, $\beta = .588$, $p < .001$), and accounted for 34.6% of the variance in bridging social

capital. This indicated that when interactivity increased by one standard deviation unit, bridging social capital also increased by .588 standard deviations.

Table 8

Model fit for measurement model

Metric	Observed value	Ideal threshold
CFI	.960	> .950
RMSEA	.062	< .060
PCLOSE	.115	> .050
SRMR	.045	< .080

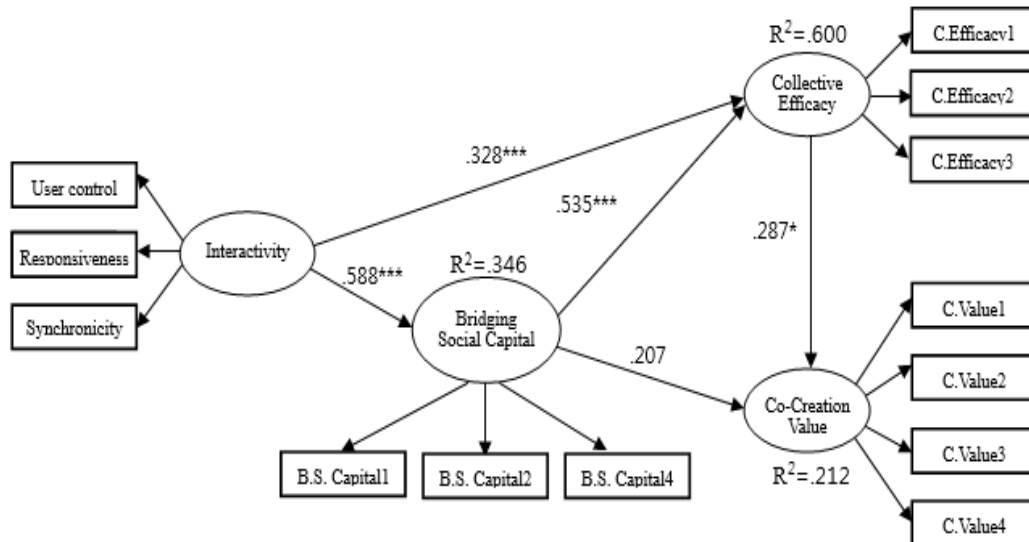*Figure 4*. Results of hypotheses tests.

*p < .05, ***p < .001.

While bridging social capital influenced by interactivity showed a direct positive impact on customers' collective efficacy (H2-1, β= .535, p < .001), supporting the mediating role of bridging social capital between interactivity and collective efficacy, interactivity directly led to their collective efficacy (H1-2, β= .328, p < .001). These indicated that an increase of one standard deviation in interactivity led to a .328 standard deviation increase in collective efficacy when those in bridging social capital led to a .535 standard deviation increase in collective efficacy. Therefore, interactivity and bridging social capital explained 60.0% of the variance in collective efficacy.

Lastly, the direct path from collective efficacy to co-creation value was significant (H3, β= .287, p < .05), and accounted for 21.2% of the variance in co-creation value. This indicated that when collective efficacy increased by one standard deviation unit, co-creation value also increased by .287 standard deviations. However, the direct path from bridging social capital influenced by interactivity to co-creation value was not significant (H2-2). Consequently, interactivity had a direct effect on bridging social capital and collective efficacy, which consecutively influenced co-creation value. These findings were summarized in Table 9.

Table 9

Summary of findings

Hypothesis	Beta	Sig.	Conclusion
H1-1. Interactivity -- Bridging social capital	.588	p < .001	Supported
H1-2. Interactivity -- Collective efficacy	.328	p < .001	Supported
H2-1. Bridging social capital -- Collective efficacy	.535	p < .001	Supported
H2-2. Bridging social capital -- Co-creation value	.207		Rejected
H3. Collective efficacy -- Co-creation value	.287	p < .05	Supported

CHAPTER V

DISCUSSION AND CONCLUSIONS

Discussion

In the new media environment, the portable smart devices enable people to utilize advanced computing abilities, to obtain the optimal information immediately, and to exchange real-time information anywhere at anytime (Chen et al., 2009; Lee, 2005; Henning-Thurau et al., 2010). These developments of new communication technologies have triggered major changes of customer role in firms' management (Bitner et al., 2000; Dahan & Hauser, 2002; Nambisan & Baron, 2009; Sawhney et al., 2005; Thomke & Hippel, 2002), and firms have considered smart devices as one of notable platforms for interactivity with their customers (Sawhney et al., 2005). In line with current management environments, a large number of scholars and marketers have paid significant attention to the positive impact of smart devices on co-creation value in the new media environment.

The main purpose of the study was to examine the relationship between smart device's interactivity and customer activity in the sport industry. Specifically, this study focused on the components of user-to-systems interactivity as mediated technological environment in the new media environment. Therefore, the study distinguished the components of technological interactivity from the conventional viewpoint on interactivity occurring in the new media environment. Then, the study investigated the

impact of smart device's interactivity consisting of user control, responsiveness, and synchronicity on customer value co-creation through bridging social capital and collective efficacy.

The first theoretical implication was the relationship between interactivity and bridging social capital. In particular, this study chose the components associated with technological interactivity. The result of the study indicated that technological interactivity consisting of user control, responsiveness, and synchronicity had a significant impact on bridging social capital. This is because information can spread quickly, widely, and easily through smart devices anywhere at anytime in new media environment (Kim, Park & Lee, 2010). User can also get information that they want, and can interact with information much more efficiently on real time. These properties of new technological communication in virtual environment allow people to build social supernets of numerous social relations (Donath, 2007) and to maintain such connections cheaply and easily (Donath & Boyd, 2004). The finding was parallel to the study conducted by Wu, Wang, Su and Yeh (2013). They found that control, synchronicity, and social bandwidth in dimensions of perceived interactivity have a positive effect on both bridging and bonding social capital, and perceived interactivity have stronger influence on bridging social capital than bonding social capital. The results supported the finding that technological interactivity can facilitate to build bridging social capital based on weak ties in the new media environment.

Second, findings indicated that both technological interactivity and bridging social capital were positively associated with collective efficacy. In particular, the result revealed that bridging social capital has a direct influence on collective efficacy which in

turn played a role in mediating between interactivity and collective efficacy. This finding was parallel to the study conducted by Kavanaugh et al. (2005). They maintained that communication technologies in virtual environment improved social relations and information exchange, and all of these processes helped to construct bridging social capital in communities. In addition, groups with bridging social capital based on weak ties were efficient in organizing for collective action because participants improved their capability to satisfy their needs for collective action. For these reasons, they asserted that participants with bridging social capital had higher levels of collective efficacy and engagement in their community actions than those who are without bridging ties. These theoretical schemes supported the finding that in new media environment, bridging social capital mediated by components of technological interactivity enhances collective efficacy in communities.

Referring to the direct link between technological interactivity and collective efficacy, properties of technological interactivity consisting user control, responsiveness, and synchronicity had a positive influence on collective efficacy in a group. According to the study conducted by Maibach and Flora (1993), the advantages of interactive media with hypermedia formats that users have some control over information and can easily repeat a sequence at will improved their efficacy. Moreover, potential capacities of interactive media connected to hyperlink choices as a user control had also potential characteristics to enhance the efficacy (Jaffe, 1997). However, poor navigability caused by the inconvenient use could negatively affect user's efficacy (Jaffe, 1997). In this sense, these research results evidently supported the finding about the positive relationship

58

between technological interactivity in new media environment and collective efficacy in groups.

Lastly, the findings revealed that collective efficacy had a positive influence on co-creation value, but bridging social capital did not appear to directly affect co-creation value. These results indicated that perceived collective efficacy mediated directly and indirectly by interactivity and bridging social capital had an positive impact on group effectiveness and performance, but bridging social capital without a group's shared belief in collective efficacy caused by interactivity and bridging social capital did not have a positive impact on co-creation value in marketing process of the corporation alone. This is because user's shared beliefs in collective efficacy allowed them not only to gather resources such as knowledge and abilities that they possess but to work together to bring about results they desire (Fernandez-Ballesteros et al., 2002). In addition, shared beliefs in perceived collective efficacy was known to play a critical role in performing group effectiveness or performance (Chen et al., 2002; Earley, 1999; Gibson, 1999; Kaplan, 1997; Little & Madigan, 1997; Mulvey & Klein, 1998). Similarly, collective efficacy also played a predominant role that leads to customer participation in reverse marketing activities as a major mediating factor (Lim & Yang, 2006).

In conclusion, the present study explains the impact of technological interactivity on customer behavior by applying social capital and social cognitive theory, and offers theoretical steps in order to better understand the importance of those relationships in new media environment. The study found that interactivity mediated by reinforced bridging social capital and perceived collective efficacy contributes to value co-creation

with customers in the rapidly changing marketing environment, and the findings in this study provide promising evidence.

Implications

The study suggests several significant implications for not only managers and marketers in firms but also the research on the communication and information systems. The most important implication in this study is that technological interactivity in virtual environment leads to customer participation in marketing activities of firms by building social capital based on weak ties and by reinforcing shared efficacy in a group, and it has a positive influence on co-creation value in the corporate management activity. It would be helpful for marketers to understand and consider strategically about the importance of the relationship between interactivity and customer activity in new media environment as reverse marketing.

Specifically, it is needed to provide diverse platforms where customers can build bridging social capital and relationship with others and extend them. Before providing customer with these platforms, the components of technological interactivity should also be taken into consideration very importantly. This is because user control, responsiveness, and synchronicity in interactivity play a prominent role for building bridging social capital and strengthening shared collective efficacy in virtual environment. By improving interactivity, these platforms can be used to collect customers who interest in their products or services and acquire information easily and cheaply from their target customers. Moreover, based on the information adopted from them, marketers can provide goods or services satisfying their needs. The results of this study show it is

worthwhile for managers or marketers in the sport industry to improve relationships with customers and to cooperate with them on the development of products or services.

The study also contributes to the cumulative knowledge in the communication and information systems as well as sport management by providing an empirical examination of the relationship between interactivity and customer activity based on social capital and social cognitive theory. The previous studies on interactivity had been conducted for the conceptual understanding of interactivity in new media environment, and few researches investigated the impact of technological interactivity on customer value creation. In addition, the researches applied to social capital and social cognitive theory as the points of view on relationship marketing were not found in the literature. The study provided empirical support for the relationship between these factors, and it would improve to understand the impact and the relationship of them.

Limitations and Future Studies

In spite of the contribution of the study, there are some limitations. First, data were collected from students in a university in the Southern United States. It might limit the generalizability of the results in the study. Therefore, future studies should include broader sampling frames in diverse locations.

Second, this study focused on the impact of technological interactivity. There is a need for follow-up research concerning environmental factors of new media which improve user-to-user and user-to-documents interactivity. In addition, the study operationalized interactivity as a single factor including all sub-variables. In this sense, future studies need to analyze the relationship between each sub-variable and co-creation value.

Third, the study investigated the impact of bridging social capital with weak ties on only value creation of the corporation mediated by shared collective efficacy. In the CFA, there were the poor loadings and cross loading of bridging social capital and collective efficacy. They might influence the results between bridging social capital and collective efficacy. Hence, the refinement of the scale presents an opportunity for future study. In addition, the properties of bridging social capital might affect on the management of the firms in varied ways (Putnam, 2000). Therefore, future study needs to examine other influences of these properties, and the process that firms take the benefits from social bridging capital.

Fourth, although the finding in this study revealed perceived collective efficacy had a positive influence on the marketing activity for the corporation, shared collective efficacy might have a negative effect on the management of firms such as negative publicity or the boycott of products or services. Hence, it also requires to be conceptualized in future study to estimate negative effects of collective efficacy in a group.

Finally, the participants self-reports of household income may be over-inflated as many of the students who answered the survey may have reported the income of their parents and not their personal income. Future studies should specify what income we want participants to report.

Consent Form for Research

   Thank you for considering participation in this study. The following information is
provided to inform you of the research project that will be conducted by Daeeun Kim
under the tutelage of Dr. Claudia Benavides-Espinoza at Arkansas State University. If
you have any questions about this study, please contact:

1. Daeeun Kim
Department of Health, Physical Education and Sport Sciences.
PO Box 240 State University, AR 72467 / (870) 926-5206 daeeun.kim@smail.astate.edu
2. Dr. Claudia Benavides-Espinoza (Advisor)
Department of Health, Physical Education and Sport Sciences.
PO Box 240 State University, AR 72467 / (870) 680-8104 / cbenavides@astate.edu

   The purpose of this study is to examine how interactivity in smart devices influences
customer value co-creation in the sport industry through bridging social capital and
collective efficacy. Interactivity refers to "the degree to which a communication
technology can create a mediated environment in which participants can communicate
(one-to-one, one-to-many, and many-to-many) both synchronously and asynchronously
and participate in reciprocal message exchanges (third-order dependency)" (Kiousis,
2002, p. 379). This study focuses on properties of user-to-systems interactivity (among
user-to-user, user-to-documents, and user-to-systems interactivity) as mediated
technological environment in the multidirectional concept of interactivity to figure out
effects on user's participation and perception associated with participation by current
changes in utilization of the internet through smart devices. Bridging social capital refers
to "resources that people can gain from their ties with people from the outside" (Yuan &
Gay, 2006, p. 1067). Collective efficacy is "a group's shared belief in its conjoint
capabilities to organize and execute the course of action required to produce given levels
of attainments" (Bandura, 1997, p. 477). Co-creation value means active customers
participates in the innovation process of firms such as idea suggestion as a partner.

   A set of questions will be provided to you. The questionnaire consists of (a) 10
demographic questions, (b) 10 interactivity questions, (c) 5 bridging social capital
questions, (d) 3 collective efficacy questions, and (e) 4 idea suggestion intention
questions. All measures are comprised of 32 questions, answering the questionnaire
should take less than 10 minutes.
   For the data collection, the study use face-to-face self-administered and online self-
administered surveys as major survey modes. Survey will be disseminated through
visiting various areas on campus and e-mail. Participants will receive an e-mail with the
link and be asked to complete a questionnaire of items made by Google Drive. There are
no alternative procedures to participation in the survey. There may be minimum risk
associated with discomfort from having to answer questions. No identifying information
will be collected and used, and all responses will be anonymous. Paper Records will be

placed in locked containers, and the electronic data will be protected by the use of TrueCrypt that is open-source disk encryption software. The data will be destroyed and erased beyond the ability to recover after five years. Only the principal investigators of this study will have an access to the data you provide. This study may have no direct benefits for research participants. However, the study will suggest the need to take advantage of new platforms that can build value co-creation with customers in the rapidly changing marketing environment. It may helpful for marketer to get the valuable idea and information about their products from customers.

  This study has been reviewed and approved by Arkansas State University's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study please contact the investigator or Advisor. If you have any questions regarding your rights as a research subject, please contact Kimberly Marshall at 870-680-8568.

The right as a volunteer: By agreeing to participate in the study, you do not waive any rights that you may have regarding access to and disclosure of your records. Your participation in this study is completely voluntary. If you choose to participate, your responses will be held in confidence. You can refuse to participate in this study and are also free to withdraw at any time without penalty. If the results of this study were to be written for publication, no identifying information will be used.

STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS PROJECT
Please check (V) each box then sign and write in today's date.

[ ] I certify that I am 18years of age or older.
[ ] I have read this consent form, and all of my questions have been answered. I freely and voluntarily choose to participate in this study, and I understand that I am entitled to receive a signed copy of this form.
[ ] The information contained in this consent form has been adequately explained to me. All my questions have been answered and I freely and voluntarily choose to participate. I understand that I may withdraw my consent at any time.

_____   _____
 Date   Signature

Consent obtained by (signature): _____

Print name: _____

Participants agreement: If you consent to participate in this study, please start the survey.

Questionnaire

The Impact of Smart Device's Interactivity on Customer Activity in the Sports Industry.

The purpose of this study is to examine how interactivity in smart devices influences customer value co-creation in the sport industry through bridging social capital and collective efficacy. In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and communicate with others (e.g., (a) Online Bulletin Board or Posting Board for sports products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments). Participants should have a smart device that can be connected to the internet anywhere. (e.g. smart phone, Ipad, Ipod, et al.)

Participant Demographic Questions
: Indicate the answer that best applies to you

1. Gender

① Male   ② Female

2. Major (If you have not declared your major yet, what is your expected major?)
- Choose the category that your major best fits:_____

1.Agriculture 2.Architecture and Planning 3.Arts 4.Biological Sciences 5.Business
6.Communications 7.Computer and Information Sciences 8.Education 9. Engineering
10.Environmental Sciences 11. Health Care 12. Languages and Literature 13.Law
14.Mathematics & Statistics 15.Mechanics and Repair 16.Military Science 17.Philosophy &
Religion 18.Physical Sciences 19.Protective Services 20.Psychology & Counseling
21.Recreation & Fitness 22.Services 23.Skilled Trades and Construction
24.Social Sciences & Liberal Arts 25.Social Services 26.Transportation

3. Age

_____

4. Academic classification

① Freshman ② Sophomore ③Junior ④ Senior ⑤ Graduate Student

⑥ Other: _____

5. Ethnicity / Race

① Caucasian ② African American ③ Hispanic ④ Asian / Pacific Islander

⑤ American Indian ⑥ Interracial ⑦ Other

6. Marital status

① Single ② Married ③ Divorced

7. Number of people in household

① 1 ② 2 ③ 3 - 4 ④ 5 - 6 ⑤ 7 - 8 ⑥ 9 or more

8. Household income

① Below $20,000 ② $20,000-39,999 ③ $40,000-59,999 ④ $60,000-79,999

⑤ $80,000-99,999 ⑥ $100,000-149,999 ⑦ $150,000-199,999 ⑧ Above $200,000

9. Do you have a smart device? (e.g. smart phone, Ipad, Ipod, etc.)

① Yes ② No

10. What kind of smart devices do you have?

_____

Interactivity Questions (10 items)

These items are about interactivity in the virtual space. The range of individual items is from strongly disagree to strongly agree (e.g., 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neither agree or disagree, 5=somewhat agree, 6=agree, 7=strongly agree). In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and communicate with others (e.g., (a) Online Bulletin Board or Posting Board for sports products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments).

User control (3 items)

1. I felt that I had a lot of control over my visiting experiences at the community web site (e.g., specifically, I can access, participate, and select the contents in the community web sites according to my needs.).

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. While I was on the community web site, I could choose freely what I wanted to see.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. While surfing the community web site, my actions decided the kind of experiences I got.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

Responsiveness (3 items)

1. The community web site had the ability to respond to my specific question relevantly.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. The community web site had the ability to respond to my specific question appropriately.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. When you clicked on the specific information in the community web site, you expected to get information that met your expectations.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

Synchronicity (4 items)

1. The community web site processed my input very quickly.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. Getting information from this community site is very fast.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. I was able to obtain the information I want without any delay.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

4. When I clicked on the links, I felt I was getting instantaneous information.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

Bridging Social Capital Questions (5 items)

These items are about bridging social capital in the virtual space. The range of individual items is from strongly disagree to strongly agree (e.g., 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neither agree or disagree, 5=somewhat agree, 6=agree, 7=strongly agree). In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and

communicate with others (e.g., (a) Online Bulletin Board or Posting Board for sports products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments).

1. I feel I am part of the community.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. I am interested in what goes on at the community.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. Interacting with people at the community makes me want to try new things.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

4. Interacting with people at the community makes me feel like a part of a larger community.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

5. I am willing to spend time to support general activities of the community.

  Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

Collective Efficacy Questions (3 items)
These items are about collective efficacy in the virtual space. The range of individual items is from strongly disagree to strongly agree (e.g., 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neither agree or disagree, 5=somewhat agree, 6=agree, 7=strongly agree). In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and communicate with others (e.g., (a) Online Bulletin Board or Posting Board for sports

products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments).

1. The community web site I participate in has above average ability.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. The members of the community web site have excellent ability.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. Community members can find solutions to problems with their performance.

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

Co-Creation Value Questions (4 items)

These items are about the co-creation value (such as idea suggestion) between users and corporations in the virtual space. The range of individual items is from strongly disagree to strongly agree (e.g., 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neither agree or disagree, 5=somewhat agree, 6=agree, 7=strongly agree). In this study, community web sites refer to all places related to the sports industry in the virtual environments where people get and create resources and communicate with others (e.g., (a) Online Bulletin Board or Posting Board for sports products, events, or mobile apps, (b) Blogs or Review Websites, (c) Social Network Services such as Facebook or Twitter, or (d) anywhere that users can suggest their opinions in networked environments).

1. I let the webmaster know of ways that they can better serve my needs (e.g., posting them on the board, or sending messages).

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

2. I make constructive suggestions to the webmaster on how improve their products or services (e.g., posting them on the board, or sending messages).

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

3. If I have a useful idea on how to improve products or services, I give it to the webmaster (e.g., posting it on the board, or sending messages).

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

4. When I experience a problem about the products or services, I let the webmaster know so they can improve service (e.g., posting it on the board, or sending messages).

   Strongly disagree ①-------②-------③-------④-------⑤-------⑥-------⑦ Strongly agree

REFERENCES

Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept.
Academy of Management Review, 27(1), 17-40.

Ahmad, A., & Safaria, T. (2013). Effects of self-efficacy on students' academic
performance. *Journal of Educational, Health and Community Psychology, 2*(1),
19-25.

Alexa. (2012, n.d.). Top sites: The top 500 sites on the web [Information on a page].
Retrieved from http://www.alexa.com/topsites

Algesheimer, R., & Dholakia, U. (2006). Do customer communities pay off? *Harvard
Business Review, 84*(11), 26–28.

Armitage, C. J., Conner, M., Loach, J., & Willetts, D. (1999). Different perceptions of
control: Applying an extended theory of planned behavior to legal and illegal drug
use. *Basic and Applied Social Psychology, 21* (4), 301-316.

Baecker, R. (1980). Towards an effective characterization of graphical interaction. In R.
A. Guedj, P. J. W. Ten Hagen, F. R. Hopgood, H. A. Trucker, & D. A. Duce
(Eds.), *Methodology of interaction* (pp. 127-147). Amsterdam, Netherlands: North
Holland.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal
of the Academy of Marketing Science, 16*(1), 74-94.

Baker. W. (1990). Market networks and corporate behavior. *American Journal of
Sociology, 96*(3), 589-625.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.
Psychological Review, 84(2), 191-215.

72

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology, 4*(3), 359-373.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 29*(2), 117-148.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Eds.), *Encyclopedia of human behavior* (pp. 71-81). New York, NY: Academic Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*(3), 75-78.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of psychology, 52*(1), 1-26.

Barak, A., & Fisher, W. A. (1997). Effects of interactive computer erotica on men's attitudes and behavior toward women: An experimental study. *Computers in Human Behavior, 13*(3), 353-369.

Barker, J., & Tucker, R. N. (1990). *The interactive learning revolution: Multimedia in education and training*. London, UK: Kogan Page.

Beane, D. A. (2012). A tale of self-monitoring, social capital, and social media (Unpublished master's thesis). University of North Florida, Jacksonville, FL.

Belkin, N. J., Marchetti, P. G., & Cool, C. (1993). Braque: Design of an interface to support users' interaction in information retrieval. *Information Processing & Management, 29*(3), 325-344.

Belliveau, M. A., O'Reilly, C. A., & Wade, J. B. (1996). Social capital at the top: Effects of social similarity and status on CEO compensation. *Academy of Management Journal, 39*(6), 1568-1593.

Betrancour, M. (2005). The animation and interactivity principles in multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 287-296). Cambridge, UK: Cambridge University Press.

Bezjian-Avery, A., Calder, B., & Lacobucci, D. (1998). New media interactive advertising vs. traditional advertising. *Journal of Advertising Research, 38*(4), 23-32.

Bikson, T. K., Eveland, J. D., & Guetek, B. A. (1989). Flexible interactive technologies and multi-person tasks: Current problems and future prospects. In M. C. Olson (Ed.), *Technological support for work group collaboration* (pp. 89-112). Hillsdale, NJ: Erlbaum.

Biocca, F. (1993). Communication research in the design of communication interfaces and systems. *Journal of Communication, 43*(4), 59-68.

Bitner, M. J., Brown, S., & Meuter, M. L. (2000). Technology infusion in service encounters. *Journal of the Academy of Marketing Science, 28*(1), 138–49.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Eds.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York, NY: Greenwood Press.

Bourdieu, P., & Wacquant, L. P. D. (1992). *An invitation to reflexive sociology*. Chicago, IL: University of Chicago Press.

Boxman, Ed A. W., De Graaf, P. M., & Flap, H. D. (1991). The impact of social and human capital on the income attainment of Dutch managers. *Social Networks, 13*, 51-73.

Brabham, D. C. (2008). Crowdsourcing as a model for problem solving: An introduction and cases. *The International journal of Research into New Media Technological Studies, 14*(1), 75-90.

Brabham, D. C. (2009). Crowdsourcing the public participation process for planning projects. *Planning Theory, 8*(3), 242-262.

Brehm, J., & Rahn, W. (1997). Individual- level evidence for the causes and consequence of social capital. *American Journal of Political Science, 41*(3), 999-1023.

Burgoon, J. K., Bonito, J. A., Bengtsson, B., Ramirez, A., Dunbar, N. E., & Miczo, N. (2000). Testing the interactivity model: Communication processes, partner assessments, and the quality of collaborative work. *Journal of Management Information Systems, 16*(3), 33-56.

Burgoon, J. K., Bonito, J. A., Ramirez, A., Dunbar, N. E., Kam, K., & Fischer, J. (2002). Testing the Interactivity principle: Effects of mediation, propinquity, and verbal and nonverbal modalities in interpersonal interaction. *Journal of Communication, 52*(3), 657-677.

Burson-Marsteller & Proof Digital Media. (2009, July 31). Burson-Marsteller and Proof Digital fortune 100 social media study: Social media use by fortune 100 companies [Blog post]. Retrieved from http://www.burson-marsteller.com/Innovation_and_insights/blogs_and_podcasts/BM_Blog/Lists/Posts/Post.aspx?ID=128

Burt, R. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.

Chen, G., Webber, S. S., Bliese, P. D., Mathieu, J. E., Payne, S. C., Born, D. H., & Zaccaro, S. J. (2002). Simultaneous examination of the antecedents and consequence of efficacy beliefs at multiple levels of analysis. *Human Performance, 15*, 381-409.

Chen, J., Yen, D., & Chen, K. (2009). The acceptance and diffusion of the innovative smartphone use. *Information & Management, 46*, 241-248.

Chilcoat, Y., & DeWine, S. (1985). Teleconferencing and interpersonal communication perception. *Journal of Applied Communication Research, 13*(1), 14-32.

Cho, C., & Leckenby, J. D. (1997). Internet-related programming technology and advertising. In M. C. Macklin (Ed.), *Proceedings of the 1997 conference of the American Academy of Advertising* (pp. 69-79). Cincinnati, OH: American Academy of Advertising.

Choi, S. M., Kim, Y., Sung, Y., & Sohn, D. (2011). Bridging or Bonding?: A cross-cultural study of social relationships in social networking sites. *Information, Communications & Society. 14*(1), 107-129.

Claridge, T. (2004, January 7). Definitions of social capital [Blog post]. Retrieved from http://www.socialcapitalresearch.com/literature/definition.html

Coleman, J. S. (1988). The creation and destruction of social capital: Implication for the law. *Notre Dame Journal of Law, Ethics, & Public Policy, 3*, 375-404.

Coleman, J. S. (1990). *Foundation of social Theory*. Cambridge, MA: Belknap Press of

    Harvard University Press.

Cooley, T. (1999). Interactive communication: Public relations on the web. *Public*

    Relations Quarterly, 44(2), 41-42.

Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media

    selection, and manager performance: Implications for information systems. *MIS*

    Quarterly, 12(3), 355-366.

Dahan, E., & Hauser, J. R. (2002). The virtual customer. *Journal of Product Innovation*

    Management, 19(5), 332–53.

DeFleur, M. L., & Ball-Rokeach, S. J. (1989). *Theories of mass communication*. New

    York, NY: Longman.

Dekker, P., & Uslaner, E. M. (2001). Introduction. In E. M. Uslaner (Eds.), *Social capital*

    and participation in everyday life (pp. 1-8). London, UK: Rourledge.

DeVries, Y. E. (1996). The interactive component of distance learning implemented in

    the art studio course. *Education, 117*(2), 180-184.

Dholakia, R. R., Zhao, M., Dholakia, N., & Fortin, D. R. (2000). *Interactivity and revisits*

    to websites: A theoretical framework. Retrieved from working papers on RITIM

    website: http://ritim.cba.uri.edu/wp2001/wpdone3/Interactivity.pdf

Dolfsma, W., & Dannreuther, C. (2003). Subjects and boundaries: Contesting social

    capital-based policies. *Journal of Economic Issues, 37*(2), 405-413.

Domagk, S., Schwartz, R. N., & Plass, J. J. (2010). Interactivity in multimedia learning:

    An integrated model. *Computers in Human Behavior, 26*(5), 1024-1033.

Donath, J. S. (2007). Signals in social supernets. *Journal of Computer-Mediated Communication, 13*(1), 231-251.

Donath, J. S., & Boyd, d. (2004). Public displays of connection. *BT Technology Journal, 22*(4), 71-82.

Downes, E. J., & McMillan, S. J. (2000). Defining interactivity: A qualitative identification of key dimensions. *New Media and Society, 2*(2), 157-179.

Durlak, J. T. (1987). A typology for interactive media. In M. L. McLaughlin (Ed.), *Communication yearbook 10* (pp. 743-757). Newbury Park, CA: Sage.

Dyer, J. H. (2000). *Collaborative advantage: Winning through extended enterprise supplier networks*. New York, NY: Oxford University Press.

Earley, P. C. (1999). Playing follow the leader: Status-determining traits in relation to collective efficacy across cultures. *Organizational Behavior and Human Decision Processes, 80*(3), 192-212.

Eastis, C. M. (1998). Organizational diversity and the production of social capital. *American Behavioral Scientist, 42*(1), 66-77.

Ellison, N. B., Steinfield, C., & Lampe, c. (2007). The benefits of Facebook friends: Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168. doi:10.1111/j.1083-6101.2007.00367.x

Fernandez-Ballesteros, R., Diez-Nicolas, J., Caprara, G. V., Barbaranelli, C., & Bandura, A. (2002). Determinants and structural relation of personal efficacy to collective efficacy. *Applied Psychology: An International Review, 51*(1), 107-125.

Field, J., Schuller, T., & Baron, S. (2000). Social capital and human capital revisited. In T. Schuller (Eds.), *Social capital: Critical perspectives* (pp. 243-264). Oxford, UK: Oxford University Press.

Flew, T., & Smith, R. K. (2011). *New media: An introduction*. Oxford, UK: Oxford University Press.

Foley, M. W., & Edwards, B. (1997). Escape from politics? Social theory and the social capital debate. *American Behavioral Scientist, 40*(5), 550-561.

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Fortin, D. R. (1997). The impact of interactivity on advertising effectiveness in the new media (Unpublished doctoral dissertation). The University of Rhode Island, Kingston, RI.

Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. London, UK: Hamish Hamilton.

Gao, Q., Dai, Y., Fan, Z., & Kang, R. (2010). Understanding factors affecting perceived sociability of social software. *Computers in Human Behavior, 26* (6), 1846-1861. doi:10.1016/j.chb.2010.07.022

Gibson, C. B. (1999). Do they do what they believe they can?: Group efficacy and group effectiveness across tasks and cultures. *Academy of Management Journal, 42*(2), 138-152.

Gittell, R., & Vidal, A. (1998). *Community organizing: Building social capital as a development strategy*. Thousand Oaks, CA: Sage.

Gordon, R. (2010). Creating community-connection experiences. In A. Peck & E. C.

    Malthouse (Eds.), *Medill on media engagement* (pp. 111-126). Cresskill, NJ:

    Hampton Press.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6).

    1360-1380.

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau,

    R. (2004). Survey methodology. Hoboken, NJ: John Wiley & Sons.

Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of

    team-efficacy, potency, and performance: Interdependence and level of analysis

    as moderators of observed relationships. *Journal of Applied Psychology, 87*(5),

    819-832. doi: 10.1037/0021-9010.87.5.819

Ha, L., & James, L. (1998). Interactivity re-examined: A Baseline analysis of early

    business websites. *Journal of Broadcasting and Electronic Media, 42*(4), 457-474.

Haeckel, S. H. (1998). About the nature and future of interactive marketing. *Journal of*

    Interactive Marketing, 12(1), 63-71.

Hair, J. H., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate*

    data analysis. (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Hanssen, L., Jankowski, N. W., & Etienne, R. (1996.). Interactivity from the perspective

    of communication studies. In N. W. Jankowski & L. Hanssen (Eds.), *Contours of*

    multimedia: Recent technological, theoretical, and empirical developments (pp.

    61-73). Luton, UK: University of Luton Press.

Hazleton, V., & Kennan, W. (2000). Social capital: Reconceptualizing the bottom line.

    Corporate Communications: An International Journal, 5(2), 81-86.

Heeter, C. (1989). Implications of new interactive technologies for conceptualizing

    communication. In J. L. Salvaggio, & J. Bryant (Eds.), *Media use in the*

    information age: Emerging patterns of adoption and computer use (pp. 217-235).

    Hillsdale, NJ: Lawrence Erlbaum Associates.

Heeter, C. (2000). Interactivity in the content of designed experiences. *Journal of*

    Interactive Advertising, 1(1), 75-89.

Hendricks, J. A. (2010). *Twenty-first-century media industry: Economic and managerial*

    implications in the age of new media. Franklin, PA: Rowman & Littlefield

    Publishing Group.

Hennig-Thurau, T., Malthouse, E. C., Friege, C., Gensler, S., Lobschat, L., Rangaswamy,

    A., & Skiera, B. (2010). The impact of new media on customer relationships,

    Journal of Service Research, 13(3), 311-330.

Heywood, A. (2008). *Essentials of UK politics.* London, UK: Palgrave Macmillan.

Hoffman, D. L., & Novak, T. P. (2000). How to acquire customers on the web. *Harvard*

    Business Review, 78(3), 179-188.

Hoffman, D. L., Novak, T. P. (1996). Marketing in hypermedia computer-mediated

    environments: Conceptual foundations. *Journal of Marketing, 6*(3), 50-68.

Hoffman, D. L., Novak, T. P. (1997). A new marketing paradigm for electronic

    commerce. *The information Society, 13*(1), 43-54.

Hoffman, D. L., Novak, T. P., & Chatterjee, P. (1995). Commercial Scenarios for the

    web: Opportunities and challenges. *Journal of Computer-Mediated*

    Communication. 1(3), 1-21. doi: 10.1111/j.1083-6101.1995.tb00165.x

81

Howe, J. (2006, June). The rise of crowdsourcing. *Wired Magazine, 14.06*. Retrieved

    from

    http://www.wired.com/wired/archive/14.06/crowds.html?pg=4&topic=crowds

    &topic_set=

Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). Customer

    participation in value creation. *Journal of Service Research, 13*(3), 283-296.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure

    analysis: Conventional criteria versus new alternatives. *Structural Equation*

    Modeling, 6(1), 1-55.

Huhtamo, E. (1999). From cybernation to interaction: A contribution to an archaeology

    of interactivity. In P. Lunenfeld (Ed.), *The digital dialectic: New essays on new*

    media (pp. 96-110). Cambridge, MA: MIT Press.

Jaffe, J. M. (1997). Media interactivity and self-efficacy: An examination of hypermedia

    first aid instruction. *Journal of Health Communication, 2*(4), 235-252.

Jensen, J. F. (1998). Interactivity: Tracing a new concept in media and communication

    studies. *Nordicom Review, 19*(1), 185-204.

Jeppesen, L., & Molin, M. (2003). Consumers as co-developers: Learning and innovation

    outside the firm. *Technology Analysis & Strategic Management, 15*(3), 363–83.

Johnson, G. L., Bruner, G. C., & Kumar, A. (2006). Interactivity and its facets revisited:

    Theory and empirical test. *Journal of Advertising, 35*(4), 35-52.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36.

Kalyuga, S. (2007). Enhancing instructional efficiency of interactive e-learning environments: A cognitive load perspective. *Educational Psychology Review, 19*(3), 387-399.

Kaplan, I. T. (1997). Relationships between group efficacy, goals, and performance: A comment on Silver and Bufanio (SGR, 1996). *Small Group Research, 28*(4), 556-558.

Kavanaugh, A. L., Reese, D. D., Carroll, J. M., & Rosson, M. B. (2005). Weak ties in networked communities. *The Information Society, 21*(2), 119-131.

Kayany, J. M., Wotring, C. E., & Forrest, E. J. (1996). Relational control and interactive media choice in technology-mediated communication situations. *Human Communication Research, 22*(3), 399-421.

Kennedy, G. E. (2004). Promoting cognition in multimedia interactivity research. *Journal of Interactive Learning Research, 15*(1), 43-61.

Kiesler, S. (1986). Thinking ahead: The hidden messages in computer networks. *Harvard Business Review, 27*(3), 46-60.

Kim, S., Park, H., & Lee, B. (2010). The relationships among social influence, use-diffusion, continued usage, and brand switching intention of mobile services. *Asia Marketing Journal. 12*(3), 1-24.

Kiousis, S. (2002). Interactivity: concept explication. *New Media & Society, 4*(3), 355-383.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: NY, Guilford.

Knoke, D. (1999). Organizational networks and corporate social capital. In S. M. Gabbay (Eds.), *Corporate social capital and liability* (pp. 17-42). Boston, MA :Kluwer.

Kobayashi, T. (2010). Bridging social capital in online communities: Heterogeneity and social tolerance of online game players in Japan. *Human Communication Research, 36*(4), 546-569.

Krishnamurthy, S. (2009). Case: Mozilla vs. godzilla. *Journal of Interactive Marketing, 23*(3), 259-271.

Ku, L. (1992). *Impact of interactivity from computer-mediated communication in an organizational setting: A study of electronic mail* (Unpublished doctoral dissertation). Michigan State University, East Lansing, MI.

Lane, W., & Manner, C. (2011). The impact of personality traits on Smartphone ownership and use. *International Journal of Business and Social Science, 2*(17), 22-28.

Laurel, B. (1990). Users and contexts. In B. Laurel (Ed.), *The art of human-computer interface design* (pp. 91-93). Reading, MA: Addison-Wesley.

Lee, M., & Lan, Y. (2007). From web 2.0 to conversational knowledge management: Towards collaborative intelligence. *Journal of Entrepreneurship Research, 2*(2), 47-62.

Lee, T. (2005). The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce. *Journal of Electronic Commerce Research, 6*(3), 165-180.

Lee, Y. (2012). *The effect of media interactivity and sociability on customer participation performance* (Unpublished doctoral dissertation). Seoul National University,

Seoul, The Republic of Korea.

Leonard, M. (2004). Bonding and bridging social capital: Reflections from Belfast. *Sociology: The Journal of the British Sociological Association, 38*(5), 927-944.

Libai, B., Bolton, R., Bügel, M. S., Ruyter, K. D., Götz, O., Risselada, H., & Stephen, A. T. (2010). Customer to customer interaction: Broadening the scope of word of mouth research. *Journal of Service Research, 13*(3), 267-282.

Lim, J., & Yang, S. (2006). An exploratory study on the effect of digital environment on customer participation and marketing system. *Asia Marketing Journal, 8*(1), 19-47.

Lin, Y., & Huang, J. (2006). Internet blogs as a tourism marketing medium: A case study. *Journal of Business Research, 59*(10-11), 1201-1205.

Lister, M., Dovey, J., Giddings, S., Grant, I., & Kelly, K. (2003). *New media: A critical introduction*. London, Great Britain: Routledge.

Litan, R. E., & Rivlin, A. M. (2001). Projecting the economic impact of the Internet. *The American Economic Review, 91*(2), 313-317.

Little, B. L., & Madigan, R. M. (1997). The relationship between collective efficacy and performance in manufacturing work teams. *Small Group Research, 28*(4), 517-534.

Liu, Y., & Shrum, L. J. (2002). What is interactivity and is it always such a good things? Implications of definition, person, and situation for the influence of interactivity on advertising effectiveness. *Journal of Advertising, 31*(4), 53-64.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Looms, P. O. (1993). Interactive multimedia in education. In C. Latchem, J. Williamson, & L. Henderson-Lancett (Eds.), *Interactive multimedia: Practice and purpose* (pp. 115-134). London, UK: Kogan Page.

Loury, G. (1992). The economics of discrimination: Getting to the core of the problem. *Harvard Journal for African American Public Policy, 1*, 91-110.

Maibach, E., & Flora, J. A. (1993). Symbolic modeling and cognitive rehearsal. *Communication Research, 20*(4), 517-545.

Manovich, L. (2002). *The language of new media.* Cambridge, MA: The MIT Press.

Markus, M. L. (1990). Toward a critical mass theory of interactive media. In J. Fulk & C. Steinfeld (Eds.), *Organization and communication technology* (pp. 194–218). Newbury Park, CA: Sage.

Martin, S. D. (2012). *Share, like, tweet and cheer: An examination of social media usage and the NFL* (Doctoral dissertation). Retrieved from https://www.ideals.illinois.edu/bitstream/handle/2142/34418/Martin_Scott.pdf?sequence=1

Martinez, J. R., Guillen, F., & Feltz, D. (2011). Psychometric properties of the Spanish version of the collective efficacy questionnaire for sports. *Psicothema, 23*(3), 503-509.

Massey, B. L., & Levy, M. R. (1999). Interactivity, online journalism, and English-language web newspapers in Asia. *Journalism & Mass Communication Quarterly, 76*(1), 138-151.

McMillan, S. J. (2002). Exploring models of interactivity from multiple research traditions: Users, documents, and systems. In L. A. Lievrouw & S. Livingstone

(Eds.), *Handbook of new media: Social shaping and consequences of ICTs* (pp. 163-182). London, UK: Sage.

McMillan, S. J., & Hwang, J. (2002). Measures of perceived interactivity: An exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity. *Journal of Advertising, 31*(3), 29-42.

McQuail, D. (2005). *Mcquail's mass communication theory*. London, UK: SAGE Publications.

Milheim, W. D. (1996). Interactivity and computer-based instruction. *Journal of Educational technology Systems, 24*(3), 225-233.

Miller, K. I., & Monge, P. R. (1986). Participation, satisfaction, and productivity: A meta-analytic review. *Academy of Management Journal, 29*(4), 727-753.

Miller, P. K., & Morris, J. H. (1986). Clients as partial employee of service organizations: Role development in client participation. *Academy of Management Review, 11*(4), 726-735.

Moon, Y., & Nass, C. (1996). How real are computer personalities?: Psychological responses to personality types in human-computer interaction. *Communication Research, 23*(6), 651-674.

Moreno, R., & Mayer, R. (2007). Interactive multimodal learning environments. *Educational Psychology Review, 19*(3), 309-326.

Morris, M., & Organ, C. (1996). The Internet as mass medium. *Journal of Communication, 46*(1), 39-50.

Morrison, M. (1998). A look at interactivity from a consumer perspective. In J. B. Ford & E. J. D. Honeycutte (Eds.), *Developments in marketing science* (Vol. 21, pp. 149-154). Norfolk, VA: Academy of Marketing Science.

Mulvey, P. W., & Klein, H. J. (1998). The impact of perceived loafing and collective efficacy on group goal processes and group performance. *Organizational Behavior and Human Decision Process, 74*(1), 62-87.

Murray, J. H. (1997). *Hamlet on the holodeck: The future of narrative in cyberspace*. New York, NY: Free Press.

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242-267.

Naimark, M. (1990). Realness and interactivity. In B. Laurel (Ed.), *The art of human-computer interface design* (pp. 455-459). Menlo Park, CA: Addison-Wesley.

Nambisan, S. (2002). Designing virtual customer environments for new product development: Toward a theory. *Academy of Management Review, 27*(3), 392–413.

Nambisan, S., & Baron, R. A. (2002). Virtual customer environments: Testing a model of voluntary participation in value co-creation activities. *The Journal of Product Innovation Management, 26*(4), 388-406.

Nielsen, J. (2000). *Designing web usability*. Indianapolis, IN: New Riders.

Nielsenwire (2012, July 12). Re: Two thirds of new mobile buyers now opting for smartphones [Blog post]. Retrieved from http://blog.nielsen.com/nielsenwire/online_mobile/two-thirds-of-new-mobile-buyers-now-opting-for-smartphones/

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory (3rd ed.)*. New York,

NY: McGraw-Hill.

Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use
more pervasive. *Personal and Ubiquitous Computing, 16*(1), 105-114.

Peters, B. (2009). And lead us not into thinking the new: A bibliographic case for new
media history. *New Media & Society, 11*(1-2), 13-30.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual
Review of Sociology, 24*(1), 1-25.

Portes, A. (2000). Social capital: Its origins and applications in modern sociology. In E. L.
Lesser (Eds.), *Knowledge and social capital: Foundations and Applications* (pp.
43-67). Boston, MA: Butterworth-Heinemann.

Portes, A., & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the
social determinants of economic action. *American Journal of Sociology, 98*(6),
1320-1350.

Poslad, S. (2009). *Ubiquitous computing: Smart devices, environments, and interactions*.
West Sussex, UK: John Wiley & Sons.

Prahalad, C. K., Ramaswamy, V. (2004a). Co-creation experiences: The next practice in
value creation. *Journal of Interactive Marketing, 18*(3), 5-14.

Prahalad, C. K., Ramaswamy, V. (2004b). *The future of competition: Co-creating unique
value with customers*. Boston, MA: Harvard Business School Press.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of
Democracy, 6*(1), 65-78.

Putnam, R. D. (2000). Bowling alone: *The collapse and revival of American community*. New York, NY: Simon and Schuster.

Quiring, O., & Schweiger, W. (2008). Interactivity: A review of the concept and a framework for analysis. *Communications, 33*(2), 147-167.

Rafaeli, S. (1988). Interactivity: From new media to communication. In R. P. Hawkins, J. M. Wieman, & S. Pingree (Eds.), *Advancing communication science: Merging mass and interpersonal processes* (pp. 110-134). Newbury Park, CA: Sage.

Rafaeli, S., & LaRose, R. J. (1993). Electronic bulletin boards and public goods explanations of collaborative mass media. *Communication Research, 20*(2), 277-297.

Rafaeli, S., & Sudweeks, F. (1997). Networked interactivity. *Journal of Computer-Mediated Communication, 2*(4). Advance online publication. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.1997.tb00201.x/full

Reardon, K. K., & Rogers, E. M. (1988). Interpersonal versus mass media communication: A false dichotomy. *Human Communication Research, 15*(2), 284-303.

Resnick, P. (2002). Beyond bowling together: Sociotechnical capital. In J. M. Carroll (Eds.), *HCI in the new millennium* (pp. 247-272). Boston, MA: Addison-Wesley.

Rice, R. E., & Williams, F. (1984). Theories old and new: The study of new media. In R. E. Rice (Ed.), *The new media: Communication, research, and technology* (pp. 55-80). Beverly Hills, CA: Sage.

Richmond, H. (2011, March 21). Re: The growth of mobile marketing and tagging [Blog post]. Retrieved from

http://tag.microsoft.com/community/blog/t/the_growth_of_mobile_marketing_an

d_tagging.aspx

Riggs, M., Warka, J., Babasa, B., Betancourt, R., & Hooker, S. (1994). Development and

validation of self-efficacy and outcome expectancy scales for job-related

applications. Educational and Psychological Measurement, 54(3), 793-802.

Robison, L. J., Schmid, A. A., & Siles, M. E. (2002). Is social capital really capital?

Review of Social Economy, 60(1), 1-24.

Romiszowski, A. J. (1993). Developing interactive multimedia courseware and networks:

Some current issues. In C. Latchem, J. Williamson, & L. Henderson-Lancett

(Eds.), *Interactive multimedia: Practice and purpose* (pp. 57-78). London, UK:

Kogan Page.

Sawhney, M., Verona, G., & Prandelli, E. (2005). Collaborating to create: The internet as

a platform for customer engagement in product innovation. *Journal of Interactive*

Marketing, 19(4), 4-17.

Schiff, M. (1992). Social capital, labor mobility, and welfare: The impact of uniting states.

Rationality and Society, 4(2), 157-175.

Scholz, U., Gutierrez-Dona, B., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy

a universal construct? Psychometric findings from 25 countries. *European*

Journal of Psychological Assessment, 18(3), 242-251.

Schwabe, G., & Prestipino, M. (2005, May). *How tourism communities can change travel*

information quality. Paper presented at the Thirteenth European Conference on

Information Systems, Regensburg, Germany. Abstract retrieved from

http://aisel.aisnet.org/ecis2005/111/
91

Schwarzer, R., & Fuchs, R. (1995). Self-efficacy and health behaviors. In M. Conner, & P. Norman (Eds.), *Predicting health behavior: Research and practice with social cognition models* (pp. 163-196). Buckingham, England: Open University Press.

Sharma, A., & Sheth, J. N. (2004). Web-based marketing: The coming revolution in marketing thought and strategy. *Journal of Business Research, 57*, 696-702.

Sherblom, J. (1988). Direction, function, and signature in electronic mail. *Journal of Business Communication, 25*(4), 39-54.

Sheth, J. N., & Paravatiyar, A. (1995). Relationship marketing in consumer markets: Antecedents and consequences. *Journal of the Academy of Marketing Science, 23*(4), 255-271.

Sheth, J. N., Sisodia, R. S., & Sharma, A. (2000). The antecedents and consequences of customer-centric marketing. *Journal of the Academy of Marketing Science, 28*(1), 55-66.

Siau, K., Lim, E. P., & Shen, Z. (2001). Mobile commerce: Promises, challenges, and research agenda. *Journal of Database Management, 12*(3), 4-13.

Sigala, M. (2009). E-service quality and Web 2.0: Expanding quality models to include customer participation and inter-customer support. *The Service Industries Journal, 29*(10), 1341-1358.

Sims, R. (1997). Interactivity: A forgotten art?. *Computers in Human Behavior,13*(2), 157-180.

Sloane, P. (2011). *A guide to open innovation and crowdsourcing: Advice from leading experts*. London, England: Kogan Page.

Smith, E. (2005, December 25). What's new media. *Indianapolis Star*, pp. 1A.

Sohn, D., & Lee, B. (2005). Dimensions of interactivity: Differential effects of social and

psychological factors. *Journal of Computer-Mediated Communication, 10*(3),

article 6. Retrieved from http://jcmc.indiana.edu/vol10/issue3/sohn.html

Song, J. H., & Adams, C. R. (1993). Differentiation through customer involvement in

production or delivery. *Journal of Consumer Marketing, 10*(2), 4-12.

Steinfield, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of

online social network sites: A longitudinal analysis. *Journal of Applied*

Developmental Psychology, 29(6), 434-445. doi:10.1016/j.appdev.2008.07.002.

Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal*

of Communication, 42(4), 73-93.

Street, R. L., & Rimal, R. N. (1997). Health promotion and interactive technology: A

conceptual foundation. In R. L. Street, W. R. Gold, & T. Manning (Eds.), *Health*

promotion and interactive technology (pp. 1-18). Mahwah, NJ: Erlbaum.

Szuprowicz, B. O. (1995). *Multimedia networking*. New York, NY: McGraw-Hill.

Templeton, L., Deehan, A., Taylor, C., Drummond, C., & Strang, J. (1997). Surveying

general practitioners: Does a low response rate matter? *British Journal of General*

Practice, 47, 91-94.

Thomas, C. Y. (1996). Capital markets, financial markets and social capital. *Social and*

Economic Studies, 45(2&3), 1-23.

Thomke, S., & Von Hippel, E. (2002). Customers as innovators: A new way to create

value. *Harvard Business Review, 80*(4), 74–81.

Tweeting-Athletes. (2012, n.d.). A directory of professional athletes tweeting on twitter

[Information on a page]. Retrieved from http://tweetingathletes.com/index.cfm

Twitter. (2011, June 30). Re: 200 million tweets per day [Blog post]. Retrieved from

http://blog.twitter.com/2011/06/200-million-tweets-per-day.html

Uslaner, E. M. (2001). Volunteering and social capital: How trust and religion shape

civic participation in the United States. In E. M. Uslaner (Eds.), *Social capital and participation in everyday life* (pp. 104-117). London, UK: Rourledge.

Valacich, J. S., Paranka, D., George, J. F., & Nunamaker, J. F. (1993). Communication

concurrency and the new media: A new dimension for media richness. *Communication Research, 20*(2), 249-276.

Vasarhelyi, M. A. (1977). Man-machine planning systems: A cognitive style examination

of interactive decision making. *Journal of Accounting Research, 15*(1), 138-153.

Verona, G., Prandelli, E., & Sawhney, M. (2006). Innovation and virtual environments:

Towards virtual knowledge brokering. *Organization Studies, 27*(6),765–88.

Wagner, E. D. (1994). In support of a functional definition of interactivity. *The American

Journal of Distance Education, 8*(2), 6-29.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal,

and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Webster, T. (2010, April 29). Re: Twitter usage in America: 2010 [Online research

presentation]. Retrieved from

http://www.edisonresearch.com/?s=twitter+usage+in+america#

Williams, D. (2006). On and off the net: Scales for social capital in an online era. *Journal

of Computer-mediated communication, 11*(2), 593-628.

Williams, D. (2007). The impact of time online: Social capital and cyberbalkanization.

Cyberpsychology & Behavior, 10(3), 398-406.

Williams, F., Rice, R. E., & Rogers, E. (1988). *Research methods and the new media*. New York, NY: Free Press.

Wind, J., & Rangaswamy, A. (2001). Customerization: The next revolution in mass customization. *Journal of interactive marketing, 15*(1), 13-32.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society, 27*(2), 151-208.

Wu, G. (2000). *The role of perceived interactivity in interactive ad processing* (Unpublished doctoral dissertation). The University of Texas, Austin, TX.

Wu, L., Wang, Y., Su, Y., & Yeh, M. (2013). Cultivating social capital through interactivity on social network sites. *PACIS 2013 Proceedings,* Paper 71. Retrieved from http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1071&context=pacis2013

Xie, H. (2000). Shifts on interactive intentions and information-seeking strategies in interactive information retrieval. *Journal of the American Society for Information Science, 51*(9), 841-857.

Yom, S. S. (1996). The Internet and the future of minority health. *The Journal of the American Medical Association, 275*(9), 735.

Yuan Y. C., & Gay, G. (2006). Homophily of network ties and bonding and bridging social capital in computer-mediated distributed teams. *Journal of Computer-Mediated Communication, 11*(4), 1062-1084. doi:10.1111/j.1083-6101.2006.00308.x

Yun, G. W. (2007). Interactivity concepts examined: Response time, hypertext, role taking, and multimodality. *Media Psychology, 9*(3), 527-548.

Zaccaro, S. J., Blair, V., Peterson, C., & Zazanis, M. (1995). *Collective efficacy*. New York, NY: Plenum Press.

Zafiropoulos, C., Vrana, V., & Karystinaiou, D. (2007, June). *Differentiations between expected and perceived interactivity in hotel websites*. Paper presented at the Fifth European Conference on Information Systems, St, Gallen, Switzerland. Abstract retrieved from

http://www.academia.edu/253532/Differentiations_between_Expected_and_Perceived_Interactivity_in_Hotel_Websites

Zeltzer, D. (1992). Autonomy, interaction, and presence. *Teleoperators and Virtual Environments, 1*(1), 127-132.