PERCEIVED QUALITY AND MOTIVATIONS ON INTENTION-TO-USE OF A GENERAL WEB PORTAL

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DEDICATION AND ACKNOWLEDGEMENTS

I dedicate my dissertation to my loving and respectful parents, Jungchae Nam and Sookja Kim who always encourage me to set high goals and continuously support me with belief in me.

This dissertation is also dedicated to the friendship and the memory of my former advisor, Dr. Roberta Lamb who helped me in this study over a number of years.

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ABSTRACT

The purpose of this research was to study the quality and motivation attributes of information products from the end-users' perspective, and to measure the impact of these attributes on intention-to-use. An information product is defined as a highly interdependent package of information that can be transmitted or distributed in digital form (e.g., a web portal, an application software). In the context of Web portal use, the information product generally includes three types of services: personal services (e.g., email), information services (e.g., online news) and search services. The literature suggests that the quality of an information product can be assessed from a number of attributes, such as accuracy and applicability of the information content, the timeliness and speed of the physical medium, and the reliability and responsiveness of the product provider. The literature also underscores the importance of motivational factors such as social escapism and privacy concerns on the intention to use. Drawing from this theoretical background, an initial set of 21 quality and motivation attributes has been identified, and an experimental study using 142 subjects as Web portal users has been conducted. Statistical analyses helped us consolidate quality factors into four groups of quality attributes factors as they were perceived by the subjects: Content relevancy, Communication interactiveness, Information currency, and Instant gratification. As far as impact analyses are concerned, social escapism motivation, information motivation, interactive control motivation, and socialization were found to highly correlate to all of the three types of services and the combined use. When quality factors and motivations

were considered at the same time to explain intention-to-use of the Web portal, social escapism, as a motivation factor, was identified as the main determinant. The findings of this research shed new lights on the understanding of Web portal use and suggests that there are some quality attributes that are particularly perceived to be relevant to Web portal intention to use. Lessons learned from this study should also help IT professionals to design, develop and deploy more effective general web portals.

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I. INTRODUCTION

We live in an information society in which the activities of collecting, processing, storing, transmitting and receiving information bypass manufacturing or agriculture as the major economic activity (Wilson and Gutierrez, 1985). *Information* is defined as "the communication of knowledge and a signal or transmitted data" (The American Heritage Dictionary, 1985). An *information product* can be defined as a highly interdependent package of information that can be digitalized and can be transmitted and distributed in digital form (Fielding, Whitehead, and Anderson, 1998; Shapiro and Varian, 1998). Software, stories, music, movies, TV programs, magazines, CD-ROM databases, web content, electronic libraries, and electronic news are examples of information product (Meyer and Zack, 1996; Robillard, 1999). Hui and Chau (2002) categorize information products as tools and utilities (such as Microsoft Word), content-based product (music and movies), and online services (online consulting and searching services).

The characteristics of information products are not common in other industrial products. This means that information products need special attention. Information is characterized as being intangible, copyable, non-consumable, transportable, and manipulable (manipulating information is easier than manipulating physical products) (Levitin and Redman, 1998). Information can be digitized without any loss of content (Gates, 1995). A more elaborate explanation of the characteristics of information was studied by Priest (1985). The previously mentioned characteristics of information that can be digitized to make information products more useful in the Internet era. Information products can be fed to various types of digital products. For example, a movie, as an information product, can be seen through a TV, a PC, a DVD player, or even a cellular phone. Information

products which are now digitalized and utilized in various devices, speed up personal and social communication in various ways. As one of the main characteristics of digitalized information product, compatibility enables information to flow among different types of digital devices. More and more industrial products have information product components to them.

Web portals are one of the commonly used information products nowadays. Web portal means "a web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls." (Webopedia, 2005). People often set up a web portal as the first page of their web browser. This results in the use of web portals for a considerable amount of time everyday. Motivation and quality can be considered key determinants of web portal use.

As information technology grows more versatile, information product quality becomes multivariate. As Ziethaml (1988) point out, the attributes that signal quality are product-specific, but dimensions of quality can be generalized to product categories. Frameworks of quality identify the relevant variables (Porter, 1991) and help to facilitate problem understanding and coordination for collaborative work (Astley and Zammuto, 1992). Information quality frameworks have been developed and evaluated by many researchers. In this research, when we consider the quality of web portals, the content of web portals themselves is not the only thing of importance. The form in which web portals are presented is also very important, as well as the services they offer. Every information product has three components in it: informational, physical, and service components (Alter, 2002). In this study, the quality of web portals was examined in terms of these three components.

II. PROBLEM STATEMENT AND PURPOSE OF STUDY

Eppler argues that the information quality frameworks can be used to: 1) identify information quality problems systematically and comprehensively; 2) to analyze these problems in detail and rigor and to find their root causes; 3) to evaluate solutions to those problems based on problem analysis; 4) to design and manage sustainable solutions based on the prior evaluation of feasible improvement measures; and 5) to be instrumental in teaching the previous four goals to students or novices in the field (Eppler, 2003). These views examine the concept of information quality from the manager's or information system designer's point of view rather than the end-user's point of view. Perceptions of quality can differ according to the role that a person plays with regard to the information system (Eppler, 2003).

In this study, the quality of web portals was examined from the perspective of end-users. For this purpose, the influence of web portal quality on intention-to-use was investigated. A better understanding of the perceived quality of web portals would have great practical value, both for venders who would like to assess user demand for new design ideas, and for the end users who expect better quality of the product.

People may use web portal for various reasons. Their motivations are also important determinants of the use. For general web usage, various types of motivations in web usage have been identified. Although it is clear that using web portals is an important activity for many people, little is known regarding the influence of these determinants on a general web portal use. Since many people spend a significant of their time on the use of web portals everyday, it becomes important to investigate what motivates people to use web portals. In this study, the influence of motivations on intention-to-use was

investigated. For this purpose, various discourses of information system motivations were considered. In the following sections, theoretical foundations of this research problem will be discussed.

This dissertation is divided into 10 chapters. The first and second chapters, previously discussed, are introductions to the study topic, problem and objectives of the study. The third chapter introduces the theoretical foundations of the study. The research questions and key concepts are presented in chapter four and five, respectively. Chapter six discusses research methodology. The research design, subject, data collection procedures are included. Chapter seven discusses the data analysis procedures and chapter eight discusses the data findings. Demographics, factor analysis, correlation, regression tests are included in this chapter. The ninth chapter discusses the results of this study. Chapter ten is conclusion. Implications and contribution, limitations, directions for future research, and summary are included in the final chapter ten.

III. LITERATURE REVIEW

This chapter will provide an overview of web portal, quality, motivations, and the uses of web portals. First, web portals in general will be discussed. Second, web portal use will be discussed. Third, key characteristics of web portal quality will be highlighted. Fourth, the motivation to use web portals also will be explored. Fifth, web portal use will be discussed in conjunction with quality and motivations.

III. 1. Web portals

In this section, as an information product, a web portal will be discussed in terms of its definition, categorization, and evaluation. A portal is defined as a 'supersite' that provides a variety of services including web searches, news, free e-mail, chatting, shopping and links to other sites. Since the Web was invented at CERN by Tim Berners-Lee in 1989, the first generation of web portals such as Yahoo, Excite, and Lycos started as search engines or directories and over time other services were added such as email, chat, news, communities, and information services, as well as the possibility to customize the start page of the portal, for example, with "My Yahoo!" (Tatnall, 2005; Rao, 2001; Sieber and Volor-Sabatier, 2005). Nowadays, web portals play a role as full size hubs of electronic commerce, mail, online communities, and customized news and have became the most visited sites on the web (Sieber and Volor-Sabatier, 2005). Many portals allow a home page to be personalized. Tatnall (2005) views a web portal as a web site designed "to act as a gateway to access to other sites" and "to aggregate information from multiple sources and make that information available to various users" and "to provide the

services of a guide that can help to protect the user from the chaos of the Internet and direct them towards an eventual goal. Portals have considerably helped the users reduce search costs on the Internet and created positive value for their users" (Brynjolfsson and Smith, 2000). Most Web users usually start their online activities at web portals, and making portals major sites of Internet traffic (Hanson, 2000).

Web portals can be categorized into nine types: general portals, vertical industry portals, horizontal industry portals, community portals, enterprise information portals, e-market place portals, personal/mobile portals, information portals, and specialized/niche portals (Davison, Burgess, and Tatnall, 2003). These categories are not mutually exclusive as some portals fit more than one category. A portal is called 'horizontal' if it is used by broad base of users, but if it is focused on a particular audience, the portal is vertical (Lynch, 1998). A general web portal can be seen as a general-purpose, non professional gateway that allows visitors link to other sites. A typical general web portal offers services such as email, links to search engines, blog, chat rooms, online messengers, news. A general portal is not targeted to a specific group of people with special interests, and aimed to provide their services to general Internet users.

Portal success depends on generating the maximum visitor traffic possible (Sieber and Volor-Sabatier, 2005). As consumers are now getting more experienced with regard to the rapid growth of the capability of web portals, the understanding of what consumers want is necessary. According to Meisel and Sullivan (2000), most web surfers and shoppers want portals to conduct five functions for them: to provide an easy, convenient, and organized way for users to use the Internet; to act as a filter, hence helping in the decision-making process for online purchases; to assure users of the integrity of their

sites for web transactions; to provide users with access to propriety content and/or communication technologies like Internet telephony and email; and to facilitate the electronic equivalent of one–stop shopping for the user.

An evaluation of web portals can contribute to the development of better products that better serve the user's needs and better meet the user's expectations (Sampson and Manouselis, 2005). Sampson and Manouselis (2005) suggest an evaluating framework that assesses the four major web portal features that affect user satisfaction: content, design, personalization capabilities, and support to the formulation of virtual communities of users. The content dimension is subcategorized as follows: content organization, content creditability, content usefulness, and content integration. The design dimension is comprised of four sub-dimensions: information architecture, usability, graphical design, and technical integrity/performance. Personalization is examined at three different levels: navigation, information/content, and interface personalization. Community support consists of two sub-dimensions: communication support and collaboration support. To evaluate web portals, they focus on user satisfaction and web portal features (Sampson and Manouselis, 2005).

III. 2. Foundations of web portal use

Telang and Mukhopadhyay (2004) said that successful portals need users to come back repeatedly (repeat use) and frequently (frequency), and for extended periods of time (stickiness). They developed a conceptual model explaining portal uses, which consists of repeat use, stickiness, use frequency. Portal services can be categorized in three ways: personal services, information services, and search services (Telang and Mukhopadhyay,

2005). Personal services require registering and login procedures to access the services. It allows users to interact with the site and use customized services. Personalized services for emails, chat rooms, blogs, and messaging services are the examples of personal services. Information services do not require login procedures. Users just have to follow links on the portal site to access these services. Users do not have to login to use these services. To use search services, users just have to enter the search terms and click the search button to retrieve relevant information. The search button is usually appears on the front page of web portal sites (Telang and Mukhopadhyay, 2005)

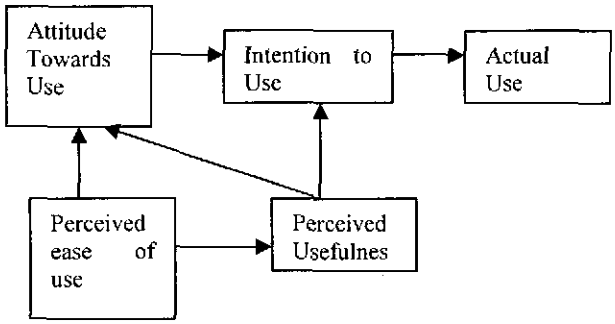
Telang and Mukhopadhyay also found that users develop loyalty for a given portal. If someone has used a particular portal frequently in the past, the person is more likely to visit the portal again in the future. This may refer to user loyalty to the particular web portal. Repeat use is an indicator of loyalty. They found search services as well as personal services develop strong repeat use. For frequency, they counted the total number of times a user went to a portal weekly. Stickiness was the average number of minutes spent on portals. For repeat use, they used an exponentially weighted average of all previous use. The data used for their study came from HomeNet Project (Kraut, et al., 1999), so the data used in their study was taken from detailed usage records from the server used in the HomeNet project. They found that the highest frequency is for search services, followed by information services and lastly, personal services. This result is in contrast to the stickiness results. Users spent the least time for search services. The use of information and personal services increases the time a user spends on a portal, but search services are not sticky as users move on to the referred sites. They also found the use of

personal and information services require long amounts of time to spend compared to the use of search services (Telang and Mukhopadhyay, 2005).

Web portals can be viewed as information systems, consisting of information and delivering infrastructure. The use of information systems has been an important MIS success measure in MIS empirical research (Zmud, 1979). To examine information system use, the amount of use time (Lucas, 1978; Ginzberg, 1981) or frequency of use (Ein-Dor, Segev, and Steinfeld, 1981; Fuerst and Cheney, 1982; Hogue, 1987) has been measured.

In this study, intention-to-use of a general web portal is focused on rather than actual usage. According to TAM, a behavior is determined by the intention to perform the behavior. Behavioral intention, in turn, is affected by attitude toward usage, as well as the direct and indirect effects of perceived usefulness and perceived ease of use (see Figure 1).

Figure 1: Davis (1989) TAM model



The TAM model is an adaptation of the Theory of Reasoned Action model (TRA) (Ajzen and Fishbein, 1975) which models user acceptance of information systems. The TRA

posits that a person's intentions are the best predictor of actual behavior. Behavioral intention is "a function of both attitudes toward a behavior and subjective norms toward that behavior" (Miller, 2005). The TRA asserts that the attitude toward behavior and subjective norm are the antecedents of performed behavior. Attitude is "the sum of beliefs about a particular behavior weighted by evaluations of these beliefs" and that subjective norms are "the influence of people in one's social environment on his/her behavioral intentions" (Miller, 2005). The subjective norm is the social influences on a person's behavior (Lutz, 1991). Social influence correlates significantly with intention and behavior (Vries, Backbier, and Dijkstra, 1995). TAM replaces the TRA model's attitudinal determinants with the specific belief that the perceived usefulness and the perceived ease of use are necessary to understand user acceptance of information technology in a workplace. While TRA includes attitude as the mediating variable on the intention-to-use, the final TAM model excluded the attitude construct because attitude did not fully mediate the influence of perceived usefulness on intention.

Intention is correlated to actual behavior (Davis, Bagozzi, Warshaw, 1989), but it does not mean that user intention always predicts actual behavior perfectly. The relationship between intention and behavior is contingent on the time interval between intention and behavior (Wilson, 1975). When intention and behavior are contiguous, intention and behavior are highly correlated. If the timing of measures of intention and behavior varies, the correlation is lower (Bonfield, 1974).

Although behavioral intention is a better predictor of behavior than all other measures, many other influencing factors have been identified. Fishbein, et al. (1992) identify eight common variables between the most widely accepted models that appear to account for

most of the variation within any behavior: behavioral intentions, skills or ability, environmental constraints, outcome expectancies (or attitude), norms, self-standards, emotional reactions, and self-efficacy. These eight key factors were identified as potential determinants of behavior. The first three factors are viewed as factors "necessary and sufficient" for performing behavior. This means that for a given behavior to occur, one must (1) have a strong intention to perform the behavior; (2) have skills or ability to perform it; and (3) have no environmental restrictions. The remaining factors are considered to influence the strength and direction of intention (Fishbein, et al., 1992). Another explanation about the inconsistency between behavior and intention comes from impulsive and habitual behaviors, which are characterized by strong influences of a given situation or context (Bargh and Barndollar, 1996). Since people frequently choose a habitual behavior over a non-habitual behavior (Ronis, Yates, and Kirscht, 1989), they may not perform a behavior even though they intend to do it.

III. 3. Foundations of web portal quality

Information has value or quality when it is beneficial to information recipients. The concepts of value and quality are similar. Some researchers use those terms interchangeably (Hansen, 2001), and others differentiate between those two concepts (Ziethaml, 1988). Crosby (1980) defines quality as "conformance to requirements." From the point of view of customers, quality is defined differently as "satisfying customer's requirements" (Deming, 1986). Definitions for quality are also found in the American Society for Quality (ASQ) and in the more recent ISO 9000-2000 definitions. They are based on customer's satisfaction, which may be achieved not only through conformance

to requirements, but also through some inherent characteristics of a product or a service, and through the ways they are presented and delivered to customers (Lillrank, 2003). There are various definitions of *quality*. "Objective quality" is used to describe the superiority and excellence of products using predetermined standards (Hjorth-Anderson, 1984; Monroe and Krishnan, 1985; Ziethaml, 1988). This can be specified through the conformance to customer specification, the number of defects, and the number of errors or failures in a specific sample size (Arora and Stoner, 1996). "Perceived quality" is defined as the consumer's judgment or evaluation about a product's overall excellence or superiority (Ziethaml, 1988). Instead of measuring objective quality, this study focuses on how consumers measure quality.

Value, as a concept, is often correlated to quality. Perceived value is defined as "the consumer's overall assessment of the utility of a product based on perception of what is received and what is given" (Ziethaml, 1988). In some studies, *quality* is defined simply as a property of the product itself; while *value* is explained as a function of price and *quality* (Ziethaml, 1988; Buzzell and Gale, 1987). In addition, higher-level abstractions (such as prestige, convenience, appreciation, etc.) have been found to contribute to *value*—but not necessarily to quality (Ziethaml, 1988).

There exist quality indicators that consumers may employ when they purchase products. Attributes which may indicate quality can be categorized into intrinsic or extrinsic cues (Olson and Jacoby, 1977). Intrinsic attributes of a product are related to the physical part of the product, so these attributes cannot be changed unless there are attempts to change the nature of the product itself (Olson and Jacoby, 1972). The extrinsic attribute of a product is also related to the product, but not a part of the physical product itself. Intrinsic

cues are product–specific as different products consist of different compositions. Extrinsic cues may be generalizable across brands, product, categories (Ziethaml, 1988). Price, brand name, and level of advertising are three commonly recognized extrinsic cues (Ziethaml, 1988). These two types of quality indicators function differently during the purchasing process. Ziethaml said that consumers depend on extrinsic cues during the initial purchase phase when intrinsic cues are not present, when the evaluation of intrinsic cues requires much effort and time and when consumers have difficulty evaluating quality. He also mentions that consumers depend on intrinsic cues more than extrinsic cues at the consumption point, in prepurchase situations when intrinsic cues are search attributes rather than experience attributes, and when the intrinsic cues are highly predictive.

Product quality has been studied in the domain of industrial products. Swindells (1995) applies the quality concept developed by manufacturing industries for information products. He emphasizes two attributes of quality: to meet customer's expectation and to minimize defects. For this purpose, two techniques, such as use of a specification and SPC (the procedure for checking for conformance to a specification during production) have been used in manufacturing industries. He suggests the adoption of these techniques of manufacturing in information quality management. This suggestion assumes that information products are as manageable as other industrial products. However, the unique characteristics of information products, such as intangibility, were not considered in the study. The use of specification is easy for tangible products, but it may not be easy for information products.

Information products are comprised of three components: informational, physical, and service components (Alter, 2002). As a kind of information product, a web portal also has three components. In the following, the quality of information product will be discussed in each of these three aspects. Concepts and constructs from an array of information system, media, and marketing studies will also be considered.

There have been several information system studies done to evaluate Information Quality (IQ). Wang and Strong (1996) empirically developed a framework to pinpoint the elements of IQ. Twenty objectives and measurable dimensions of information quality were measured and analyzed using factor analysis. The framework includes four categories of information quality: intrinsic, contextual, representational, and accessibility (Wang and Strong, 1996). Intrinsic quality dimension consists of four attributes: accuracy, objectivity, believability, and reputation. Contextual quality consists of relevancy, value, timeliness, completeness and the amount of data. Representational quality consists of interpretability, ease of understanding, concise representation, and consistent representation. Accessibility quality consists of access and security. The framework was developed through a two-stage survey and a two-stage sorting study. In the first survey, they generated a list of data quality attributes. In the second survey, they collected data on the importance of each attribute to data consumers and then performed factor analysis to create data quality dimensions. In the first sorting stage, they sorted these dimensions into small sets of categories. In the second sorting stage, they confirmed the categorization (Wang and Strong, 1996). Price and Shanks (2005) adopt a semiotic approach to develop a new framework of IQ which consists of syntactic, semantic, and pragmatic categories.

Eppler and Muenzenmayer (2002) developed an IQ framework which consists of four different levels: community, product, process, and infrastructure. Each level consists of four sub-dimensions. The community level consists of comprehensiveness, accuracy, clarity, and applicability. The product level consists of conciseness, consistency, correctness, and currency. The process level consists of convenience, timeliness, traceability, and interactivity. The infrastructure level consists of accessibility, security, maintainability, and speed. To develop the framework, they overviewed seventy typical information quality attributes. As the extensive list of information quality attributes was reduced to sixteen attributes by "eliminating synonyms and closely related terms, by excluding criteria that are either too context-specific or too vague, and by splitting-up or leaving out controversial and debatable criteria, such as relevance or objectivity." These four levels are further divided into two categories: content quality (community and product level); and media quality (process and infrastructure level) (Eppler, 2003). Media is defined as the "materials that hold data in any form or that allow data to pass through them, including paper, transparencies, multipart forms, hard, floppy and optical disks, magnetic tape, wire, cable and fiber" (Media, 2007). Information products are stored, presented, and delivered through media. This means that information products should be formatted according to the nature of the media. Therefore, the physical component of information product quality is media-related. All of the attributes of Eppler and Muenzenmay's framework are relevant to this study, and these two big categories fit well with the quality conceptual model in this study. Eppler's information quality framework was utilized to explain information and physical components of web portal quality in this study.

To distinguish the service components from the physical components of information products, Alter defines *service* as a set of actions that provide value to a customer that receives neither information nor physical objects. To differentiate between the quality of product and service, Nelson (1970) uses the terms *search goods* and *experience goods*. The quality of *search goods* (product) can be evaluated before purchase through inspection. However, the quality of experience goods (service) can be determined only through purchase and consumption (Nelson, 1970). A *product* is a tangible item; If a customer buys a product, he/she can own it and use it and reuse it later. It can be produced and stored. A *service* is "any activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything." (Kotler and Bloom, 1984). Lockyer (1986) differentiates service from physical things through the following aspects: inseparability of production and consumption, intangibility, perishability, and difficulty to reproduce exactly and consistently.

Service quality has been rigorously studied in the marketing research domain. According to Parasuraman, Zeithaml, and Berry's (1985) studies, *service quality* is defined as the gap between the expected level of service and customer perceptions of the service level received. Parasuraman, Zeithaml, and Berry's (1988) and Gronroos's (1982) both offer well-known frameworks that have been employed to determine service quality. Gronroos argues for three dimensions of service quality in 1978: functional, technical, and corporate image. He later eliminates the corporate image from the dimensions (Gronroos, 1982) as an attempt to enhance the model. Functional quality relates to how the service is delivered, and technical quality relates to the type of service delivered. Parasuraman,

Zeithaml, and Berry (1988) propose five service encounter characteristics: reliability, responsiveness, assurance, empathy, and tangibility.

The distinctions between the physical and service components of information products are not always clear. Furthermore, as ongoing services provided by sellers and manufacturers through the Internet extend the function of information products, it is sometimes hard to distinguish between information products and information services because every product contains some combination of information, service, and physical component (Alter, 2002). The complexity of information products provides further justification for evaluating the information product quality from a 'package' perspective.

As information is stored, delivered, and presented in various physical forms through media, the quality of information is usually measured in conjunction with the media. The ways people communicate affect how they think (Stephens, 1998). As Stephens points out, not only the content, but the medium itself has a meaning, and some recent studies highlight the differences in perceived quality that may be tied to the whole package. Abdull et al. (2002) found that people perceived newspaper and television news credibility more similarly than they did online news credibility. His survey respondents rated online news as being the highest in credibility. Some researchers raised question about Internet credibility. They argue that the Internet may affect the credibility aspect of information quality because of its potential to allow anybody to browse and upload information without any scrutiny (Johnson and Kaye, 1998), and because of the lack of the verification of information before it reaches the public (Flanagin and Metzger, 2000).

Various types of information biases may be related to technologies. Because of their accessibility and speed of communication, different technologies offer various levels of

political biases (Postman, 1996). Also, because of technical and economical structure differences, various technologies show distinct content biases. Different physical forms result in distinct sensory biases, and the divergent conditions in which we attend to them result in various social biases (Postman, 1996). These different biases, which are informed by characteristics of the technology, are inextricable when we consider information product quality. Some news users actually report that news sources or the medium is more important than news content itself when rating news credibility (Newhagen and Nass, 1989). Therefore, in this study, quality of web portals product was be measured as package.

A web site quality model has been developed by Webb and Webb (2004) especially for Business-to-customer electronic commerce web site. They name the SiteQual model, which integrates the SERVQUAL (Parasuraman et al, 1985) model and Data quality (Wang and Strong, 1996) model. They initially used an instrument constructed by adapting 21 service quality items (Parasuraman et al., 1994) and 22 items derived from Wang and Strong (1996)'s work. They reduced the desired dimensions through factor analysis and found four minimum web site quality factors (reliability, assured empathy, perceived usability, and trustworthiness) and seven desired web site quality factors (reliability, assured empathy, perceived usability, trustworthiness, tangibility, navigability, relevant representation, accuracy, and security) which are important to consumers in the retail music industry. Moraga, Calero, Piattini (2004) also integrate the SERVQUAL model and the Data quality model (which is originated from Wang and Strong's study in 1996; this model consists of intrinsic, representation, accessibility, and contextual data quality) and propose a portal quality model which consists of six

dimensions (tangibility, reliability, responsiveness, assurance, empathy, and data quality). These previous studies incorporate information quality model and SERVQUAL models to develop web portal quality model.

The original description of each service quality dimension is as follows: tangibles (physical facilities, equipment, and appearance of personnel); reliability (the ability to perform the promised service dependably and accurately); responsiveness (the willingness to help customers and provide prompt service); assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence); and empathy (caring, individualized attention the firm provides its customer). These service quality dimensions were developed through the repeated computation of coefficient alpha and factor analysis of data obtained across a range of businesses such as retail stores, banks, telephone companies, securities brokers, and credit card companies (Parasuraman, Zeithaml, and Berry, 1998). However, their definitions of service quality dimensions are not compatible with web portals as they are generated for general service sectors. Moraga, Calero, and Piattini (2004) suggest a definition of each service dimension specifically for web portals. Tangibility indicates "if the portal contains all the software and hardware infrastructures needed according to its functionality." Reliability is the "ability of the portal to perform its functionality accurately." Responsiveness is the "willingness of the portal to help and to provide its functionality in an immediate form to the users." Assurance is "ability of the portal to convey trust and confidence." Empathy is defined as "the ability of the portal to provide caring and individual attention." As these definitions are suitable to describe web portal quality, these was utilized in this study to describe each dimension of service component of web portal quality.

III. 4. Foundations for motivations to use web portals

Motivation is defined as "the forces either within or external to a person that arouse enthusiasm and persistence to pursue a certain course of action" (Daft, 1997). To understand the motivation to use web portals, we may need to understand why people use information in general. Various theoretical perspectives address this question from rational, interactionist, entertainment, or postmodern perspectives. In the following, each perspective will be discussed.

Rationalists posit that information use is a rational choice in human behavior. The rationality of information use results in alternative actions and choices when applying the concept of the artificial to information use (Simon, 1969). Since a human is considered a system, information can be seen as input for the system of a human being. Also, the output of the system can be seen as the human behavior resulting from information use. Human behavior is more likely a learned function rather than an innate characteristic of the human system. Therefore, information use can be understood as a rational choice in the sciences of human behavior.

This classical view of information use is challenged by Feldman and March (1981). They studied the symbolic use of information. Sometimes, they argue, people gather information just to show their competence about their decision making, or to provide verification of their intelligence. They criticize the traditional point of view of decision-theory. They say that behaviors of seeking and using information in a decision have important symbolic meaning to both information users and decision makers. This

explains why people would like to gather more information than they actually need in order to make decisions.

At other times, people use information for entertainment. The term "infotainment" has been used to refer to "the process of communicating information in an entertaining manner" (Prince, 1991). The trend of the "readers' love affair with violence, the bizarre, the outlandish, the sexy, and indeed, the sensational" (Martin and Copeland, 2003) results in the trend of infotainment. They use mass media to purposely change or control their mood or excitatory states (Bryant and Zillmann, 1994). Condry (1989) found that people use television to both increase and decrease arousal. Also, people select programs based upon their need for distraction. Those who need more distraction demonstrate a larger appetite for absorbing materials (Zillmann and Bryant, 1985). Humor and comedy appear to contribute to positive mood changes (Bryant and Zillmann, 1994), while hostility can be used as part of comedy for entertaining purposes (Zillmann, 1977). Aside from excitement or arousal, calmness and comfort are also factors of entertainment (Zillmann, 1982). People seek comfort and avoid discomfort in their spontaneous selection of entertaining programs (Zillmann, 1982; Zillmann and Bryant, 1985). Mood also affects purchase intentions (Goldberg and Gorn, 1987; Kamins, Marks, and Skinner, 1991). Commercials with greater emotional appeal than commercials with more informational content affect purchase intention more, so they result in higher commercial effectiveness.

The philosophical discourse of postmodernism provides different perspectives dealing with social power structures to explain information use. Poststructuralists have studied how people use languages to politically affect other people (De Certeau, 2002). De Certeau (2002) studied how ideology may affect information to disguise a real fact. This

implies how information, which may be believed just as a fact, can be contaminated by ideology and may be used for different purposes to control the information users politically. A TV program source (The merchants of cool, 2001) investigates how one of the systemic forces (i.e., capitalism) affects teenagers. Teenage life has been strongly influenced by consumerism driven by merchants. The program covers the relationships between teenagers and merchants and describes what teenagers are looking for and how merchants try to meet teenagers' needs and desires. TV materials only allow an audience to see the contents of materials and give no chance for audience members to express themselves. There is a compulsive characteristic that has been reflected in TV materials to maximize the merchants' profits through various types of advertising techniques.

We know that people use information for various reasons. Similarly, media users choose and use media to meet their needs (Blumler and Katz, 1974). The "Uses and gratifications" approach is one of several significant trends in media research. This approach concerns itself with *why* people use and choose specific media. The assumption is that people's need may affect how they use and respond to a medium. The approach of "uses and gratifications" (Blumler and Katz, 1974) focuses on the media user's role in choosing and using media. They use media to meet their needs, so they are actively involved in communication processes and in choosing media sources. The basic assumption of uses and gratification is that people are active, and thus, their use of mass media is goal-oriented. The use of media can be explained as an act to gratify the social or psychological needs of the individual (Blumler and Katz, 1974). Zillmann (1982) studied the influence of *mood* on media choice. Katz, Gurevitch, and Hass (1973) investigated the five individual needs of media use: cognitive (acquiring information,

knowledge and understanding), affective (emotional, pleasurable, or aesthetic experience), personal integrative (strengthening credibility, confidence, stability, and status), social integrative (strengthening contact with family, friends), and tension release needs (escape and diversion).

McQuail, Blumler, and Brown (1972) developed a typology of media-person interactions which is about the common reasons for media use: 1) for obtaining information; 2) for personal identity; 3) for relationship with others; 4) for entertainment. Lull (1990) also offers a typology to explain the use of television: structural and relational.

Sometimes, media use can be habitual, ritualistic and unselective (Barwise and Ehrenberg 1988). The "Use and gratifications" approach is focused on the choice of media by individuals. In this approach, the individual's active choice of media is assumed. However, media can be forced on some people rather than freely chosen. Poststructuralists' discussions of socio-economic or political forces may complement the "Uses and gratifications" approach in this sense.

As PCs, digital devices, and the Internet allow individuals to communicate and share their own knowledge with others easily, people also become information providers as well as information users and this intrigues new cognitive and affective needs (Havick, 2000). For example, the blog is a trend nowadays to share information. In blogs, people upload pictures and stories that they created for themselves. "Blog" refers to online journals in which authors deliver highly personalized information. Readers may visit these websites and leave their own message or comment on the content. While they are doing this, they present their own ideas, pictures, audio or video files to others, and interact with others by sharing opinions. Internet functions meet various users' needs

such as finding a great depth of information about a specific topic, searching for information, and receiving frequent updates. Technology has provided access, quick delivery, capacity, and efficiency for information providers to meet consumers' various needs (Flournoy and Stewart, 1997).

According to motivation theory, behavior is influenced by intrinsic as well as extrinsic motivation (Deci, 1972). Intrinsic motivation derives from within the person or from the activity itself (Ryan and Deci, 2000), so it refers to a person's need to feel competent and self-determining (Deci, 1975), or to feel pleasure and inherent satisfaction derived from a specific activity (Vallerand, 1997). Intrinsic motivation refers to the act of doing an activity for its own sake—the activity itself is interesting, engaging, or in some way satisfying. In this motivation, no extrinsic rewards are expected but the activity itself (Deci, 1975). Extrinsic motivation emphasizes performing a behavior to achieve a specific goal (Deci and Ryan 1987), and motivates the person to action because of some external reward (Vroom, 1964) such as improved job performance and advancement, and/or the attainment of various kinds of external rewards (Igbaria, 1993) like pay, material attainments from others, recognition or the approval or admiration of other people.

In the field of organizational behavior research, human motivation at work has been studied. Behavior can be both extrinsically and intrinsically motivated. Venkatesh et al. (2002) include both extrinsic and intrinsic motivations as predictors of behavioral user intention. Davis, Bagozzi, and Warshaw (1992) investigated the effects of intrinsic and extrinsic motivations on intention-to-use of computers. They regard enjoyment as a type of intrinsic motivation and perceived usefulness as a type of extrinsic motivation. They

found that enjoyment had a significant effect on the intention-to-use, controlling perceived usefulness. Usefulness and enjoyment affected usage indirectly through their effects on intention. They also found a positive correlation between usefulness and enjoyment and that usefulness (extrinsic motivation) and enjoyment (intrinsic motivation) mediate the influence of perceived output quality and the perceived ease of use in user intention.

TAM posits that perceived usefulness (PU) and perceived ease-of-use (PEOU) affect the acceptance and use of IT. PU is the extent to which "people believe that the technology will help them perform their job better' while PEOU is 'the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). *Usefulness* is defined as "the quality of being suitable or adaptable to an end" (Roget's II, 1995). Usefulness is determined by the inherent attributes of the resource and its applicability within specific information-seeking contexts and work tasks (Wilson, 1981). Lee, Cheung and Chen (2005) tested extrinsic (usefulness and ease of use) and intrinsic (perceived enjoyment) motivations to explain students' intention-to-use of Internet-based learning mediums. Their study found that perceived usefulness and perceived enjoyment significantly influenced the use of Internet-based learning mediums. However, the perceived ease of use did not impact the intention-to-use of Internet-based learning medium.

Usability is also often measured as an extrinsic variable to explain system use. *Usability* is defined as "the ease with which a user can learn to operate, prepare inputs for, and interpret outputs of a system or component" (IEEE, 1990) or "fit for use" (The American, 2004). It often refers to ease of use. *Web site usability* is defined as "the ease with which

visitors are able to use a web site" (Web site usability, 2007). Usability also has been used as an attribute of software quality. Two concepts, usefulness and usability, have been investigated to explain information system usage in TAM. The motivation theories that have been developed are based on the information system usage in workplaces. Therefore, they have some limitations in their application for web portal use which is a voluntary information system.

The users of web portals are free to choose whatever they want. Those extrinsic or intrinsic motivations discussed above may not apply for web use. For example, extrinsic motivations such as improved job performance, advancement, rewards, pay, and material attainment may not be applicable to web portal use, because web portal use, in this study, is focused on individual use to meet individual's needs.

To understand the motivation of repeated web use, the "uses and gratifications" approach has been adopted (Joines, et al, 2003). This approach is a paradigm from mass communication research to explain media use. Eighmey and McCord (1998) apply the uses and gratifications approach to the World Wide Web. They found gratifications with regard to web sites to be similar to gratifications with regard to other types of media. They also added web-specific dimensions such as personal involvement and whether or not there is any continuing relationship. Personal involvement is the degree to which users found the web site to be personal. A continuing relationship is said to exist when users decide to visit the web site again.

Stafford, Stafford and Schkade adopt the uses and gratifications approach to understand motivations for Internet use (2004). The uses and gratification approach is suitable for Internet study because of the Internet's media-like characteristics (Stafford, et al, 2004;

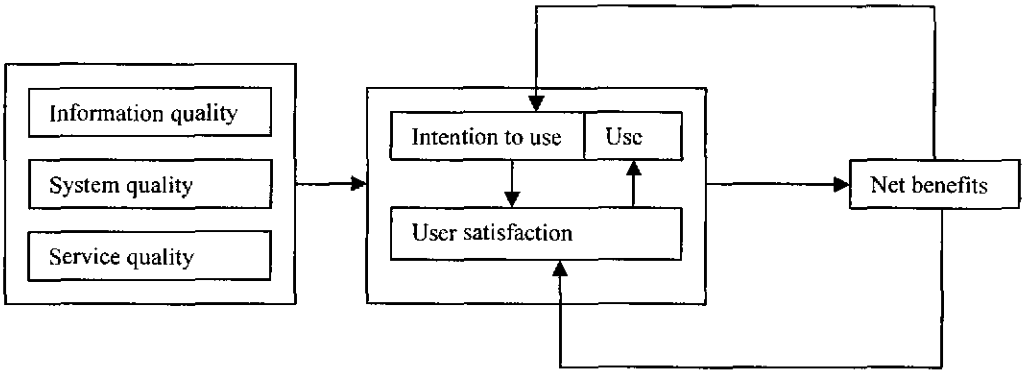
Johnson and Kaye, 2003; Lin, 1999). The original use and gratification dimensions developed in the domains of news media study are not appropriate to predict Internet use (Lin, 1999), so revised use and gratification dimensions specific for Internet use have been developed in various studies (Stafford and Stafford, 1998, 2001, 2004). Stafford and Stafford (2004) suggest three key dimensions related to consumer use of the Internet: process (resources, search engines, searching, surfing, technology, and websites); content (education, information, knowledge, learning, research); and social gratification (chatting, friends, interactions, people). They initially drew the descriptive terms which characterize the typical use and sought gratifications related to the Internet and investigated the importance of each term to users. Afterward, they grouped those terms into three key dimensions utilizing factor analysis.

Korgaonkar and Wolin (1999) have applied the use and gratifications concept to the study of web portals and investigated seven motivations and concerns related to web use: social escapism motivation; transaction-based security and privacy concerns; information motivation; interactive control motivation; socialization motivation; nontransactional privacy concerns; and economic motivation. In this study, not only five motivations (social escapism, information, interactive control, socialization, and economic motivation), but also two concerns (transaction-based security and privacy concerns, and nontransactional privacy concerns) was considered as negative motivations to use web portals.

III. 5. The impact of perceived quality and motivations on intention-to-use of a general web portal

The relationship between web portal quality and a general web portal intention-to-use was investigated in this study. DeLone and McLean's (1992) and Seddon and Kiew (1994)'s information use study served as the rationales of this relationship in this study. DeLone and McLean's (1992) reviewed information system success measures and created six different categories: system quality; information quality; information use; user satisfaction; individual impact; and organization impact. They suggest a model of causal dependency between those categories. Their model shows that each of system quality and information quality influence both information use and user satisfaction. Their updated model in 2003 is shown in Figure 2.

Figure 2: DeLone and McLean's (2003) I/S Success Model



Adapted from Delone and McLean, 2003

Based on the DeLone and McLean's review, Seddon and Kiew (1994) adopted DeLone and McLean's causal model and tested the interdependency of four variables (system quality, information quality, use, satisfaction), which includes the causal relationship between information quality and information use. Livari (2005) tested the DeLone-McLean model of information system success empirically and his result showed that perceived system quality is a predictor of information use, but perceived information quality is not, though it is expected. His empirical findings are from a field study of usage of financial and accounting systems among employees in an organization. As Livari points out, the mandatory nature of the system limits his findings; therefore, he suggested more testing with voluntary systems. Telang and Mukhopadhyay (2005) also said that the quality of the portal results is a strong predictor of user choices. If a user is not satisfied

with the quality portal output, then the user is not going to use the portal in the future. A poor quality portal cannot develop user loyalty (Telang and Mukhopadhyay, 2005).

In this study, another determinant of web portal use, motivation was investigated. Korgaonkar and Wolin (1999) found that motivations and concerns correlate significantly with web use. They said that information motivation, interactive motivation, economic motivation was significantly correlated with the hours spent online per day. They also found transaction-based security and privacy concerns, information motivation, interactive motivation, social motivation, and economic motivation to be significantly correlated to shopping online. Based on Korgaonkar and Wolin's study (1999), Joins, Scherer, and Scheufele (2003) examined the influence of dimensions of motivational factors on two types of consumer web use: time spent web surfing to search for product/service information and online shopping and transactions. They conducted a self-administered survey of 59 undergraduates in a course at Cornell University and a mail/web survey of 59 New York State residents. They found that online shopping can be predicted by information motivations, interactive control motivations, and socialization motivations, economic motivations. They also found a positive correlation between the time spent web surfing and economic and interactive motivation. However, their data did not support the correlation between the time spent web surfing and information motivation. They mention the small size sample (59) might have limited their findings. The respondents who had higher levels of transaction-based security concerns were less likely to spend time searching for information on products and services and shopping online.

Although the influence of quality and motivations on information system usage in work places have been studied in MIS field and various quality factors and motivations have been identified in web usage, little is known about the influence of quality and motivation on intention-to-use of web portal usage.

IV. RESEARCH QUESTIONS

This study explored two specific research questions.

R1: To what extent does each dimension of web portal quality correlate to the intention-to-use of a general web portal?

Dimensions of web portal quality include: comprehensiveness, accuracy, clarity, applicability, conciseness, consistency, correctness, currency, convenience, timeliness, traceability, interactivity, accessibility, security, maintainability, speed, reliability, responsiveness, assurance, empathy, and tangibility. In total, 21 quality dimensions are examined in this study.

Alter (2002) said that information product has three components in it: information, physical, and service. Web portal utilizes the Internet media as physical component. In this study, Eppler's (2003) information quality model and SERVQUAL was integrated to investigate web portal quality. Eppler's content quality and media quality attributes were to explain the informational and physical components, and SERVQUAL (Parasuraman et al, 1985) to explain the service component of web portal quality. However, the definition of each service quality dimension of the SERVQUAL model may not suitable to this study, as the SERVQUAL model was originally developed for general services. Moraga, Calero, and Piattini (2006) suggested a revision of these service quality dimensions to specifically target to web portal services. Their definition of each service dimension was utilized in this study to describe each dimension of service component of web portal quality as their definitions are specifically designed to describe web portal quality.

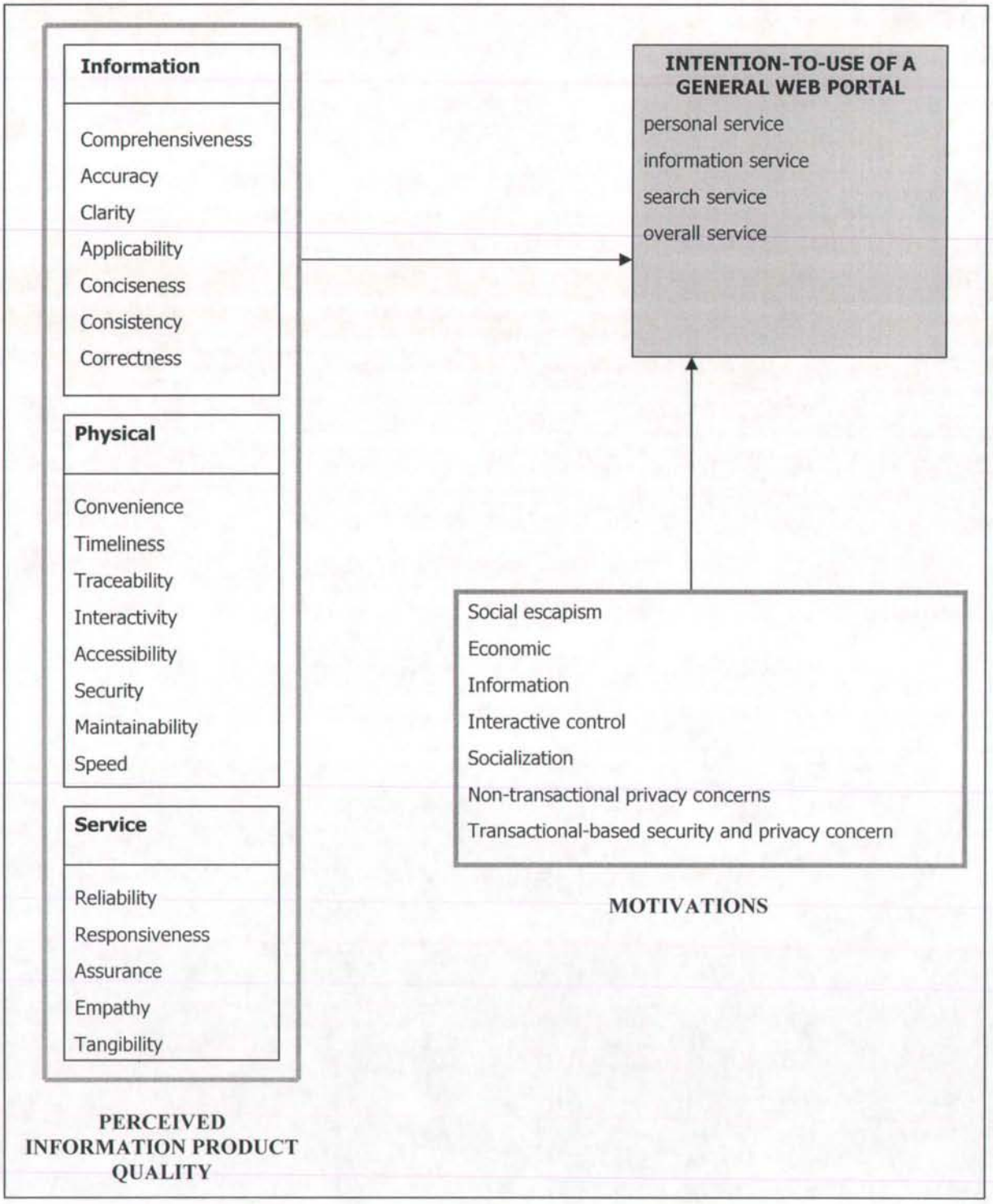
DeLone and McLean's causal model was adopted to explain the relationship between web portal quality and use.

R2: To what extent does each motivation relate to the intention-to-use of a general web portal?

Motivations include social escapism motivation; transaction-based security and privacy concerns; information motivation; interactive control motivation; socialization motivation; nontransactional privacy concerns; and economic motivation.

To examine user motivations with regard to web portal usage, seven motivations and concerns of web use (Korgaonkar and Wolin, 1999) was adopted for measurement purposes. Davis, Bagozzi, and Warshaw (1992) investigated the effect of motivations on the use of computers. According to the TAM model, a behavior is determined by the intention to perform the behavior. Actual behavior and intention have been found to be correlated (Davis, Bagozzi, Warshaw, 1989). Korgaonkar and Wolin (1999) found that motivations and concerns correlate significantly with the number of hours per day spent on the web. They said that information motivation, interactive motivation, economic motivation was significantly correlated with the hours spent online per day. The following table shows the research model in this study.

Figure 3: Research Model



V. KEY CONCEPTS

V.1. Perceived web portal quality

As defined earlier, a web portal is defined as a site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls. In this study, perceived web portal quality is conceptually defined as the web portal user's judgment or evaluation about a web portal's overall excellence or superiority. For my research purposes, perceived web portal quality was measured by asking web portal users questions about each quality dimension. The list of dimensions appears in Table 1.

Table 1: List of web portal quality attributes

Web portal quality	Attributes: description
Content quality: "related to the actual information"*	Comprehensiveness: "Is the scope of information adequate (not too much nor too little)"*
	Accuracy: "Is the information precise enough and close enough to reality?"*
	Clarity: "Is the information understandable or comprehensible to the target group?"*
	Applicability: "Can the information be directly applied? Is it useful?"*
	Conciseness "Is the information to the point, void of unnecessary elements?"*
	Consistency "Is the information free of contradictions or convention breaks?"*
	Correctness: "Is the information free of distortion, bias, or error?"*
	Currency: "Is the information up-to-date and not obsolete?"*
Media quality: "relate to the management of that information, and whether the delivery process and – infrastructure are of adequate quality"*	Convenience: "Does the information provision correspond to the user's needs and habits?"*
	Timeliness: "Is the information processed and delivered rapidly without delays?"*
	Traceability: "Is the background of the information visible? (author, date, etc.)"*
	Interactivity: "Can the information process be adapted by the information consumer?"*
	Accessibility: "Is there a continuous and unobstructed way to get to the information?"*
	Security: "Is the information protected against loss or unauthorized access?"*
	Maintainability: "Can all of the information be organized and updated on an on-going basis?"*

	Speed: "Can the infrastructure match the user's working pace?"*
Service quality	Reliability: "Is the service able to perform its functionality accurately?"**
	Responsiveness: "Is the service willing to help and to provide it functionality in an immediate form to the users?"**
	Assurances: "Is the service able to convey trust and confidence?"**
	Empathy: "Is the service able to provide caring and individual attention?"**
	Tangibility: "Does the service contain all the software and hardware infrastructures needed according to its functionality?"**

*adapted from (Eppler, 2005, on pp.25-26)

** adapted from (Moraga, Calero, Piattini, 2006)

In this study, Eppler's (2003) information quality model and SERVQUAL was incorporated to investigate web portal quality. Eppler's concepts of content quality and media quality was used to explain information and physical components, and SERVQUAL explained the service component of web portal quality. Moraga, Calero, and Piattini (2004)'s definition of each service dimension was utilized in this study to describe each dimension of service component of web portal quality as their definitions are specifically designed to describe web portal quality.

In total, 21 items (16 items from Eppler's and five items from SERVQUAL) were used to evaluate web portal quality. The original 21-item scale of Parasuraman et al's SERVQUAL represent too many items for a service component evaluation only. Therefore, for a practical quality evaluation of web portals, the main five service

dimensions and their definitions was adapted as the service component items in this study.

Subjects were asked to rate the extent to which they agree using seven-point measure anchored by "extremely unlikely"(=1) and " extremely likely"(=7).

V.2. Intention-to-use of web portal

In this study, use of a web portal means the utilization of a web portal accompanied with actions such as searching, reading, typing, clicking, etc. in real time. To measure intention-to-use, participants were asked about their likelihood of future use of a general web portal. The theoretical grounding for this construct derives from the technology acceptance model (TAM) (Davis, 1989). According to TAM, a behavior is determined by the intention to perform the behavior. Actual behavior and intention have been found to be correlated (Davis, Bagozzi, Warshaw, 1989). Intention-to-use is defined as an individual's intention-to-use of technology as their commitment toward a technology (Fishbein and Azjen, 1975) and it reflects the strengths of a person's tendency to engage in a specific behavior (Cooper and Zmud, 1990).

Among various types of portal, a general web portal was examined in this study. A general portal means a portal which aims to provide links to all sorts of different sites that can be either closely related or quite diverse, trying to meet various user needs (Tatnall, 2005). Portal services can be divided into three categories: personal services, information services, and search services (Telang and Mukhopadhyay, 2005). Therefore, each subject was asked his/her intention-to-use of personal, information, search services provided by a

web portal. Each subject also predicted overall use of a web portal using a seven-point scale.

In this study, *personal services* mean the customized features which require registration via entry of a username and password to access the services. They let users customize their interactions with the site. Portals may offer various personalized services such as emails, chat rooms, bulletin boards, messaging services, personalized home pages, etc. *Information services* refer to the features that allow users to directly access the portal by clicking them, without entering anything. News, entertainment, and sports are some of the examples of information services. *Search services* are references to the features that enable users to search the web through entering the search term(s) and clicking the search button. The search feature (which involves a textbox and a search button) is easily visible on the main page of web portals and sometime it appears with several tabs next to textbook to narrow down search results to specific search categories.

V.3. Motivation to use web portals

Motivation to use web portals is defined as the forces either within or external to a person that arouse enthusiasm and persistence to use a web portal. Motivation to use web portals was measured by asking web portal users questions at an individual level. The following motivations and concerns are driven from Korgaonkar and Wolin (1999). To measure these concepts, Korgaonakar and Wolin's scale (1999) was used (See Table 2). Each item response was categorized using a seven–point measure asking subjects to indicate the degree to which they agree or disagree.

Table 2: Korgaonkar and Wolin (1999) Motivations Scales

Motivations and concerns	Scale
Social Escapism motivation	1) "So I can escape from reality"*. 2) "Because it stirs me up"*. 3) "Because it arouses my emotions and feelings"*. 4) "Because it make me feel less lonely"*. 5) "So I can get away from what I am doing"*. 6) "So I can forget about work"*. 7) "Because it shows me how to get along with others"*. 8) "Because it helps me unwind"*. 9) "So I won't be alone"*. 10) "I do not like to use the web alone"*. 11) "Because it takes me into another world"*.
Information motivation	1) "Because it gives quick and easy access to large volumes of information"*. 2) "Overall, I learn a lot from using the web"*. 3) "So I can learn about things happening in the world"*. 4) "Overall, information obtained from the web is useful"*. 5) "Because it makes acquiring information inexpensive"*.
Interactive control motivation	1) "Because I decide if I want to continue scrolling through the sites or not"*. 2) "Because it gives me the control over what and when I want to use it"*. 3) "Because it is interactive"*. 4) "Because I enjoy it"*. 5) "Because it is thrilling"*. 6) "Because I find it exciting"*.
Socialization motivation	1) "When I visit my friends we often use the Web with my friends"*. 2) "Often, I talk to my friends about sites on the web"*. 3) "I enjoy telling people about the Web sites I like"*. 4) "Because it is a part of my usual routine"*.
Economic motivation	1) "I enjoy the convenience of shopping on the web"*. 2) "When I want to buy a big-ticket item, I use the web to search for bargain prices"*. 3) "To research a company, industry, or stock"*. 4) "Because it saves money"*.
Transaction-	1) "I am worried about the security of financial transactions on the web"*.

based security and privacy concerns	2) "I am concerned that my personal financial information may be shared with businesses without my consent"*. 3) "I am uncomfortable giving my credit card number on the web"*. 4) "I am concerned over the security of personal information on the web"*. 5) "When I send a message over the web, I feel concerned that it may be read by some other person or company without my knowledge"*. 6) "I am uncomfortable conducting personal banking transactions via the web"*. 7) "To me, the use of the Web will be more appealing if proper safeguards were in place"*.
Non-transactional privacy concerns	1) "I detest the fact that the web is becoming a haven for electronic junk mail"*. 2) "I wish I had more control over unwanted messages sent by businesses on the Web"*. 3) "I dislike the fact that marketers are able to find out personal information of online shoppers"*.

*adapted from Korgaonkar and Wolin (1999)

VI. METHODOLOGY

VI.1. Overview

For this study, various research methods were considered. Many researchers agree that qualitative research and quantitative research are complementary to each other, and multiple research methods have benefits that cannot be achieved through one research method alone. As De Certeau (2002) mentioned, social activity should be regarded as a sum of interactions of individual, dispersed, and multiplied in a different sort of logic. One research method may successfully measure a facet of an activity, but it is not enough to understand every facet of the activity. The difference between natural science and social science is that social science is about human behavior or interactions in social settings, so a quantitative measure has limitations in fully describing human behavior, which is affected by various factors at any given time.

One of the methods, case study, has been broadly used in social sciences. Case studies are conducted especially when the investigator has little control over events and when the focus of the study is on a contemporary phenomenon within some real-life context (Yin, 1984). Traditionally, case studies have been used for the exploratory phases of investigations, surveys used for the descriptive phases, and experiments for the explanatory phases of investigations. However, as Yin points out, case studies can be used for descriptive or explanatory phases of investigation, too. He said case studies are preferred in examining contemporary events that are not manipulable by researcher. Direct observation and systematic interviewing are the main techniques in case studies.

However, this vein of study does not involve a description of any specific event, so case studies are not considered.

Initially, a qualitative interviewing method was considered to investigate information product quality and motivations to use information, as qualitative research methods are usually more appropriate to observe the complexities of human behavior. Qualitative study is preferred for exploratory stages of study. However, the concepts of information product quality and motivations consist of concretely defined multi-dimensions which have been investigated by many researchers over time. In addition, the main purpose of this study is to explain the difference between variables. Therefore, an interview method asking subjects about each dimension of quality and motivation would not add value in this explanatory stage of the study.

Traditionally, the quantitative approach has been a dominant research method in information quality and motivation studies. However, this method has some limitations in the study of information use. Experiments are restricted to measurement in a laboratory setting, which is suitable to isolate unnecessary variables. Measurement in the setting has its own limitation to represent the actual behavior in a real environment setting. Various explanatory forces interact with each other, so each of those is difficult to isolate. The various philosophical discourses identify the complexity of information use. Information use is difficult to investigate, measure, and manipulate.

Next, the survey method among a large population was considered for this study. This method is great for external validity in explaining the relationships between variables. However, the evaluation of web portal quality is very context-specific. Unless specific tasks are given, the evaluation of the web portal quality will be vague.

Therefore, in this study, a field experiment has been conducted. Field studies examine the intervention in the real world, rather than in the fully controlled lab setting. The major difference between the field experiment and the laboratory experiment is that in field experiments, there is a limited scope to control the variables, while in laboratory experiments, the variables are rigorously controlled. In the research model of this study, two causal relationships are proposed. To investigate research questions in the explantory stage, some types of experiments can be helpful. However, the randomization and manipulation of independent variables can affect the data when we are dealing with web portals use. For example, even if a new web portal is created for the purpose of the experiment, the usage and perception of it would not be the same as in real web portals. Therefore, a field experiment is chosen for this study. In this study, it does not make sense to measure the dependent variable before an experimental task is performed. Therefore, an "after-only" experiment (Babbie, 2007) has been conducted. Quality perception, motivations, and intention-to-use was measured after each task performance.

VI.2. Subject and procedure

Data were collected from undergraduate students at the University of Hawaii at Manoa who were taking a 300-level business class in the Summer or Fall term in 2007. The students enrolling in the course were primarily juniors. Undergraduate student groups are ideal for this study because members of this age group (18 to 34) are the heaviest users of the web (Markets Take Note: The Elusive 18-34 Year-Old is Habitually Online, 2004). Participation in this study was voluntary. Participants were rewarded with course extra credits for their time and efforts during participation.

Participants were given a printout of experiment instructions describing the three types of tasks they would complete. Participants read the instructions, performed all three types of tasks individually online, and answered the questions in the two-phase survey.

As mentioned earlier, Telang and Mukhopadhyay (2005) divided portal services into three categories: personal services, informational services, and search services. Thus, the three types of tasks assigned to every individual participant made use of the personal, informational, and search services provided by a web portal. EXCITE.COM was used for this purpose. EXCITE.COM emerged from being a major search engine, into a web portal. EXCITE.COM provides all standard portal applications. EXCITE.COM offers all three types of services of web portals. To ensure the same familiarity with the site, only the responses from the participants who have no experience with EXCITE.COM were used for data analysis.

For the tasks which involve the use of personal services offered by the web portal, participants were asked to do the following: 1) create a new account which they didn't have before; 2) design a "My Link" page on the portal; and 3) design a "My Page" (for more detail instruction, see appendix 2). For the tasks which involve the use of information services offered by the web portal, participants were asked to complete the following tasks without typing anything in the search box: 1) find a birthday gift for someone he/she really cares; 2) recommend a movie for this weekend for a couple in their 60s; and 3) Find some piece of interesting or odd news that he/she would share with a close friend. For the tasks which involved the use of search services offered by the web portal, participants were asked to answer the three questions using a search box. In their tasks, they were required to use the search box and may use the taps located on top of the

search box to narrow down their searches to specific categories. However, they were not allowed to click any other links or tabs in the main page of the web portal. The questions they answered are: 1) What is the definition of "AKIMBO"?; 2) Who won the gold medal in the 400m freestyle swimming in the 12th FINA World Championships"?; and 3) What is the best deal for an 30G iPod?

After completing these tasks, the subjects evaluated the quality of the web portal, motivations to use, and intention-to-use. To measure perceived quality, motivations, and the intention-to-use, a self-administered survey was done right after performing the tasks. To evaluate the quality of the web portal, the questionnaire also asked participants to rate the extent to which they agree in seven-point scale (anchored by extremely unlikely, strongly extremely likely). To measure motivations, Korgaonakar and Wolin's scale (1999) was used. Each item response were categorized into a seven–point measure asking subjects to indicate the degree to which they agree or disagree (7:extremely agree, 1:extremely disagree).

Participants also were asked to self-predict their future use of the web portal. To measure the intention-to-use, the similar technique was used as it appears in the TAM's study. The statement, "Assuming the web portal is available, I predict that I will use it on a regular basis in the future," were followed by a seven-point scale (1:extremely unlikely, 7:extremely likely). The questionnaire is in Appendix 3. Subjects were asked the question again to evaluate the individual's intention-to-use of each of the personal, informational, and search services provided by EXCITE.COM using this seven-point scale.

VII. DATA ANALYSIS

Kendall's Tau-b was used to calculate the correlation among quality, motivation, and intention-to-use. Tau-b can be used for both square and non-square tables. As 7-point ordinal data were collected for the measurement of quality, motivation and intention-to-use, Tau-b was the most appropriate method to compute measures of association among quality, motivation and intention-to-use. In this study, the main focus of the relationship between web portal quality and web portal use is not causality, but correlation. The ordinal coefficient gamma is a correlation coefficient for ordinal, interval, or ratio data. It is used as a symmetric measure which varies from +1 to -1. However, it is not considered in this study because it provides an inflated value compared to most other ordinary coefficients on the same data set. The formula for Gamma is (P - Q)/(P + Q). Here P represents the concordant pairs and Q represents the discordant pairs. Tau-b equals the difference between concordant and discordant pairs divided by a term representing the geometric mean between the number of pairs not tied on x (X_0) and the number not tied on y (Y_0):

$$\text{tau-b} = (P - Q)/\ \text{SQRT}[((P + Q + Y_0)(P + Q + X_0))]$$

To test and validate the conceptually developed three factors of web portal quality, factor analysis, using SPSS 15.0 (SPSS, 2000), was conducted with maximum likelihood extraction with iterations. Varimax rotation was specified to identify variables that might indicate potential constructs.

Cronbach's alpha, a measure of internal consistency reliability, was computed for each factor to assess the reliability of the set of items forming that factor. Cronbach's alpha score is a function of the number of test items and the average inter-correlation among

the items. The formula for the standardized Cronbach's alpha is NR/{1+(N-1)*R}}}, with N being the number of items and R equal to the average inter-item correlation among the items. This formula shows that if the number of items increases, the alpha value also increases. If the average inter-item correlation is low, the alpha value will also be low. Thus, as the average inter-item correlation increases, Cronbach's alpha will also increase. To ensure reliability on how well a set of items measures each motivation, the Cronbach alpha score was calculated. Regression analysis was also conducted to identify the main determinant for intention-to-use of web portals.

VIII. RESEARCH FINDINGS

This chapter presents the findings from the data analysis. The descriptive results, factor analysis results, and regression results are provided in their respective sections.

VIII.1. Demographics

142 undergraduate business students—85 males and 57 females—enrolled in BUS 300-level courses at the University of Hawaii at Manoa during either the Summer or Fall semester in 2007 participated in the experiment and the survey. The mean age among participants was 22.6 with the youngest being 19 and the oldest being 37 years of age. The age of the majority of participants (90%) ranged between 19 to 26 years old. Most of them were in the junior or senior year of their academic careers.

At the time of the survey, 81.7% of participants indicated they had prior experience using web portals. 36% of those surveyed had less than 5 years experience, and 64% had more than or equal to 5 years of experience with web portal use. Seventy six percent of participants had experience with YAHOO.COM and thirty three percent of participants said they use YAHOO.COM often. Sixty five percent of participants had experience with MSN.COM, and twenty percent of the participants said that they use MSN.COM often. Seventy five percent of the participants had no prior experience with EXCITE.COM. In addition, a large number of participants indicated they had no experience with LYCOS.COM (91%), GO.COM (95%), NETSCAPE.COM (89%), and AOL.COM (77%). The web portal ranked most favorite among the participants was Google (37.3%), with Yahoo (17.6%) and MSN (7%) ranked second and third, respectively.

VIII.2. Factor analysis

The first step in the analysis was aimed at validating the conceptually developed measurement of three factors designed to capture web portal quality. To accomplish this objective, factor analysis using SPSS 15.0 was conducted with maximum likelihood extraction with iterations. Varimax rotation was specified to identify variables that might indicate potential constructs. Four factors with eignevalues over one were obtained. Table 3 displays the rotated loading for these factors. Factor loadings were examined and highest scores were marked in bold and placed on top of each item. The four factors explained 72.77 percent of the variance. Data did not support the original structure of the research model. However a factorial analysis has allowed the model to be rearranged. The four factors are labeled: (1) Content relevancy, (2) Communication interactiveness, (3) Information currency, and (4) Instant gratification (see Table 3).

Factor 1: Content relevancy Among the four factors, Content relevancy appeared to be the most important because it explained the largest portion (54.71%) of the total variance. Content relevancy was indicated by the attributes "Correctness", "Consistency", "Tangibility", "Security", "Conciseness", and "Empathy". "Correctness" is most highly correlated with factor 1 with rotated loading score .700.

Factor 2: Communication interactiveness Communication interactiveness explained 6.61% of total variance. Communication interactiveness was indicated by the attributes

"Interactivity", "Accessibility", "Clarity", "Comprehensiveness", "Traceability", and "Applicability". "Interactivity" is correlated with the highest rotated score .727.

Factor 3: Information currency Information currency accounted for 5.96% of the variance. Information currency was indicated by the attributes "Currency", "Timeliness", "Accuracy", "Convenience", and "Maintainability". "Currency" is the most highly correlated with the factor 3.

Factor 4: Instant gratification Instant gratification represented 5.48% of the variance and consisted of the attributes "Speed", "Reliability", "Assurance", and "Responsiveness". "Speed" is the most highly correlated attribute to Instant gratification. This result is different from the theoretically proposed three components of web portal quality: information, physical, and service. Cronbach's alpha, a measure of internal consistency reliability, was computed for each factor to assess the reliability of the set of items forming that factor (see Table 3).

Table 3: Web portal quality factors

Factors	Attributes
Factor 1: Content relevancy Eigenvalue=11.49 Cronbach's alpha=.861	**Correctness (.700)** Consistency (.692) Tangibility (.596) Security (.564) Conciseness (.556) Empathy (.473)
Factor 2: Communication interactiveness Eigenvalue=1.39 Cronbach's alpha=.911	**Interactivity (.727)** Accessibility (.713) Clarity (.649) Comprehensiveness (.642) Traceability (.560) Applicability (.485)
Factor 3: Information currency Eigenvalue=1.25 Cronbach's alpha=.892	**Currency (.752)** Timeliness (.727) Accuracy (.633) Convenience (.559) Maintainability (.537)
Factor 4: Instant gratification Eigenvalue=1.15 Cronbach's alpha=.878	**Speed (.814)** Reliability (.540) Assurance (.506) Responsiveness (.504)

VIII.2.1 Reliability analysis

Cronbach's alpha, a measure of internal consistency reliability, was computed for each factor to assess the reliability of the set of items forming that factor. The reliability estimation for the four factors was strong, evidenced by a coefficient alpha of .86 for factor 1, .91 for factor 2, .89 for factor 3, and .87 for factor 4. For each motivation and concern, Cronbach's alpha was calculated to see how well a set of items measures each motivation and concern. The data results show that Cronbach's alpha for each motivation and concern is >.80. And all of the values are statistically significant ($p<.05$). Each of the Cronbach's alpha data analyzed is summarized in Table 4.

Table 4: Cronbach's alpha value of Motivations and concerns

	Cronbach's Alpha	Number of items	Sig
Social escapism motivation	0.939	11	.000
Information motivation	.920	5	.005
Interactive Control motivation	.917	6	.000
Socialization motivation	.895	4	.000
Economic motivation	.877	4	.016
Transactional-based security and privacy concern	.895	7	.000
Non-transactional privacy concern	.881	3	.000

VIII.3. Confirmatory analysis

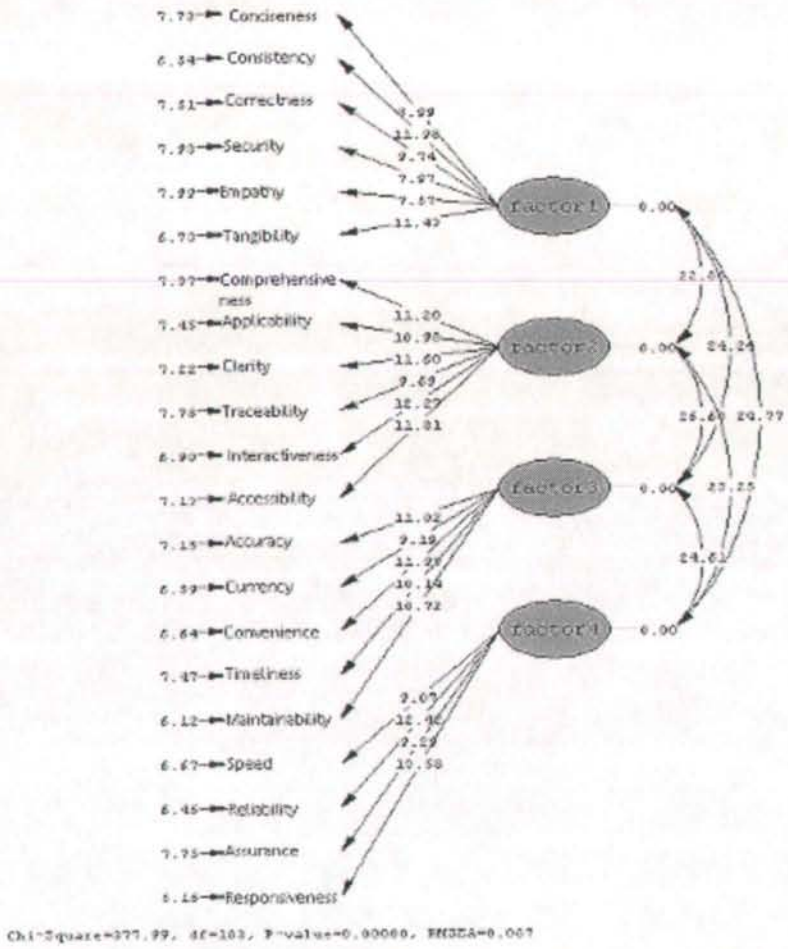
The four factors were confirmed through a measurement model in LISREL 8.80

(LISREL, 2006). This model was expected to provide factor validity in this study. The LISREL Maximum Likelihood solution algorithm was used to estimate model parameters. $\chi^2_{(183)}$ of the model was 377.99 (p=.000). In addition, the Root Mean Square Error of Approximation (RMSEA) = 0.087, 90 Percent Confidence Interval for RMSEA = (0.074 ; 0.099), and P-Value for Test of Close Fit (RMSEA < 0.05) = 0.00. LISREL 8.80 uses Maximum Likelihood for analysis of missing data.

VIII.3.1. Convergent validity

When the standardized factor loading of each item and all the t-value are higher than statistically significant levels, then good convergent validity exists (Dunn, Seaker, and Waller, 1994; Anderson and Berbing, 1988). In the following figures, each variable exhibits high t-value (Figure 4) and significant loadings (Figure 5), which support convergent validity.

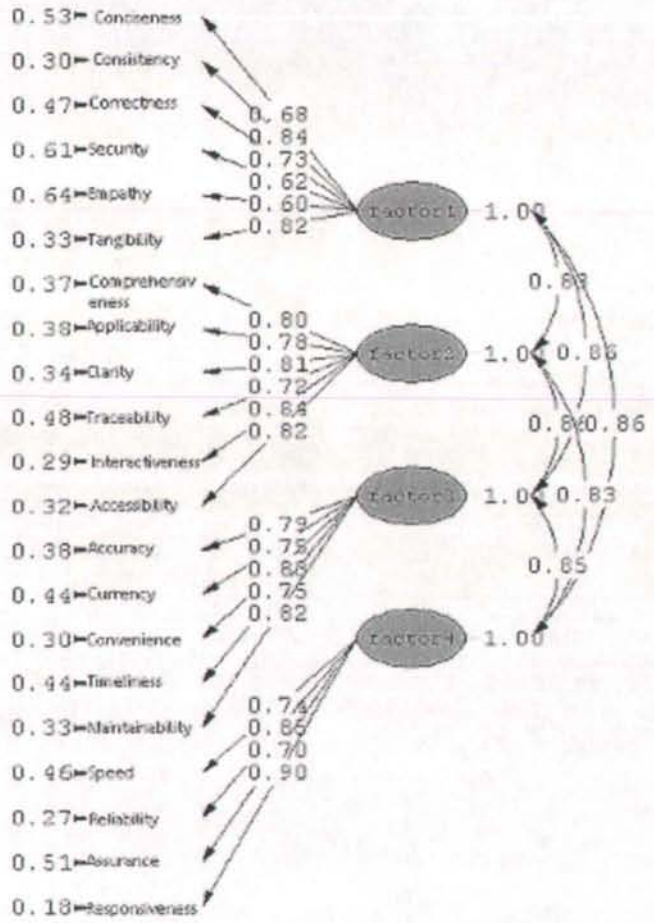
Figure 4: CFA model of web portal quality (t-value)



Legend:

Factor 1: Content Relevancy
Factor 2: Communication Interactiveness
Factor 3: Information Currency
Factor 4: Instant Gratification

Figure 5: CFA model of web portal quality (standardized loading)



Chi-Square=377.99, df=183, P-value=0.00000, RMSEA=0.087

Legend:

Factor 1: Contgent Relevency
Factor 2: Communication Interactiveness
Factor 3: Information Currency
Factor 4: Instant Gratification

VIII.3.2. Discriminant validity

For discriminant validity, the estimated correlation parameter Φ_{ij} between one pair of components was constrained to 1.0, and a χ^2 difference test was conducted on the values obtained from the constrained model and the unconstrained model. A chi-square difference test was conducted for each possible pair of the four factors at any given time

(Anderson and Gerbing, 1988). In the following table (Table 5), the unconstrained model shows a significantly lower value of χ^2 than all the constrained models. The chi-square difference test for each pair of factors was significant ($p<.001$), so the factors possess discriminant validity.

Table 5: Test of discriminant validity chi-square difference tests

Model with correlation between factors free

$\chi^2_{(183)}=377.99$

Models with correlation between factors constrained to unity($\Phi=1$)

1) $\Phi_{21}=1$, $\chi^2_{(184)}=440.84$
2) $\Phi_{31}=1$, $\chi^2_{(184)}=418.62$
3) $\Phi_{41}=1$, $\chi^2_{(184)}=415.78$
4) $\Phi_{32}=1$, $\chi^2_{(184)}=425.76$
5) $\Phi_{42}=1$, $\chi^2_{(184)}=444.96$
6) $\Phi_{43}=1$, $\chi^2_{(184)}=419.99$

Difference tests

1) $\Delta\chi^2_{(1)}=62.85$, $\chi^2_{(1)}=10.83$, $p<0.001$
2) $\Delta\chi^2_{(1)}=40.63$, $\chi^2_{(1)}=10.83$, $p<0.001$
3) $\Delta\chi^2_{(1)}=37.79$, $\chi^2_{(1)}=10.83$, $p<0.001$
4) $\Delta\chi^2_{(1)}=47.77$, $\chi^2_{(1)}=10.83$, $p<0.001$
5) $\Delta\chi^2_{(1)}=66.97$, $\chi^2_{(1)}=10.83$, $p<0.001$
6) $\Delta\chi^2_{(1)}=42.00$, $\chi^2_{(1)}=10.83$, $p<0.001$

VIII.4. Relationships to intention-to-use

VIII.4.1. Relationship between quality variables and intention-to-use

For Nonparametric Correlations between quality variables and intention-to-use, Tau-b was computed. Personal service intention-to-use was significantly correlated with sixteen quality variables: comprehensiveness, accuracy, clarity, applicability, consistency,

correctness, convenience, timeliness, traceability, accessibility, maintainability, speed, reliability, responsiveness, assurance, and empathy. Information service intention-to-use was significantly correlated with sixteen quality variables: comprehensiveness, accuracy, clarity, applicability, consistency, convenience, timeliness, traceability, interactivity, accessibility, maintainability, speed, reliability, responsiveness, assurance, and empathy. Search service intention-to-use was significantly correlated with eighteen quality variables: comprehensiveness, accuracy, clarity, applicability, conciseness, consistency, correctness, convenience, timeliness, traceability, interactivity, accessibility, speed, reliability, responsiveness, assurance, empathy, and tangibility. Overall service intention-to-use was significantly correlated with the following twenty variables: comprehensiveness, accuracy, clarity, applicability, conciseness, consistency, correctness, convenience, timeliness, traceability, interactivity, accessibility, security, maintainability, speed, reliability, responsiveness, assurance, empathy, and tangibility. In the following table (Table 6), the Tau-b correlation coefficient and p value is listed for each relationship.

For personal services intention-to-use, the most highly correlated quality attributes were speed ($r=.260$, $p<.01$), applicability ($r=.245$, $p<.001$), and reliability ($r=.231$, $p<.001$). For information services intention-to-use, reliability ($r=.257$, $p<.001$), applicability ($r=.257$, $p<.001$), and comprehensiveness ($r=.246$, $p<.001$) are highly related. For search services intention-to-use, clarity ($r=.307$, $p<.001$), applicability ($r=.291$, $p<.001$), speed ($r=.275$, $p<.001$) are highly related. For overall services intention-to-use, speed ($r=.331$, $p<.001$), comprehensiveness ($r=.308$, $p<.001$), and applicability ($r=.301$, $p<.001$) are identified as highly correlated attributes.

Table 6: Correlations between quality variables and intention-to-use

	Personal service intention-to-use	Information service intention-to-use	Search service intention-to-use	Overall service intention-to-use
Comprehensiveness (n=142)	.197(**)	.246(***)	.269(***)	.308(***)
Accuracy(n=142)	.201(**)	.195(**)	.244(***)	.293(***)
Clarity (n=142)	.206(**)	.206(**)	.307(***)	.264(***)
Applicability(n=142)	.245(***)	.257(***)	.291(***)	.301(***)
Conciseness(n=142)	.089	.110	.199(**)	.136(*)
consistency(n=142)	.148(*)	.142(*)	.142(*)	.158(*)
correctness(n=141)	.151(*)	.113	.188(**)	.205(**)
Currency(n=108)	.088	.096	.078	.123
convenience(n=141)	.211(**)	.206(**)	.259(***)	.286(***)
Timeliness(n=142)	.191(**)	.214(**)	.232(***)	.245(***)
traceability(n=142)	.209(**)	.160(*)	.174(**)	.149(*)
interactivity(n=142)	.131	.152(*)	.252(***)	.189(**)
accessibility(n=142)	.192(**)	.216(**)	.271(***)	.250(***)
Security(n=142)	.128	.105	.110	.190(**)
Maintainability(n=109)	.201(**)	.224(**)	.134	.228(**)
Speed(n=109)	.260(**)	.236(**)	.275(***)	.331(***)
Reliability(n=142)	.231(***)	.257(***)	.259(***)	.294(***)
Responsiveness(n=141)	.167(*)	.165(*)	.203(**)	.260(***)
Assurance(n=142)	.195(**)	.198(**)	.219(**)	.242(***)
Empathy(n=142)	.182(**)	.179(**)	.219(**)	.238(***)
Tangibility(n=138)	.068	.131	.175(**)	.178(**)

***p<.001 ** p<.01 * p<0.05

VIII.4.2. Relationship between quality factors and intention-to-use

Personal service intention-to-use was significantly correlated with factor 2 (r=.188, p<.009) and factor 4 (r=.174, p=.016). Information service intention-to-use was significantly correlated with factor 2 (r=.174, p=.016) and factor 4 (r=.144, p=.047). Search service intention-to-use was significantly correlated with factor 2 (r=.241, p<.001)

and factor 4 (r=.167, p=.020). Overall service intention-to-use was significantly correlated with factor 2 (r=.218, p=.003), factor 3(r=.159, p=.029), and factor 4 (r=.217, p=.003). Factor 1 was not correlated significantly with personal service, information service, search service, or overall service intention-to-use.

Table 7: Correlations between quality factors and intention-to-use

	Correlation			
	Personal service(n=103)	**Information service(n=103)**	**Search service(n=103)**	**Overall service(n=103)**
Factor 1: Content relevancy	0.038	0.28	0.004	0.40
Factor2: Communication interactiveness	0.188(**)	.174(*)	.241(***)	.218(*)
Factor 3: Information Currency	.133	.121	.118	.159(*)
Factor 4: Instant gratification	.174(*)	.144(*)	.167(*)	.217(**)

***p<.001 ** p<.01 * p<0.05

VIII.4.3. Relationship between motivations and intention-to-use.

Personal service intention-to-use was significantly correlated with social escapism motivation (r=.306), information motivation (r=.242), interactive motivation (r=.331), socialization motivation (r=.245), and transaction-based security and privacy concern (r=.153). Information service intention-to-use was significantly correlated with social escapism motivation (r=.265), information motivation (r=.236), interactive motivation (r=.291), socialization motivation (r=.227), and transaction-based security and privacy concern (r=.133). Search service intention-to-use was significantly correlated with social escapism motivation (r=.329), information motivation (r=.217), interactive motivation

(r=.272), socialization motivation (r=.278), and economic motivation (r=.161). Overall service intention-to-use was significantly correlated with social escapism motivation (r=.306, p=000), information motivation (r=.213, p=.001), interactive motivation (r=.259, p=.000), and socialization motivation (r=.205, p=.000). These results are represented in Table 8.

Table 8: Correlations between motivations and intention-to-use

	Personal service intention-to-use	Information service intention-to-use	Search service intention-to-use	Overall service intention-to-use
Social escapism motivation (N=141)	.306(***)	.265(***)	.329(***)	.306(***)
Information motivation (N=141)	.242(***)	.236(***)	.217(***)	.213(***)
Interactive control motivation (N=141)	.331(***)	.291(***)	.272(***)	.259(***)
Socialization motivation (N=141)	.245(***)	.227(***)	.278(***)	.205(***)
Economic motivation (N=141)	.116	.101	.161(**)	.117
Transaction-based security and privacy concerns (N=141)	.153(*)	.133(*)	.108	.112
Non-transactional privacy concerns (N=141)	.050	.063	.007	.030

***p<.001 ** p<.01 * p<0.05

The revised model, figure 6, introduces four web portal quality components, Content relevancy, Communication interactiveness, Information currency, and Instant gratification. Quality attributes are also rearranged to each quality component. This model contributes to the better understanding of intention-to-use of a general web portal.

Figure 7, 8, 9, 10 shows the correlation results among quality components, motivations, and intention-to-use of personal, information, search, and overall services, respectively.

Figure 6: The revised theoretical model

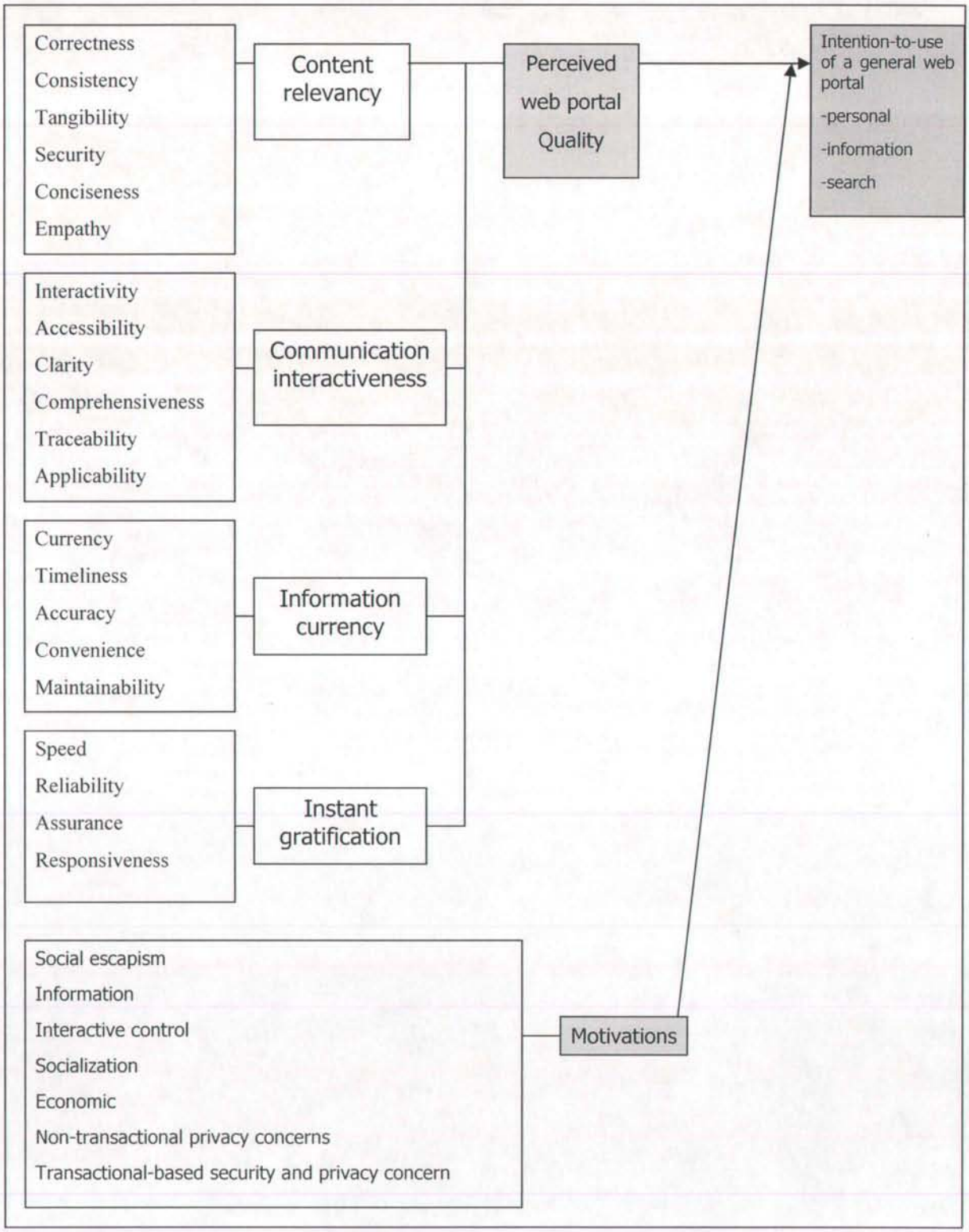


Figure 7: Personal service intention-to-use results

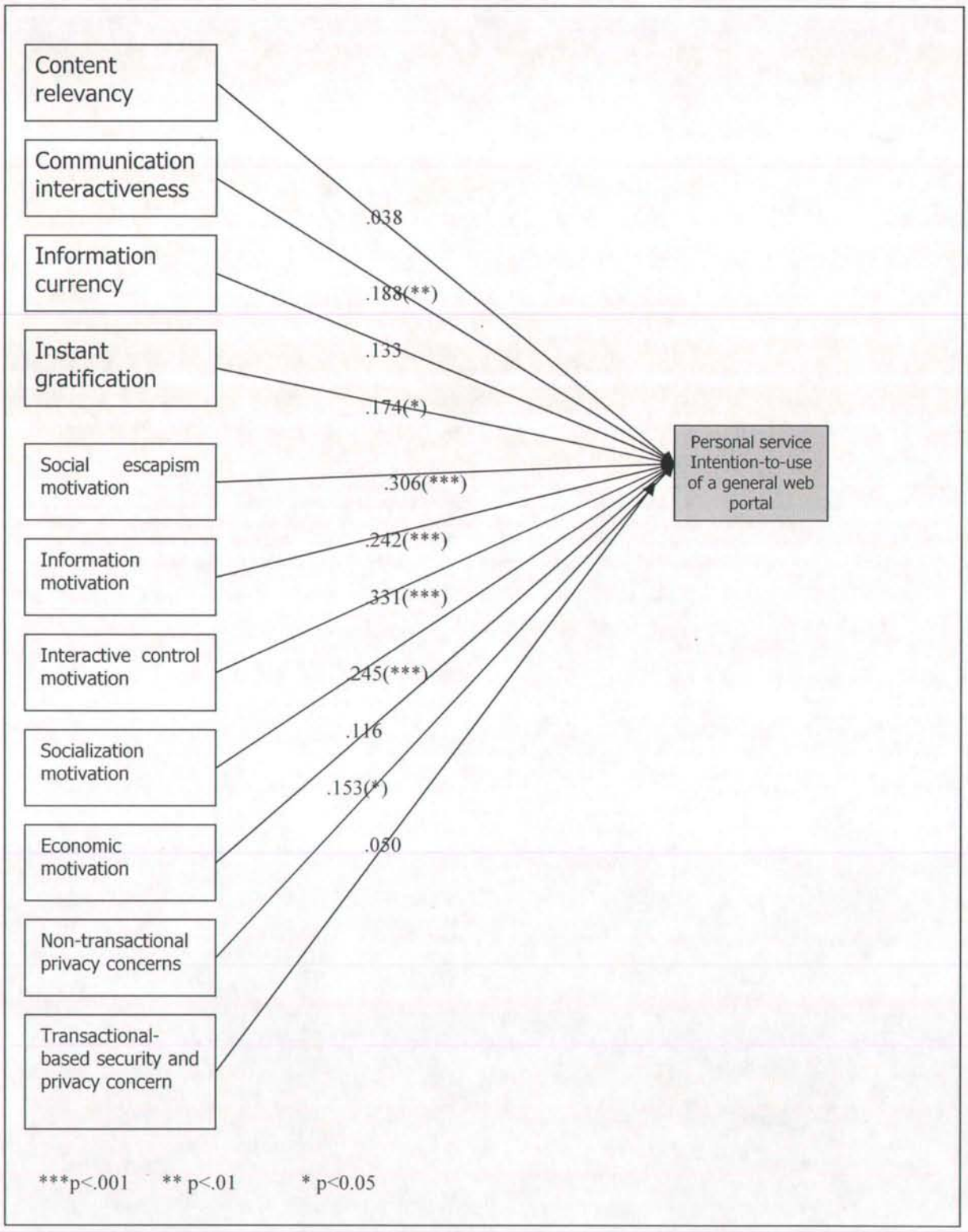


Figure 8: Information service intention-to-use results

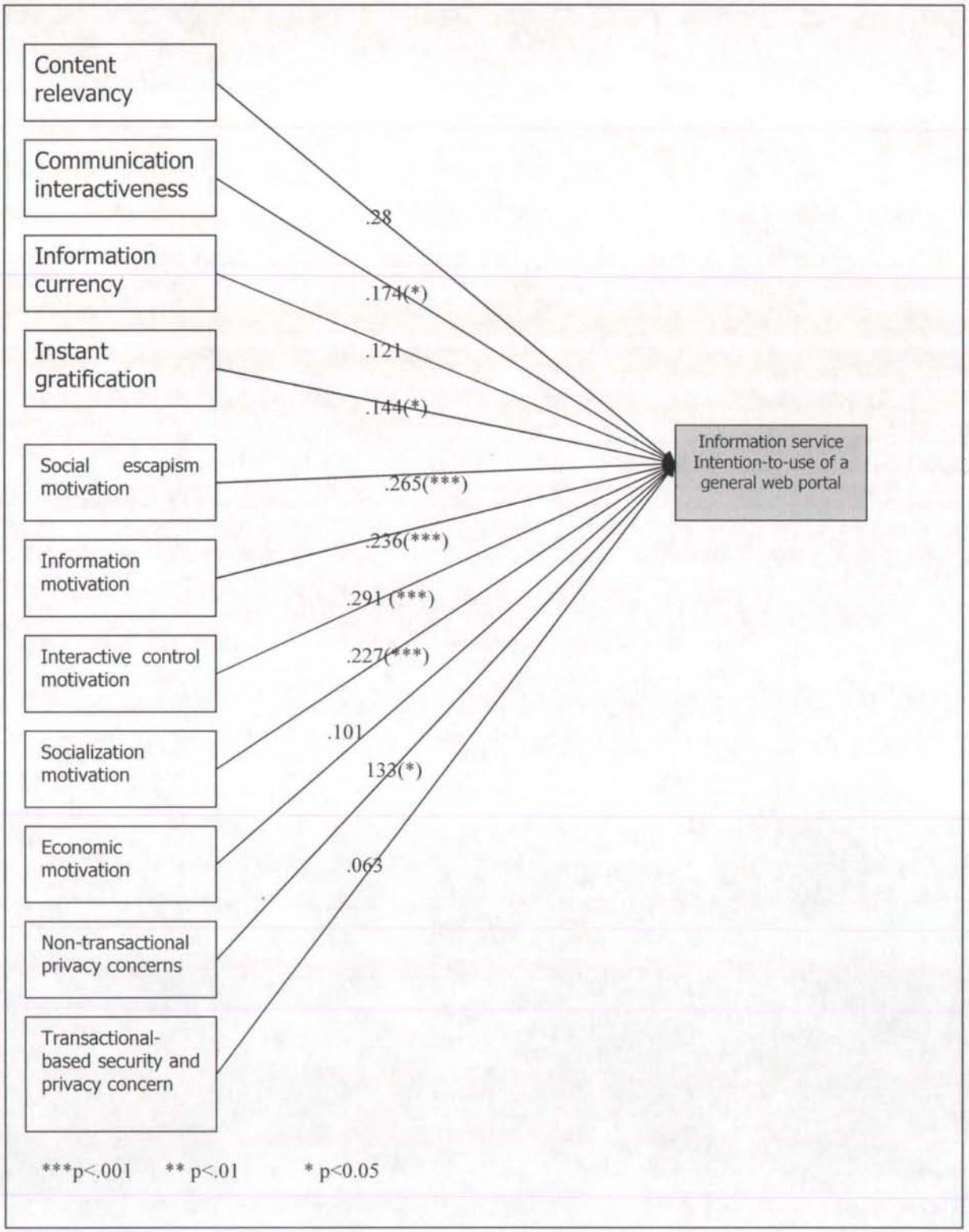


Figure 9: Search service intention-to-use results

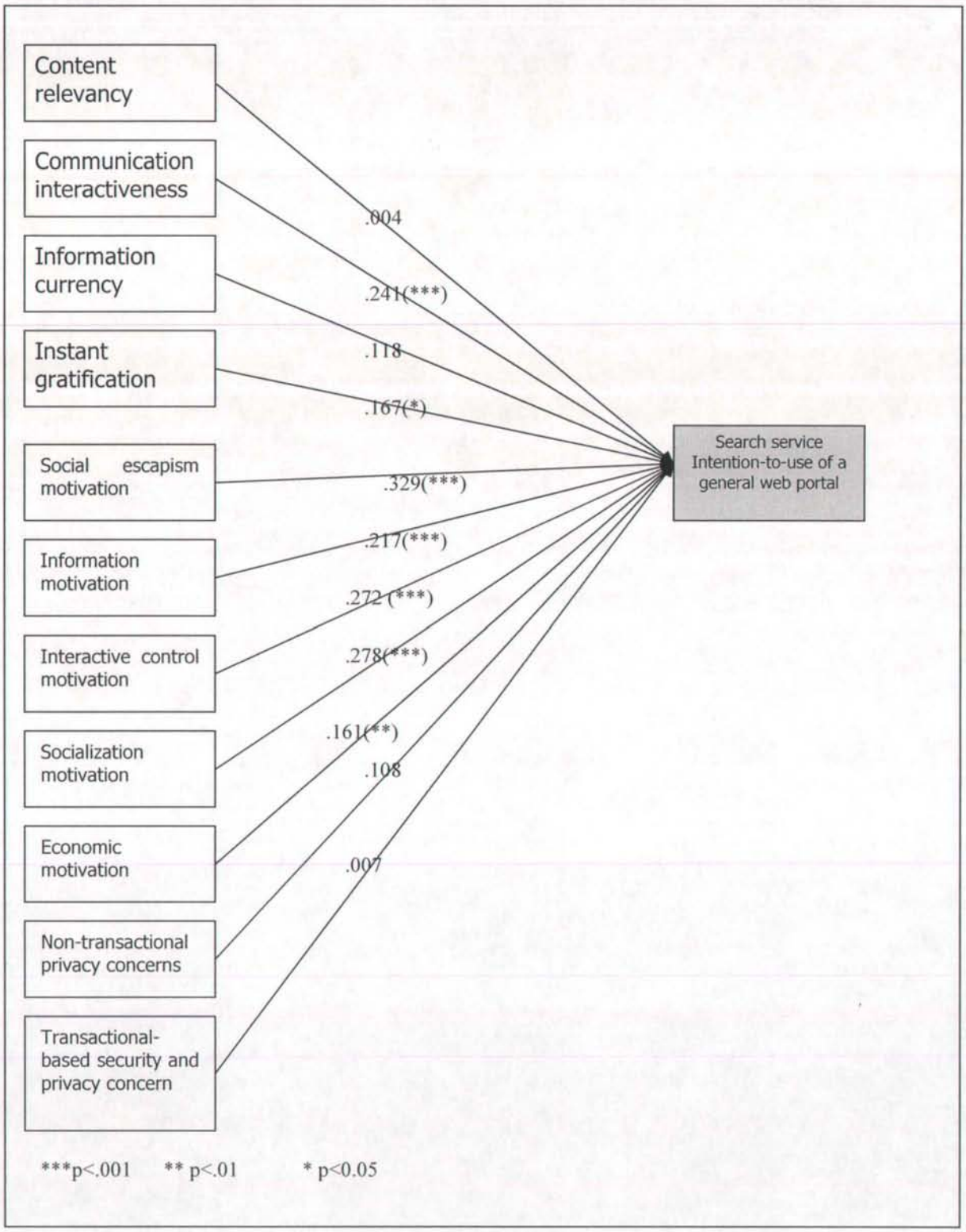
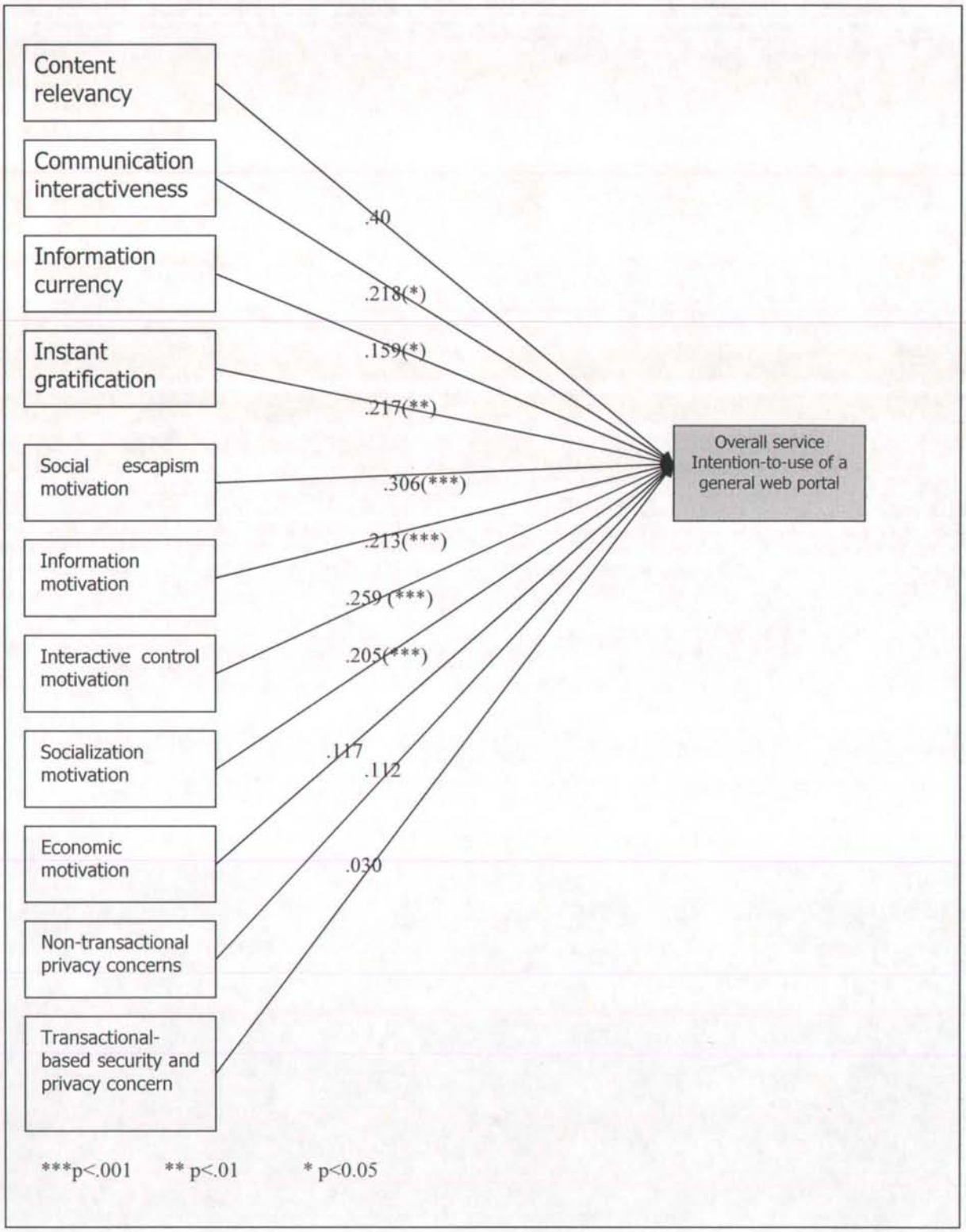


Figure 10: Overall service intention-to-use results



VIII.4.4. Regression analysis results between quality factors, motivations and intention-to-use.

Stepwise regression analysis indicates that the effect of social escapism motivation (β=.490) and interactive control motivation (β=.266) on personal service intention-to-use was significant at the .01, and .05 level, respectively. For information service intention-to-use, social escapism motivation (β=.284) and interactive control motivation (β=.253) significantly influenced at the .05 level. Search service intention-to-use was best explained by social escapism motivation (β=.367, p=.000) and quality factor 2 (Communication interactiveness, β=.262,p=.004). Overall service intention was best explained by social escapism motivation (β=.630, p=.000).

Table 9: Results of simple and stepwise regression analyses for predicting the *personal service intention-to-use*

	Simple regression analysis				Stepwise regression analysis			
	B	β	t	p	B	β	t	p
Factor1: Content relevancy	.140	.070	.775	.440				
Factor2: Communication interactiveness	.211	.107	1.089	.279				
Factor3: Information currency	.028	.014	.129	.897				
Factor4: Instant gratification	.050	.025	.261	.795				
Social escapism motivation	.428	.298	2.406	.018	.490	.341	3.023	.003
Information Motivation	.117	.107	.632	.529				
Interactive Control Motivation	.248	.209	1.208	.230	.266	.224	1.989	.049
Socialization Motivation	.015	.015	.107	.915				
Economic Motivation	-.168	-.156	-1.060	.292				
Transaction-based security and concern	.022	.019	.167	.867				
Non-transaction-based security and concern	.022	.002	.017	.986				

Simple regression analysis: multiple R=.541, R^2=.292 , adjusted R^2=.206, F=3.383 df p<.001

Stepwise regression analyses: multiple R=.515, R^2=.265 , adjusted R^2=.250, F=17.870 df p<.000

Table 10: Results of simple and stepwise regression analyses for predicting the *information service intention-to-use*

	Simple regression analysis				Stepwise regression analysis			
	B	**β**	**t**	**p**	**B**	**β**	**t**	**p**
Factor1: Content relevancy	.086	.045	.486	.628				
Factor2: Communication interactiveness	.143	.076	.757	.451				
Factor3: Information currency	-011	-.006	-.050	.960				
Factor4: Instant gratification	.055	.029	.299	.766				
Social escapism motivation	.330	.242	1.910	.059	.389	.284	2.476	.015
Information Motivation	.173	.165	.959	.340				
Interactive Control Motivation	.200	.177	1.005	.318	.286	.253	2.205	.030
Socialization Motivation	.047	.047	.335	.738				
Economic Motivation	-138	-.135	-.896	.373				
Transaction-based security and concern	.020	.019	.162	.872				
Non-transaction-based security and concern	-.005	-.004	-.035	.972				

Simple regression analysis: multiple R=.510, R^2=.260 , adjusted R^2=.170, F=2.880 df p<.003

Stepwise regression analyses: multiple R=.488, R^2=.238 , adjusted R^2=.223, F=15.461 df p<.000

Table 11: Results of simple and stepwise regression analyses for predicting the *search service intention-to-use*

	Simple regression analysis				Stepwise regression analysis			
	B	**β**	**t**	**p**	**B**	**β**	**t**	**p**
Factor1: Content relevancy	-0.017	-.008	-.087	.931				
Factor2: Communication interactiveness	.498	.239	2.378	.020	.546	.262	2.934	.004
Factor3: Information currency	.035	.017	.150	.881				
Factor4: Instant gratification	.031	.015	.153	.879				
Social escapism motivation	.429	.283	2.237	.028	.558	.367	4.109	.000
Information Motivation	.104	.089	.519	.605				
Interactive Control Motivation	.024	.019	.110	.912				
Socialization Motivation	.106	.095	.680	.498				
Economic Motivation	-.050	-.044	-.293	.770				
Transaction-based security and concern	-.010	-.009	-.074	.941				
Non-transaction-based security and concern	-.038	-.027	-.249	.804				

Simple regression analysis: multiple R=.511, R^2=.261 , adjusted R^2=.171, F=2.888 df p<.003

Stepwise regression analyses: multiple R=.496, R^2=.246 , adjusted R^2=.231, F=16.134 df p<.000

Table 12: Results of simple and stepwise regression analyses for predicting the overall service intention-to-use

	Simple regression analysis				Stepwise regression analysis			
	B	**β**	**t**	**p**	**B**	**β**	**t**	**p**
Factor1: Content relevancy	.151	.077	.834	.406				
Factor2: Communication interactiveness	.242	.125	1.247	.216				
Factor3: Information currency	.093	.048	.427	.670				
Factor4: Instant gratification	.270	.139	1.417	.160				
Social escapism motivation	.413	.293	2.324	.022	.630	.448	5.004	.000
Information Motivation	.170	.158	.918	.361				
Interactive Control Motivation	.046	.039	.223	.824				
Socialization Motivation	.056	.054	.390	.698				
Economic Motivation	-.140	-.132	-.881	.381				
Transaction-based security and concern	-.042	-.037	-.325	.746				
Non-transaction-based security and concern	-.067	-.051	-.472	.638				

Simple regression analysis: multiple R=.515, R^2=.265 , adjusted R^2=.175, F=2.950 df p<.002

Stepwise regression analyses: multiple R=.448, R^2=.200 , adjusted R^2=.192, F=25.041 df p<.000

IX. DISCUSSION

One of the focuses of the study was to investigate what qualities users desire in a web portal. This effort was successful in that the research identified attributes associated with web portal quality that determine intention-to-use of web portals. Among the 21 attributes which web portal quality theoretically consists of, highly related quality attributes varied based on what kind of services participants use a web portal for. For personal service, speed, applicability, and reliability were highly correlated. For information service, reliability, applicability, and comprehensiveness were highly related. For search service, clarity, applicability, and speed were highly related. For overall service, speed, comprehensiveness, and applicability were identified as highly correlated attributes. In relation to personal services use, there is a high set-up cost in terms of time when people sign up for a new ID, password, and enter personal information. The high set-up cost may explain the high correlation between 'speed' and personal service intention-to-use.

Applicability was the significantly correlated attribute for personal, information, and search service intention-to-use. Applicability refers to whether the information is directly applicable or useful (Eppler, 2005). By the definition, this attribute seems to be related to usefulness. *Usefulness* is defined as "the quality of being suitable or adaptable to an end" (Roget's II, 1995). Usefulness is determined by the inherent attributes of the resource and its applicability within specific information-seeking contexts and work tasks (Wilson, 1981). Lee, Cheung and Chen (2005) tested extrinsic (usefulness and ease of use) and intrinsic (perceived enjoyment) motivations to explain students' intention-to-use of

Internet-based learning mediums. Their study found that perceived usefulness and perceived enjoyment significantly influenced the use of Internet-based learning mediums. However, the perceived ease of use did not impact the intention-to-use of Internet-based learning mediums. Their findings on usefulness are consistent with the findings on applicability in this study.

One of the most significant findings in this study is the four quality factors (Content relevancy, Communication interactiveness, Information currency, and Instant gratification) perceived by users as representative of web portals. This finding is different from the conceptually developed web portal quality dimensions: information, physical, and service. Even though higher level abstract dimensions could be developed to capture the meaning of perceived web portal quality, specific attributes used to infer quality could not be generalized across information products (Ziethml, 1988). The quality attributes from the conceptual dimensions were thus rearranged to create four factors. One primary explanation lies in web portals function as gateways to abundant information on the World Wide Web. Therefore, the four factors (Content relevancy, Communication interactiveness, Information currency, and Instant gratification) seem to reflect the characteristics of web portals. Further studies will be necessary to test those new factors in different types of web portals.

Another focus of the study was to investigate what motivates people to use web portals. As previously reported, social escapism, information, interactive control, and socialization were all highly correlated to each of the categories of intention-to-use: personal, information, search, and overall. People use information for various reasons; and as previously discussed, several theoretical perspectives address this question from

rational, interactionist, entertainment, and postmodern perspectives. However, the four significant motivations determined in this study suggest that a general web portal can be considered a social software that embeds the functions of social computing.

Social software is defined as web-based software programs which allow users to socially interact and share information with others, and social computing is about supporting social behaviors in or through computational systems (Wikipedia, 2008). The usage of social software has been increasing. The defining characteristics of social software is 1) to support for interactive communication between individuals or groups ranging from synchronous real-time chatting to asynchronous collaborative work spaces, 2) to support for social feedback which allows users to evaluate the contributions of others, leading to the creation of reputation, and 3) to support social networks to create and build new relationships among individuals and groups of people (Boyd, 2003). Social software comprises various types of digital activities. Weblogs, Wiki, Social bookmarking, iPod, Google earth, online profile matching services, are examples of social software (Owen, M., et al, 2006).

Usually, a general web portal aggregate information and resources which enable users to perform various social computing, such as email, instant messaging, writing blogs, etc. In turn, social computing is the frame most appropriate to describe the characteristics of a general web portal. The main motivations to use web portals seem to correspond to the characteristics associated with social computing. Further studies are necessary for a better understanding and to determine the implications of web portals as social computing tools.

Social escapism motivation was identified as a main determinant of intention-to-use among various motivations and concerns. This finding is consistent with the finding of

Lee, Cheung, and Chen's (2005) study. They found enjoyment motivation significantly influenced the use of Internet-based learning mediums. Social escapism motivation characterizes the use of a web portal as "a pleasurable, fun, and enjoyable activity that allows one to escape from reality" (Korgaonkar and Wolin, 1999). As discussed in the literature review chapter, entertainment, as an "activity designed to give pleasure or relaxation to the audience" (Wikipedia, 2008), has been considered a significant motivation to use information and media. In web usage, Korgaonkar and Wolin found "social escapism" is one of the factors of motivation to use web. They used the term "Social escapism" similarly to the notion of entertainment; however, when they use the term "social escapism," it as also includes relieving daily boredom and stress, overcoming loneliness, and providing a diversion from reality as well as arousing emotions and aesthetic enjoyment. These various attributes emerged and were integrated to define "social escapism" in their study.

Transaction-based security and privacy concerns, economic concerns, and non-transactional privacy concerns were not significantly correlated to intention-to-use of overall service of web portals. In this study, the use of web portals didn't include online transaction activity or any business web use. In the context of business web use, Korgaonkar and Wolin's study (1999) found the three motivations and concerns mentioned above were significantly related.

Another significant finding in this study is the influence of social escapism motivation as a major determinant of intention-to-use of web portal. Even though a general web portal is developed as a tool to aggregate data and information, a primary motivation for use is because it is a fun, enjoyable activity that one allows to escape from reality. Even when

all quality attributes and all motivations and concerns were considered together, social escapism motivation was the most powerful determinant of intention-to-use. The unexpected importance of the role of social escapism suggests that the influence of this motivation exceeds quality of web portal on intention-to-use. This finding also implies that no matter the quality of the product provided, unless there is significant motivation, the use of it cannot be guaranteed.

X. CONCLUSION

X.1. Implications and Contributions

This study will contribute to the current scholarly research in the field in three ways. First, the experimental findings in this study demonstrate that DeLone and McLean's IS Success Model (2003) can be specifically applicable to a particular information product, a web portal. The comprehensive list of quality factors of a web portal can be further tested to measure quality of other types of information products, as those factors are theoretically grounded to explain information products in general.

Second, in this study, a quality framework was utilized as independent variables to explain intention-to-use of a general web portal. This new process will allow for research that can potentially contribute to better understandings in the area of information quality studies.

Third, in theories based on TAM model, intention-to-use of mandatory, work-related information system has mostly been the focus. Therefore, the explanation of intention-to-use has been limited in some senses. Examination of motivations for general web portal use uncovered attributes that have not been associated with a compulsory work system. To explain the intention-to-use of a general web portal which is a spontaneous information system, quality factors and various motivations and concerns were considered in this study. This provides new variables (21 quality variables and seven motivations variables) which can contribute to explaining the intention-to-use of a variety of spontaneous information systems.

Beyond these academic contributions, one of the major implications of this study relates to the four quality factors of web portals. Articulation of these factors will help identify problems that may significantly hinder use when web designers, managers, and users evaluate the quality of a general web portal. Identifying these factors has great practical value for web portal engineers in the development of new design ideas, for managers who want to know what users' are looking for in a web portal, and eventually for the end users who expect high quality in web portals that they use in everyday life.

Finally, this study explored the motivations related to intention-to-use. The motivations significantly related to intention-to-use will provide insight to web portal designers about what features they should consider in designing web portals.

X.II. Limitations

The threat to external validity comes from the fact that a field experiment in this study employs a limited numbers of subjects, tasks, and web portal site. The student sample may not represent a large geographical population. Also, the tasks that each subject performed may not represent the actual usage of web portals. The features of three of the web portals chosen for the field experiment also may not represent the features of all web portals. Also, EXCITE.COM is just one example of a general web portal, so it does not represent all general web portals. Therefore, there is a generalization limitation in this study to other types of web portals and other users. "After only" types of experiments are suseptible to the danger that individuals may respond differently. Thus, differences in their responses may merely reflect individual variations, rather than trends in web portal usage. Another problem may be the influence of the task performed. A specific task may

affect perceived quality and intention-to-use differently. In "after only" experiments, Babbie (2007) writes that by repeating the experiment several times, using different groups of people in future studies will strengthen the confidence in the general research conclusion (Babbie, 2007).

Another limitation arises from the inconsistency between behavior and intention. Even though intention-to-use is correlated to actual usage, intention does not perfectly influence actual usage because attitude or behavior can change due to various factors, such as social change, personal norm, moral obligation, perceived behavioral control, habitual behavior, influence of situation or context, etc.

X.III. Directions for future research

The quality attributes from the conceptual dimensions were congregated to four new factors (Content relevancy, Communication interactiveness, Information currency, and Instant gratification). The four factors seem to reflect the characteristics of web portals. Further studies are necessary to test these new factors in different types of web portals so as to better understand the characteristics of web portals as well as to investigate the relationship between the characteristics and intention-to-use of web portals.

Additional future work is also necessary to explore the functionality of web portals as platforms for social computing. The main motivations to use web portals seem to be related to the concept of social computing. The significantly related motivations for intention-to-use imply the functionality of web portals as a social computing tool. Social computing is a social structure in which technology puts power in communities, not

institutions (Joseph, et al., 2006). Further studies should thus examine web portals from the perspective of them being social computing tools.

X.IV. Summary

The purpose of this study was to examine the characteristics of information products from the end-users' perspective and to measure their impact on intention to use. Using a popular and general web portal (Excite.com) as an information product, the objective was achieved in that the research identified four quality factors: correctness, interactivity, currency, and speed. Also, four significant motivations (social escapism, information, social, and interactive control) were found to be significantly related to intention-to-use. Among various determinants, social escapism motivation most significantly influenced intention-to-use of web portals. These findings contribute to a better understanding of the intention-to-use of web portals. Future studies should have two specific foci: 1) they should work to articulate a theoretical model that explains web portal quality; and 2) the characteristics of web portals that correlate it to being a social computing tool should be investigated.

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APPENDIX 1 : CONSENT FORM

Agreement to Participate in

A general web portal Study

Junghyun Nam

Primary Investigator

808-393-7450

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to examine web portal quality and motivations to use a general web portal. You are being asked to participate, because you are taking BUS 311 class in summer 2007.

Web portal means "a web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls." (Webopedia, 2005). Participation in the project will consist of performing several web portal use tasks and filling out a form of survey about web portal quality, motivation to use web portal, and usage of web portals. The tasks and surveys will be done anonymously, so no personal recognizing information will be included with the research results. Performing web portal use tasks will last no longer than 30 minutes. Completion of the survey form should take no more than 15 minutes. Approximately 80 people will participate in the study.

The investigator believes there is little or no risk to participating in this research project.

Participating in this research may be of no direct benefit to you. It is believed, however, the results from this project will help both for venders who would like to assess users' demand for new design ideas and for the users who expect better quality of the web portals. This study will add to the understanding of web portal quality and address user's motivation to use web portals. As compensation for time spent participating in the research project, you will receive extra credits in Business 311 course in Summer/Fall 2007.

Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators office for the duration of the research project. All research records will be destroyed upon completion of the project.

Participation in this research project is completely voluntary. If you do not wish to participate in this study, equivalent extra credit opportunities (a case analysis of a information technology topic chosen by the class instructor) will be made available for you. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled.

If you have any questions regarding this research project, please contact the researcher, Junghyun Nam, at 373-7450. If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808)956-5007.

APPENDIX 2: TASK INSTRUCTIONS

These instructions will be posted on the web, and each participant will download it in a MS Word format.

Instructions

For these tasks, you are going to use a web portal, EXCITE.COM, during the next 30 minutes. Please go to EXCITE.COM and complete the following three types of services, personal, information, and search services offered by EXCITE.COM.

Personal service use tasks:

1) Create a new account;

2) Edit 'my link' including five of your own created links;

3) Edit 'my page' including three of your contents. Please write down the three contents included in your page and capture the screen of the main page (if you press the control key and PrnSc key simultaneously, you can capture screen) and paste the images below.

Information service use tasks: Do not type in the search box to complete these tasks.

1) Find a birthday gift for someone you really care through EXCITE.COM and provide the information about the gift, including the vendor, price, and site URL. Make sure that you list all the links you followed to get this information.

_____

_____

_____

_____

_____

_____

2) Recommend a movie for this weekend for a couple in their 60s, and write down the information about the movie, including the title and site URL. Make sure that you list all the links you follow to get this information.

_____

_____

3) Find some piece of interesting or odd news that you would share with a close friend, and write down any information about the news piece, including the article title and a site URL. Make sure that you list all the links you followed to get this information.

Search service use tasks: Using the search box located on the main page of Excite.com, please answer the questions below. You may use the taps located next to the search box to narrow your search down to specific categories, but do not click any other links or tabs in the main page of the web portal.

1) What is the definition of "AKIMBO"?

2) Who won the gold medal for 400m freestyle swimming in the 12th FINA World Championships?

3) What is the best deal for a 30G iPod? Please provide information about the product, including the vendor, price, and site URL.

Thank you for your participation.

Please fill out the provided the survey questionnaire.

APPENDIX 3: SURVEY INSTRUMENTS

SURVEY PHASE ONE

A. Demographic information

1. What is your gender?

   □Male □Female
2. How old are you?_____
3. What school year are you in?

   □freshman □sophomore □junior □senior □post graduate
4. Have you ever used web portals? □yes □no
5. If you have, how long have you been using web portals?_____years.
6. Do you have experience with YAHOO.COM portal site? □yes □no
7. Do you have experience with LYCOS.COM portal site? □yes □no
8. Do you have experience with GO.COM portal site? □yes □no
9. Do you have experience with NETSCAPE.COM portal site? □yes □no
10. Do you have experience with MSN.COM portal site? □yes □no
11. Do you have experience with AOL.COM portal site? □yes □no
12. Do you have experience with EXCITE.COM portal site? □yes □no

B. Intention to use of the web portal

1. Personal service use

Personal services are "customized features that require registration via entry of a username and password to access these services. They also let users customize their interactions with the site. Portals may offer various personalized services such as emails, chat rooms, bulletin boards, messaging services, and personalized home pages, etc"(Telang and Mukhopadhyay, 2005).

Assuming the web site is always available, how likely are you to use **personal services** offered by EXCITE.COM on a regular basis in the future?

1. extremely unlikely
2. strongly unlikely
3. slightly likely
4. neither
5. slightly likely

6. strongly likely
7. extremely likely

2. Information service use

"Information services are the features that allow users to access directly from the portal by clicking them, without entering anything. News, entertainment, and sports are some of the examples of information services"(Telang and Mukhopadhyay, 2005).

Assuming the web site is always available, how likely are you to use **information services** offered by EXCITE.COM on a regular basis in the future?

1. extremely unlikely
2. strongly unlikely
3. slightly likely
4. neither
5. slightly likely
6. strongly likely
7. extremely likely

3. Search service use

"Search services are the features that enable users to search the Web through entering the search term(s) and clicking the search button. The search feature (which involves a textbox and a search button) is easily visible on the main page of web portals and sometime it appears with several tabs next to textbook to narrow down search results to specific search categories"(Telang and Mukhopadhyay, 2005).

Assuming the web site is always available, how likely are you to use **search services** offered by EXCITE.COM on a regular basis in the future?

1. extremely unlikely
2. strongly unlikely
3. slightly likely
4. neither
5. slightly likely
6. strongly likely
7. extremely likely

4. Overall use

Assuming the website is always available, how likely are you to use EXCITE.COM on a regular basis in the future?

1. extremely unlikely
2. strongly unlikely

3. slightly likely
4. neither
5. slightly likely
6. strongly likely
7. extremely likely

C. Quality evaluation

The following table is an quality evaluation. How do you rate the following qualities of the web portal, EXCITE.COM? Please consider the following each quality attribute and rate them.

	Rate each attribute (1) extremely disagree (2) strongly disagree (3) slightly disagree (4) neither (5) slightly agree (6) strongly agree (7) extremely agree						
1. Comprehensiveness ("Is the scope of information adequate? (not too much nor too little"*))	1	2	3	4	5	6	7
2. Accuracy ("Is the information precise enough and close enough to reality?*")	1	2	3	4	5	6	7
3. Clarity ("Is the information understandable or comprehensible to the target group?"*)	1	2	3	4	5	6	7
4. Applicability "(Can the information be directly applied? Is it useful?")	1	2	3	4	5	6	7
5. Conciseness ("Is the information to the point, void of unnecessary elements?")	1	2	3	4	5	6	7
6. Consistency ("Is the information free of contradictions or convention breaks?")	1	2	3	4	5	6	7
7. Correctness ("Is the information free of distortion, bias, or error?"*)	1	2	3	4	5	6	7
8. Currency ("Is the information up-to-date and not obsolete?"*)	1	2	3	4	5	6	7
9. Convenience ("Does the information provision corresponding to the user's needs and habits?"*)	1	2	3	4	5	6	7
10. Timeliness ("Is the information processed and delivered rapidly without delays?"*)	1	2	3	4	5	6	7
11. Traceability ("Is the background of the information visible? (Authors, date, etc.)"*)	1	2	3	4	5	6	7
12. Interactivity ("Can the information process be adapted by the information consumer?"*)	1	2	3	4	5	6	7
13. Accessibility ("Is there a continuous and unobstructed way to get to the information?"*)	1	2	3	4	5	6	7
14. Security ("Is the information protected against loss or unauthorized access?"*)	1	2	3	4	5	6	7

15. Maintainability: ("Can all of the information be organized and updated on an on-going basis?"*)	1	2	3	4	5	6	7
16. Speed: ("Can the infrastructure match the user's working pace?"*)	1	2	3	4	5	6	7
17. Assurances: ("able to convey trust and confidence"**)	1	2	3	4	5	6	7
18. Reliability: ("able to perform its functionality accurately"**)	1	2	3	4	5	6	7
19. Responsiveness: ("willing to help and to provide it functionality in an immediate form to the users"**)	1	2	3	4	5	6	7
20. Assurances: ("able to convey trust and confidence"**)	1	2	3	4	5	6	7
21. Empathy: ("able to provide caring and individual attention"**)	1	2	3	4	5	6	7

*adapted from (Eppler, 2005)

** adapted from (Moraga, Calero, Piattini, 2006)

D. Motivations to use EXCITE.COM

What motivate you to use EXCITE.COM? Please consider each of the following items and rate each.

Why do I use web portals?	Rate each attribute (1) extremely disagree (2) strongly disagree (3) slightly disagree (4) neither (5) slightly agree (6) strongly agree (5) strongly agree						
1. "So I can escape from reality"*.	1	2	3	4	5	6	7
2. "Because it stirs me up"*.	1	2	3	4	5	6	7
3. "Because it arouses my emotions and feelings"*.	1	2	3	4	5	6	7
4. "Because it make me feel less lonely"*.	1	2	3	4	5	6	7
5. "So I can get away from what I am doing"*.	1	2	3	4	5	6	7
6. "So I can forget about work"*.	1	2	3	4	5	6	7
7. "Because it shows me how to get along with others"*.	1	2	3	4	5	6	7
8. "Because it helps me unwind"*.	1	2	3	4	5	6	7
9. "So I won't be alone"*.	1	2	3	4	5	6	7
10. "I do not like to use the web alone"*.	1	2	3	4	5	6	7
11. "Because it takes me into another world"*.	1	2	3	4	5	6	7
12. "Because it gives quick and easy access to large volumes of information"*.	1	2	3	4	5	6	7
13. "Overall, I learn a lot from using the web"*.	1	2	3	4	5	6	7
14. "So I can learn about things happening in the world"*.	1	2	3	4	5	6	7
15. "Overall, information obtained from the web is useful"*.	1	2	3	4	5	6	7
16. "Because it makes acquiring information inexpensive"*.	1	2	3	4	5	6	7

17. "Because I decide if I want to continue scrolling through the sites or not"*.	1	2	3	4	5	6	7
18. "Because it gives me the control over what and when I want to use it"*.	1	2	3	4	5	6	7
19. "Because it is interactive"*.	1	2	3	4	5	6	7
20. "Because I enjoy it"*.	1	2	3	4	5	6	7
21. "Because it is thrilling"*.	1	2	3	4	5	6	7
22. "Because I find it exciting"*.	1	2	3	4	5	6	7
23. "When I visit my friends we often use the Web with my friends"*.	1	2	3	4	5	6	7
24. "Often, I talk to my friends about sites on the Web"*.	1	2	3	4	5	6	7
25. "I enjoy telling people about the Web sites I like"*.	1	2	3	4	5	6	7
26. "Because it is a part of my usual routine"*.	1	2	3	4	5	6	7
27. "I enjoy the convenience of shopping on the Web"*.	1	2	3	4	5	6	7
28. "When I want to buy a big-ticket item, I use the web to search for bargain prices".	1	2	3	4	5	6	7
29. "To research a company, industry, or stock"*.	1	2	3	4	5	6	7
30. "Because it saves money"*.	1	2	3	4	5	6	7
31. "I am worried about the security of financial transactions on the web"*.	1	2	3	4	5	6	7
32. "I am concerned that my personal financial information may be shared with businesses without my consent"*.	1	2	3	4	5	6	7
33. "I am uncomfortable giving my credit card number on the web"*.	1	2	3	4	5	6	7
34. "I am concerned over the security of personal information on the web"*.	1	2	3	4	5	6	7
35. "When I send a message over the web, I feel concerned that it may be read by some other person or company without my knowledge"*.	1	2	3	4	5	6	7
36. "I am uncomfortable conducting personal banking transactions via the web"*.	1	2	3	4	5	6	7
37. "To me, the use of the Web will be more appealing if proper safeguards were in place"*.	1	2	3	4	5	6	7
38. "I detest the fact that the web is becoming a haven for electronic junk mail"*.	1	2	3	4	5	6	7
39. "I wish I had more control over unwanted messages sent by businesses on the Web"*.	1	2	3	4	5	6	7
40. "I dislike the fact that marketers are able to find out personal information of on-line shoppers"*.	1	2	3	4	5	6	7

*Adopted from Korgaonkar and Wolin (1999) Motivations scales