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An Expectancy-Value Analysis of Web Gratifications

Meiling Shih
University of Tennessee - Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by Meiling Shih entitled "An Expectancy-Value Analysis of Web Gratifications." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication.

Michael Singletary, Major Professor

We have read this dissertation and recommend its acceptance:

Dorothy Bowles, Herbert Howard, David Sylwester

Accepted for the Council:
Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Dr. Anne Mayhew
Vice Provost and Dean of
Graduate Studies

(Original signatures are on file in the Graduate Student Services Office.)

AN EXPECTANCY-VALUE ANALYSIS OF WEB GRATIFICATIONS

A Dissertation
Presented for the
Doctor Of Philosophy
Degree
The University of Tennessee, Knoxville

Meiling Shih
May 2002

DEDICATION

This dissertation is dedicated to my mom, Liang-Mei, who always inspired me and encouraged me to achieve this goal.

ACKNOWLEDGMENTS

A professor in my undergraduate program inspired us to “stand on the giant’s shoulder” to pursue the immense knowledge. Since then, I have been motivated to reach higher. The long journey has been filled with frustration yet excitement, loneliness yet support, and discouragement yet encouragement.

During my prolonged nine years in the doctoral program, I married, had a son, started my market research career, bought a house, lost my mom, and witnessed the tragedy of September 11 with the world. Here I sincerely thank all who helped me to fulfill this destiny. Thanks to my major professor, Dr. Michael Singletary for his guidance and effort to keep me attached to the program; to Dr. Dorothy Bowles, Dr. Herbert Howard, and Dr. David Sylwester for serving on my committee and for their guidance; to my parents, brothers, and the rest of my family for their love and support. Thanks to my friends and colleagues at MORPACE International for always believing in me and encouraging me. Among them, Betty Bradley, Michele Cote, Aliza Eba, Karen Gaule, Ching-Shya Lee, Yu Ru Lee, Annette McGhee, Susan North, Katy Rehal, Loni Stevenson and Keith Woods always helped and reminded me of this important task.

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ABSTRACT

The present study explored the mechanisms directing Web usage decisions to determine more reliable estimates of the importance of various influences involved.

A Web-based survey was administered to respondents who voluntarily participated by responding to a message posted to selected Internet discussion groups. Exploratory factor analysis and covariance structure model were employed to examine the relationships between attitude, expectancies, motivation, intention, and usage regarding the Web.

Research evidence spoke strongly against univariate or bivariate motivational schemes. In addition to *surveillance* and *diversion* functions that have been found in traditional mass media, the Web also provided two unique qualities, *utility* and *interaction*.

Approximately one-third of variance in Web usage was explained by expectancy-value judgments or motivations. Other influences, including non-sociological-psychological variables, attributed to Web usage variance remain to be explored.

Research findings also indicated that expectancy-value judgments and motives function similarly in determining intention and usage regarding the Web; however, user motives or gratifications appeared to further separate from the general attitude toward the Web. Further improvement in scaling expectancy-value and gratifications items is suggested to attain discriminant and convergent validity.

INDEX WORDS: Expectancy-Value, Uses and Gratifications, Web Usage

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CHAPTER I
INTRODUCTION

The Internet grew phenomenally in the last decade of the twentieth century. The Internet is defined as the worldwide network of computer networks that share the common Internet protocol, which enables them to communicate and pass data back and forth. It links personal and mainframe computers, personal digital assistant devices, and wireless telephones via dial-up telephone, wireless, and high-speed cable and dedicated fiber-optic connections. However, the Internet is not just an infrastructure; it is the global richness of resources and experiences that the infrastructure makes available (Falk, 1998; Grey, 1997). Further, the interactivity of personal computers and the convergence of traditional media around the Web are simultaneously spawning a new form of media and fragmenting audiences (Vacker, 2000). As the mass audience becomes more and more fragmented with the increased popularity of the Internet, the traditional definitions of mass media should be revisited to possibly include this new communication technology (Morris & Ogan, 1996).

The Internet exists as a kind of mental milieu for individuals to communicate and share ideas (Vacker, 2000). Some would argue that the Internet is not only a phenomenon, but also a new paradigm for information networking, filled with never-before-seen opportunities and possibilities (Falk, 1998; Hindle, 1997). This argument is based on Kuhn's propositions that paradigms are "universally recognized scientific achievements" that are "sufficiently unprecedented to attract an enduring group of adherents away from competing modes of scientific activity" and "sufficiently open-ended to leave all sorts of

problems for the redefined group of practitioners to resolve" (1962, pp. viii & 10).

Industry observers note that almost every discipline is redefining its existing practices by interaction with the Internet (Klopfenstein, 2000). However, the underlying existence of the Internet phenomenon is "neither fully understood nor entirely defined" (Hindle, 1997, p. vi).

The Internet has demonstrated a vast ability to disperse existing industry structures (e. g., "The emerging digital economy," 1998). This structural change "is having profound consequences for all information industries, and is redefining relationships between consumers and suppliers in nearly every other sector" (Hindel, 1997, p. x). Many believe that the Internet's expansion will affect the amount of time people spend on other activities, especially television entertainment or news viewing (Aikat, 2000b, p. 66; Pew Research Center, 1999; Scarborough, 2001). Because it is perceived to be functionally similar to other media, the Internet has the potential to substitute for or supplement any existing "old" media (Chan-Olmsted, 2000; Lin, 1999). Some would even support the notion that the Internet is more welcome than TV (e. g., Coffey & Stipp, 1997). Internet service providers (ISPs) are generating revenues comparable to the entire network television industry (Klopfenstein, 2000; Walker, 1999).

The World Wide Web, the most popular Internet application, competes with other mass media for advertising revenues. Its multimedia content resembles that of mass media such as print, radio and television. Now that online search engines have attracted more unique users than many popular network television shows (PR Newswire, 1997), television broadcasters were wondering whether the Web would have displaced television viewing (Negroponte, 1995).

To compete directly with the Internet, most existing media have reacted by embracing the technology in addition to their traditional media format (Chan-Olmsted, 2000; Flanagin & Metzger, 2001; Pew Research Center, 1999). Newspaper, radio and TV Web sites enable audiences to easily obtain content and exchange comments online, thus heightening their entertainment and information value. In 1998, an estimated 36 million Americans received news via the Internet at least once a week, more than triple the 11 million online news users reported in 1996 (Pew Research Center, 1998). In 2000, more than 5,000 news sites existed for traditional news organizations, including newspapers, news magazines and broadcast/cable news providers (Pavlik, 2000).

Print media are especially urged to complement their traditional hard copy by posting content online. As of April 2001, Yahoo! Search provides as many as 5,149 different U.S. newspaper services (including online, student, and community newspapers) and 1,447 magazine services with distinct Web sites. This new technology also has strongly influenced the way journalists do their job, the nature of news content, the news organization, and the whole news industry (Pavlik, 2000).

Broadcast media have been more active than in the past in seeking online opportunities for expansion and fending off competition (Chad-Olmsted, 2000). To capture the newly defined audience, radio stations and TV broadcasters have transferred their on-air assets to the online platform to supply station information; promote and market; e-mail audience, clients, and agencies; sell ads and sponsorships; and engage in webcasting. The 1998 National Association of Broadcasters summary reported that two-thirds of all TV stations had Web sites (Savoie, 1998); however, these TV Web sites are largely informational with

inadequate communication features and limited entertainment opportunities (Chan-Olmsted & Park, 2000). The major broadcast networks have varied in the extent to which they have invested in the Web. While CBS made investments in online ventures such as the MarketWatch and iWon.com sites, ABC and NBC have aggressively sought to converge online and television properties, beginning by acquiring stakes in portals. At the turn of the twenty-first century, ABC and NBC have greatly scaled back their online sites due to the advertising slump.

While the Internet is increasingly becoming the most popular communications medium, it fits well into the family of mass media. Compared to most traditional communication technologies that were developed with a single function in mind, diverse Internet access fulfills multiple functions such as in one-to-one, one-to-many, and many-to-many communication settings (Flanagin & Metzger, 2001; Vacker, 2000). The connection between personal and mass communication creates an interest to study the Internet within the context of two-step flow communication (Morris & Ogan, 1996). After this new media becomes more diffused, the Internet is perceived to transition to the roles of mass communication media, interpersonal communication, or both (Flanagin & Metzger, 2001). The Internet possesses mass communication functions such as information retrieval and dissemination. It also has the conversational capabilities of mediated interpersonal communication. Research on Internet users can be conducted specifically on information seeking and knowledge or on their uses and gratifications (Ferguson & Perse, 2000). Effects research could investigate any negative effects the Internet may pose for users such as addiction and impact on interpersonal relationships. Finally, examination of message content could address agenda-setting or credibility issues.

However, mass communications researchers have overlooked the Internet and computer-mediated communication until such research became fashionable in recent years (Morris & Ogan, 1996). The research in the Communication Abstracts until 2001 has primarily embraced a variety of areas such as:

- Culture and society (different cultural implications)
- Economic issues (price, payment, e-transaction, etc.)
- Interpersonal communication (e-mail, Usenet, etc.)
- Journalism and news media (online publishing, etc.)
- Laws/regulations (security, privacy, censorship, obscenity, copyright, etc.)
- Organizational communication (workplace relations, etc.)
- Policy (governance, institutional support, etc.)
- Political communication
- Instructional/educational communication (learning, evaluating the Web, etc.)
- Marketing/advertising (e-commerce, etc.)
- Information technology (telecommunication, etc.)
- Usability or content analysis (comparison of traditional media copy and Web copy, credibility, etc.)
- User research (Internet, e-mails, the Web)

The majority of scholarly research examining the Internet investigates how the new *phenomenon* affects people, disciplines, and society in general. Research on Internet users or applications accounts for only a small portion (Flanagin & Metzger, 2001). This could imply the influence of the magic bullet theory that has suggested strong and universal effects of communication media upon audience members. While the industry does conduct user research, it focuses on demographic shifts or ratings changes. For example, Nielsen//NetRatings has conducted longitudinal research of Internet use (Lindstrom, 1997). Its primary purpose is to examine the dimensions of the new medium in terms of personal access, usage patterns, and behavioral changes over time. This research is obviously focused on the commercial potential of the Internet and ways to leverage e-commerce opportunities (Klopfenstein,

2000). This type of research has long addressed *how* individuals use the Internet and its applications. As online users have turned out to be as diverse as users of offline media, industry research now has begun to explore *why* they use the Internet via lifestyle segmentation (Weiss, 2001).

To shed new light on traditional communication technologies, mass communications research must continue to explore assumptions and categories in its discipline. Now that the Internet or the Web has emerged as a powerful mass medium that can also be highly personal, it deserves research attention that readdresses some of the core issues of various communications models (Eighmey, 1997; Morris & Ogan, 1996). One of the Internet's well-publicized advantages is interactivity (Cho, 1999; Morris & Ogan, 1996). Message receivers can be message senders. The impact of two-way electronic communication is noted as the Internet shifts power to individuals and away from central governments, mass media, and big business (Pavlik, 2000; Vacker, 2000). Scholars are much more able to address the issue of Internet users, as compared to audience research in the early days of television (Stempel & Stewart, 2000). However, to provide a foundation for a better understanding of the newly emerged mass audience, scholars need to go beyond industry research on users to explore other significant aspects (e. g., Katz & Aspden, 1997).

The value of the Internet is determined by what people do with it (Albarran, 2000). An examination of Web users' behavior is integral to building knowledge of the overall Internet audience and can further help explore assumptions about the Internet. The Web, file transfer, and e-mail are the most popular Internet applications, according to traffic studies performed on various Internet backbone networks (Grey,

1997; Rutkowski, 1997). Web usage by itself accounts for over half of Internet traffic. While expanding the reach globally, the Web has provided a wide range of expression, unparalleled complexity of offerings, and an ever-increasing amount of available content. Globally, the chaotic structure of the Web serves well to change cultural and political context (Aikat, 2000a; Vacker, 2000). National identity and sovereignty are challenged as the Web shapes new communities that go beyond politically defined boundaries (Falk, 1998). The Web could even widen the knowledge gap between the rich and the poor, or between the well educated and the less educated (Aikat, 2000a; “Only one-third,” 2001).

The present study attempted to add a different perspective to perceptions of the ever-changing world by examining Web users in terms of their gratifications. The activeness of Web users was assumed based on the Web’s feature of interactivity. The uses and gratifications approach, which conceives audience as active communicators, was chosen as the theoretical formulation.

CHAPTER II
INTERNET COMMUNICATION AND THE WORLD WIDE WEB

The history of the Internet is very short. The underlying dimensions of the Internet are changing rapidly as it spectacularly transforms people's lives and society. Some argue that the Internet and the World Wide Web were born of a need to develop a global communications system to facilitate worldwide commercial and regulatory activities as the trend of economic globalization emerged (Falk, 1998). Although the amount of research about the Internet and the Web has grown tremendously, a well-understood communication model has yet to be defined for them.

In order to add value to the existing body of knowledge, a clear understanding of the phenomenon is needed with consistent and systematic definitions. This section attempts to achieve this goal starting with the historical development of the Internet, its rapid growth, and its implications and various applications. The World Wide Web is then examined in terms of its users, usage, and technical and social implications. Problems associated with researching the Internet are discussed. Finally, key parameters and Internet-based communication are defined.

The Internet As A New "Mass" Medium

According to Webster's Encyclopedia (2001), the Internet is "an association of computer networks with common standards which enable messages to be sent from any host on one network to any host on any other." The Internet started off in the late 1960s as an experimental

network designed specifically for U.S. military research, and it expanded over the next three decades to include government, academic, and industry purposes.

During the 1990s, the Internet grew phenomenally. By July 1997, the Internet had connected 171 countries (Zakon, 2002). The level of connectivity within each country ranges from e-mail only to full Internet access. According to the Computer Industry Almanac Inc. (2001), the Internet was used at least weekly in businesses and homes by more than 134 million U.S. adults (16 years or older) by the end of 2000, accounting for 33% of the worldwide number. The U.S. Internet population is projected to be 214 million in 2005, 33% of an estimated one billion worldwide Internet users. The growth in users has paralleled growth in content.

Historical Development

The Internet originated from military plans and government research projects designed to develop powerful operations research tools. The formation of the Internet is based on the invention of TCP/IP (Transmission Control Protocol/Internet Protocol), a common language that enables different systems or computer networks to communicate with each other. Some attribute the birth of TCP/IP to a community effort facilitated by an ongoing Request For Comments (RFC) process (Grey, 1997; Leiner et al., 2000). Nevertheless, TCP/IP was formally established by the U.S. Department of Defense’s Advance Research Projects Agency (DARPA) in 1982 (Leiner et al., 2000; Zakon, 2002).

In late 1969, the U.S. DARPA incorporated a robust military command and control system, called ARPANET (Leiner et al., 2000). This system was intended to withstand a nuclear strike or terrorist attack, so its logical network structure was designed to be totally independent of the physical network structure (“Internet,” 1993). The first ARPANET e-mail was sent in 1972, and Usenet was established in 1979 (Klofenstein, 2000). Since then, the uses of emails and continuing operation through RFC documents have facilitated the ongoing development of protocol specifications, technical standards, and Internet engineering (Leiner et al., 2000). In the 1970s and 1980s, the U.S. government funded an Internet program to connect supercomputer centers together to create a high-speed national network for academic and scientific research (Rutkowski, 1997). At the same time, the UNIX computer operating system was invented in 1976, integrating tools including TCP to link up into an inter-network (Grey, 1997).

In 1983, the U.S. DARPA divested the original network into a series of regional sub-networks. The NSFNET created by the National Science Foundation’s (NSF) supercomputer centers in 1986 allowed an explosion of connections, especially from universities (Leiner et al., 2000; Zakon, 2002). The NSF started working as the Internet backbone in 1987. In addition to NSFNET and government-funded activities, interest from the commercial sector began to grow. Commercial network providers began to offer Internet backbone and access support (Cerf, 2001; Leiner et al., 2000). ARPANET ceased to exist in 1990.

The efforts of the NSF and commercial companies laid the groundwork for the Internet’s transformation in the 1990s (Grey, 1997). Berners-Lee’s hypertext system for linking documents in multiple windows led to the development of the World Wide Web in 1991

(Klopfenstein, 2000). Technology companies such as Cisco Systems and Sun Microsystems began to use Internet technology on a large scale in their internal networks – or intranets. In 1995, NSF handed the "Internet backbone" to private "interconnected" companies, which facilitated an explosive rate of Internet growth that continues today (Flower, 1997; Zakon, 2002).

Over the past two decades, the Internet has become a collaboration among government agencies in various countries, industry, and the academic community. After the General Agreement on Trade and Tariffs (GATT) and World Trade Organization (WTO) created worldwide telecommunications norms and practices in the 1990s, large-scale multi-user networks such as the Internet, corporate intranets, and private networks called extranets emerged ("The emerging digital economy," 1998, p. A2-16). File transfer, newsgroups, and e-mail soon became the major types of communication on the Net.

Rapid Growth

The Internet did not begin its dramatic growth until the World Wide Web was developed in 1991. Since then, Internet traffic has increased 1,000% each year due to the increased use of applications such as low-cost online telephone calls, video and audio broadcasts and file sharing, and videoconferencing (Klopfenstein, 2000). In North America, the level of data traffic is now greater than that of voice traffic carried on the telephone system (Webster's World Encyclopedia, 2001). The Internet has surpassed fax machines and cellular phones to become the fastest-growing communication medium (Cozic, 1997, p. 6).

As of January 2002, what was once a network of four computers in December 1969 now comprises more than 135,000 networks with more than

147 million host computers attached to them (Zakon, 2002). In 2000, there were approximately 5,000 Internet Service Providers (ISPs) in the United States (Klopfenstein, 2000). U.S. Census data estimate that 94 million people three years old or older used the Internet at home in August 2000: approximately 18 million children aged 3 to 17 years and 75 million adults. That is a significant increase from 57 million Internet users in 1998. At the household level, 44 million U.S. households, or 42%, have Internet access in August 2000 – more than double that in 1997 (18%) (see Figure 2.1). Census data indicate that certain households are more likely to have Internet access: high incomes, married-couples, families with school-age children, and homes located in metropolitan areas (but outside central cities) (U.S. Department of Commerce, 2001).

Industry numbers far exceed U.S. Census estimates. According to Nielsen//NetRatings, 163 million Americans went online in February 2001, four times the number in 1997. U.S. Internet users account for more than half of the U.S. population, and the U.S. Internet population is four and half times higher than in Japan and seven-and-a-half-times

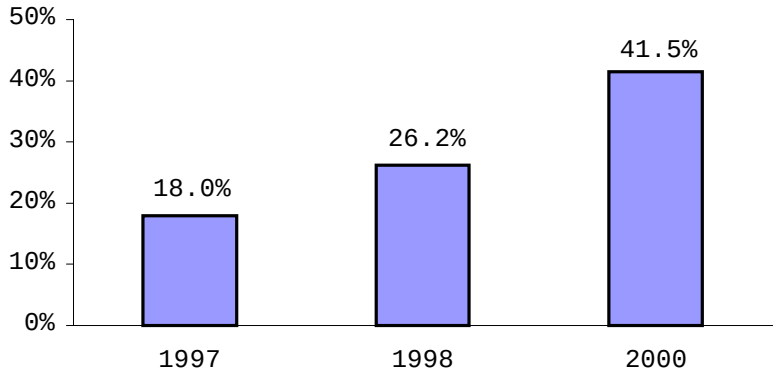

Figure 2.1. Percent of U.S. Households With Internet Access

higher than in Great Britain. Over half of Internet users have been part of the online community for three or more years (Scarborough, 2001). To date, Web penetration reaches at least 50% of the population in the top 25 local Internet markets in the United States, compared to only six markets in 2000. Internet at-home users grew especially rapidly between 2000 and 2001. The Internet is estimated to reach between 75% and 85% of the U.S. population in the next 10 years (Weiss, 2001). However, the combination of standard protocols, broadband transmission channels, and the Web platform have stimulated spectacular growth, making such estimates quickly outdated.

The significant growth of the Internet has diminished differences between the online population and the general population (see Table 2.1). For example, U.S. Internet users are similar to average Americans in terms of gender and race. However, Internet users are more likely to be younger, married with children, well educated, and have high incomes. Future Internet growth is dependent on penetrating various age, income, and education levels where usage is not as high.

Table 2.1. U.S. Internet Demographics (Adults 18 Years And Over)

	Adults				Household		
	Male	55 yrs & older	College degree	White	Income > $25,000	Married -couple	Children 6-17 years old
Internet Users	49%	15%	40%	88%	80%	66%	35%
General Population	48%	28%	24%	83%	64%	52%	27%

Source: U.S. Census Bureau, Current Population Survey (August 2000)

A New “Mass” Medium

The ubiquitous Internet and its applications change the ways in which businesses, institutions, communities and people define themselves, gather together, and share information (Leiner et al., 2000; Rutkowski, 1997). Like most traditional mass media, the Internet allows users to "retrieve" information. However, the information and the communication context on the Internet have a unique nature that is different from what one would experience with other existing media. Information, although abundant and easily available, tends to disappear into the void after a certain time. The value of the information on the Internet increases as more and more people share it – the so-called “Metcalfe’s Law” (Grey, 1997).

The Internet’s most noticeable differences when compared with traditional media are its qualities of nonlinear *interaction* and *personalization* (Aikat, 2000a). Users are no longer a passive audience, but “in some fashion initiate the communications process, define it, and participate actively in it” (Hindle, 1997, p. xi). The Internet is more like a “mass” medium than conventional “linear and centralized” media such as TV, newspapers, radio, and magazines. No single institution owns or operates it (“Internet,” 1993). Originally, the Internet was owned by the mass and constructed as a result of community efforts (Flower, 1997); however, that is becoming increasingly less true now that major conglomerates are building the Internet networks and controlling much of the most-accessed content.

Users "communicate within a particular cultural context on the Internet, with its own shared cultural traditions and symbols" (December, 1996, p. 24). Individuals or organizations can communicate beyond anything ever imagined and accelerate results on an

unprecedented scale (Klopfenstein, 2000). Most Internet communities of interest have been formed quickly and effectively on a grassroots basis (Armstrong & Hagel, 1996); however, no single Internet community can serve all needs (Aikat, 2000a). The communities interact and overlap dynamically, and shift or change dramatically (Falk, 1998). A robust Internet or Web community requires technology, meaningful content and modes of interaction (Armstrong & Hagel, 1996).

Internet Applications

Internet users enjoy multiple applications for communication and innumerable communication partners and information sources. Knowledge about information exchanged on the Internet and its various applications underlies the foundation for understanding the impact and exploring the implications of the Internet.

To serve as a globally distributed communication forum, the Internet employs the client-server computing to send and receive information across linked computer networks. In the client-server system, an end user working on a local computer or *client* requests information from a remote computer called a *server*, which in turn sends information back to the *client*. The client and server computers are connected through networks that operate cooperatively, so that the client is able to request and the server is able to reply.

The Internet provides various tools for information exchange. Key applications or services on the Internet include:

- *Bulletin Board Systems (BBS)* preceded the Internet and provide a way for users with similar interests to exchange information and post messages or files.
- *Electronic mail (E-Mail)*, one of the most popular Internet services, enables people to send and receive messages more quickly than traditional mail.

- *File Transfer Protocol (FTP)* downloads software and files from the Internet, including an abundance of often-free software.
- *Newsgroups* based on the Usenet system feature message-based discussions among a group of people who are interested in the same topic.
- *Search Engines* index Web sites and allow users to search for information across the Internet. Popular search engines include Alta Vista, Google, Lycos, and Yahoo.
- *Telnet* allows users to access a remote computer as if they were logging on to a local computer terminal.
- *World Wide Web (WWW, the Web)* uses hypertext to link global information, FTP sites, and news services without direct user interaction.

The World Wide Web

According to the Webster Encyclopedia, the World Wide Web is "an Internet facility designed for multimedia use, in which individuals or organizations make available 'pages' of information to other users anywhere in the world, generally at no cost."

Web use accounts for approximately half of Internet traffic, the largest share of traffic on the Internet (Zakon, 2002). The Web's spectacular speed of adoption expands its reach, in turn making it the most popular Internet application. In fact, the Web has become a new "mass" medium. The success of the Web is based on its technical and social dimensions and implications (Falk, 1998).

Technical Implications

The Web is believed to be the most-preferred way of presenting information among various Internet applications (Flower, 1997, p. 13) because of its ease to use, universal access, and search capabilities

(“Why the Web”). The Web incorporates a TCP/IP-based protocol, called Hypertext Transfer Protocol (HTTP), to transfer documents over the network when users click on hypertext links. The most significant function of hypertext links is to link anything the computer can recognize as a file including text, graphics, pictures, audio, and video clips.

At the same time, the success of hypertext links is made possible by multimedia browser client software. These easy-to-use Web browser tools let users easily view pictures and hypertext links over the Web. The first popular Web browser, Mosaic, was developed in 1993 by the National Center for Supercomputing Applications (NCSA) at the University of Illinois. The introduction of the free Mosaic browser has contributed to the 341,634% annual growth of Web service traffic (Zakon, 2002). Today two commercial Web browsers known as Microsoft Internet Explorer (released in 1995) and Netscape Navigator (released in 1994) dominate the market (“Browser history”). The two browsers’ competing and sometimes incompatible technologies and tools have influenced the design of Web sites (Klopfenstein, 2000).

Abundant, easily available, and often comprehensive information or knowledge is another key to the Web’s success. Web users can anonymously retrieve information stored in a computer server with an appropriate user interface or Web browser. They can easily open a Web page consisting of text and graphics files, presented in a special format called hypertext markup language (HTML). Instead of being stored in huge databases in one location, the Web consists of information stored on thousands of computers or servers owned by groups or individuals worldwide. As a result, users can access information at their convenience, often locating sites by using search engines and

indexing services such as Alta Vista, Google, and Yahoo. These sites compile information from millions of Web sites, and special search engines exist for particular regions, interest groups, and subjects.

Social Implications

Some suggest that the Web creates a new realm of informational space-time characterized by “nonlinearity, interactivity, immersion, virtualization, asynchrony, decentering, fluidity, customization, individualization, spatiality without territory, time without distance” (Vacker, 2000, p. 227). Through the Web, users are able to amplify their individual selves, but, at the same time, they can become isolated from daily life, the self, and others (Aikat, 2000a). Browsing the Web is more of a socially mediated experience that requires guidance to effectively determine the usefulness of the sites (Falk, 1998). Similar to Christopher Columbus’s discovery of America, navigation of the Web is a function of the dynamic nature of exploration. The artificial territorial borders are redefined each time by adding links to Web pages and utilizing lists of favorite links. As such, the collapsed space-time of the Web is constantly shaping its meaning, use, and usefulness through interaction between its users. The entirety of the Web pages available on the Internet at any time fosters a huge, multi-dimensionally interconnected, mind space for the explorer with a Web browser. This absolutely new adventure has nothing to do with the physical arrangement of the world. The total activities undertaken by individuals worldwide contain endless opportunities and problems (Grey, 1997, p. 61).

The Explosive Rate Of Growth

The Web became the most popular Internet application in 1995 (Zakon, 2002), and since then it has spurred the development of search engine services, plug-in applications, collaborative applications, financial transaction capabilities, and database interfaces (Rutkowski, 1997). The number of Web pages has grown faster than the number of users (Falk, 1998). According to the International Data Corporation Web Index, there were 42.3 million users and 184 million URLs in August 1997.

The collective linked knowledge (HTML files) on the Web has produced tens of millions of pages of material that is distributed across several hundred thousand servers on the Internet – and the Web is doubling in size every eight months. As of August 1998, the available public Web content was three million megabytes. Ninety percent of all Web traffic went to the top 900 Web sites ("Web Spawns," 1998). Approximately 82% of Web users consider the Web access "indispensable" (Treese, 1998). The number of Web sites has increased dramatically from 130 in June 1993 to over 38 million in March 2002 (see Figure 2.2). The number of Internet connections is estimated to reach 1.5 billion by 2010 (Flower, 1997, p. 13). The number of Internet domains, names registered within the Domain Name System, has grown from 3,900 in July 1989 to over 1.3 million in July 1997 (Zakon, 2002). English dominated the Internet and was used for approximately 82% of Web pages worldwide in 1997 (Babel, 1997).

In 1997, one-in-five U.S. households visited the Web on a regular basis, and more than 12,000 U.S. households surfed the Net at home (Whirthlin, 1998). Although the number of web pages increased

Date	Sites
Jun-93	130
Jun-94	2,783
Jun-95	23,500
Jun-96	252,000
Jun-97	1,117,259
Jun-98	2,410,067
Jun-99	6,177,453
Jun-00	17,119,262
Jun-01	29,302,656
Mar-02	38,118,962

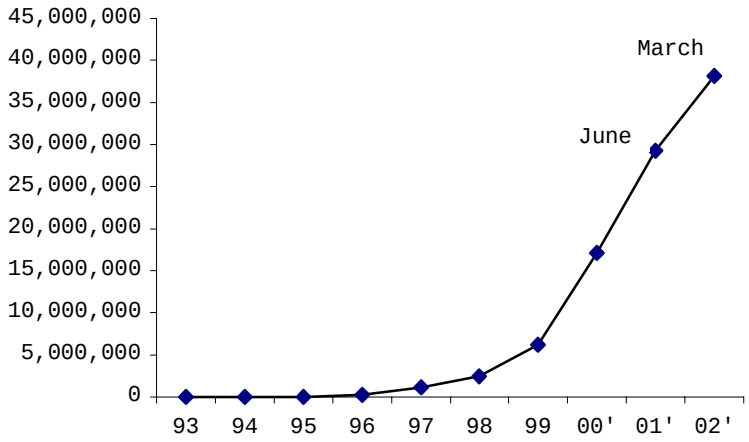

Figure 2.2. WWW Growth (Source: Zakon, 2002)

tremendously, the average number of Web sites visited per user decreased from 15 to 10 between 2000 and 2001. According to Nielsen/NetRatings, those surfing the Internet at work visited 14 unique Web sites in April 2001, more than twice as many as home surfers visited. The average duration of a page viewed was slightly more than 50 seconds.

Changing Audience of the World Wide Web

The low price and ease of receiving, creating, manipulating, storing, and disseminating information online has contributed to the explosive growth rate of Web usage. The accelerating speed of participation makes it hard to monitor such a moving target (Pew Research Center, 1998 November). With different kinds of online users seeking different types of online experiences, the Web community is no longer a monolithic demographic group.

Compared to today, adult Web users in 1997 were overwhelmingly young, better-educated, white males with higher than average incomes

(Aikat, 2000a; CommerceNet/Nielsen, 1997; Lindstrom, 1997; see Table 2.2). Those early adopting, upscale Americans now become efficient by book-marking their favorite sites (Weiss, 2001). Other segments that joined the Web community later are in fact spending a greater amount of time online for personal reasons, especially those with lower incomes, modest educations, and working-class occupations (Pew Research Center, 1998 November). For example, a single African-American Southerner spends an average of 12.6 hours online each month, 26 percent more than average Americans. The average age of Web users has risen to close to 40 years, while the average percentage of college educated users has fallen from 55 to 38 percent. Working-class Americans over 55 years old are the fastest-growing segment of Web users.

Blue-collar workers are more inclined to surf the Web at home due to having limited Internet access at work (Weiss, 2001). In addition, more and more content and services are now relevant to them, so the digital divide is bridged. For example, central-city and working-class African Americans are found to frequent entertainment and sweepstakes sites and chat online or exchange e-mail.

Women have been joining the Web community at higher rates, and the number of female users exceeded that of males for the first time in May 1999 (Weiss, 2001). Not surprisingly, research easily discovered a

Table 2.2. 1997 Web User Demographics (U.S.)

	Male	25-54 years old	Married	College degree	Household income >=$50,000	Employed full time	White
Adult Web Users	56%	75%	66%	55%	63%	70%	85%
Adults	48%	58%	59%	20%	28%	56%	78%

Source: The Wirthlin Report (March 1998)

gender gap in terms of online behavior. According to the Pew Internet & American Life Project (cited in Weiss, 2001), women are more likely to exchange e-mail, play games, obtain coupons, and gather information about health, jobs and religion. Men are more likely to trade stocks, get news, compare and buy products, bid on auctions, and visit government Web sites. According to Media Matrix (cited in Weiss, 2001), teenagers spend 30% less time on the Web than adults, but show similar gender-difference patterns online: Boys are more likely to download software and play games, while girls are more likely to read online magazines and exchange e-mail or visit chat rooms.

Age is another demographic that predicts Web sites patronized. Women tend to visit Web sites relevant to their life stage (Media Matrix, cited in Weiss, 2001). Their online interests mirror their offline activities. Women in their 20s and 30s frequent sites offering advice on relationships and parenting. Women in their 40s patronize sites featuring gardening and cooking content. Women in their 50s shift to sites offering information on financial investments and health care.

Differences also exist between ethnic groups online. For several years, Asian Americans have tended to go online to research and purchase products. Hispanic and African Americans are now catching up with Whites in surfing the net. For example, African Americans are now more likely than Whites to go online for school research, sports news and job information.

In 1997, U.S. Internet households spent an average of nearly seven hours a week on the Web (Wirthlin, 1998). Twenty percent of Web households spent more than 10 hours online. Light users spent less than three hours a week. Households with multiple PCs or Internet-capable devices spent more time online than did one-station households. They

were also more likely to make purchases on the Web, and tended to be in the high-income group.

Research estimates that almost half of U.S. adult Internet users shop online. Earliest adopters, who tend to be wealthy married couples with kids, are more likely to purchase online (Scarborough Research, 2000; Weiss, 2001). In general, consumers use the Internet as a tool to compare prices for purchases offline (AOL/American Demographics, cited in Weiss, 2001). Net surfers are also more likely to keep their computer hardware and software up to date. They tend to feel comfortable trying new and different things.

Online shopping shows some difference from the traditional marketplace, especially shopping times and seasonal shopping patterns (Transactional Data Solutions, cited in Weiss, 2001). The digital marketplace attracts the highest number of consumers on Wednesdays instead of weekends. August, rather than December, is the busiest month for e-tailers.

Besides purchasing products or services, Internet users go online for several reasons: to escape from real-life problems, as a daily ritual, to communicate (via phone, TV, and postal service), find useful information, and establish and maintain social ties. Many Internet users are online as much as 18 hours in one day (Cozic, 1997, pp. 6-9). So-called “Internet addiction” has gained attention from the media and social scientists, often earning comparisons to drug abuse or alcoholism (Swartz, 1997). However, some research has found no difference between online and offline groups in terms of social relationships. Web users are sometimes even more likely to communicate with their friends and family than non-users (Harris Interactive, cited in Weiss, 2001). Although their needs for socializing can be satisfied

through Internet news groups or chat rooms, the majority of surfers would rather socialize offline than be alone.

New Measures of Web Users

As more Web user demographic data are collected, industry research has started looking at Internet surfing from different perspectives. Online users are classified based on their specific online usage patterns such as length of time spent per page and site familiarity. For example, Booz-Allen & Hamilton and Nielsen//NetRatings categorize Web usage into seven different types: *Quickies* (1 minute), *Just the Facts* (9 minutes), *Single Mission* (10 minutes), *Do It Again* (14 minutes), *Loitering* (33 minutes), *Information, Please* (37 minutes), and *Surfing* (70 minutes) (Pastore, 2001).

Online usage or behaviors are also examined by socioeconomic segments. Nielsen//NetRatings classifies its Web panelists into 32 lifestyle clusters (Weiss, 2001). Well-off segments are more likely to be efficient Net surfers and more pressed for time. The Web provides more of a transactional function: gathering information and purchasing things. Lower-income segments are more likely to use the Web for entertainment. They play games or surf a variety of entertainment and sweepstakes sites.

Harris Interactive produces a cluster system of six distinct “dot-shopper types” for the online rebate site, ebates.com. Among the six segments, *Hunter Gatherers* are middle-aged married couples who like to compare products online but purchase offline. *Hooked, Online and Single* are single male chic who purchase clothing, books, and computer software online (Weiss, 2001).

Scarborough Research (1999) profiled the lifestyles of three segments of Internet market shoppers: E-shoppers (“on the go”), “wired but wary” (active), and unwired (less than active).

Internet-Based Communication

Among reasons why mass communication research has initially overlooked the Internet or computer-mediated communication, failing to fit Internet-based communication to theoretical perspectives poses the major constraint. Consistent and systematic definitions and categories make it possible to integrate theoretical perspectives.

A Need of Theoretical Perspectives

There is little doubt that the Internet and the Web have evolved into mass media. Challenges faced by mass communication research on these new media have been noted (Stempel & Stewart, 2000). Morris and Ogan (1996) suggested that the mass communications discipline needed adequate theoretical models for examining the Internet. Additionally, basic assumptions tied to such theories has failed to acknowledge the Internet as a new mass medium. In fact, with the power of new technologies such as the Internet, mass communication researchers should re-examine their old definitions: What is a mass audience? What is a mass communication medium? How are messages communicated?

Previous research on computer-mediated communication has been documented (December, 1996): characteristics of media systems and individual users; social-psychological factors, social context and social cues of computer-mediated communication processes; media use, adoption and evolution; language and rhetoric; and online experience.

Regardless of which area or subject was being researched, the difficulty of theoretical integration was noted due to lack of commonalities in units of analysis.

From 1969 to the present, research on *online experience* has been conducted in different research settings: stand-alone computer-to-computer communication, electronic mail discussion lists, commercial and proprietary online services like Prodigy, commercial communication and group-ware packages (Rapaport, 1991). The rapid changes and advances of Internet communication technology have impacted such research. As more diverse systems and applications have been devised for Internet communication, researchers have been motivated to seek consistency in the terminology and definitions for units of analysis (Stempel & Stewart, 2000).

In the beginning, text-based discussion and information dissemination was the major form of communication on the Internet, e.g., electronic mail and Usenet newsgroup discussions. Today, the Internet provides a variety of tools including e-mail, newsgroup, Gopher, Telnet, FTP, and the Web for information retrieval, communication, and interaction. Internet applications present information using a variety of media types such as text, hypertext, sound, graphics, images, video, or executable files. As a result, the Internet should be considered a collection of media, rather than a single medium. However, without consistently defining units of analysis for Internet communication, cross-study or intrastudy comparisons are not feasible (Stempel & Stewart, 2000).

Definition Of Internet-based Communication

Some scholars have questioned the assumptions implicit in traditional definitions and categories of media effects (Morris and Ogan, 1996). In order to include the Internet in mass communications research, scholars must rethink definitions and categories. Definitions of Internet-based, computer-mediated communication and its components underlie precise distinctions of units of analysis (Stempel & Stewart, 2000).

December (1996) defines such communication as involving:

> information exchange that takes place on the global, cooperative collection of networks using the TCP/IP protocol suite and the client-server model for data communication. Messages may undergo a range of time and distribution manipulations and encode a variety of media types. The resulting information content exchanged can involve a wide range of symbols people use for communication. (p. 24)

The Internet communication process is referred to as one type of human communication in which people exchange symbols with mediation characteristics. The distribution scheme for communication is also characterized by *information exchange* through the client-server model and *data exchange* through the TCP/IP protocol suite.

The mediation process involves encoding, storage, and transmittal of messages. Therefore the process is characterized by variations in time, distribution scheme, and media type. As presented in Table 2.3, variety of distribution schemes are available on the Internet to send a message from a sender to receivers (December, 1996, p. 22; Morris and Ogan, 1996, p. 42):

Table 2.3. Internet Distribution Schemes

Distribution	**Scheme**	**Examples**
One-to-one	User — receiver	E-mail
Many-to-many	User — server — users(with client)/server	Usenet, BBS, Listserv
One-to-one, one-to-few, one-to-many	User — server — specific users with client	MUDs, IRC, chat rooms
Many-to-one, one-to-one, one-to-many	Server — users with client	Web site, gopher, FTP sites

Units Of Analysis

As a strong proponent of establishing a common framework of units of analysis, December (1996) makes careful distinctions among terms. He defines key parameters for Internet-based communication:

Server:
A computer and associated software that provides access to information through the Internet in response to requests from client software based on a particular protocol for data exchange. Example – World Wide Web Server using the NCSA (National Center for Supercomputing Applications) software.

Client:
Software that operates on a user's computer for accessing information distributed from servers according to one (or more) protocol(s) for data exchange. Example – Netscape Navigator Web client used to access Web servers.

Content:
Information that is exchanged, distributed, or available for retrieval or transmittal on networks.

Media space:
The set of all servers of a particular type that may provide information in one or more protocols. The corresponding clients that are capable of accessing these servers, and the associated content available for access on these servers. Examples – Gopher space, IRC (Internet Relay Chat) space, Web space.

Media class:
Content, servers, and clients that share a defined set of characteristics. Examples – the hypertext (content) available from the Web server www.we.org, observable through any Web client.

Media object:
A member of a media class for which the server, client, and content are completely and unambiguously specified. Example – The World Wide Web (WWW) Frequently Asked Questions (FAQ) List on the SunSITE Web server sunsite.unc.edu accessed through the Netscape Navigator client for X, version 1.1.

Media instance:
A media object at a specified point of time.

Media experience:
A particular user's perception of a set of media instances.

The unit of analysis for the present study appeared to tie into "media experience." Web usage was evaluated by users' experience with and perception of a set of Web instances in general.

CHAPTER III
USES AND GRATIFICATIONS

When Herzog (1944) observed millions of women engaged with daytime serials in the 1940s, she suggested examining three sources of information before determining the effects. Today the same sources can be utilized to enhance our knowledge about the indispensable Web: systematic analysis of Web content (McMillan, 2000), comparative study of users and non-users, and close study of users themselves. Understanding the Web requires a comprehensive body of knowledge of motivations and expectations that determine both when and how people choose to participate in the online realm (Albarran, 2000, p. 268). This study was devoted to specifically examining the uses and gratifications people derive from the Web. This chapter starts with a discussion of the debates between two lines of research – media effects versus uses and gratifications. Uses and gratifications research is then examined specifically for its development, assumptions and theory, criticisms, and improved directions. Finally this chapter reviews studies that have utilized uses and gratifications theory to examine the Web and other Internet applications.

Media Effects vs. Uses & Gratifications

The “effects” tradition has dominated mass media research for years. Research that tried to explain the effects of mass media messages on audiences often suggested mass media could directly cause "short-term, immediate, and measurable changes in thoughts, attitudes, or behaviors" on passive and reactive audiences (Rubin, 1994, p. 417).

After failing to prove the immediate and direct (or powerful) media effects by a legitimate margin, mass media researchers turned to the mass communication process. They were looking for some intervening variables standing between media messages and effects on audiences. These variables included individual predispositions, selective perception, message diffusion via interpersonal channels, opinion leadership, and group customs (Rubin, 1994). The implication was that a mass medium by itself had little effect on its audience.

Early media effects research was interested in what media did to people, while uses and gratifications research examined what people did with the media (Blumler & Katz, 1974). The two research traditions had a similar interest in attempting to explain the outcomes of mass media such as media dependency, knowledge gap, agenda setting, and behavioral changes; however, the two traditions posed different research emphases. Effects researchers were more interested in attitudinal and behavioral changes as a result of media content, while their gratifications research counterparts looked at gratifications sought and obtained from media use and dependency on a medium (Windahl, 1981). Presumably, uses and gratifications research recognized the potential for audience initiatives and active characteristics (Swanson, 1977).

When the findings of mass media effects research did not support its overall theories, some researchers reduced the media effect to be "some, even not powerful." They examined media use and how such use intervened in the process of media effects, sometimes set within a broader social context (Katz, Blumler, & Gurevitch, 1974; Palmgreen, 1984).

Uses and gratification research holds that media are a source of influence on audience effects in the social and psychological

environment. This theoretical implication is based on a mediated view of communication effects that emphasizes the role of individual differences in reducing direct media influences (Rosengren, 1974). Audiences are seen as variably active communicators, rather than unified passive receivers of messages (Levy & Windahl, 1984, 1985). Their uses are self-defined, and their active participation in the communication process strengthens or reduces the effects of media exposure.

Uses and gratifications research recognizes the role of social and psychological elements in mitigating media effects. When examining beyond extra-individual characteristics such as social position, theories from psychology and social psychology have been leveraged to provide more dynamic and creative aspects of intra-individual characteristics. These redefined perspectives move the research focus from mechanistic effects of media on receivers to understanding how audiences use the media. The individual users are goal-oriented in their attempts to satisfy needs. Users choose media and media content, so scholars look for an explanation of media effects "in terms of their purposes, functions, or uses (that is, uses and gratifications) as controlled by the choice patterns of receivers" (Fisher, 1978, p. 159). Audience motivation and consumption dominate research questions.

Although uses and gratifications was proclaimed to be a new mass communications paradigm at the 1977 Harold Mendelssohn Annual Telecommunications Conference, the researchers did not learn to achieve what their effects research colleagues lacked. Also, they were severely criticized for being atheoretical because of their failure to form a single school with a grand theory covering their various “rival theories” (Blumler, 1979; Elliot, 1974; Swanson, 1979; Weiss, 1976).

Blumler (1979) argued that the lack of a grand theory structure should not overshadow uses and gratification research's contribution to learning an important influence in the communication channel: the nature of the audience experience. Effects research and theories should be empirically tested for their credibility against the realities of audience involvement.

Uses And Gratifications Research

Back in the mid-1980s, some researchers argued that uses and gratifications theories could be applied beyond mass media to new technologies (Williams, Phillips, & Lum, 1985). According to Palmgreen, the keynote scholar in uses and gratifications, this challenge to researchers is mainly to adapt and mold "the current conceptual framework to deal with new communication technologies" (1984, p. 49). Such "amplification" is deemed necessary if the uses and gratifications tradition is to live on when the society changes faster than the research that attempts to describe and analyze the society (Rosengren, 1985, p. 279).

Although the Internet had not yet joined the list of new technologies in the 1980s, it embraces nearly all of the characteristics of "new technologies" defined by Williams, et al. (1985): making distance irrelevant, providing nonlinear access to information, offering unlimited availability of two-way communications, transporting many simultaneous messages or choices, and bypassing the printing and transportation requirements for the transmission of textual information.

The increased opportunities for interactivity with the Internet are the key to rewriting the history of communication. Given the observation that functions of the Internet blend those of several traditional mass media, research on the motivation and uses of mass media can provide a theoretical framework for the present study (Eighmey, 1997; Newhagen & Rafaeli, 1996). A review of past research suggests that the uses and gratifications approach has become prominent among the research into computer-mediated communication such as Internet use.

Historical Development

Palmgreen, Wenner, & Rosengren (1985) noted a slow start to gratifications research. They attributed the slowness to the dominance of effects research and to the lack of "explicit or broad-based statements regarding the theoretical assumptions of the position" (pp. 12-13). The uses and gratifications perspective was first articulated in Herzog's (1944) research about daytime radio listeners. Herzog applied a functionalist perspective while investigating the specific types of satisfaction that the audience obtained from using the mass medium: emotional release, fantasy, and advice acquisition. At the time, Herzog and some other mass media scholars tended to adopt qualitative approaches to "describe" why audiences used certain media content such as newspaper (Berelson, 1949) and serious music on radio (Suchman, 1942). Their "gratifications" studies were gradually overtaken by research of media functions and personal influences.

The second phase began when the descriptive studies examined various patterns of media consumption by *operationalization* of the social and psychological variables (e. g., Freidson, 1953; Himmelweit,

Oppenheim, & Vince, 1958; Johnstone, 1974; Maccoby, 1954; Mendelsohn & O'Keefe, 1976; Riley & Riley, 1951; Schramm, Lyle, & Parker, 1961). Such work rendered quantitative analysis of measurable satisfaction sought from certain media content.

In the early 1970s, researchers turned the attention of media gratifications studies to the fourfold topology suggested by Lasswell (1948) and Wright (1960): surveillance, correlation, socialization, and entertainment. Gratifications research at that time focused on the interaction of media and person, and examined audience motivations or needs by building media use typologies. Katz, Blumler, and Gurevitch (1974) intended to explain media consumption by a typology of the helpfulness of the media in gratifying important social and psychological needs that led to strengthening a connection with self, family, friends, society, or culture. McQuail, Blumler, and Brown (1972) suggested a typology of media-person interactions consisting of diversion, personal relationships, personal identity, and surveillance. They observed the complexities of the relationship between content categories and audience needs. Rosengren and Windahl (1972) proposed looking at the relationship among the degree of dependence on functional alternatives, the degree of involvement with media, and the degree of reality closeness to media content. They suggested linking media uses and effects by examining the "effect a given use made of the mass media, or a given gratification obtained from them, may have" (p. 176).

The third phase attempted to explain other aspects of the communication process with which audience motives and expectations may be connected (Blumler & Katz, 1974, p. 13). Key elements of the media

gratifications process came together as the research approach became concerned with

> (1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones. (Katz, Blumler, & Gurevitch, 1974, p. 20)

In response to criticism of its lack of a theoretical framework, media gratifications research in the fourth phase has turned to building and testing a formal theory (Palmgreen, 1984). Theories of sociology, sociological psychology, and cultural studies have been leveraged to address the social origins of gratifications, which previous research had lacked (McQuail, 1985; Rosengren, 1983). Some even propose a “uses and effects” model by merging the two research traditions (Greenberg, 1974; McLeod & Becker, 1974; Windahl, 1981). The efforts to counter the critical attacks have yielded one rather complex theoretical structure with various theoretical frameworks and positions (Palmgreen, 1984; Palmgreen, Wenner, & Rosengren, 1985, pp. 15-16). These theoretical research perspectives are outlined in the next section.

Assumptions and Theory

The elements in the Katz, Blumler, and Gurevitch (1974) scheme mentioned above were also assumptions made in other studies (Wenner, 1977). The key assumptions were highlighted as follows:

> (1) the audience is active, thus (2) much media use can be conceived as goal directed, and (3) competing with other sources of need satisfaction, so that when (4) substantial audience initiative links needs to media choice, (5) media consumption can fulfill a wide range of gratifications, although (6) media content alone cannot be used to predict patterns of gratifications accurately because (7) media characteristics structure the degree to which

> needs may be gratified at different times, and further, because (8) gratifications obtained can have their origins in media content, exposure in and of itself, and/or the social situation in which exposure takes place. (Palmgreen, Wenner, & Rosengren, 1985, p. 14)

Uses and gratifications studies has been categorized into six areas: (1) gratifications and media consumption; (2) social and psychological origins of gratifications; (3) gratifications and media effects; (4) gratifications sought and obtained; (5) expectancy-value approaches; and (6) audience activity (Palmgreen, 1984; Palmgreen, Wenner, & Rosengren, 1985). Among various research perspectives and implications, McGuire (1974) proposes sixteen theoretical perspectives to form a broad-based framework; Wenner (1977) suggests the multidimensional integration of affiliation, utilitarian, and consistency theories; and Rosengren and Windahl (1977) embrace DeFleur's (1966) three mass communications theories of individual differences, social categories, and social relations.

McQuail and Gurevitch's (1974) three mutually exclusive "theoretical" positions for explaining audience behavior created new interest in uses and gratifications research. The *functionalist* perspective, based on the broad drive-reduction theory, has a "needs-gratifications" focus. Audiences are seen as *actively* seeking gratifications from *interacting with media*. The *structuralist* perspective studies the media structure in a person's environment. This approach focuses on the social regulation of both media content and exposure behaviors. It may ask questions such as how or whether new technologies will change environmental alternatives for media gratifications (Williams, Phillips, & Lum, 1985, p. 242). The *action-motivation* perspective that conceives of individuals as purposive

actors examines their media use behavior, perceived meaning attached to media and messages, and their expectations about those choices.

These broad theoretical frameworks have resulted in more specific theoretical orientations: expectancy-value approach to gratifications (Babrow, 1989; Babrow & Swanson, 1988; Galloway & Meek, 1981; Palmgreen & Rayburn, 1982, 1983; Van Leuven, 1981), transactional processes of gratifications and effects (McLeod & Becker, 1974, 1981; Wenner, 1982), and the dimensions of audience activity (Levy & Windahl, 1984; Windahl, 1981).

The expectancy-value approach to gratifications is cognitive oriented and dominated by information-processing assumptions (Palmgreen & Rayburn, 1985b, p. 71). Some scholars maintain a process-oriented view of such approaches with assumptions of interaction, interdependence, and reciprocal influences (Galloway & Meek, 1981). Behavior is guided by perceived situation and attempts to gratify (Galloway & Meek, 1981, pp. 437-439). In this respect, the introduction of personal perceptions into the process is critical. This approach is viewed as mostly consistent with McQuail and Gurevitch's (1974) action-motivation perspective (Van Leuven, 1981). Expectancy models have been proposed to assess the interrelationship among behavioral intentions, expectancy, and evaluation (Galloway & Meek, 1981; Palmgreen & Rayburn, 1982). Some scholars (Palmgreen & Rayburn, 1985b, p. 72) even argue the boundaries of the expectancy-value approach can be expanded to embrace McQuail and Gurevitch's structural/cultural perspective. In their opinion, belief and value systems based on particular social groups or cultures should be included.

Variation in Conceptualization

Although *audience activity* is the central part of uses and gratifications research, there are various ways of understanding and conceptualizing it. Blumler (1979) has attempted to operationalize *audience activity* according to a “before-,” “during-,” “after-exposure” sequence. Levy and Windahl (1984, p. 73) conceptualized activity as “a range of possible orientations to the communication process, a range that varies across phases of the communication sequence” and formulated a ninefold typology. They divided qualitative orientations toward the communication process into three aspects:

1) selectivity, selection of one or more behavioral, perceptual, or cognitive media related choices;
2) involvement, the extent to which an individual identifies an association between himself or herself and mass media content, or the extent to which the audience member relates psychologically to a medium or its messages;
3) utility, individuals use or expect to use mass communications for various social and psychological drives.

Uses and *gratifications* are both conceived differently among studies. Rosengren (1974) notes *uses* are defined at three different contexts: (1) amount of time spent on the media; (2) types of media content consumed; (3) interaction between individual audience and media content or the media. Studies have found media consumption was predicted by more than one motivation (Palmgreen, 1984).

Gratifications are very difficult to operationalize and assess (Rosengren, 1983). Different measurement approaches have been employed: self-report from audience members, inferences by anchoring statements of separate but related variables, and manipulation of the gratifications in field or laboratory settings (Becker, 1979). More direct techniques appear preferable if their validity can be established with some confidence. For example, self-report measures

rely on the individual's skills and compliance to state why he or she does what he or she does with the media (McLeod & Becker, 1974). On the other hand, some have inferred *needs* and media *gratifications* from the requirements of a person's status and role rather than from more direct measures.

Media gratifications have been conceived as satisfaction, and are related to motives or expectations (Palmgreen, 1984). *Needs* and *motives* are often cited in studies as being equivalent to *gratifications*. *Needs* related to media consumption are learned and a product of social experience. *Motives* may occur from *needs*, but need not do so at all times (Elliot, 1974, p. 255).

Criticism

Many claim that uses and gratifications is essentially atheoretical and should be understood as purely a research strategy or approach (Blumler & Katz, 1974; Elliot, 1974; Weiss, 1976). Nevertheless, systematic and underlying commitment to the theoretical framework renders the approach maximally useful (Swanson, 1979). Criticism of uses and gratifications research often accuses it of giving an overly simplistic explanation of why we use certain media. Such criticism is rooted in several conceptual difficulties: an unclear conceptual framework, ambiguous (understanding and operationalizations of) concepts and terms (e. g., use, gratification, motive, need), confusion over explanatory apparatus that would unify the diverse lines of inquiry, and failure to view audience perception as an active process (Elliot, 1974; Galloway & Meek, 1981; McQuail, 1985; Swanson, 1977, 1979).

A functional analysis addresses the consequences of “handling the basic communication activities by means of mass communication” (Wright, 1960, p. 608). The approach was once most popular for “its capacity to handle the relations of causality and interdependence between behavioral phenomena” and “the appropriateness of functional terminology to questions of motivation and need satisfaction” (McQuail & Gurevitch, 1974). As the “active” audience was poorly defined and operationalized, the once-dominant approach was attacked for “individualizing” audiences, abstracted from their social environment (Elliot, 1974, p. 254).

Uses and gratifications research never precisely anchored its theory in existing theories of motivation and behavior (Williams, Phillips, & Lum, 1985). For a long time, there were no successful attempts to develop a general theoretical framework that linked gratifications to either their social or psychological origins (Elliot, 1974; Rosengren, 1974). Rather, most studies of gratifications sought moved effects too far away from real-life information processing (McLeod & Becker, 1981; Rosengren, 1974).

Scholars have gradually addressed the issues of the measurement of activeness, the way uses and gratifications mediate effects, and the way media needs stem from social environments (Blumler, 1979; McQuail, 1985). As a response to the criticism, research has moved toward a more systematic analysis by using similar scales measuring media-use motives (Rubin, 1994). Six research directions are delineated:

1) The links among media-use motives and their associations with media attitudes and behaviors have provided indications of consistent patterns of media use.
2) Comparison of motives across media or content has produced comparative analyses of the effectiveness of different media to meet needs and wants.

3) Examination of social and psychological circumstances of media use has addressed how such elements influence media behavior.
4) Analysis of links between gratifications sought and obtained while using media or their content has addressed how media-use motives are satisfied, and has suggested utilizing transactional, discrepancy, and expectancy-value models for research.
5) Assessments of the influences of background variables, motives, and exposure on effect outcomes.
6) Consideration of methods for measuring and analyzing motivation including reliability and validity.

Gratifications and Internet Uses

New communications technologies have shifted the nature of audience involvement from aggregate to individual participation (Williams, Phillips, & Lum, 1985). Consequently, theoretical focus must be expanded beyond functional and motivational approaches. Utilitarian functions, range of choice, the phenomenon of personalization of a medium, and the temporal dimension of attitude must be conceived in the context of communication gratifications (Palmgreen, 1984; Palmgreen, Wenner, & Rosengren, 1985, p. 12). Uses and gratifications theory can be applied to new communication technologies specifically to: 1) identify the shift of use from conventional media to new media; 2) explore the relationship between media uses and gratifications given additional alternatives; 3) supply a base for developing a conceptual framework for research on new technologies adoption (Williams et al., 1985). The three objectives reflect the three perspectives proposed by McQuail and Gurevitch (1974): *functionalist*, *stucturalist*, and *action/motivation*.

The majority of uses and gratifications studies direct attention to TV exposure or program content types (Palmgreen, 1984). Relatively few studies have addressed the issue of new technologies. Not

surprisingly, little empirical research has systematically examined Web uses and gratifications – the subject of interest to the present study. To various degrees they explore users' motivations given the presence of additional media, content, or operation (e. g., interactivity) alternatives.

Early Internet applications appear to be interactive and fulfilling "new" needs such as message dissemination (e-mail, bulletin board), accomplishment of a specific task (booking theater ticket), and social function (meeting new friends or sharing ideas through bulletin boards)(Williams, Phillips, & Lum, 1985). The uses and gratifications approach addresses audience activeness and explores users' motivations to provide a foundation for understanding the newly developed Internet audience.

The audience-centered theoretical tradition of media uses and gratifications has been found to be comprehensive in identifying motives for the use of electronic bulletin boards (Rafaeli, 1986), exploring the phenomenon of online newspapers (Mings, 1998), and predicting better than any demographics senior citizens' frequency of use of the online network (Dixon, 1998).

Mixed evidence is presented among existing uses and gratifications research about Internet or Web usage. For example, *information* or *surveillance* was the only motive found across research about the use of electronic bulletin boards. While Garramone, Harris, and Anderson (1986) identified the use of electronic political bulletin boards associated with the need for *surveillance*, *personal identity*, and *diversion*, others found the motives for using general electronic bulletin boards related to *information exchange* and *interaction* (James, Wotring, & Forrest, 1995). Rafaeli (1986) identified *recreation*,

entertainment, and *diversion* as the primary motivations for uses of a university electronic bulletin board. Lin (1994) suggested that potential adopters of a videotext system were more concerned with its news bulletin service if they had the need for *surveillance*.

Some researchers have examined motives for Internet use in general. Similar to traditional media, the Internet is used primarily for *information*, *interaction*, and *entertainment*. College students surfed the Internet for *entertainment*, *information*, *sociability building*, *sociability maintaining*, *transaction general*, and *transaction task* (Yoo, 1996). Research identified the general public's motives for using the Internet as seeking gratifications in *escape*, *entertainment*, *interaction*, and *surveillance* (Miller, 1996). *Entertainment-diversion* was found to be the most frequent use of the Internet, followed by *information-seeking* (Charney, 1996). Similar primary motives were located by Rapacharissi and Rubin (2000) who examined how the antecedents and motives influence behavioral and attitudinal outcomes of Internet use: *interpersonal utility*, *pass time*, *information seeking*, *convenience*, *entertainment*.

Other motives for the Internet use were examined. Jeffres and Atkin (1996) found the needs for communication helped to explain the new technologies adoption; for example, the needs related to entertainment explained adoption of ISDN application. Katz and Aspden (1997) indicated that Internet users were motivated by sociopersonal development and some demographics such as age, education, and income. Gender and the role of children also affected Internet usage. Awareness was positively correlated to usage.

Researchers also studied relationships among users and the Web from the perspective of uses and gratifications. Motives similar to

traditional media were found continuously. For example, McClung (2001) identified people's specific uses of college radio station Web sites. Younger people used them primarily for *entertainment*, while older people used them to strengthen ties with the college or for *social integration*. Eighmey (1997) studied the use of commercial Web sites and found *entertainment value* and *relevance* (personal involvement with the information) were the strong motivational factors. Eighmey and McCord (1998) argued that much of Web usage resulted from browsing or surfing. However, the uses and gratifications approach should serve well to examine continuing Web usage. Their research about visitor perceptions of five commercial Web sites revealed some major dimensions: *entertainment*, *personal involvement*, *personal relevance*, and *information involvement*.

Armstrong (1999) found that users sought gratifications from the Web such as *entertainment*, *consumer information-transaction*, *social communication*, *information-seeking*, and *surveillance*. Korgaonkar and Wolin (1999) explored Web users' motivations and concerns, and examined these motivations at three usage levels: average number of hours spent each day on the Web, the percentage of time spent for business versus personal purposes, and the frequency of purchases via the Web. They found five motivations regarding Web use that were significantly correlated with the three usage contexts: *social escapism*, *information*, *interactive control*, *socialization*, and *economic motivations*.

Some research compared motives for traditional media and the Internet or the Web. Lin (1999) investigated the convergence between television and online access in terms of motives. Findings indicated a weak correlation in user motives between TV exposure and potential online-service access. Although factor analyses produced similar

factors for TV usage and online service – *surveillance* and *escape/companionship*, motives for TV usage could not significantly predict potential online-service adoption. Suggested by Armstrong's (1999) findings, Web users did not consider replacing traditional media with the Web. They perceived the Web as an extension to other media for addressing individuals' social and psychological needs. Ferguson and Perse (2000) attempted to learn if the Web served as a functional alternative to television viewing. The results indicated three major and two minor TV-like reasons for Web usage: *entertainment*, *pastime*, *relaxation*, *social information*, and *information*. The Web appeared to be functionally similar to television, especially in *diversion*. But the Web was not found to be as relaxing a use of time as television viewing.

CHAPTER IV
RESEARCH MODEL AND METHOD

Williams, Phillips, & Lum (1985) observed that few uses and gratifications studies had paid attention to new communications technologies in the mid-1980s. This still holds true today. How new media are perceived and used, and how their characteristics affect gratifications, remains to be fully explored. Traditional boundaries between sender and receiver become fuzzy with the introduction of new communications technologies, especially those that are highly interactive or involve two-way media. The World Wide Web has joined these new communication alternatives to reshape the landscape of mass media. As the Web increasingly affects people's lives, an understanding of usage is important because usage levels can determine Web site design, and moreover, potentially lead to "cultivation."

The uses and gratifications approach appears to be a theoretical rationale for research on Web usage, however, it is crucial to set forth the well-articulated, directional hypotheses and careful conceptualization (McLeod & Becker, 1981; Palmgreen, Wenner, & Rosengren, 1985). The expectancy-value model "holds promise of substantial clarification, and is a fertile source of hypotheses about the relationship among beliefs, values, gratifications, and media behavior" (Palmgreen & Rayburn, 1985b, p. 62). The theoretical application was therefore chosen for the present study to explore the relationships between attitudes, motivations, and usage while being able to address the audience's activeness.

Expectancy–Value Applications

When uses and gratifications research on traditional mass media, due to the lack of a single and unified theoretical basis, inevitably went into diverse lines of inquiry in the 1970s (Swanson, 1977, 1979), some research did not give up on the possibility of a single theory that would incorporate a wide range of research agenda (e. g., McQuail, 1985; Rosengren, 1983, 1985). Those in favor of a unified theory advocated a synthesis of uses and effects models to reduce limitations and criticism of uses and effects traditions (Greenberg, 1974; McLeod & Becker, 1974; Windahl, 1981).

Although “expectation” is central to most uses and gratifications research, conceptualizations of expectancy vary among studies: probabilities of satisfaction assigned to various behaviors (McLeod & Becker, 1981, p. 74); audience demands upon the media in fulfilling different functions at wartime (Peled & Katz, 1974); affective anticipations regarding the prospects of particular events having certain consequences (Mendelsohn, 1974, p. 307); and gratifications sought (Katz, Blumler, & Gurevitch, 1974). These various versions of “expectation” have limited theoretical advances. Certain gratifications scholars made a conceptual innovation by drawing upon the expectancy-value theory (Galloway & Meek, 1981; Palmgreen & Rayburn, 1982, 1983, 1985a, 1985b; Van Leuven, 1981). Some even believed that tying a central part of the uses and gratifications approach to the well-tested theory of social psychology was "the most important integrative achievement accomplished in the uses and gratifications research" of the early 1980s (Rosengren, 1985, p. 278).

The expectancy-value approach attempts to elaborate certain fundamental gratification-consumption processes. *Expectancy* (or belief) is the perceived probability that an object contains a particular attribute or that a behavior will have a certain outcome. *Evaluation* is the degree of affect - positive or negative - toward an attribute or behavioral consequence. Palmgreen and Rayburn (1982, 1985b) have well articulated the theoretical application in uses and gratifications research. Babrow and Swanson (1988) refined the model by redefining central constructs and improving the system and analytical methods. They added one line of inquiry: associations between *gratifications sought* and *attitude to predict exposure behavior*.

Stemming from social psychology, the expectancy-value theory suggests that attitude, behavior or behavioral intentions are affected by perceived *probability* and *evaluative* response to possible outcomes (Atkinson, 1957, *achievement motivation*; Ajzen & Fishbein, 1973; Fishbein, 1963; Fishbein & Ajzen, 1975; Rotter, 1954; Tolman, 1932, *expectancy concept*; Vroom, 1964, *work motivation*). As a general model of volitional action, the expectancy-value theory can be utilized to understand why a phenomenal number of people are using the Web. This does not suggest that media exposure is always or completely volitional. Rather, to the degree that exposure is under volitional control, the expectancy-value theory provides an understanding of how social-psychological forces mediate the exposure level.

For example, general attitude toward Web usage may mediate between specific expectancy-value judgments and exposure levels on the ends of the chain (see Figure 4.1). If the correlations between attitude and each end of the chain are less than perfect, then the correlation between expectancy-value judgments and exposure levels will be smaller

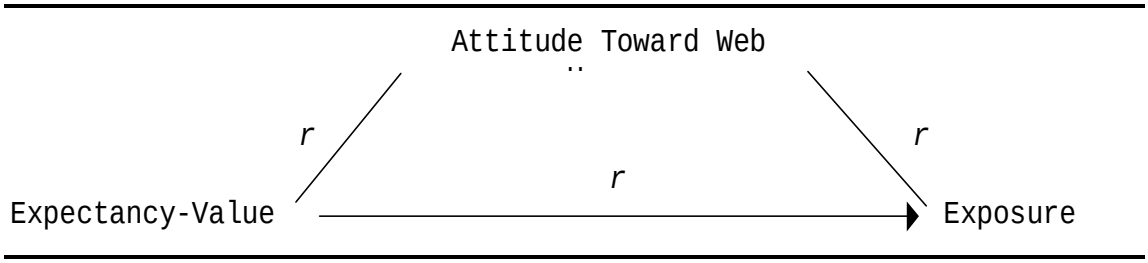

Figure 4.1. An Expectancy Value Model Of Media Exposure

than either of the two intervening correlations. The correlation between expectancy-value judgments and exposure levels might even be nonsignificant when both intervening correlations are significant (Babrow, 1989, p. 157).

The present study attempted to examine the determinants of the level of usage (i. e. exposure to Web) and to clarify reasons for current levels of Web usage (Babrow, 1989, pp. 156-157). The expectancy-value model was employed and discussed below.

The Research Model On Web Usage: Expectancy-Value Analysis

In order to apply expectancy-value theory to gratifications research on Web usage, previous gratifications research using the expectancy-value model on traditional mass media was reviewed and adapted. The research model chosen for the present study was based on Palmgreen and Rayburn's work (1985b), which was later refined by Babrow and Swanson (1988).

Palmgreen and Rayburn (1985b) adopt Fishbein's expectancy-value theory (Fishbein & Ajzen, 1975) in their gratifications research because they believe that 1) Fishbein has proposed a leading and well-

specified expectancy-value theory, and 2) its information-processing hypotheses match those of the uses and gratifications approach. Palmgreen and Rayburn formulate that gratifications sought from some media are a function of both the individual's beliefs (expectations) about the media object and one's affective evaluations (value judgments) of media attributes (Plamgreen & Rayburn, 1985b, p. 63):

$$GS_i = b_i e_i$$

where GS_i is the i^{th} gratification sought from some media object (some medium, program, content type, etc.); b_i is the belief (subjective probability) that some media object of exposure contains some defining attribute, i, or exposure to the object will result in a particular consequence i. e_i is the evaluation attached to the particular attribute or consequence i.

Palmgreen and Rayburn's model (1985b) suggests that audience members will not seek a particular gratification from the media source if the media source is not believed to contain the related attribute or the attribute is negatively evaluated. In other words, a relatively strong seeking of the particular gratification occurs when the related attribute is strongly perceived to be possessed by the media source (b_i) and is evaluated very positively (e_i).

The preliminary model can be expanded to predict a generalized orientation to search for different gratifications from a particular media source:

$$\Sigma GS_i = \Sigma g_i e_i$$

where ΣGS_i is a generalized orientation, tendency, or motive to seek various gratifications from some media object. For example, a person might believe that the Web contains information that is well informed and reliable, and he/she might feel positively toward these two attributes. His/her judgments would yield a generalized orientation to seek various gratifications from the Web.

Palmgreen and Rayburn (1985b) have further postulated a process model that includes media consumption and gratifications obtained (see Figure 4.2). In the process, the products of beliefs (expectations) and evaluations result in the seeking of gratifications, which then affect media consumption. Such consumption influences perceived gratifications obtained, which then go back to influence the individual's *beliefs* about the gratification-related attributes that are possessed by the particular media source. This model does not suggest that *evaluations* will be affected by the perceived gratifications obtained.

Fishbein also suggests that expectancy-value judgments give rise to attitude toward the object of exposure (Fishbein, 1963; Fishbein & Ajzen, 1975).

Palmgreen and Rayburn (1982) incorporate this portion and express it as follows:

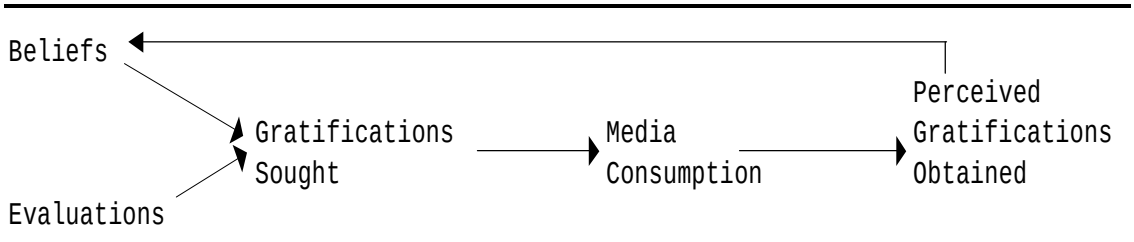

Figure 4.2. Expectancy-Value Model of GS and GO (Source: Palmgreen & Rayburn, 1985b, p. 64)

$$A_x = \Sigma g_i e_i$$

where X is the medium (the Web for the present study), and A_x is attitude toward X.

Babrow and Swanson (1988) refine and synthesize these concepts to a more complete account of the model that is expressed in equation form:

$$Exposure_x = w_1(\Sigma GS_i) + w_2(A_x)$$

where w_1 and w_2 are empirically derived weights when studying overall media usage (exposure). For example, a person is likely to use the Web to the degree that his/her attitude toward Web usage is positive and he/she is motivated to seek various gratifications from the Web.

Additional Model Specifications

Past studies of attitude and behavior suggest incorporating two additional specifications to the expectancy-value analysis of gratifications in order to improve estimates of the importance of the various forces involved (Ajzen & Fishbein, 1973; Babrow & Swanson, 1988). *Normative perceptions* and *behavioral intentions* were added to the present research model.

Normative Perceptions

In general, media exposure decisions may be influenced by the actor's perceptions of the behavioral expectations of significant social referents (Blumer, 1979; Ajzen & Fishbein, 1973; Triandis, 1980). Both the Fishbein-Ajzen and Triandis models posit that normative perceptions have no direct but mediating impact on behavior. Nevertheless, gratification research has not fully identified the significance of this construct of normative perceptions (Babrow & Swanson, 1988). Some note in TV viewing that the influence will emerge only among those viewers who usually leave TV viewing decisions to others (Palmgreen & Rayburn, 1985b, p. 65). On the other hand, research found social or work networks appeared to arouse interest in the Internet and provide users with support (Katz & Aspden, 1997). If normative perceptions are significantly associated with GS_i or g_ie_i for Internet or Web usage, the oversight of social norms in the research model can result in invalid parameter estimates (Hunter & Gerbing, 1982).

Behavioral Intentions

Behavioral intention is defined as the perceived chance of carrying out an action. Fishbein and Ajzen (1975) suggest that intention is the most relevant psychological determinant of an overt behavior. Although intention is not commonly recognized as a mediator of the attitude-behavior relationship (Liska, 1984; Palmgreen & Rayburn, 1982, pp. 576-577), it can produce invalid parameter estimates if intention is actually a significant determinant of behavior (Babrow & Swanson, 1988).

In sum, the forgoing discussions suggest that perceived characteristics of the Web and expected consequences of Web usage work together to determine attitude toward Web usage; attitude and normative perceptions determine behavioral intention; intention determines Web usage level. The formulation is expressed in a revised equation form:

$$\text{Web Usage}_x = w_1(\Sigma g_i e_i) + w_2(A_x) + w_3(\text{Social Norm}_x) + w_4(\text{Intention}_x)$$

Method

Analytical Tools

Past gratifications research often employed ordinary least squares regression and correlation as tools of analysis. Given that gratifications cannot be measured perfectly, the constraints of such traditional analytical tools are noted for their failure to account for imperfect measurement (Babrow & Swanson, 1988). Measurement errors can yield inaccurate parameter estimates that result from attenuation, overestimates, or sign changes. Additionally, traditional analytical tools appear insensitive to the possible multidimensionality of perceived gratifications (Rubin & Perse, 1987, p. 66). In turn, such insensitivity easily overlooks exploring interrelationships among gratifications and other variables in the theoretical structure. To address analytical problems in traditional procedures, this study chose the exploratory factor analysis and covariance structure model to examine the relationships between attitude, expectancies, motivations and usage regarding the Web.

Even though the exploratory factor analyses of the g_ie_i and GS_i items may produce similar dimensional solutions, three conditions make the gratifications data ill-suited to traditional regression procedures: errors in measurement, multiple indicators of latent constructs, and multiple equation systems (McPhee & Babrow, 1987). In this sense, methods of structural modeling have been recommended.

The covariance structure model employed by this study actually consisted of two components: *measurement model* and *structural model*. A *measurement model* is a factor-analytic model that specifies relationships between the latent constructs and their indicator (observed) variables. The weight or loading coefficients express the degree to which the manifest variables are able to express the variation in the latent variable (the expectancy-value, the gratification sought, the attitude, intention, Web usage, etc.). A *structural model* specifies causal relationships between latent constructs themselves. When a path analysis with latent variables is conducted, a simultaneous test is performed to determine whether this combined model provides an acceptable fit to the data. If it does, then the theoretical model has survived an attempt at disconfirmation, and receives some support for its prediction (Hatcher, 1994).

The theoretical system employed by this study attempted to predict

1. Web usage was causally determined by intention,
2. intention was causally determined by attitude,
3. attitude was causally determined by expectation and value, or attitude was causally determined by gratifications sought.

This is a unidirectional model that contains no reciprocal relationships or feedback loops (see Figure 4.3). The overall pattern of findings across a variety of criteria included χ^2 goodness-of-fit statistics, the adjusted goodness of fit index, significance of

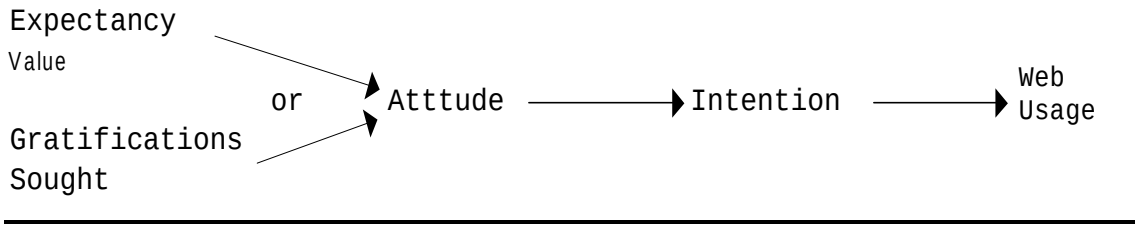

Figure 4.3. The Unidirectional Model Of Web Usage

parameter estimates, percent of variance explained, and residuals to evaluate the models' performance.

Hypotheses

The present study attempted to explore the mechanisms directing Web usage decisions and acquire more reliable estimates of the importance of various influences involved. Six hypotheses were proposed to clarify associations between expectancies, gratifications sought, and constructs that may have influences on Web usage. In sum, if $g_i e_i$ and GS_i are highly related, and they have a similar dimensionality, then their relationship to constructs mediating their influences on exposure behavior should be similar.

H1: Expectancy-value judgments ($\Sigma g_i e_i$) about the Web will be positively correlated with gratifications sought from the Web (ΣGS_i).
H2: Separate exploratory factor analyses of $g_i e_i$ and GS_i will yield similar factor solutions.

The first two hypotheses attempted to clarify associations between expectancies and gratifications sought. If $g_i e_i$ and GS_i are highly correlated, they should pose similar structures. The similar

dimensionality are to be proved by submitting the same core items to factor analysis.

Babrow and Swanson (1988) disagree with Palmgreen and Rayburn's proposed unidirectional causation from expectancy-value to gratifications sought. The former believe reciprocal influence may exist between g_ie_i and GS_i. Although direction of association between these two types of concepts and their relative weights in influencing medium exposure may vary with context, g_ie_i and GS_i appear to be highly correlated. Respondents may exhibit consistency among expectations, evaluations, and motives (Festinger, 1957), so there may exist empirical covariance. Obviously, it will be plausible to explore interrelationships and causal orderings between g_ie_i and GS_i. But such an attempt would be difficult due to the constraints of typical measurement techniques, errors in measurement, and multicolinearity (Babrow & Swanson, 1988). Nevertheless, the present study could investigate the differences between these similar, though not identical, constructs.

H3a: Attitude toward Web usage will be positively related to the dimensions of g_ie_i.
H3b: Attitude will be positively related to the dimensions of GS_i.

Fishbein and Ajzen (1974, 1975) note that behavior is influenced by attitude toward the behavior instead of attitude toward the object of behavior. Babrow and Swanson (1988) stress the importance of this distinction for the study of audience exposure, and further emphasize bringing together attitude and behavior measures. For studies of *exposure level*, a measure of attitude toward *exposure* and a single-act multiple-observation criterion need to be employed. In this sense, attitude toward a behavior is defined as an evaluative response toward

the act — if the act is a relatively good or bad thing to carry out. In turn, expectancy-value judgments influence a person's exposure level by determining attitude (Barrow, 1989, p. 158). For the present study, attitude toward using the Web (A_x) will be positively related to the strengths of beliefs about the consequences of usage (g_i) weighted by evaluations of those consequences (e_i).

H4: Intention to use the Web will be positively related to attitude toward Web usage (A_x).

Ajzen and Fishbein (1973) argue that intention is based partly on the individual's attitude toward a behavior. However, attitude or affective responses do not exert a fixed level of influence on intention, and the weight of affective response differs among potential behaviors (Fishbein & Ajzen, 1975; Triandis, 1980). Evidence suggests attitude is the most likely to have substantial impact on subsequent intention formation (Alexander, 1985).

H5: The relationship between expectancy-value judgments about the Web ($\Sigma g_i e_i$) and intention to use the Web will be trivial when attitude toward usage is held constant.

Effects of expectancy-value judgments also vary across behaviors. Studies of intentions to donate blood (Bagozzi, 1982) found substantial direct impact of beliefs on intentions. Studies of routine behaviors such as television news viewing found that expectancy-value judgments were stable over imagined and actual repeated exposures, so there existed no direct influence of expectancy-value judgments on intention (Babrow & Swanson, 1988). The more routine the behavioral options are, the more a person relies on a general evaluative response to make the

choice (Chaiken & Stangor, 1987). Attitudinal or general evaluative response may function as a simple behavioral guide.

As suggested by the foregoing discussion, decisions for a routine behavior may be guided by simplified attitudinal judgment rooted in relatively well-known experience (Barrow & Swanson, 1988, p.3). Given the extensive growth of Web usage, it is likely that the probability and value of various consequences from Web usage may be clear and stable to most Internet users. Their intention to use the Web may heavily depend on simplified attitudinal response.

H6: Level of Web usage will be positively related to usage intention.

Empirical evidence indicates that the level of a behavior is partly based on intention to carry out that behavior (Ajzen & Fishbein, 1973). To the degree that Web usage is volitional rather than habitual or conditional, we can expect a positive relationship to exist between usage and intention.

Additional Research Questions

This study had interest in specifically addressing the following:

RQ1: Does subjective norm predict intention?
RQ2a: Is there a direct relation between g_ie_i and intention?
RQ2b: Is there a direct relation between GS_i and intention?
RQ3a: Is there a direct relation between g_ie_i and Web usage?
RQ3b: Is there a direct relation between GS_i and Web usage?

Questionnaire Development

This study intended to identify the gratifications distinctively associated with the Web. Previous research suggested that respondents might not necessarily volunteer the same gratifications to open-ended questions as were tapped through the closed-ended list (Becker, 1979).

Efforts to develop the questionnaire began by asking a group of individuals about their motivations for using the Web. Additionally, the author reviewed the survey items in previous research on media uses and gratifications and integrated those motivations that were applicable to Web usage.

The construction of the survey items started by asking a group of 30 people: “Why do you use/surf the Web (site)?” Group members of various professions were selected because they were moderate to active users of the Web. Afterward, five people from the group, including marketing researchers and Internet specialists, reviewed the collected responses with the author to form a consolidated list of all reasons solicited. To understand whether the motivations of Web usage truly differed from those associated with various traditional mass media, some other reasons relevant to Web usage were added to the list after reviewing past literature on conventional mass media. These “traditional-media” items cover perspectives including *diversity of opinion*, *trustworthy information*, *prohibited information*, and *influences on important issues*.

The preliminary list of items was pre-tested to eliminate repetitive items or items not applicable to Web usage. The pre-test was conducted by sending the questionnaire to respondents including the 30 people who had contributed reasons. An exploratory factor analysis of the results was used. A total of 22 survey items, measured on a seven-point scale, survived pre-testing based on a convenience sample of 47 respondents (see Table 4.1). The measurement section below gives a detailed description of how expectations, evaluations, gratifications, attitudes, usage, and demographics were operationalized and measured.

Table 4.1. Core Expectancy-Value and Gratification Sought Items

1. To obtain software or graphics (SOFTWARE)
2. To obtain games (GAMES)
3. To search for specific information or reference materials (REFER)
4. For gathering product/service information (PRODUCT)
5. To keep up with current issues/events (ISSUE)
6. For online shopping or services (SHOP)
7. For online stock trading (STOCK)
8. Because it provides more diverse opinions on current issues/events (DIVERSE)
9. To find out about issues affecting people like myself (AFFECT)
10. Because I can trust information it gives me (TRUST)
11. So I can escape from reality (ESCAPE)
12. Because it is entertaining (ENTERTAIN)
13. Because it is exciting (EXCITE)
14. To access certain information prohibited from TV, radio, newspapers, or magazines (PROHIBIT)
15. To share Information/ideas with others (SHARE)
16. Because it gives me control over what and when I want to use it (CONTROL)
17. To make up my mind about important issues (MAKEUP)
18. Because it gives me something to talk about (TALK)
19. To occupy my time (OCCUPY)
20. To have fun things to explore (EXPLORE)
21. To keep me company (COMPANY)
22. For its interactive features to personalize and customize my experience (INTERACT)

Data Collection

The Web-based survey was suggested to be a valid survey medium for addressing Internet-specific issues (Schillewaert, Langerak, & Duhamel, 1998). The data were collected in two waves using the Web-based version of the questionnaire (see Appendix). The first wave measured predictors of Web usage (e. g., behavioral intention, social perception, attitude toward Web usage, perceived consequence of usage). The second wave collected information about behavior by self-report. A subset of first-wave predictors was retested. Given the nature of the study, only those who indicated they were likely to use the Web in an average week were able to participate in the survey. At the end of the first-wave questionnaire, respondents were asked for their e-mail addresses if they wanted to receive a summary of the study results and if they were willing to participate in the second wave.

Research on non-probability recruiting methods applied in a Web-based survey found that newsgroup postings generated high response speeds (Schillewaert, Langerak, & Duhamel, 1998). Recruiting through newsgroups or discussion groups also allow useful and exploratory inferences about Web users' attitudes toward the Web. Newsgroups started in 1976 to form a UNIX user community and subsequently evolved into several thousand groups in the mid-1980s. In 1986, newsgroups were reorganized into seven categories: comp (computer), misc (miscellaneous), news (newsgroup administration), rec (recreational topics), sci (science), soc (socially relevant), and talk (shooting the breeze). Dissenters from the backbone group created another category –- alt (alternative). During the 1990s, there were more than 15,000 newsgroups or discussion groups all over the world (Grey, 1997). Online search site Google has integrated the Usenet archives of discussion

forums, offering access to more than 700 million messages dating back to 1981.

Newsgroups or discussion groups were used as the sampling frame for this research. Messages explaining the research objectives and soliciting for volunteer participation by disclosing the URL of the survey were posted in randomly selected Google groups centered on the specific topics (“.comp” “.soc” “.rec” “.alt” “.misc” “.sci.” “.news” “.biz” “K12” “.humanities” “.talk”). Respondents were also solicited from Yahoo Groups, which are discussion forums on Web sites made available by the Yahoo online service.

Measurement

The survey instrument mainly focused on items specific to measuring the expectation, evaluation, and gratifications regarding the Web. These items were randomly ordered in the online questionnaire within each section. Additionally, the survey attempted to gather information on the respondents’ attitudes toward Web usage in general and demographic data for gender, age, income, occupation, education, ethnicity, and geographic composition. The main variables in the study were described as follows:

Exposure behavior was measured by self-report of frequency of Web usage (i.e., the number of times the respondents used the Web during the past week) and the average amount of time spent during each use (the number of hours per day spent on the Web).

Behavioral Intention was measured by asking the respondents to rate their intention to use the Web in general and during the coming week on a seven-point bipolar scale ranging from “extremely likely” to “extremely unlikely.”

Subjective perceptions were measured by asking respondents how people important to them think about their Web usage on a similar bipolar 7-point scale anchored by “very wise use of time” and “very foolish use of time.”

Attitude toward Web usage in general was rated by respondents on some seven-point adjective scales from *extremely* to *not at all* “beneficial,” appealing,” “effective,” “pleasant,” “good,” “comfortable,” and “wise use of time.”

Perceived features was designed using the 22 survey items based on the pre-test results. Respondents were asked to *evaluate* each of the features (e_i) on seven-point scales ranging from “extremely desirable” to “extremely undesirable” for the Web to have or provide. The *probability* that the Web provides each of the same gratifications (g_i) was recorded on seven-point scales ranging from “definitely has/provides feature” to “definitely does not have/provide the feature.”

Gratification sought was measured by estimating how often each gratification was a reason for using the Web. Estimates were recorded on seven-point scales ranging from “always applies to me” to “never applies to me.”

Other levels of Web usage

The variable of Web usage tested in the research model was mainly defined as “exposure to the Web sites or pages” to be consistent with traditional definitions of mass media research. However, the Web is more than a mass medium that receives visits only. Web usage actually encompasses various levels ranging from watching/listening/reading messages to information seeking to transaction. Relationships between

Web exposure and the other two levels or types of Web usage were examined:

1) The percentage of time spent for business purposes versus personal purposes;
2) the approximate number of times Web users made purchases on the Web in the past 12 months.

Demographic Information

The demographic data collected in this study included gender, age, marital status, the number of children in household, household income, education level, occupation, ethnicity, and the state of residence.

CHAPTER V
DATA ANALYSIS AND RESULTS

Sample

All data were collected via the Internet by administering an online survey (see Appendix). The questionnaire was administered between May 19 and 31, 2001, with a total of 297 Internet users visiting the survey site. Complete data were received from 162 (54.4%) of the participants. Based on comparison with the 2000 U.S. Census' Internet population, respondents in this study were similar to the national average in gender, ethnic mix, and income composition but slightly younger and better educated (see Table 5.1). The sample was 54% women, 87% White (0.6% African American, 3.7% Asian, 3.7% Hispanic), 45% married (33% single and 22% other), 69% with college degree (including 34% post-graduate), with a mean age of 37.85 (SD = 12.80, range from 18 to 71). Respondents, with 51% working in the private sector, represented a wide variety of occupations, the largest category being professional/Technical/Specialty (40%).

Table 5.1. Respondent Demographics (Adults 18 Years And Older)

	Male	White	55 Years & Older	College Degree	HH Income > $25,000	Married
Present Study	46%	87%	9%	69%	62%	45%
Internet Users[a]	49%	88%	15%	40%	80%[b]	66%[b]
General Population[a]	48%	83%	28%	24%	64%[b]	52%[b]

[a]Source: U.S. Census Bureau, Current Population Survey (August 2000)
[b]Based on household measures

Nearly all respondents accessed the Web at home (96.3%), and most also accessed the Web at work (74%). The home access rate is almost two and half times higher than the U.S. Census estimate (37%, August 2000). Respondents had an average of two personal computers or laptops at home, with an average of two people per household accessing the Web during the week. Most paid for Internet access for themselves or their spouse (81.4%).

Respondents were heavy Web users with extensive experience online. Most used the Web more than once a day (84.6%) and had been part of the Web community for over three years (82.1%), compared to 55% reported by Scarborough Research (2001). Half of the respondents had more than 50 sites listed on their Web browser's favorites or bookmarks list. Of the 25 most popular Web sites rated by CyberAtlas and WatchFire, 22 sites received 10 or more hits by the sample during the survey period (see Table 5.2). On average, over four sites were visited by the sample in the past seven days. The search engine, Yahoo was the top Web site that respondents had visited in the past week (58.6%). Amazon.com was the second most popular Web site, with nearly half of respondents visiting in the past week (45.1%). Correlation between the number of favorites or bookmarks and the number of top sites visited was very low (.22). In turn, the relationship between the number of top sites visited and frequency of Web usage in the past seven days was small and insignificant.

The average amount of time spent on the Web on the weekend (20.4% spent more than four hours a weekend day) was significantly less than on a weekday (32.8% spent more than four hours a day). Web usage was primarily for work or business (41.8% of the time) and personal purposes (41.3% of the time). Most respondents have purchased

Table 5.2. Web Sites Visited in The Past Week (Multiple Mentions)

	% Visited in the Past Week (*Present Study*: 5/19-5/31/2001)	Quality Rank[a] by CyberAtlas/Watchfire (4/6/2001)
1. Yahoo	58%	1
2. Amazon.com	45%	23
3. Hotmail	37%	2
4. MSN	27%	10
5. Netscape	27%	4
6. Alta Vista	26%	9
7. eBay	26%	6
8. Microsoft	25%	20
9. Weather.com	23%	25
10. CNET	22%	19
11. ZDNet	22%	22
12. About.com	18%	12
13. GeoCities	18%	5
14. Excite	17%	8
15. AOL	14%	16
16. Lycos	12%	11
17. Blue Mountain Arts	11%	7
18. NBCi.com	8%	15
19. Real.com	8%	18
20. HotBot	7%	14
21. Angelfire	6%	13
22. Go.com	6%	24
23. Passport	5%	17
24. Tripod	5%	21
25. LookSmart	2%	3

Source: CyberAtlas/Watchfire Quality Test, retrieved April 6, 2001 from http://cyberatlas.internet.com/big_picture/print/0,,5871_304481,00.html

[a]Quality Rank was given to track performance of the Web's most popular sites in terms of broken internal and external links, pages missing titles, and slow-loading pages, etc.

merchandise or services over the Web in the past 12 months (85.8%), although the frequency of purchases varied. That is close to the 81% reported by the Nielsen//NetRatings and Harris Interactive ("Nearly half of all Americans," 2001). There existed little significant association between Web purchases and frequency of general usage.

Complete data across both waves of surveys were received from a total of 65 respondents (i. e., 40% of the first wave respondents). Several tests found no biases associated with absence and other forms of nonresponse. The relatively small sample population for the second wave posed constraints on the research model of interest and could have resulted in invalid parameter estimates, so the present analyses employed the 162 respondents for whom there were complete data in the first wave.

Summary of Measures

When the present study constructed the scale to measure belief, probability, and gratification-seeking from the Web, the items included in the survey were a small sample from all of the attributes that may have been selected. Although a limited number of items were included, the survey intended to draw conclusions about Web usage. While conducting analyses for testing hypotheses, the study also examined the characteristics of the individual items, the characteristics of the overall scale, and the relationship between the individual items and the entire scale.

Reliability of Measures

The reliability check yields that the stability of results will be produced over time regardless of who administers the survey and what alternative forms are used. For this study, the reliability estimates demonstrated by the intercorrelations of individual items that were theoretically connected were performed to ensure the nonrandomness of responses of the items (Becker, 1979; McLeod & Becker, 1974). The Cronbach's Alpha (α) tests revealed that the "internal consistency" of the survey items was very good among attitude toward Web usage (α = 0.86), g_i (belief or expectancy, α = 0.93), e_i (evaluation, α = 0.90), and GS_i (gratifications sought, α = 0.90) measures. Elimination of nearly any one of the items from the scale caused little change in α. However, Cronbach's α would increase from 0.90 to 0.907 if GS_3 (to search for specific information or reference materials) were removed from the gratifications-sought scale.

Attitude Toward Web Usage

The average scores for the attitude items ranged from 6.07 for "Comfortable" to 5.51 for "Pleasant." "Wise use of time" had the largest standard deviation, 1.29. The correlations between the items ranged from moderate to high (see Table 5.3). The average for the attitude scale was 5.82, and the standard deviation was 0.83. The correlations between items ranged from 0.30 to 0.85. The ratio between the largest and smallest correlation was 0.85/0.30, or 2.8. The average correlation was 0.47.

Table 5.3. Correlations (Pearson *r*) of Attitudes Toward Web Usage

	Beneficial	Appealing	Wise use of time	Effective	Pleasant	Good	Comfortable
Beneficial	1.0						
Appealing	.46	1.0					
Wise use of time	.66	.30	1.0				
Effective	.71	.41	.69	1.0			
Pleasant	.37	.55	.33	.32	1.0		
Good	.47	.52	.35	.37	.85	1.0	
Comfortable	.31	.40	.31	.36	.58	.62	1.0

Hypotheses Testing

Exploratory factor analysis and covariance structure modeling, traditional and powerful techniques in expectancy-value and media gratifications research, were the major analytical tools.

Simple Association Between the g_ie_i and GS_i Measures

The first analysis tested the hypothesis (H_1) that expectancy-value judgments (Σg_ie_i) about the Web would be positively associated with gratifications sought from the Web (ΣGS_i). The correlations between each GS_i and the corresponding g_ie_i ranged between .38 and .78 and were all significant at $p < .001$ (see Table 5.4). A strong mean correlation of .607 also supported the hypothesis that seeking a specific attribute from the Web (GS_i) was positively associated with the expectancy of obtaining the attribute (g_i), times the evaluation of the attribute (e_i).

The sum of the product of expectancy and evaluation scores yielded a scale with $M = 669.22$, $SD = 161.09$, and $\alpha = .92$. The sum of gratifications sought yielded a scale with $M = 88.2$ and $SD = 22.75$. The summation model was used to test if Σg_ie_i could predict ΣGS_i, a generalized orientation to seek various gratifications from the Web.

Table 5.4. Correlations (Pearson *r*) of Gratifications Sought Items with Expectancy Value (g_ie_i) Indices*

Gratifications Sought (GS_i)	g_ie_i
1. To obtain software or graphics (SOFTWARE)	.47
2. To obtain games (GAMES)	.69
3. To search for specific information or reference materials (REFER)	.43
4. For gathering product/service information (PRODUCT)	.60
5. To keep up with current issues/events (ISSUE)	.51
6. For online shopping or services (SHOP)	.71
7. For online stock trading (STOCK)	.39
8. Because it provides more diverse opinions on current issues/events (DIVERSE)	.54
9. To find out about issues affecting people like myself (AFFECT)	.52
10. Because I can trust information it gives me (TRUST)	.70
11. So I can escape from reality (ESCAPE)	.65
12. Because it is entertaining (ENTERTAIN)	.72
13. Because it is exciting (EXCITE)	.78
14. To access certain information prohibited from TV, radio, newspapers, or magazines (PROHIBIT)	.67
15. To share Information/ideas with others (SHARE)	.47
16. Because it gives me the control over what and when I want to use it (CONTROL)	.38
17. To make up my mind about important issues (MAKEUP)	.73
18. Because it gives me something to talk about (TALK)	.67
19. To occupy my time (OCCUPY)	.75
20. To have fun things to explore (EXPLORE)	.69
21. To keep me company (COMPANY)	.67
22. For its interactive features to personalize and customize my experience (INTERACT)	.61
	X=.607

*All correlations significant at $p < .001$ ($n = 162$)

The Pearson correlation between ΣGS_i and $\Sigma g_i e_i$ was .71 ($p < .001$). This result, added to the correlations between each GS_i and the corresponding $g_i e_i$, strongly supported the first hypothesis.

An examination of the entire (22 x 22) GS_i (gratification-seeking) versus $g_i e_i$ (expectancy-value) correlation matrix further suggested the predictive validity of the expectancy value measures. As shown in Table 5.5, the correlation between each GS_i and its corresponding $g_i e_i$ product was generally stronger than the correlation between non-corresponding $g_i e_i$ products. For example, the correlation ($r = .54$) between the GS_8 (The Web provides more diverse opinions on current issues/events) and the corresponding $g_8 e_8$ was much stronger than any of the correlations between the GS_8 measure and the $g_i e_i$ for the other 21 items. The average of these non-corresponding correlations was only .23. This pattern applied to all 22 items. Consequently, the $g_i e_i$ measure for each Web usage attribute predicted only seeking of the specific gratification with which the particular belief was associated.

Comparing $g_i e_i$ and GS_i Dimensionality By Exploratory Factor Analyses

The attributes must be related to each other for the factor model to be appropriate. To examine the appropriateness, a correlations matrix of all $g_i e_i$ items shown in Table 5.6 was employed. More than half of the coefficients (138 out of 231) were greater than 0.3. All $g_i e_i$ items had large correlations with at least one of the other $g_i e_i$ items in the set. Therefore the $g_i e_i$ data were a good candidate for factor analysis. Correlations were not as strong (113 out of 231 correlation coefficients were greater than 0.3) when examining the correlations matrix of all GS_i items due to the low correlation between GS_7 and other GS_i items (see Table 5.7).

Table 5.5. Correlations (Pearson *r*) of Gratifications Sought Items With Expectancy Value Indices

a)

	Gratifications Sought (GS_i)										
	1	2	3	4	5	6	7	8	9	10	11
g_ie_i											
1	.47	.16	.07	.22	.17	.24	.08	.17	.24	.24	.17
2	.24	.69	-.07	.06	.19	.09	.14	.18	.12	.12	.30
3	.16	.06	.43	.42	.37	.28	-.04	.26	.38	.40	.12
4	.21	.12	.37	.60	.30	.37	.02	.17	.24	.30	.10
5	.09	.00	.27	.40	.51	.29	.06	.35	.42	.33	.17
6	.24	.08	.13	.38	.24	.71	.14	.06	.16	.10	.08
7	.14	.12	-.00	.18	.13	.25	.39	.02	.10	.03	.01
8	.06	-.06	.28	.35	.41	.26	.01	.54	.44	.20	.17
9	.07	-.02	.32	.47	.38	.34	-.01	.44	.52	.34	.19
10	.09	.07	.22	.34	.27	.22	.17	.22	.31	.70	.09
11	.14	.21	.03	.21	.09	.04	.02	.20	.30	.12	.65
12	.42	.36	-.02	.23	.25	.21	.12	.24	.37	.13	.44
13	.35	.33	-.08	.08	.14	.10	.09	.18	.29	.18	.43
14	.17	.16	.10	.13	.29	.19	.06	.26	.21	.07	.15
15	.07	.06	.28	.29	.15	.17	-.00	.20	.30	.05	.08
16	.16	-.03	.18	.35	.26	.29	.00	.25	.31	.29	.13
17	.25	-.02	.24	.45	.35	.33	.05	.39	.54	.35	.27
18	.20	.14	.15	.24	.24	.19	.05	.24	.41	.21	.35
19	.19	.28	-.03	.05	.20	.06	-.00	.23	.43	.21	.49
20	.20	.18	.17	.23	.24	.14	-.03	.24	.44	.29	.37
21	.12	.13	-.03	.03	.09	-.02	.03	.20	.39	.19	.48
22	.29	.20	.12	.22	.21	.09	.06	.35	.45	.29	.29

b)

	Gratifications Sought (GS_i)										
	12	13	14	15	16	17	18	19	20	21	22
g_ie_i											
1	.29	.32	.22	.30	.18	.27	.26	.20	.15	.17	.22
2	.46	.34	.24	-.01	.09	.20	.19	.25	.31	.24	.28
3	.26	.24	.25	.29	.31	.33	.24	.16	.21	.15	.26
4	.26	.15	.16	.22	.18	.27	.09	.05	.12	.05	.19
5	.21	.20	.26	.15	.22	.40	.21	.21	.21	.17	.21
6	.16	.11	.14	.15	-.00	.30	.07	.15	.04	.06	.02
7	.09	.08	-.00	.07	-.01	.15	.01	.04	-.02	.03	-.00
8	.22	.18	.39	.10	.17	.43	.25	.11	.21	.17	.17
9	.22	.26	.32	.25	.26	.49	.27	.14	.19	.15	.21
10	.08	.23	.11	.24	.26	.33	.18	.08	.09	.11	.21
11	.47	.39	.17	.09	.23	.35	.36	.47	.34	.51	.25
12	.72	.58	.35	.22	.35	.36	.47	.51	.48	.46	.37
13	.59	.78	.33	.14	.31	.36	.54	.50	.53	.49	.37
14	.25	.32	.67	.13	.12	.26	.25	.21	.23	.26	.11
15	.15	.10	.16	.47	.12	.21	.12	.11	.10	.10	.11
16	.25	.24	.30	.25	.38	.33	.22	.15	.17	.07	.24
17	.29	.34	.37	.27	.38	.73	.42	.24	.25	.28	.28
18	.35	.47	.26	.27	.34	.45	.67	.48	.39	.49	.28
19	.59	.56	.27	.15	.29	.41	.55	.75	.57	.60	.30
20	.47	.45	.16	.18	.40	.44	.39	.44	.69	.41	.38
21	.48	.47	.16	.15	.37	.38	.52	.55	.49	.67	.31
22	.48	.46	.22	.27	.38	.47	.45	.30	.38	.41	.61

Table 5.6. Correlations (Pearson *r*) of Expectancy Value Indices

a)

	Expectancy Value Indices (g_ie_i)										
	1	2	3	4	5	6	7	8	9	10	11
g_ie_i											
1	1.0										
2	.44	1.0									
3	.32	.25	1.0								
4	.40	.35	.68	1.0							
5	.35	.29	.62	.57	1.0						
6	.41	.27	.35	.49	.43	1.0					
7	.32	.30	.13	.29	.30	.55	1.0				
8	.24	.21	.49	.45	.66	.34	.27	1.0			
9	.34	.27	.62	.57	.74	.45	.28	.74	1.0		
10	.30	.26	.46	.39	.51	.32	.30	.37	.54	1.0	
11	.18	.33	.24	.26	.26	.17	.12	.28	.28	.09	1.0
12	.34	.41	.37	.34	.33	.28	.20	.30	.34	.12	.55
13	.38	.37	.25	.21	.24	.16	.15	.19	.25	.20	.41
14	.22	.27	.32	.24	.34	.25	.07	.43	.33	.08	.21
15	.37	.18	.31	.39	.33	.24	.20	.36	.40	.15	.19
16	.32	.17	.52	.43	.53	.24	.07	.44	.54	.34	.18
17	.45	.20	.48	.47	.56	.46	.27	.54	.60	.45	.33
18	.30	.21	.33	.25	.45	.35	.15	.37	.43	.30	.44
19	.26	.37	.31	.18	.35	.21	.07	.18	.26	.21	.52
20	.29	.28	.42	.33	.43	.21	.06	.32	.36	.29	.36
21	.19	.24	.17	.11	.25	.12	.14	.23	.20	.16	.52
22	.36	.38	.39	.29	.36	.20	.18	.36	.38	.25	.35

b)

	Expectancy Value Indices (g_ie_i)										
	12	13	14	15	16	17	18	19	20	21	22
g_ie_i											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12	1.0										
13	.72	1.0									
14	.34	.33	1.0								
15	.24	.21	.27	1.0							
16	.31	.29	.32	.37	1.0						
17	.37	.34	.33	.33	.44	1.0					
18	.50	.50	.28	.28	.30	.57	1.0				
19	.56	.55	.25	.14	.24	.37	.59	1.0			
20	.50	.54	.21	.24	.41	.44	.48	.62	1.0		
21	.47	.53	.21	.21	.20	.35	.59	.64	.58	1.0	
22	.45	.51	.23	.32	.35	.47	.41	.48	.51	.51	1.0

Table 5.7. Correlations (Pearson *r*) of Gratifications Sought Items

a)

	Gratifications Sought (GS_i)										
	1	2	3	4	5	6	7	8	9	10	11
GS_i											
1	.32	1.0									
2	.08	-.12									
3	.32	.02	1.0								
4	.22	.13	.48	1.0							
5	.35	.12	.29	.34	1.0						
6	.19	.31	.19	.49	.28	1.0					
7	.18	.11	.00	.13	.16	.19	1.0				
8	.25	.02	.20	.33	.56	.19	.22	1.0			
9	.21	.07	.23	.36	.49	.18	.09	.70	1.0		
10	.25	.31	.25	.36	.31	.15	.21	.34	.48	1.0	
11	.38	.45	-.04	.20	.08	.09	.16	.27	.39	.24	1.0
12	.44	.36	-.07	.16	.28	.11	.13	.31	.38	.18	.56
13	.29	.23	-.10	.13	.22	.11	.11	.27	.41	.30	.54
14	.21	-.03	.07	.19	.45	.24	.12	.55	.43	.22	.26
15	.29	.11	.21	.35	.15	.17	.09	.19	.35	.24	.07
16	.26	.16	.17	.28	.33	.14	.15	.40	.52	.49	.30
17	.32	.24	.15	.38	.47	.33	.16	.64	.66	.37	.38
18	.22	.33	.09	.14	.32	.13	.15	.40	.51	.23	.45
19	.22	.33	-.12	.09	.16	.08	.08	.22	.35	.09	.60
20	.24	.36	.03	.11	.24	.05	.02	.34	.43	.16	.51
21	.41	.33	-.10	.07	.16	.04	.21	.27	.37	.23	.67
22	.36	.38	.08	.23	.31	.13	.19	.48	.47	.39	.36

b)

	Gratifications Sought (GS_i)										
	12	13	14	15	16	17	18	19	20	21	22
GS_i											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12	1.0										
13	.68	1.0									
14	.41	.51	1.0								
15	.15	.21	.15	1.0							
16	.37	.40	.32	.29	1.0						
17	.41	.46	.47	.25	.50	1.0					
18	.56	.65	.46	.30	.48	.53	1.0				
19	.66	.61	.34	.18	.31	.35	.63	1.0			
20	.61	.64	.32	.19	.47	.45	.58	.65	1.0		
21	.60	.62	.32	.19	.37	.43	.69	.75	.60	1.0	
22	.45	.48	.32	.20	.62	.48	.52	.33	.51	.43	1.0

Further examination of communality, the squared multiple correlation coefficient between a g_ie_i item and all other g_ie_i items, suggested that none of the g_ie_i items had a relatively small communality. Therefore none of the g_ie_i items needed to be eliminated from the data set being analyzed. Examination of communality among GS_i items revealed similar findings.

The expectancy-value (g_ie_i) measures were submitted to principal component analysis with oblique simple structure rotation. Oblique rotation was used because correlations were often found among a variety of audience motives (Rubin, 1985; Rubin & Perse, 1987). Factors with a variance less than 1 were no better than a single item, so only factors with a variance (eigenvalue) greater than 1 were included. This yielded a 4-factor solution accounting for 86.3% of the total item variance (see Table 5.8). The first two factors generally reflected past research about TV usage (Palmgreen, Wenner, & Rayburn, 1980): *Informativeness/Issues* (F1) and *Pastime/Interaction* (F2) combined explained 56.1% of variance in expectation and evaluation of Web usage. The other two dimensions regarding Web usage were found: *Utilitarian* (F3) and *Alternative* (F4).

The coefficients or factor loadings were used to express a standardized g_ie_i measure in terms of the factors. These coefficients indicated how much weight was assigned to each factor. Factors with large coefficients (in absolute value) for a g_ie_i item were closely related to the item. For example, OCCUPY ($g_{19}e_{19}$, something to occupy your time) with a loading of .88 assigned more weight to the *Interaction/Pastime* dimension than TALK ($g_{18}e_{18}$, something to talk about) with a loading of .68.

Table 5.8. Factor Matrix For Expectancy-Value ($g_i e_i$) Measures (After Oblique Rotation)

	Mean	*SD*	F1	F2	F3	F4
Specific information and reference materials (REFER)	40.65	9.27	.730	.006	-.062	.219
Product/service information (PRODUCT)	38.25	11.38	.566	-.142	.269	.288
Information about current issues/events (ISSUE)	39.61	10.51	.794	.060	.062	.034
Diverse opinions on current issues/events (DIVERSE)	35.79	11.25	.748	-.020	-.042	.169
Issues affecting people like yourself (AFFECT)	34.20	10.99	.835	-.019	.061	.098
Information that can be trusted (TRUST)	28.79	11.75	.635	.047	.259	-.321
User's control over what and when you want to use (CONTROL)	35.31	11.13	.649	.023	-.226	.339
Help to make up your mind about important issues (MAKEUP)	29.11	12.60	.600	.262	.120	-.036
Escape from reality (ESCAPE)	20.51	13.20	-.037	.653	.034	.079
Entertainment (ENTERTAIN)	30.27	13.14	-.069	.637	.120	.329
Excitement (EXCITE)	23.99	13.90	-.148	.724	.073	.260
Something to talk about (TALK)	24.92	11.62	.289	.682	.007	-.162
Something to occupy your time (OCCUPY)	24.56	13.07	-.003	.877	-.025	-.075
Fun things to explore (EXPLORE)	32.44	11.57	.276	.682	-.149	-.004
Something to keep you company (COMPANY)	18.11	13.09	-.032	.904	-.065	-.144
Interactive features to personalize and customize your experience (INTERACT)	27.35	11.64	.165	.529	.026	.176
Software and graphics (SOFTWARE)	35.73	11.22	.059	.072	.516	.350
Games (GAME)	24.26	13.24	-.180	.231	.510	.368
Online shopping or services (SHOP)	31.93	13.96	.282	-.053	.673	-.021
Online stock trading (STOCK)	22.11	13.52	.019	-.058	.863	-.124
Information prohibited from TV, radio, newspapers, or magazines (PROHIBIT)	30.27	14.17	.198	.043	-.096	.636
Ways to share Information/ideas with others (SHARE)	41.07	9.83	.292	-.068	.061	.516

[1]Correlations among the factors were: r12 = .376; r13 = .362; r14 = .247; r23 = .278; r24 = .330; r34 = .195.

[2]Means and standard deviations were for 49-point scales (1 to +49) formed from the product of two 7-point scales; e_i ranging from 1 = "extremely undesirable" to 7 = "extremely desirable" and g_i ranging from 1 = "definitely does not have/provide" to 7 = "definitely has/provides."

[3]Results from principal component analysis with iterative estimation of communalities and oblique rotation. The four factors accounted for 28.7%, 27.4%, 16%, and 14.2% of the variance, respectively.

Although g_ie_i and GS_i were highly correlated, they did not pose similar structures. After submitting the same core items to factor analysis, additional dimensions were found for gratification-sought (GS_i) items: *Fun/Pastime*, *Issue Relevance*, *Shopping Information*, *Utility*, and *Interactive Control*. Several items loading on the specific factors were not interpretable. For example, GS_{15} (Ways to share information with others) was loaded with *Shopping Information* items such as GS_6 (Online shopping or services) and GS_4 (Product/service information). GS_{10} (Information that can be trusted) was loaded with *Interactive Control* items such as GS_{16} (User's control) and GS_{22} (Interactive features to personalize and customize).

The present study therefore forced factor analysis to produce four factors for GS_i items, and the results yielded structures more similar to g_ie_i (see Table 5.9). The first dimension, *Pastime/Interaction*, accounted for 29.9% of variance in gratifications sought items. The *Informativeness/Issues* dimension obtained for expectancy-value (g_ie_i) measures was split into *Issue Relevance* (F2) and *Informativeness* (F3) dimensions for gratification-sought (GS_i) items. The two attributes loaded on the *Alternative* dimension for expectancy-value (g_ie_i) measures were nicely loaded to *Issue Relevance* (PROHIBIT, GS_{14}: information prohibited from TV, radio, newspapers, or magazines, loading = .66) and *Informativeness* (SHARE, GS_{15}: ways to share information/ideas with others, loading = .68). However, three attributes were shared by two factors with similar loadings. CONTROL (GS_{15}) and INTERACT (GS_{22}) loaded on both *Pastime/Interaction* and *Issue Relevance* dimensions. TRUST (GS_{10}) loaded on both *Issue Relevance* and *Informativeness* dimensions. In total, these three and the *Utility* (F4) dimensions accounted for 80.1% of GS_i item variance.

Table 5.9. Factor Matrix For Gratifications Sought (GS_i) Measures (After Oblique Rotation)

	Mean	*SD*	F1	F2	F3	F4
Escape from reality (ESCAPE)	2.67	1.79	.751	-.080	.049	.057
Entertainment (ENTERTAIN)	4.36	1.86	.745	.056	-.068	.181
Excitement (EXCITE)	3.46	1.98	.780	.055	-.012	.108
Something to talk about (TALK)	3.14	1.86	.696	.210	.071	-.061
Something to occupy your time (OCCUPY)	3.46	1.97	.901	-.104	-.041	-.025
Fun things to explore (EXPLORE)	4.20	1.77	.785	.102	-.002	-.124
Something to keep you company (COMPANY)	2.70	1.74	.877	-.029	-.044	-.002
User's control over what and when you want to use (CONTROL)	4.47	1.92	.360	.340	.289	-.110
Interactive features to personalize and customize your experience (INTERACT)	3.51	1.94	.410	.338	.104	.097
Information about current issues/events (ISSUE)	5.31	1.60	-.188	.799	.003	.158
Diverse opinions on current issues/events (DIVERSE)	4.53	1.94	-.059	.939	-.076	-.004
Issues affecting people like yourself (AFFECT)	4.67	1.74	.231	.652	.212	-.204
Information prohibited from TV, radio, newspapers, or magazines (PROHIBIT)	3.64	2.03	.130	.660	-.190	.186
Help to make up your mind about important issues (MAKEUP)	4.12	1.83	.226	.625	.122	.020
Information that can be trusted (TRUST)	3.99	1.58	.071	.318	.387	.011
Specific information and reference materials (REFER)	6.33	0.95	-.243	.118	-.651	-.047
Product/service information (PRODUCT)	5.54	1.59	-.066	.033	.769	.272
Ways to share information/ideas with others (SHARE)	5.81	1.42	.264	-.167	.677	-.098
Online shopping or services (SHOP)	3.87	2.00	-.159	.032	.440	.586
Online stock trading (STOCK)	1.64	1.42	-.080	.180	-.067	.595
Software and graphics (SOFTWARE)	4.20	1.93	.261	-.111	.320	.564
Games (GAME)	2.57	1.84	.343	-.022	-.277	.622

[1]Correlations among the factors were: r12 = .432; r13 = .144; r14 = .233; r23 = .415; r24 = .186; r34 = .074.
[2]Means and standard deviations were for 7-point scales (1 to +7) ranging from 1 = "never applies to me" to 7 = "always applies to me."
[3]Results from principal component analysis with iterative estimation of communalities and oblique rotation. The four factors accounted for 29.9%, 24.8%, 14.7%, and 10.7% of the variance, respectively.

The g_ie_i Structure Model

The relatedness of expectancy-value and gratification-seeking ratings was also examined by comparing their performance in the theoretical models of the determinants of Web usage. First, a structural model, described as a path analysis with latent variables, was developed by incorporating a measurement submodel into a substantive model built on Hypotheses 3a, 4, and 6 (see Figure 5.1). The measurement submodel was based on the findings of the exploratory factoring of the expectancy-value ratings, and the g_ie_i responses in the model were indicators of four latent expectancy-value dimensions determined by a single second-order cognitive factor. The other four latent expectancy-value constructs included latent expectancy values (F8), attitude (F5), intention (F6), and Web usage (F7). In one sense, the model could have adopted four separate, intercorrelated, one-dimensional judgments without a common second-order factor. Instead, this study followed Bagozzi's case III model (1982) to use one overall multidimensional judgment (F8). The case III model, which deals with the possible multicolinearity among the subdimensions, is best used wherever a multidimensional judgment is thought to be an antecedent.

The measurement submodels for attitude, intention and usage were treated similarly. Confirmatory factor analysis using the maximum likelihood method revealed that *average time spent on weekend* and four indicators for attitude had to be deleted to achieve a marginally acceptable fit: *appealing*, *pleasant*, *good*, and *comfortable*. As such, attitude was revised as a latent unidimensional judgment reflected in three indicators: *beneficial*, *wise use of time*, and *effective*. Usage was seen as indicated by *general usage frequency*, *involvement in terms of bookmarks or favorites list*, and *weekday usage levels*. Two judgments

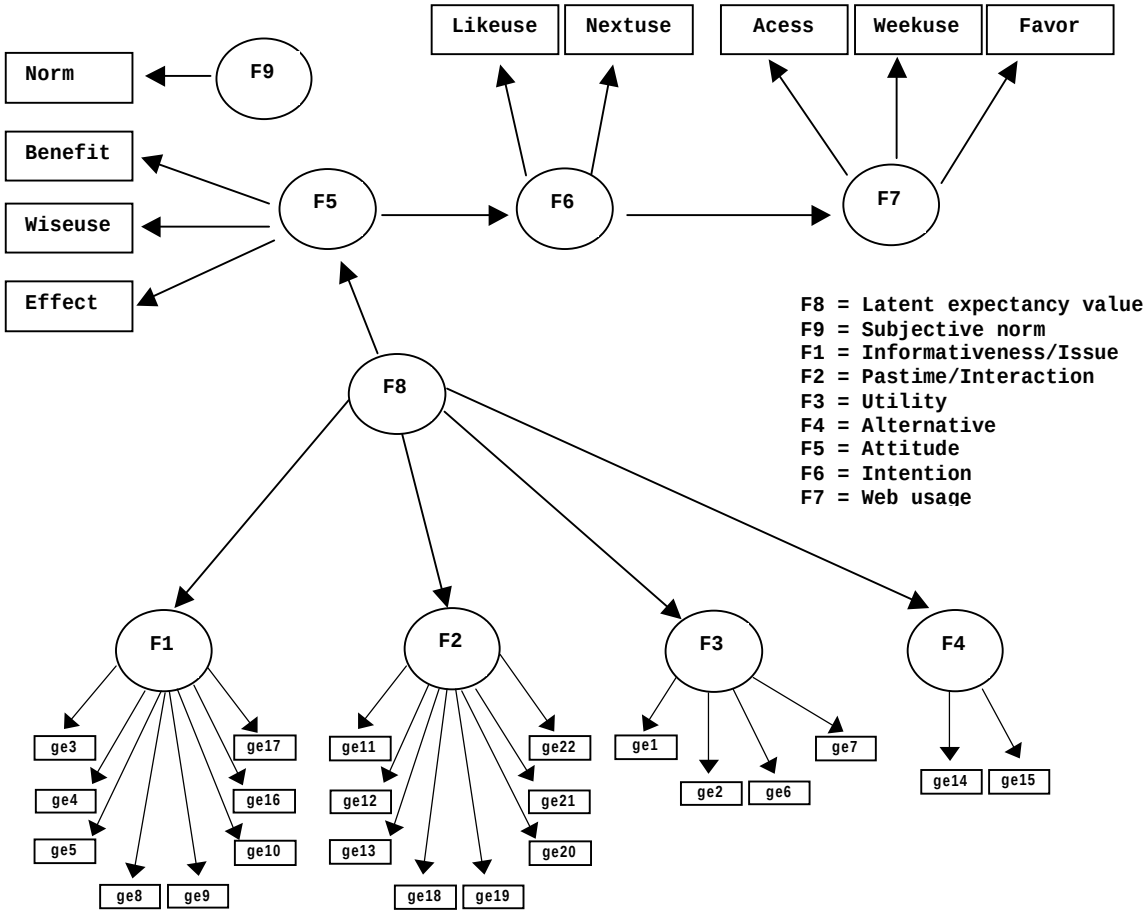

Figure 5.1. The $g_i e_i$ Structural Model of Determinants of Web Usage

indicated intention: estimates of *general* and *next week usage*.

In sum, the theoretical model tested here tried to predict whether Web usage was causally determined by intention, intention was determined by attitude, and attitude was causally determined by overall multidimensional expectancy-value judgment. At the same time, this study tested whether the four latent expectancy-value dimensions were causally determined by the overall multidimensional expectancy-value judgment.

Table 5.10 displays the indicator reliability, the percent of variation in the indicator that was explained by the factor that it was supposed to measure. The indicator reliabilities varied from a low of .485 (PROHIBIT) to a high of .873 (AFFECT). The composite reliability index for each of the four latent g_ie_i factors was α_1= .90; α_2 = .90; α_3= .70; α_4= .43.

The Initial g_ie_i Model

Figure 5.1 identified the eight latent constructs investigated in this study, as well as the indicators that measured these constructs. For example, the *Informativeness/Issues* dimension (F1) was measured by manifest variables ge_3 (specific information and reference), ge_4 (product/service information), ge_5 (information about current issues), ge_8 (diverse opinions on current issues), ge_9 (issues affecting oneself), ge_{10} (trustworthy information), ge_{16} (user's control), and ge_{17} (help to make up mind about issues). The *Pastime/Interaction* dimension (F2) was measured by manifest variables regarding exciting diversions such as ge_{11} to ge_{13}, ge_{18} to ge_{21}, and interactive features (ge_{22}).

The chi-square value for the initial g_ie_i model was statistically significant, χ^2 (398, n = 161) = 750.76, p < .001 (see Table 5.11).

Table 5.10. Indicator Reliability for ge_i Items

Construct and Indicators	Standardized Loading	t[a]	Reliability	Variance Extracted Estimate
Informativeness/Issues (F1)			.90[b]	.774
REFER (ge_3)	.741	11.25	.549	
PRODUCT (ge_4)	.696	10.22	.484	
ISSUE (ge_5)	.841	13.85	.706	
DIVERSE (ge_8)	.760	11.71	.578	
AFFECT (ge_9)	.873	--	.762	
TRUST (ge_{10})	.588	8.13	.346	
CONTROL (ge_{16})	.630	8.91	.397	
MAKEUP (ge_{17})	.703	10.38	.494	
Pastime/Interaction (F2)			.90[b]	.383
ESCAPE (ge_{11})	.617	8.01	.380	
ENTERTAIN (ge_{12})	.751	10.15	.564	
EXCITE (ge_{13})	.752	10.17	.565	
TALK (ge_{18})	.711	9.50	.506	
OCCUPY (ge_{19})	.794	--	.636	
EXPLORE (ge_{20})	.729	9.78	.531	
COMPANY (ge_{21})	.751	10.15	.564	
INTERACT (ge_{22})	.645	8.44	.416	
Utility (F3)			.70[b]	.620
SOFTWARE (ge_1)	.640	6.51	.409	
GAMES (ge_2)	.498	5.28	.248	
SHOP (ge_6)	.707	--	.499	
STOCK (ge_7)	.574	5.98	.330	
Alternative (F4)			.43[b]	.932
PROHIBIT (ge_{14})	.485	4.68	.235	
SHARE (ge_{15})	.557	--	.310	
Attitude (F5)			.87[b]	.311
BENEFIT	.828	12.06	.686	
WISEUSE	.781	11.25	.610	
EFFECT	.875	--	.766	
Intention (F6)			.77[b]	.310
LIKEUSE	.842	--	.708	
NEXTUSE	.736	6.95	.541	
Usage (F7)			.54[b]	.305
ACCESS	.445	3.60	.198	
WEEKUSE	.712	--	.507	
FAVOR	.463	3.67	.214	

[a]All t tests were significant at $p < .001$. t value not available for these indicators with factor loading fixed at 1.
[b]Composite reliability

Table 5.11. Goodness of Fit and Parsimony Indices for the g_ie_i Model Study

	Initial Model	Mr_1: Delete 5 g_ie_i's	Mr_2 - g_ie_i On Attitude: Mr_1 + F8F1 Path	Mr_3 - Add Norm: Mr_1 + F9F6 Path	Mr_4 - g_ie_i On Usage: Mr_1 + F8F7 Path
X^2	750.76	437.19	421.61	553.48	428.31
df	398	268	267	292	267
X^2/df	1.89	1.63	1.58	1.90	1.60
NFI	.725	.776	.784	.731	.781
NNFI	.832	.886	.895	.832	.890
CFI	.846	.898	.907	.849	.903
PR	.915	.893	.890	.898	.890
PNFI	.664	.693	.698	.656	.695
GFI	.772	.831	.834	.782	.834

n = 161.
NFI = Normed Fit Index; NNFI = Non-normed Fit Index; CFI = Comparative Fix Index; PR = Parsimony Ratio; PNFI = Parsimonious NFI; GFI = Goodness of Fit Index.

Theoretically, if the appropriate assumptions are met, this chi-square statistic can be used to test the null hypothesis that the model fits the data. In practice, however, the statistic is very sensitive to sample size and lack of multivariate normality, and will frequently reject a well-fitting model. For this reason, it has been recommended that the chi-square values relative to the degrees of freedom be used as a goodness of fit index, with smaller χ^2/df ratio indicative of a better model fit (James, Mulaik, & Brett, 1982). The χ^2/df ratio for this model was 1.89, which met the informal rule-of-thumb criteria that the ratio should be below 2.0 (Hatcher, 1994).

Revised Model 1 (Mr_1) – Removing Five g_ie_i Items

Some other results, however, indicated that there was indeed a problem with the initial model's fit. Goodness of fit indices for the

model includes the non-normed-fit index (NNFI) and the comparative fit index (CFI). Both indices did not exceed .90, indicative of an unacceptable fit (see Table 5.11). The review of the model's residuals revealed that the normalized residuals were centered around zero, but the distribution was relatively large due to a few outlying residuals. Normalized residuals over 2.0 are generally considered large and therefore problematic. Out of the 900 normalized residuals, 51 were greater than 2.0, a rate of about 5.7%. Notably, 6 of the 10 largest normalized residuals (between 3.76 to 5.37 in absolute value) involved pairs of expectancy-value items, and 3 residuals were for g_ie_i-attitude relationships. This suggested that difficulties in the theoretical model fit were caused primarily by the ad hoc scaling of the expectancy-value items.

After reviewing the possible interpretation of the theoretical model, five g_ie_i items were dropped from the analysis to attempt the model fit: product/service information, diverse opinions (ge_4 and ge_8 removed from the *Informativeness/Issue* dimension), online stock trading (ge_7 removed from the *Utility* dimension), entertainment, something to talk about (ge_{12} and ge_{18} removed from the *Pastime/Interaction* dimension). The obtained χ^2 (268, n = 161) = 437.19, $p < .001$. The χ^2/df ratio for the revised model (Mr_1) was 1.63, substantially improved from 1.89 (see Table 5.11). The NNFI and the CFI increased to near 0.90 and 0.89 respectively.

Revised Model 2 (Mr_2) – Freeing Latent g_ie_i-Intention Path

Although parameter significance tests achieved the significance level, a Lagrange multiplier test showed that the *Intention* construct (F6) was apparently determined by both *attitude* (F5) and the latent

expectancy-values judgment (F8). Chi-square for the revised model 1 could be reduced by 15.58 if the new causal path was added that went from the general *expectancy-values* judgment (F8) to *intention* (F6). The resulting model, revised model 2 (Mr_2), was then estimated. Fit indices for revised model 2 are presented in Table 5.11. Both NNFI and CFI indices reached 0.90, higher than those displayed by revised model 1 and the initial theoretical model.

Table 5.11 also includes indices that reflect the parsimony of the three models that were tested. The parsimony ratio, or PR (James, Mulaik, & Brett, 1982) suggests the parsimony of the overall model, with higher values reflecting better parsimony. The parsimonious normed-fit index (PNFI) (James et al., 1982), the single index resulting from multiplying the parsimony ratio by the normed-fit index, indicates both the parsimony and the fit of the model. As presented, revised model 2's PR of .890 was a little lower than that of revised model 1, which displayed a PR of .893. However, this was more than compensated by the better fit achieved by Mr_2, as demonstrated by Mr_2's PNFI of .698, while the PNFI for Mr_1 was .693.

A chi-square difference test comparing Mr_2 to Mr_1 revealed a significant difference value of 437.19 - 421.61 = 15.58 (df=1, p < .001). Therefore revised model 2 provided a significantly better fit to the data than revised model 1, thus justifying the addition of the new path (F8F6). The significant path between latent *expectancy-values* judgment and *intention* (γ_{68} = .442, t = 3.98) supported the direct effect of latent g_ie_i on intention (RQ2a).

Revised Model (Mr_3) - The Role Of Subjective Norms

An additional research question (RQ1) asked whether subjective norm, or perceived social expectations (F9) would predict intention (F6). To test this question, the revised model 1 was altered to include the subjective norm measure (see Figure 5.1). As presented by the Table 5.11, the results for the altered model were worse than revised model 1 in terms of larger χ^2/df ratio (553.48/292 = 1.90) and smaller fit indices (NNFI, CFI, PNFI). The significant departure from normalized distribution of standardized residuals also suggested the problem of model fit. Although the norm-intention path was significant in the revised model 3, its magnitude was very small (γ_{69} = .057, t = 2.04). In sum, perceived social expectations introduced no more than disturbance in determining intention. Therefore revised model 3 was not suitable as the final g_ie_i model.

Revised Model 4 (Mr_4)- Freeing Expectancies-Usage Path

Direct effects of the latent g_ie_i construct (F8) on Web usage (F7) was also tested (RQ3a). When the latent g_ie_i–usage path was added to Mr_1, it obtained χ^2 (267, n = 161) = 428.31, p < .001 (see Table 5.11). Since a chi-square difference test revealed a significant difference value of 437.19 - 428.31 = 8.88 (df=1, p < .005), a direct relationship between the expectancy-value construct and usage was supported. The latent g_ie_i–usage path was significant (γ_{78} = .376, t = 3.61) and the magnitude was larger than that of the intention-usage path (γ_{67} = .284, t = 2.64). The magnitude of the intention-usage path (γ_{67}) has been reduced from .552 (t = 4.71) in Mr_1.

It appeared that the expectancy-value construct had some direct influence on Web usage level. However, the χ^2/df ratio and fit indices

suggested revised model 4 did not provide superior fit to the data than revised model 2 which freed the latent g_ie_i–attitude path. The improvement in χ^2 was significant for a model in which both the paths between latent g_ie_i and intention and between latent g_ie_i and usage were freed (437.19 - 414.86 = 22.33, *df* = 2, *p* < .001). However, variance estimates for *amount of time spent on a weekday* (WEEKUSE) and the *Alternative* subdimension (F4) of latent g_ie_i became insignificant. Therefore this model was dropped from consideration.

Final g_ie_i Model

Combined, the findings provided support for revised model 2 over the other models tested. Revised model 2 was therefore retained as this present study's final model. Table 5.12 presents all standardized parameters estimated by Mr_2. The parameter estimates for the measurement submodels, presented as the λs, may be interpreted as the regression of the measurements on their respective latent constructs. All estimates were significant and the explained variance in responses ranged from 18% to 77%, with an average of 49%.

The parameter estimates for the causal paths are the relationships among latent constructs proposed in Figure 5.1. The respective parameters relating the overall expectancy-value judgment (F8) to its 4 first-order g_ie_i subdimensions (F1 to F4) suggest the relative contribution of the overall expectancy-value judgment to each subdimension. The general g_ie_i judgment was a very important determinant of the *Alternative* (γ_{48} = .989, *t* = 7.04), *Informativeness/Issue* (γ_{18} = .859, *t* = 9.98), and *Utility* (γ_{38} = .847, *t* = 6.31) dimensions. *Pastime/Interaction* (γ_{28} = .595, *t* = 6.49) was relatively less likely to be causally determined by the general g_ie_i judgment.

Table 5.12. Standardized Parameter Estimates for $g_i e_i$ Model (Figure 5.1)[a]

Informativeness/Issue (F1)			
REFER	λ_3 = .742 (10.77)	ε_3 = .671 (7.80)	γ_{18} = .859 (9.98)
ISSUE	λ_5 = .837 (12.88)	ε_5 = .547 (6.72)	γ_{28} = .595 (6.49)
AFFECT	λ_9 = 1.000[b]	ε_9 = .518 (6.36)	γ_{38} = .847 (6.31)
TRUST	λ_{10} = .605 (8.20)	ε_{10} = .796 (8.41)	γ_{48} = .988 (7.04)
CONTROL	λ_{16} = .645 (8.89)	ε_{16} = .764 (8.28)	γ_{58} = .548 (6.10)
MAKEUP	λ_{17} = .704 (10.0)	ε_{17} = .710 (8.03)	β_{56} = .295 (2.80)
Pastime/Interaction (F2)			γ_{68} = .442 (3.98)
ESCAPE	λ_{11} = .591 (7.52)	ε_{11} = .807 (8.29)	β_{67} = .561 (4.74)
EXCITE	λ_{13} = .709 (9.30)	ε_{13} = .706 (7.71)	
OCCUPY	λ_{19} = 1.000[b]	ε_{19} = .590 (6.63)	
EXPLORE	λ_{20} = .757 (10.07)	ε_{20} = .653 (7.29)	ζ_1 = .513 (3.31)
COMPANY	λ_{21} = .770 (10.27)	ε_{21} = .638 (7.15)	ζ_2 = .804 (5.30)
INTERACT	λ_{22} = .664 (8.60)	ε_{22} = .748 (7.98)	ζ_3 = .532 (2.05)
Utility (F3)			ζ_4 = .147 (0.09)
SOFTWARE	λ_1 = .699 (5.90)	ε_1 = .716 (5.93)	ζ_5 = .836 (5.90)
GAMES	λ_2 = .508 (4.86)	ε_2 = .862 (7.92)	ζ_6 = .758 (4.37)
SHOP	λ_6 = 1.000[b]	ε_6 = .804 (7.30)	ζ_7 = .828 (2.75)
Alternative (F4)			
PROHIBIT	λ_{14} = .471 (4.73)	ε_{14} = .882 (7.68)	
SHARE	λ_{15} = 1.000[b]	ε_{15} = .820 (6.26)	
Attitude (F5)			
BENEFIT	λ_{51} = .833 (12.03)	ε_{51} = .553 (5.93)	
WISEUSE	λ_{52} = .785 (11.26)	ε_{52} = .620 (6.90)	
EFFECT	λ_{53} = 1.000[b]	ε_{53} = .484 (4.76)	
Intention (F6)			
LIKEUSE	λ_{61} = 1.000[b]	ε_{61} = .560 (3.85)	
NEXTUSE	λ_{62} = .739 (7.57)	ε_{62} = .674 (5.80)	
Usage (F7)			
ACCESS	λ_{71} = .426 (3.55)	ε_{71} = .905 (7.83)	
WEEKUSE	λ_{72} = 1.000[b]	ε_{72} = .678 (3.40)	
FAVOR	λ_{73} = .460 (3.70)	ε_{73} = .888 (7.55)	
SN	λ_{X1} = 1.000[b]	ε_{X1} = 0[c]	

[a] n = 161; coefficients in parenthesis are t-values
[b] Parameter fixed at 1.0
[c] Parameter fixed at 0

The outcome of testing the relationships for other latent constructs demonstrated that

a. The overall expectancy-value judgment (F8) directly led to attitude (F5) and intention (F6) but did not directly influence Web usage (F7);
b. Attitude (F5) influenced intention (F6), but did not directly influence Web usage (F7);
c. Intention (F6) directly influenced Web usage (F7).

All path coefficients were significant and in the predicted direction. As a result, hypotheses H3a to H6 were generally supported. H3a was supported by the significant path between overall expectancy-value judgment and attitude (γ_{58} = .548, t = 6.10). H4 was supported by a significant path between attitude and intention (β_{56} = .295, t = 2.80); however, an additional causal path was suggested between the overall g_ie_i judgment and intention (γ_{68} = .442, t = 3.98). In accord with H5, the latent g_ie_i–intention path became insignificant (γ_{68} = -.031, t = -0.37) when attitude toward usage is held constant. H6 was supported by the significant parameter estimate for the relationship between intention and usage level (β_{67} = .561, t = 4.74).

R^2 values showed that the general g_ie_i judgment accounted for 30% of the variance in attitude, compared with 49% found in Babrow and Swanson's study on TV news exposure (1988). A total of 43% of the variance in intention was explained as a function of the overall g_ie_i judgment and attitude, compared with 5% found by Babrow and Swanson as a function of attitude solely. Finally, intention accounted for 32% of the variance in Web usage, compared with 54% for TV news exposure found in Babrow and Swanson's study.

The GS_i Structure Model

Procedures used for the g_ie_i structure model were repeated for the GS_i data. A similar second-order path model with 4 first-order factors was proposed to represent GS_i items (see Figure 5.2). Again, the measurement submodel was based on the findings of the exploratory factoring of the gratifications-seeking items.

In general, measurement and theoretical specifications (H3b, H4, H6) paralleled those used in the g_ie_i model. Table 5.13 displays the indicator reliabilities that varied from a low of .140 (STOCK) to a high of .755 (EFFECT). The low indicator reliability estimate of STOCK reflected the low intercorrelation of STOCK and other gratifications sought items (see Table 5.7). The composite reliability index for each of the four latent GS_i factors was α_1= .91; α_2 = .87; α_3= .65; α_4= .57.

The Initial GS_i Model

As in the test of the g_ie_i model, the chi-square value for the initial GS_i model was statistically significant, χ^2 (395, n = 161) = 761.61, p < .001 (see Table 5.14). The χ^2/df ratio of 1.93 was larger than the obtained 1.89 for the initial g_ie_i model, but still below the informal rule-of-thumb criteria (2.0). The distribution of normalized residuals was relatively large due to a few outlying residuals. Out of the 900 normalized residuals, 80 were greater than 2.0, a rate of about 8.9%.

Revised Model 1 (Mr_1) – Removing Informativeness (F3) construct

Further examination of the initial model revealed that all indicators measuring the *Informativeness* construct (F3) contributed to large normalized residuals (larger than 3.0). This suggested that

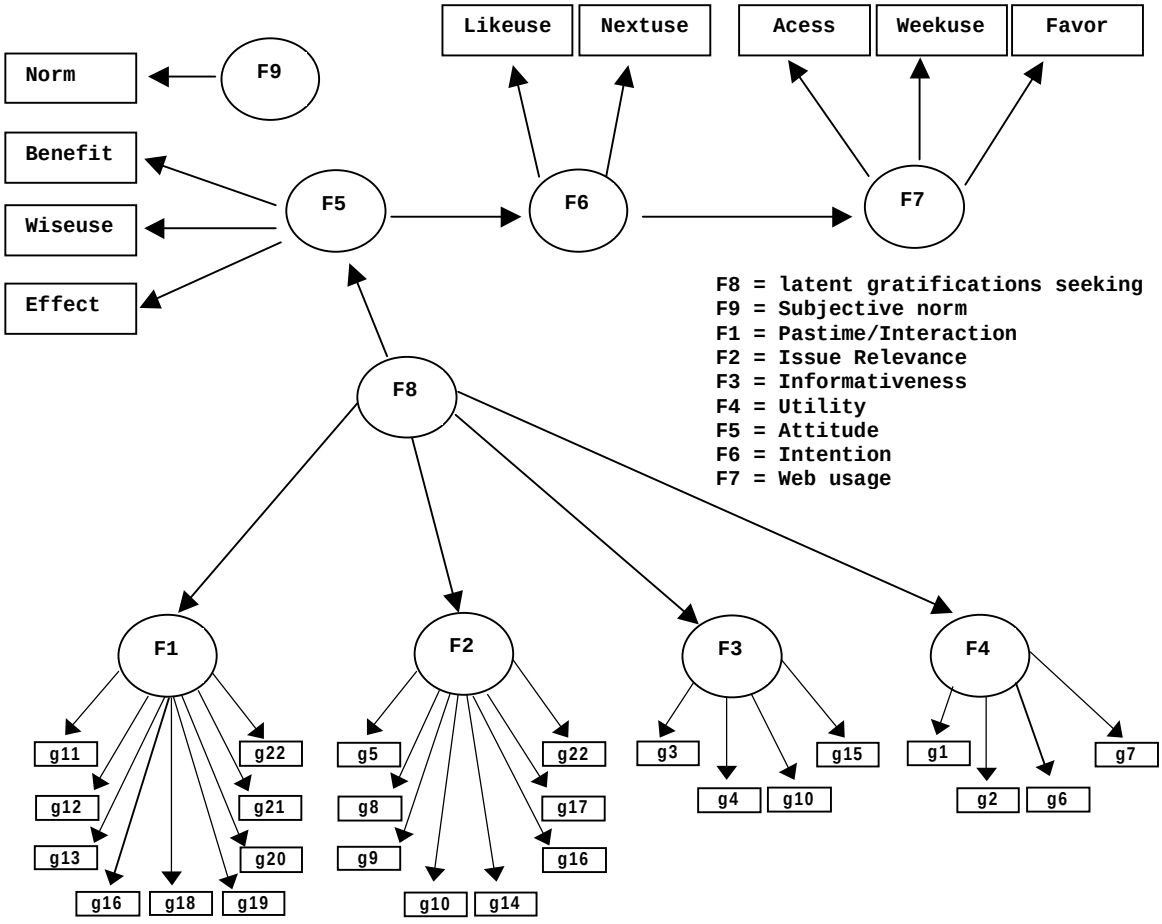

Figure 5.2. The GS_i Structural Model of Determinants of Web Usage

Table 5.13. Indicator Reliability for GS_i Items

Construct and Indicators	Standardized Loading	t[a]	Reliability	Variance Extracted Estimate
Pastime/Interaction (F1)			.91[b]	.391
ESCAPE (GS_{11})	.706	10.07	.498	
ENTERTAIN (GS_{12})	.781	11.64	.610	
EXCITE (GS_{13})	.807	12.22	.651	
CONTROL (GS_{16})[c]	.217	2.66	.406	
TALK (GS_{18})	.780	11.61	.608	
OCCUPY (GS_{19})	.830	12.77	.689	
EXPLORE (GS_{20})	.771	11.41	.594	
COMPANY (GS_{21})	.839	--	.703	
INTERACT (GS_{22})[c]	.324	4.03	.432	
Issue Relevance (F2)			.87[b]	.744
ISSUE (GS_5)	.629	8.31	.396	
DIVERSE (GS_8)	.806	11.40	.650	
AFFECT (GS_9)	.822	--	.676	
TRUST (GS_{10})[c]	.404	2.24	.306	
PROHIBIT (GS_{14})	.602	7.88	.362	
CONTROL (GS_{16})[c]	.493	5.70	.406	
MAKEUP (GS_{17})	.797	11.23	.635	
INTERACT (GS_{22})[c]	.423	5.07	.432	
Informativeness (F3)			.65[b]	.343
REFER (GS_3)	.536	5.01	.287	
PRODUCT (GS_4)	.757	--	.745	
TRUST (GS_{10})[c]	.226	2.24	.306	
SHARE (GS_{15})	.435	4.37	.190	
Utility (F4)			.57[b]	.494
SOFTWARE (GS_1)	.661	--	.436	
GAMES (GS_2)	.415	3.82	.173	
SHOP (GS_6)	.505	4.37	.255	
STOCK (GS_7)	.375	3.52	.140	
Attitude (F5)			.87[b]	.074
BENEFIT	.833	11.83	.693	
WISEUSE	.791	11.22	.626	
EFFECT	.868	--	.755	
Intention (F6)			.77[b]	.290
LIKEUSE	.845	--	.714	
NEXTUSE	.734	6.82	.538	
Usage (F7)			.54[b]	.303
ACCESS	.447	3.60	.199	
WEEKUSE	.710	--	.504	
FAVOR	.463	3.66	.214	

[a]All *t* tests were significant at $p < .001$. *t* value not available for these indicators with factor loading fixed at 1.
[b]Composite reliability
[c]The indicator loaded on two factors

Table 5.14. Goodness of Fit and Parsimony Indices for the GS_i Model Study

	Initial Model	Mr_1: Delete F3	Mr_2: Mr_1 delete 3 GS_i's	Mr_3 – Add Norm: Mr_2 + F9F6	Mr_4 - GS_i On Intention: Mr_2 + F8F6	Mr_5 - GS_i On Usage: Mr_2 + F8F7
χ^2	761.61	605.12	392.98	528.56	386.96	391.43
df	395	316	245	268	244	244
χ^2/df	1.93	1.91	1.60	1.97	1.59	1.60
NFI	.712	.747	.796	.740	.799	.797
NNFI	.818	.842	.899	.832	.902	.899
CFI	.834	.858	.910	.850	.914	.911
PR	.908	.900	.888	.893	.884	.884
PNFI	.647	.672	.707	.661	.707	.705
GFI	.771	.794	.834	.787	.844	.844

n = 161.
NFI = Normed Fit Index; NNFI = Non-normed Fit Index; CFI = Comparative Fix Index; PR = Parsimony Ratio; PNFI = Parsimonious NFI; GFI = Goodness Of Fit Index.

difficulties in the theoretical model fit were caused by the ad hoc scaling of the informative gratifications-seeking items. Therefore the *Informativeness* construct was dropped completely to attempt the model fit. The obtained χ^2 (316, n = 161) = 605.12, $p < .001$ (see Table 5.14). The χ^2/df ratio for the revised model (Mr_1) was 1.91, a slight improvement over the initial model. The NNFI and the CFI both increased substantially, but were still below 0.90.

Revised Model 2 (Mr2) – Deleting Three GS_i Items

Although parameter significance tests achieved the significance level in Mr_1, a few results (residuals and Lagrange multiplier test) indicated more problematic GS_i items. Three GS_i items were dropped from the analysis to form the revised model 2: games (GS_2, removed from the *Utility* dimension), excitement (GS_{13}, removed from the *Pastime/Interaction* dimension), and interactive features (GS_{22}, removed

from the *Pastime/Interaction* and *Issue Relevance* dimensions). A chi-square difference test comparing Mr_2 to Mr_1 revealed a significant difference value of 605.12 - 392.98 = 212.14 (df = 71, p < .001). The χ^2/df ratio for the revised model (Mr_2) was 1.60, significantly improved from Mr_1 (see Table 5.14). Both NNFI and CFI indices reached 0.90, higher than those displayed by revised model 1 and the initial theoretical model. The PNFI of .707 indicated revised model 2 had better parsimony and superior fit than the other models.

Revised Model (Mr3) - The Role Of Subjective Norms

To test whether perceived social expectations (F9) would predict intention (F6), revised model 2 was altered to include the subjective norm measure (see Figure 5.2). As seen in Table 5.14, the results for revised model 3 were worse than revised model 2 in terms of larger χ^2/df ratio (528.56/268 = 1.97) and smaller fit indices (NNFI, CFI, PNFI). As noted in the g_ie_i data, the significant departure from normalized distribution of standardized residuals also suggested the problem of model fit. Although the norm-intention path was significant, its magnitude was very small (γ_{69} = .182, t = 2.20). Again, perceived social expectations introduced no more than disturbance in determining intention.

Revised Model 4 (Mr_4) – Freeing Latent GS_i-Intention Path

Chi-square for the revised model 2 was reduced by 6.02 (df =1, p < .01) if the new causal path was added that went from the latent gratifications construct (F8) to intention (F6). The significant path between latent gratifications and intention (γ_{68} = .224, t = 2.43) supported the direct effect of latent GS_i on intention (RQ2b). The

significant changes in chi-square and fit indices between Mr_2 and Mr_4 suggested that freeing the latent GS_i-intention path achieved a better fit (see Table 5.14).

Revised Model 5 (Mr5)- Freeing Gratifications-Usage Path

Direct effects of the latent GS_i construct (F8) on Web usage (F7) was also tested (RQ3b). Chi-square for the revised model 2 was reduced by only 1.55 if the new causal path was added that went from the latent gratifications construct (F8) to Web usage (F7). The insignificant changes in chi-square and fit indices between Mr_2 and Mr_5 suggested that freeing the latent GS_i-usage path exhibited little improvement for the model fit (see Table 5.14). Furthermore, the nonsignificant path between latent gratifications and usage (γ_{68} = .144, t = 1.32) failed to support the direct effect of latent GS_i on usage.

Final GS_i Model

Combined, the findings supported revised model 4 over the other models tested. As with the g_ie_i data, revised model 4, which freed the latent GS_i-intention path, was therefore retained as the final GS_i model. Table 5.15 presents all standardized parameters estimated by revised model 4. All λs estimates for indicators were significant and the explained variance in responses ranged from 12% to 75%, with an average of 51%.

The latent GS_i was a very important determinant of the *Issue Relevance* (γ_{28} = .941, t = 7.57) dimension. Like the preceding findings for the g_ie_i model, *Pastime/Interaction* (γ_{18} = .586, t = 5.86) was relatively less likely to be causally determined by the latent GS_i construct. *Utility* (γ_{48} = .615, t = 4.37) also appeared less likely to

Table 5.15. Standardized Parameter Estimates for GS_i Model (Figure 5.2)[a]

Pastime/Interaction (F1)			
ESCAPE	λ_{11} = .718 (10.51)	ε_{11} = .696 (8.09)	γ_{18} = .586 (5.85)
ENTERTAIN	Λ_{12} = .756 (11.35)	ε_{12} = .654 (7.87)	γ_{28} = .941 (7.57)
CONTROL	Λ_{16} = .193 (2.30)	ε_{16} = .785 (8.46)	γ_{48} = .615 (4.37)
TALK	Λ_{18} = .765 (11.54)	ε_{18} = .644 (7.81)	γ_{58} = .236 (2.50)
OCCUPY	λ_{19} = .858 (13.89)	ε_{19} = .514 (6.66)	β_{56} = .477 (5.16)
EXPLORE	λ_{20} = .752 (11.24)	ε_{20} = .660 (7.90)	γ_{68} = .224 (2.43)
COMPANY	λ_{21} = 1.000[b]	ε_{21} = .507 (6.58)	β_{67} = .553 (4.50)
Issue Relevance (F2)			
ISSUE	Λ_5 = .628 (8.35)	ε_5 = .778 (8.25)	
DIVERSE	Λ_8 = .801 (11.43)	ε_8 = .599 (7.02)	ζ_1 = .810 (5.30)
AFFECT	Λ_9 = 1.000[b]	ε_9 = .553 (6.50)	ζ_2 = .340 (0.64)
TRUST	Λ_{10} = .514 (6.59)	ε_{10} = .858 (8.57)	ζ_4 = .789 (2.35)
PROHIBIT	λ_{14} = .606 (7.99)	ε_{14} = .796 (8.33)	ζ_5 = .972 (6.37)
CONTROL	Λ_{16} = .492 (5.56)	ε_{16} = .785 (8.46)	ζ_6 = .820 (4.55)
MAKEUP	Λ_{17} = .802 (11.45)	ε_{17} = .598 (7.00)	ζ_7 = .833 (2.74)
Utility (F4)			
SOFTWARE	λ_1 = 1.000[b]	ε_1 = .788 (5.28)	
SHOP	λ_6 = .547 (3.83)	ε_6 = .837 (6.38)	
STOCK	Λ_7 = .339 (2.95)	ε_7 = .941 (8.21)	
Attitude (F5)			
BENEFIT	λ_{51} = .833 (11.80)	ε_{51} = .553 (5.83)	
WISEUSE	λ_{52} = .794 (11.25)	ε_{52} = .608 (6.68)	
EFFECT	λ_{53} = 1.000[b]	ε_{53} = .497 (4.86)	
Intention (F6)			
LIKEUSE	λ_{61} = 1.000[b]	ε_{61} = .528 (3.07)	
NEXTUSE	λ_{62} = .729 (7.05)	ε_{62} = .685 (5.67)	
Usage (F7)			
ACCESS	λ_{71} = .443 (3.60)	ε_{71} = .897 (7.65)	
WEEKUSE	λ_{72} = 1.000[b]	ε_{72} = .702 (3.75)	
FAVOR	λ_{73} = .464 (3.68)	ε_{73} = .886 (7.46)	
SN	λ_{x1} = 1.000[b]	ε_{x1} = 0[c]	

[a] *n* = 161; coefficients in parenthesis are *t*-values
[b] Parameter fixed at 1.0
[c] Parameter fixed at 0

Note: Informativeness (F3) construct was removed from the GS_i Model because all indicators measuring F3 contributed to large normalized residuals.

be influenced by the gratifications sought construct. All other path coefficients were significant and in the predicted direction to support Hypotheses H3b to H6. H3b was supported by the significant association between latent GS_i and attitude (γ_{58} = .236, t = 2.50). H4 was partly supported by a significant path between attitude and intention (β_{56} = .477, t = 5.16) and additional causal path between the latent GS_i and intention (γ_{68} = .224, t = 2.43). Similar to the g_ie_i model (H5), the GS_i-intention path became insignificant when attitude toward usage is held constant (γ_{68} = .081, t = 1.06). In accord with H6, intention was significantly related to usage level (β_{67} = .553, t = 4.50).

The latent gratifications-seeking construct accounted for only 5.6% of the variance in attitude, compared with 43.4% found in Babrow and Swanson's study of TV news exposure (1988). A total of 33% of the variance in intention was explained as a function of the latent GS_i and attitude, compared with 5.7% found by Babrow and Swanson as a function of attitude solely. Finally, intention accounted for 31% of the variance in Web usage, compared with 57% in TV news exposure found in Babrow and Swanson's study.

Summary of Structural Modeling

In sum, the various tests indicated that the g_ie_i and GS_i data did not function in the same way in the process determining Web usage (see Table 5.16). The magnitude of the g_ie_i-attitude parameter was more than two times larger than that of the GS_i-attitude. As such, explained variance in attitude in the g_ie_i model (30%) was more than five times larger than in the GS_i model (5.6%). Explained variance in intention was also smaller in the gratifications-seeking (33%) than in the expectancy-value (43%) structure. The attitude-intention parameter

Table 5.16. Summary of g_ie_i and GS_i Models

	g_ie_i data	GS_i data
Standardized Parameter Estimates:		
γ_{18}	.859 (Information/Issue)	.586 (Pastime/Interaction)
γ_{28}	.595 (Pastime/Interaction)	.941 (Issue Relevance)
γ_{38}	.847 (Utility)	
γ_{48}	.988 (Alternative)	.615 (Utility)
γ_{58} (Attitude)	.548	.236
β_{56} (Attitude-intent)	.295	.477
γ_{68} (Intention)	.442	.224
β_{67} (Intent-usage)	.561	.553
Explained Variance:		
F1	73.7% (Information/Issue)	34.4% (Pastime/Interaction)
F2	35.4% (Pastime/Interaction)	88.5% (Issue Relevance)
F3	71.7% (Utility)	
F4	97.9% (Alternative)	37.8% (Utility)
F5 (Attitude)	30.1%	5.6%
F6 (Intention)	42.5%	32.8%
F7 (Usage)	31.5%	30.6%

increased significantly from .295 ($g_i e_i$ data) to .477 in tests freeing the path between GS_i and intention. Between the $g_i e_i$ and GS_i data, a similar amount of variance in Web usage was accounted for by intention.

CHAPTER VI
DISCUSSION

The sample revealed a recruiting bias due to newsgroup postings. Although the Web-experienced respondents were not representative of the whole Web population, they were actually regular Internet users. This bias is desirable for the present study because it strengthens the stability of the research outcomes relating to Web users' attitudes (Schillewaert, Langerak, & Duhamel, 1998). The sample was a close match on some socioeconomic variables compared with the U.S. Internet population; however, such non-probability recruits do not generate representative results regarding the demographics of the Web population.

Dimensions In The Expectancy-Value Judgments Or Gratifications

Although expectancy-value judgments (g_1e_1) and audience motives (GS_1) appear to be distinguishable, past studies have found that their content (Babrow, 1987) and structure (Babrow & Swanson, 1988; Palmgreen & Rayburn, 1982) were highly related. For the present study, self-reports of expectancy-value judgments and gratifications sought were empirically related; however, they did not pose similar structures.

Similar factor structures were shown for the *Pastime/Interaction* and *Utility* factors but not for the two remaining factors. Further, several of the 22 items indicated strong correlations between corresponding g_ie_i and GS_i, but none was so high as to claim that the two sets of questions were measuring the same thing. It is clear that

gratifications sought are by no means identical to expectancy-value judgments.

The present findings indicated three major dimensions of the expectancy-value judgments or gratifications related to Web usage: *Pastime/Interaction*, *Issues Relevance*, and *Utility*. The first two dimensions generally reflected those associated with TV news (Babrow & Swanson, 1988; Palmgreen, Wenner, & Rayburn, 1980). *Information*, another dominant orientation associated with TV news exposure motives, emerged with *Issues* for the expectancy-value model; but it was not a unique dimension for the gratifications-sought model.

Information-seeking Dimension

Past research has indicated mixed findings regarding the *information-seeking* motivation associated with Web usage. Some studies demonstrated that information was the dominant use of the Web (Katz & Aspden, 1997; Kaye, 1998), while others found information was used to serve social purposes such as sparking conversations (Ferguson & Perse, 2000). For the present study, information-seeking needs appeared to be independent from pastime/interaction motives in the exploratory factor analysis. On the other hand, expectancy-value judgments associated information with issue relevance, which can be argued to be close to the *surveillance* dimension described by Lasswell's fourfold typology (1948).

Pastime/Interaction Dimension

Again, research has provided inconsistent evidence regarding the *diversion* motivation. In some studies, Internet users have modestly endorsed *entertainment,* but have rarely mentioned *passing time* and

relaxation (Katz & Aspden, 1997; Kaye, 1998). Other studies suggested that *entertainment*, *pass time*, and *escape* appeared to dominate Web usage motives. For the present study, *diversion* emerged as being associated with *interactive features* or *user's control*. Separate fitting of g_1e_1 and GS_1 data revealed that Web users tended to expect and evaluate *diversion* with *interactive features*, while they were motivated to use the Web because of *diversion* and *user's control*. One possible interpretation is that *interactive features* and *user's control* might be alternative measures of the same thing: *interactive control*. The modest correlations between the two attributes, however, suggested that either the two attributes measured two separate things or they presented ad-hoc scaling problems.

Utility Dimension

The previous discussion suggested that the Web might be perceived to be functionally similar to television because it satisfied surveillance and excitement-seeking needs. As noted by the mixed evidence in past studies (Ferguson & Perse, 2000; Lin, 1999), the precise nature of functional similarity between the Web and TV should be investigated by simultaneously studying the motives for using each media. For the present study, i*nteractive control* and *utility* were the two unique functions recognized for Web usage. Respondents tended to relate *software or game downloading*, *online shopping or services*, and *online stock trading* to the *utilitarian* orientation. Separate fitting of g_1e_1 and GS_1 data revealed that they were inclined to expect and evaluate *games* as a utility of the Web, while perceiving *online stock trading* as a utility-seeking motive to use the Web.

In sum, for the present study, expectancy-value judgments included evaluations of surveillance (information and issues), fun or diversion, interactive features, and utility (e.g. online shopping, stock trading, downloading practical things for use) provided by the Web. Web usage motives included seeking information, entertainment or diversion, user's control, issue relevance, and utility.

Determinants of Web Usage

The present data were limited to simultaneous modeling of g_ie_i and GS_i; however, their interrelation could be illustrated by comparing their roles in the larger structure of social-psychological forces determining Web usage. Mirroring the complex nature of Web usage under study, the model that was attempted was both multivariate and nonrecursive. In such a multivariate structure no single element can assume a central explanatory role.

Similar Directional Process in g_ie_i and GS_i Modeling

Separate fitting of g_ie_i and GS_i data each supported the unidirectional process in determining Web usage, with the exception of intention. The present findings suggested that attitude about Web usage was not the sole influence in determining intention to use the Web. Consistent with the classical causal ordering of effects (Fishbein & Ajzen, 1975), a recursive sequence of effects was exhibited from expectancy-value judgments (or gratifications sought) to affect, to intention, and finally to Web usage (see Figures 6.1 and 6.2). However, research cannot rule out the possible feedbacks of these effects both

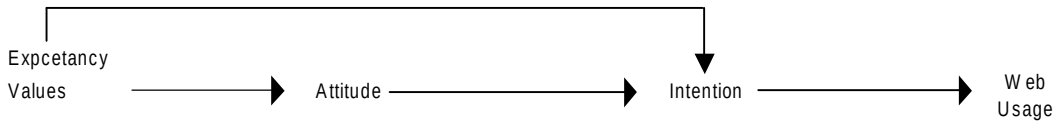

Figure 6.1. The Directional Process Of Determining Web Usage – $g_i e_i$ data

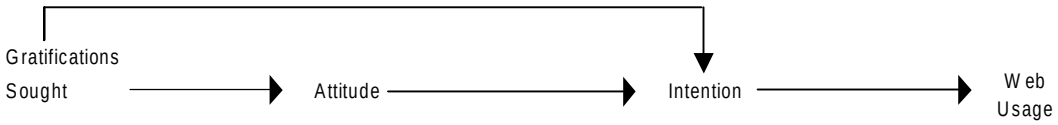

Figure 6.2 The Directional Process Of Determining Web Usage – GS_i data

over time and simultaneously in the short run, which should be further investigated (Bagozzi, 1982).

Notably, affect did not solely determine intention. The expectancy-value judgments or gratifications sought influenced intention directly, as well as indirectly through attitude. Past research has provided mixed evidence in predicting such relationships (Bagozzi, 1982; Fishbein & Ajzen, 1975). Nevertheless, cognitive judgments apparently can influence intention through their motivational or affective evaluations as well as through other non-affective processes.

Bagozzi (1982) specified three possible natures of non-affective processes when studying the donation of blood, which all apply to the present study. First, between expectancy-values (or gratifications sought) and intention, some key processes of cognitive or affective judgments have been unmeasured and omitted. Secondly, the direct path suggested variation- or novelty-seeking inclinations that led to

purposeful actions. Thirdly, the expectancy-value judgments (or gratifications sought) initiated cognitive and awareness processes of previously learned behaviors or habitual action to which intention was connected.

Web usage was causally determined in a direct way only by intention, with cognitive and affective influences operating only through their effects on intentions. The impact of direct link of intention on Web usage could be reduced when the usage becomes a volitional behavior (Bagozzi, 1982). The direct effects from attitudinal and social psychological forces will be plausible propositions in the longitudinal research.

The Role of Information Orientation

Major, meaningful discrepancies yielded by separate fitting of g_1e_1 and GS_1 data, however, indicated that the two data did not function exactly the same way in the process of determining Web usage.

First, *information* orientation did not appear to play a role in the gratifications-seeking process of determining Web usage. Since information needs might be interrelated with social motives when using the Web (Ferguson & Perse, 2000), information functions could be displaced by indicators measuring the *Pastime/Interaction* orientation. The interrelationship between *Information* and *Pastime/Interaction* motives was suggested by freeing the causal path to be estimated. However, whether information needs were causally determined by social motives or vice versa remains unclear. Further, indicators of information motives involved large residuals paired with indicators of the other three gratifications-seeking dimensions. Removing the troublesome information dimension appeared to be less likely to

capitalize on chance characteristics of the data, and was therefore less risky.

On the other hand, *information* functions were expected from and evaluated about the Web independently from the *pastime* or *interaction* dimensions. Issues and information were allocated closely when asking about beliefs and evaluations of these dimensions.

The difference between the gratifications-seeking and expectancy-value data may be reduced by improving scaling of the indicators of "information." To clarify the relationships between information needs and social motives, the causal direction should be examined. Further, the possibility of unidimensional social motives could be tested by integrating both social and information motives. For example: "I use the Web to gather information to spark conversation with others."

Differences in Effect of Attitude and g_1e_1 (or GS_1) Toward Intention

Secondly, compared to the GS_i data freeing the GS_i-intention path, the g_ie_i data resulted in a precipitous drop in the value of the attitude-intention path when the g_ie_i-intention path was freed. The findings suggested that expectancy values exerted greater influence in determining intention than audience motives. Since expectancy values are perceived to be a combination of cognitive and affective data (Fishbein & Ajzen, 1975), it is possible that expectancy values and general attitude toward Web usage are alternative measures of the same underlying construct. However, this conflicted with evidence that the relationship between expectancy-value judgments and intention became trivial when attitude toward usage was held constant.

User motives or gratifications appeared to be further alienated from the general attitude. Only 6% of the explained variance in

attitude was contributed by gratifications sought. As noted by Babrow and Swanson (1988), gratifications sought integrate “cold” expectancy and “hot” affective responses to Web usage, GS_i are substantially associated with g_ie_i. Hence, it is reasonable to expect the unexplained variance in attitude to be reduced by expectancy-value judgments if included with the GS_i data. With the ad hoc scaling problems noted earlier, testing this hypothesis will require improved scaling of both motives and expectancies items.

Causal Relationship of Expectancy Values and Gratifications Sought

The present study has observed direct associations between expectancy-value and intention as well as between motives and intention. Although the substantial association of GS_i and g_ie_i was supported, the indirect evidence from the separate fitting of g_ie_i and GS_i data could not identify the causal relationship of expectancy values and gratifications sought. It is possible that expectancy values determine gratifications sought and the latter determines Web usage through intention or vice versa (Palmgreen & Rayburn, 1982; 1985b; cf. McLeod & Becker, 1981). Another possibility is that they may be reciprocally related. To test out these possibilities, simultaneous modeling of both g_1e_1 and GS_1 data over time will be necessary.

Variance Explained in Web Usage

As noted in past gratifications research on traditional media (McLeod & Becker, 1981), much less than half the variance in Web usage was explained in terms of its social-psychological antecedents. The predictive power of intention was less strong when compared with Babrow and Swanson’s values regarding TV news exposure. In the present study,

intention accounted for 32% (cf. 54%) and 31% (cf. 57%) of the Web usage variance in the expectancy-value and gratification seeking tests respectively.

Limitations of the Study And Future Research

The present findings employing the research model used by Babrow and Swanson (1988) yielded two problems found in their expectancy-value analyses of TV news gratifications. First, cross-sectional data could not provide information about changes in expectancies, evaluations, and motives over time; therefore it is limited for drawing causal relationships. Secondly, scaling of g_ie_i and GS_i items must be improved to attain discriminant and convergent validity so that these measures will support simultaneous modeling.

The additional problem found in Babrow and Swanson's research was better attacked in the present study with dual indicators for intention: *likelihood to use the Web during an average week* and *likelihood to use the Web during the next week*. The total amount of variance accounted for in intention is 43% in the expectancy-value and 33% in the gratification-seeking models.

Yet current tests of the multiple elements of the model as an integrated theoretical system make clear that expectancy values or gratifications sought cannot be viewed in isolation. These two types of judgments are connected in both antecedent and consequent fashion to a host of perceptual and psychological variables.

What is needed are studies that test multivariate models incorporating indicators of both variable groupings of g_ie_i and GS_i, and that specify the complex relationships among social-psychological

forces, attitude, and intention in a priori fashion. Only in this way may a true test of integrative models be accomplished. Further research will help to establish what is tenable and what is not in this particular approach.

CHAPTER VII
CONCLUSIONS AND SUGGESTIONS

As the Internet becomes more sophisticated with new applications and technologies, research on various Internet topics is noted (Hindle, 1997). Internet research initially was focused on macro-level issues. Recently, the user perspective in communication research has gained attention because the unique interactive quality of the Internet differentiates it from traditional mass media. The Internet audience appears more active with more control over the medium. The present study joined some communication scholars in examining this new phenomenon, focusing on the newly defined Web audience from a user perspective.

It can be argued that the Web fits into the family of mass media because audience motives associated with Web usage are similar to those found in other media. The Web is expected to provide *Surveillance* and *Diversion* functions. These functions motivate users and are evaluated by users. Based on Blumler's propositions (1979), there may exist two types of relationships between user motives and Web effects: 1) *cognitive* or *surveillance* motivations may encourage learning or information gain; 2) *diversion* and *escape* motivations will help users' acceptance of perceived social situations in accordance with portrayals in entertainment content. Exactly how the Web impacts users or how users behave after using the Web is beyond the scope of the present study. Additionally, whether the Web exerts similar influences through these traditional mass media functions remains to be examined in longitudinal studies.

Utility and *Interaction* are two unique qualities evaluated about or expected from the Web. They also appear to motivate Web users. Compared to traditional mass media, the Web provides an expanded repertoire of features that satisfy a variety of needs. Research evidence speaks strongly against univariate or bivariate motivational schemes. Characteristics of "new technologies" also make one wonder if there are more unique motives or orientations of the Web left uncovered by the present study – making distance irrelevant, providing nonlinear access to information, offering unlimited availability of two-way communications, transporting many simultaneous messages or choices, and bypassing the printing and transportation requirements for the transmission of textual information (Williams, Phillips, & Lum, 1985). Since the Web is still evolving, continued exploration of its orientations from a user perspective may be fruitful.

Presumably, the level of Web usage is guided by motivations for various media use and expectations concerning different media channels (Palmgreen, Wenner, & Rosengren, 1985). Web users should differentiate among these channels on the basis of gratifications sought. Their selection of the Web is not an isolated incidence; instead, it involves a complex cognitive and affective comparison of the available alternatives. How developments in new technology such as the Web increase levels of selectivity requires a theoretical convergence of diffusion of the Web and uses and gratifications research (Flanagin & Metzger, 2001).

Although uses and gratifications scholars maintain that mass media consumption is motivated by gratifications associated with the consumption experience (e. g., Peled & Katz, 1974; McLeod & Becker, 1981; Becker & Fruit, 1982; de Bock, 1980; Mendelsohn & O'Keefe, 1976),

the amount of unexplained variance in Web usage remains significant. Approximately one-third of Web usage variance can be explained by the antecedent social-psychological variables, i. e., expectancy values or motivations. Such a modest value is confirmed by other research that found low to moderate correlations between the gratifications measures and consumption indices (Palmgreen, Wenner, & Rosengren, 1985). Moreover, investigation of how or whether new technologies will change environmental alternatives for media gratifications (William, Phillips, & Lum, 1985) can expand the boundaries of the expectancy-value approach to embrace McQuail and Gurevitch's (1974) structural/cultural perspective.

If no other motivations or orientations exist associated with the Web as discussed above, what other influences can be attributed to the variance in Web usage? From the perspectives of social and psychological origins, "many of the media-related needs and requirements of individuals spring from their location in and interaction with their social environment" (Palmgreen, Wenner, & Rosengren, 1985, pp.18-19). Ample empirical evidence has supported the ties between gratifications and demographics such as age, education, gender, income, length of residence, discussion with others, and membership in organizations. The present study was primarily focused on social-psychological forces, but it did not intend to rule out other influences. The incorporation of demographic variables in the theoretical model poses a challenge for future studies to modify theoretical grounds.

Other extra-individual influences include: 1) normative influences; 2) socially distributed life-chances – factors that liberate the individual, factors that compensate for the lack of such

opportunities; 3) subjective reaction or adjustment of the individual to his situation (Blumler, 1979, pp. 27-28). The present findings failed to support normative influences; however, this may not be conclusive based on a single-item measure. Opportunities exist to combine McQuail and Gurevitch's (1974) action-motivation and structural/cultural perspectives. Belief and value systems based on particular social groups or cultures should be incorporated to advance theory building (Palmgreen & Rayburn, 1985b).

The evidence does not support the concept that belief-value systems and motives, although empirically related, are alternative measures of the same underlying construct. How users perceive and evaluate the Web, or are motivated, does indeed provide the expected sequence of effects from either antecedent social-psychological forces to affect, to intention, and finally to usage. The addition of a direct link between antecedent social-psychological force and intention indicates closer relationships between these social-psychological variables and intention. Belief-value systems and motives function similarly in determining intention and usage; however, motives appear to be further alienated from the affect.

Finally, there exist two types of gratifications. First, c*ontent gratifications* are defined as those "derived form the use of mediated messages for their direct, substantive, intrinsic value for the receiver;" secondly, *process* gratifications are "derived from the use of mediated messages for extrinsic values that do not bear a direct link to particular substantive characteristics of the messages: the individual receives gratifications only or mainly from being involved in the process of communication behavior, rather than the message content" (Wenner, 1986, p. 173). Since the present study used the Web

experience as the unit of analysis, it is not clear to which type of gratifications Web users are referring. The same speculation can apply to belief and evaluation. Even though belief and evaluation were operationalized as the subjective probability and value that the Web possesses a particular attribute, respondents could imply Web content, process, or both. Further investigation of these responses can lead to clearer interpretations and understandings of Web usage and behaviors.

To end with, Herzog's observations of daytime radio serials (1944) can be modified to apply to today's new communication technologies. This is the Internet age. The Web commands the largest share of Internet users. At least 134 million people in the United States and 400 million worldwide visit the Web regularly. Although we would like to know the effects of the Web on regular users, we should not expect to draw a simple conclusion. The fast-changing nature of Web development makes it difficult to determine the influences of the Web. Only by piecing together a variety of information from a user perspective through a process of continued observation and careful interpretation can we trace these effects.

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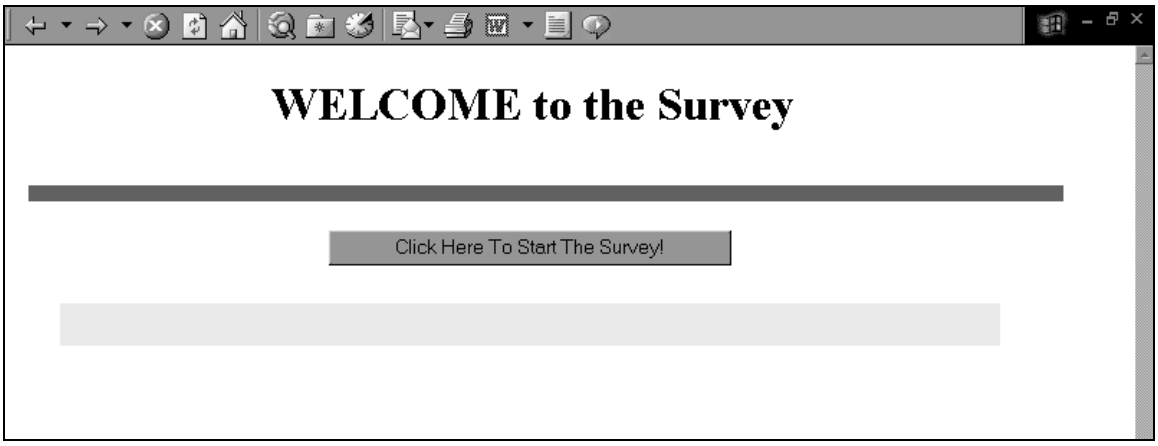
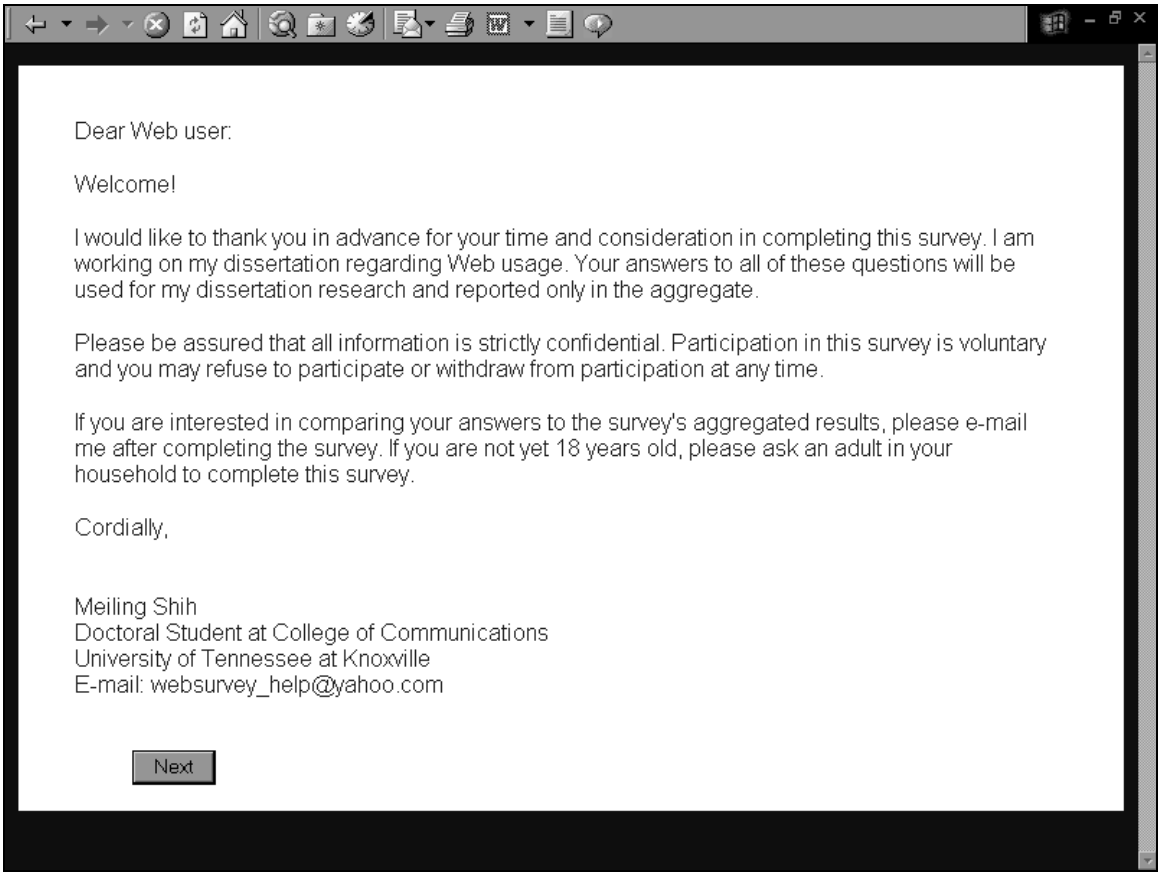
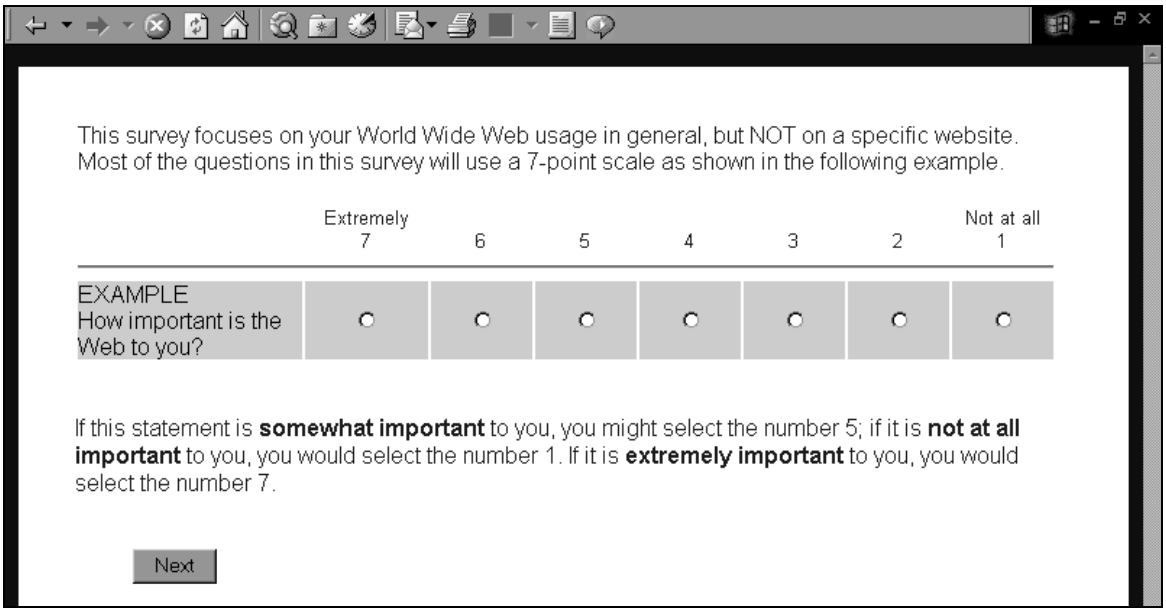
APPENDIX


WELCOME to the Survey
Click Here To Start The Survey!


Dear Web user:
Welcome!
I would like to thank you in advance for your time and consideration in completing this survey. I am working on my dissertation regarding Web usage. Your answers to all of these questions will be used for my dissertation research and reported only in the aggregate.
Please be assured that all information is strictly confidential. Participation in this survey is voluntary and you may refuse to participate or withdraw from participation at any time.
If you are interested in comparing your answers to the survey's aggregated results, please e-mail me after completing the survey. If you are not yet 18 years old, please ask an adult in your household to complete this survey.
Cordially,
Meiling Shih
Doctoral Student at College of Communications
University of Tennessee at Knoxville
E-mail: websurvey_help@yahoo.com
Next

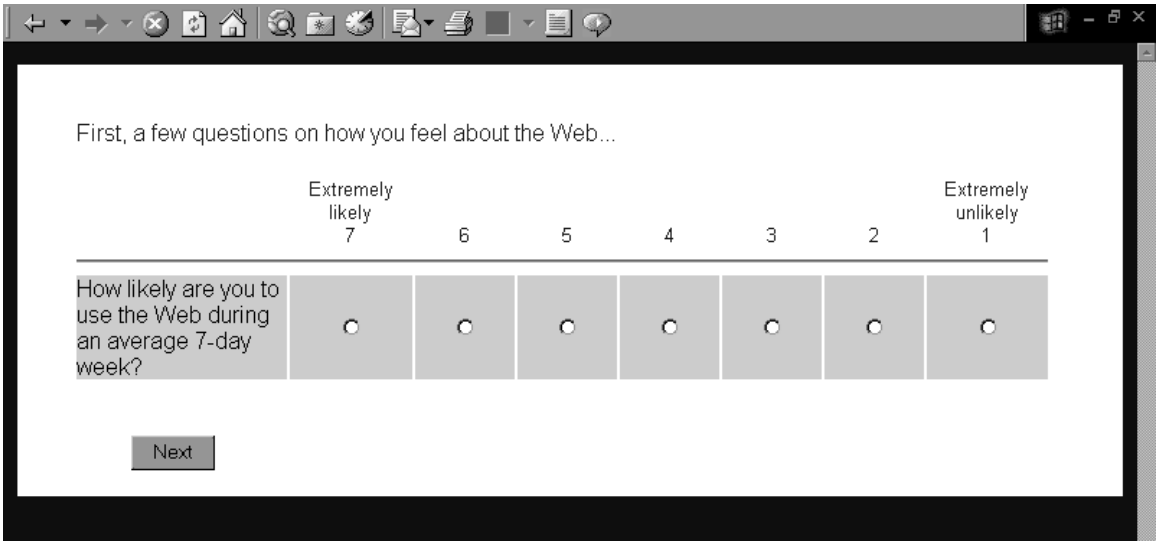


This survey focuses on your World Wide Web usage in general, but NOT on a specific website. Most of the questions in this survey will use a 7-point scale as shown in the following example.

	Extremely 7	6	5	4	3	2	Not at all 1
EXAMPLE How important is the Web to you?	○	○	○	○	○	○	○

If this statement is **somewhat important** to you, you might select the number 5; if it is **not at all important** to you, you would select the number 1. If it is **extremely important** to you, you would select the number 7.

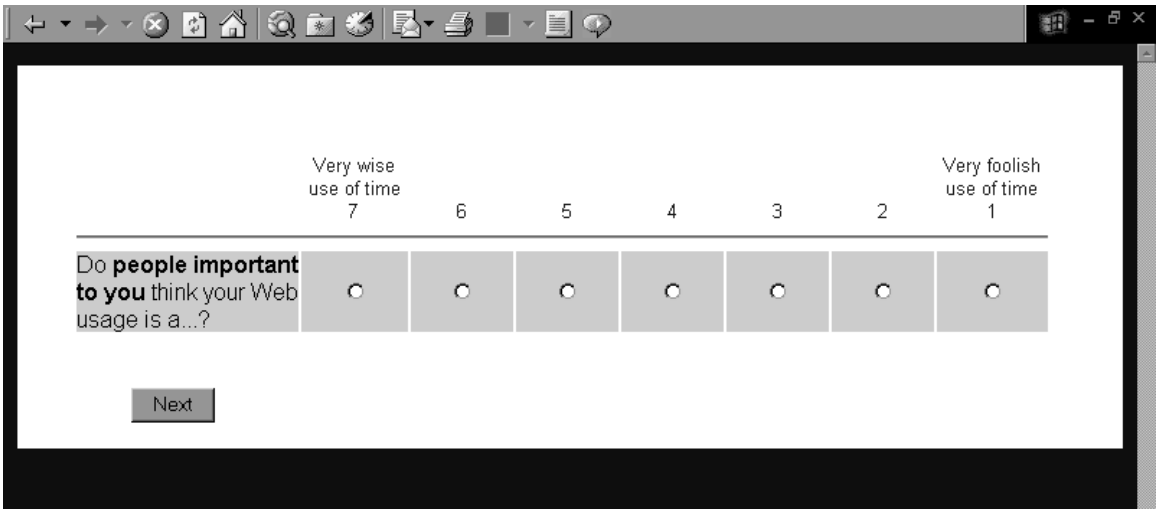
Next



First, a few questions on how you feel about the Web...

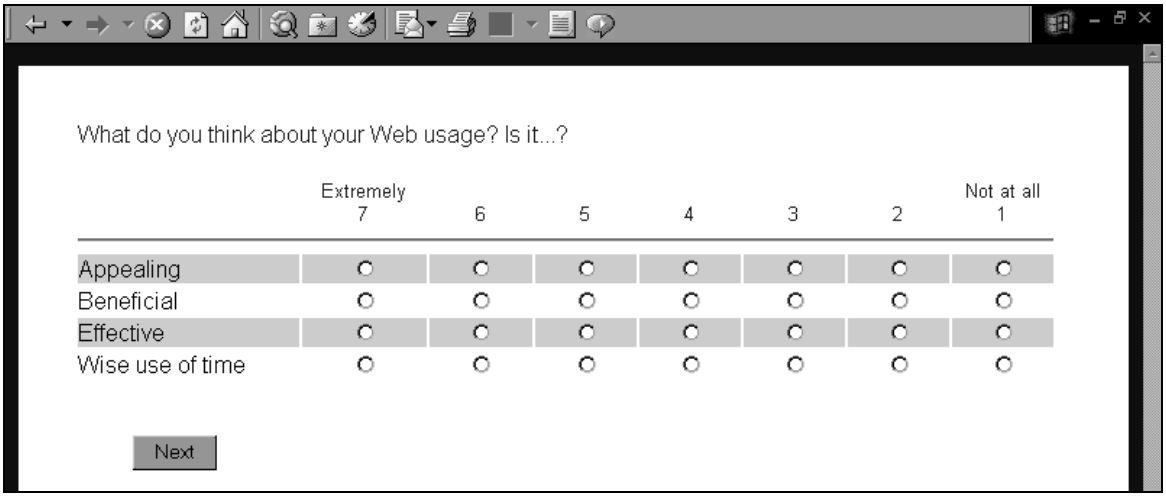
	Extremely likely 7	6	5	4	3	2	Extremely unlikely 1
How likely are you to use the Web during an average 7-day week?	○	○	○	○	○	○	○

Next



	Very wise use of time 7	6	5	4	3	2	Very foolish use of time 1
Do **people important to you** think your Web usage is a...?	○	○	○	○	○	○	○

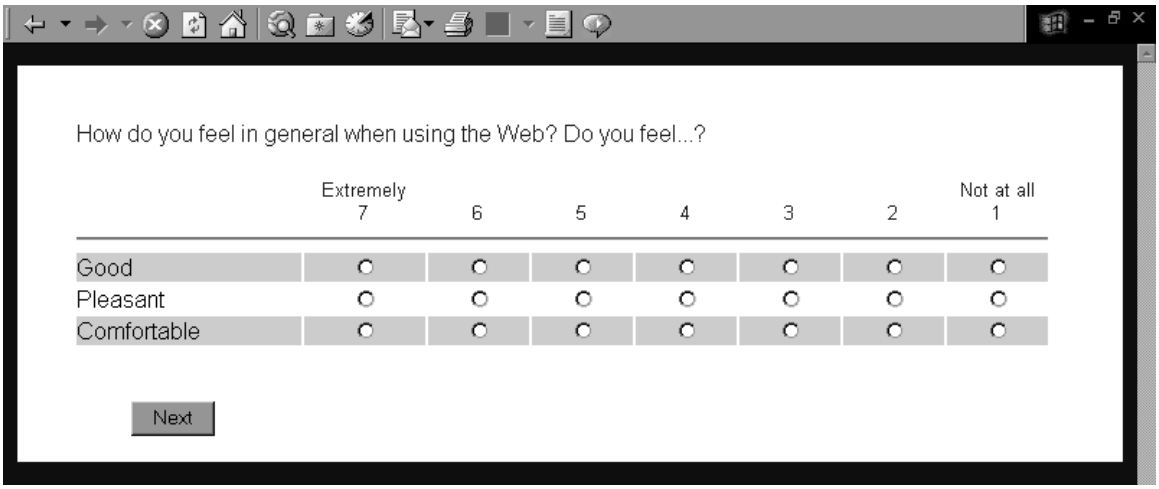
Next

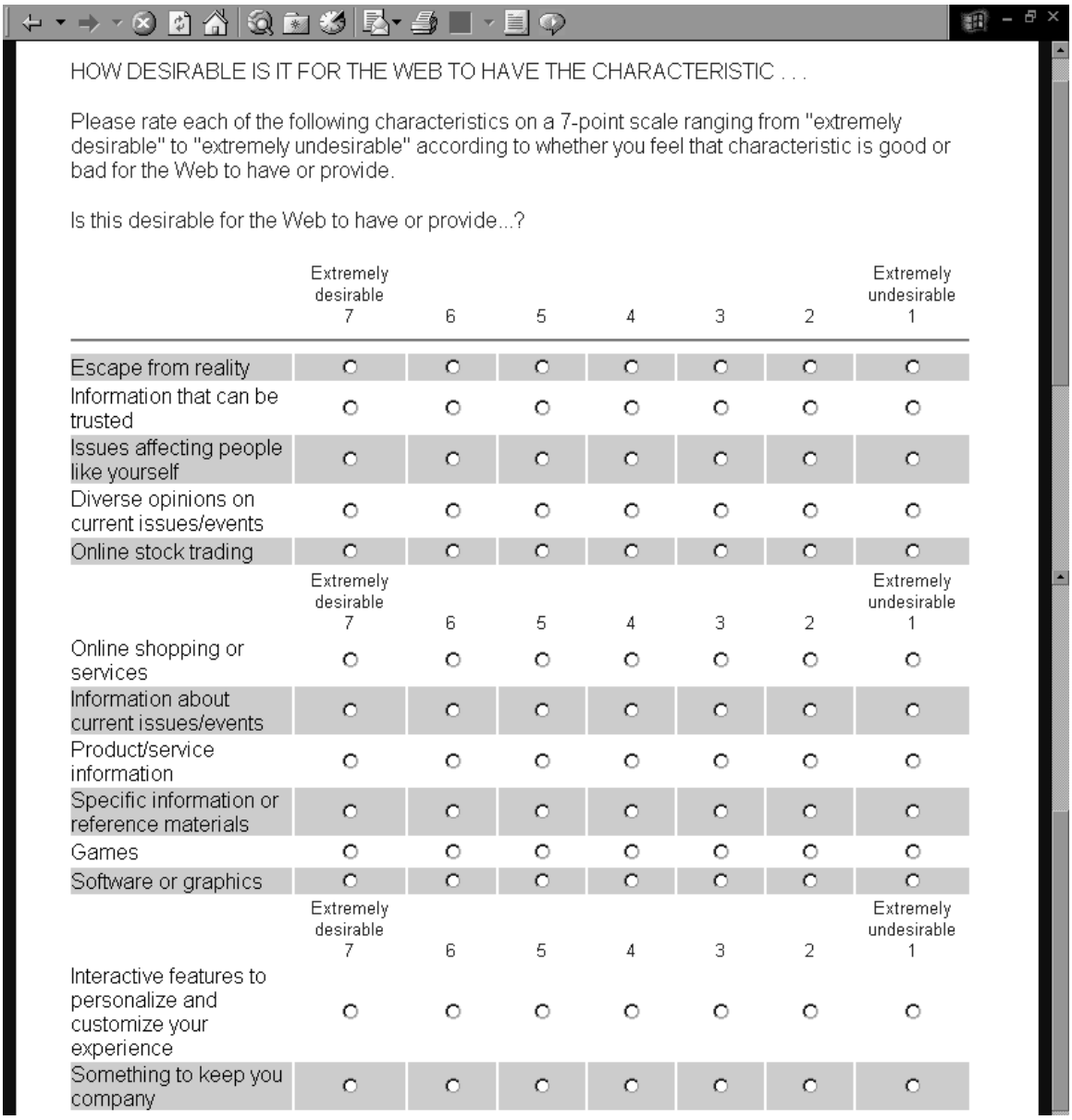


What do you think about your Web usage? Is it...?

	Extremely 7	6	5	4	3	2	Not at all 1
Appealing	○	○	○	○	○	○	○
Beneficial	○	○	○	○	○	○	○
Effective	○	○	○	○	○	○	○
Wise use of time	○	○	○	○	○	○	○

Next


How do you feel in general when using the Web? Do you feel...?
Extremely
7
6
5
4
3
2
Not at all
1
Good
Pleasant
Comfortable
Next



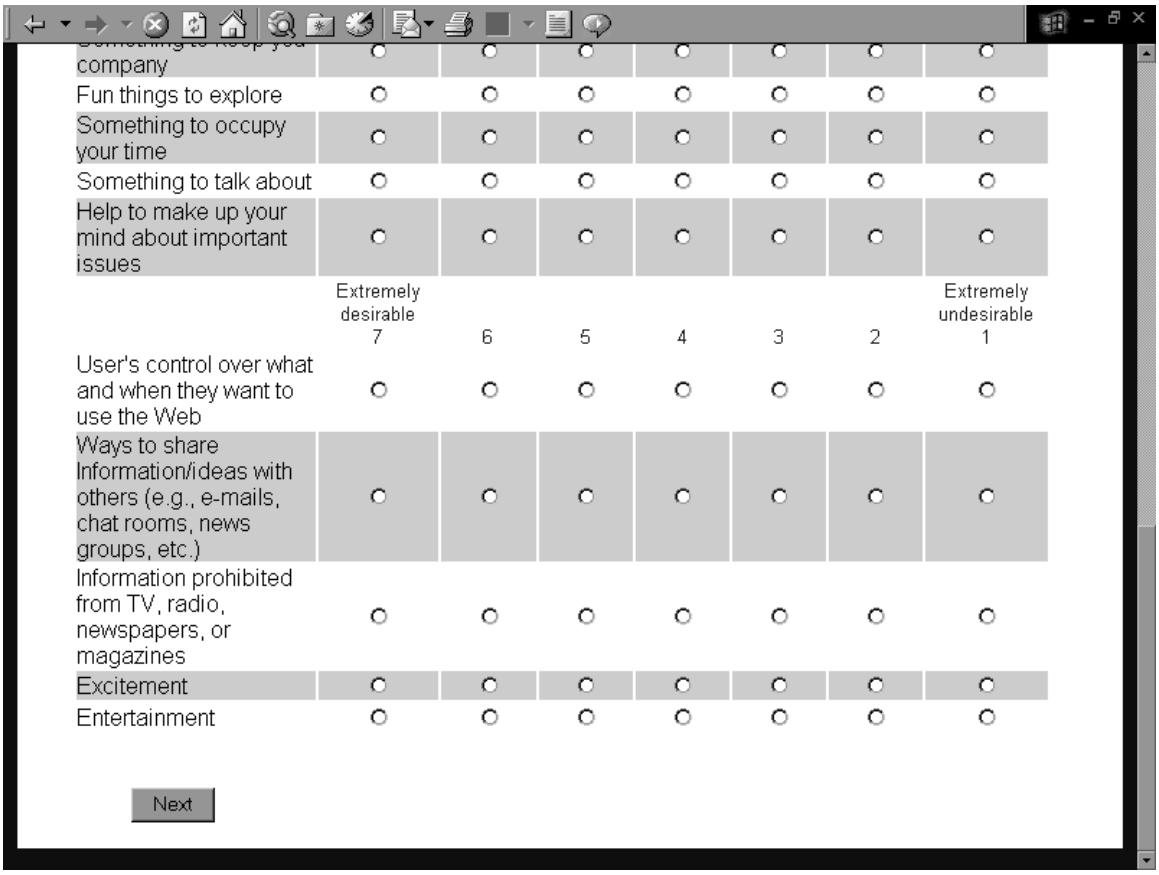
HOW DESIRABLE IS IT FOR THE WEB TO HAVE THE CHARACTERISTIC . . .

Please rate each of the following characteristics on a 7-point scale ranging from "extremely desirable" to "extremely undesirable" according to whether you feel that characteristic is good or bad for the Web to have or provide.

Is this desirable for the Web to have or provide...?

	Extremely desirable 7	6	5	4	3	2	Extremely undesirable 1
Escape from reality	○	○	○	○	○	○	○
Information that can be trusted	○	○	○	○	○	○	○
Issues affecting people like yourself	○	○	○	○	○	○	○
Diverse opinions on current issues/events	○	○	○	○	○	○	○
Online stock trading	○	○	○	○	○	○	○
	Extremely desirable 7	6	5	4	3	2	Extremely undesirable 1
Online shopping or services	○	○	○	○	○	○	○
Information about current issues/events	○	○	○	○	○	○	○
Product/service information	○	○	○	○	○	○	○
Specific information or reference materials	○	○	○	○	○	○	○
Games	○	○	○	○	○	○	○
Software or graphics	○	○	○	○	○	○	○
	Extremely desirable 7	6	5	4	3	2	Extremely undesirable 1
Interactive features to personalize and customize your experience	○	○	○	○	○	○	○
Something to keep you company	○	○	○	○	○	○	○

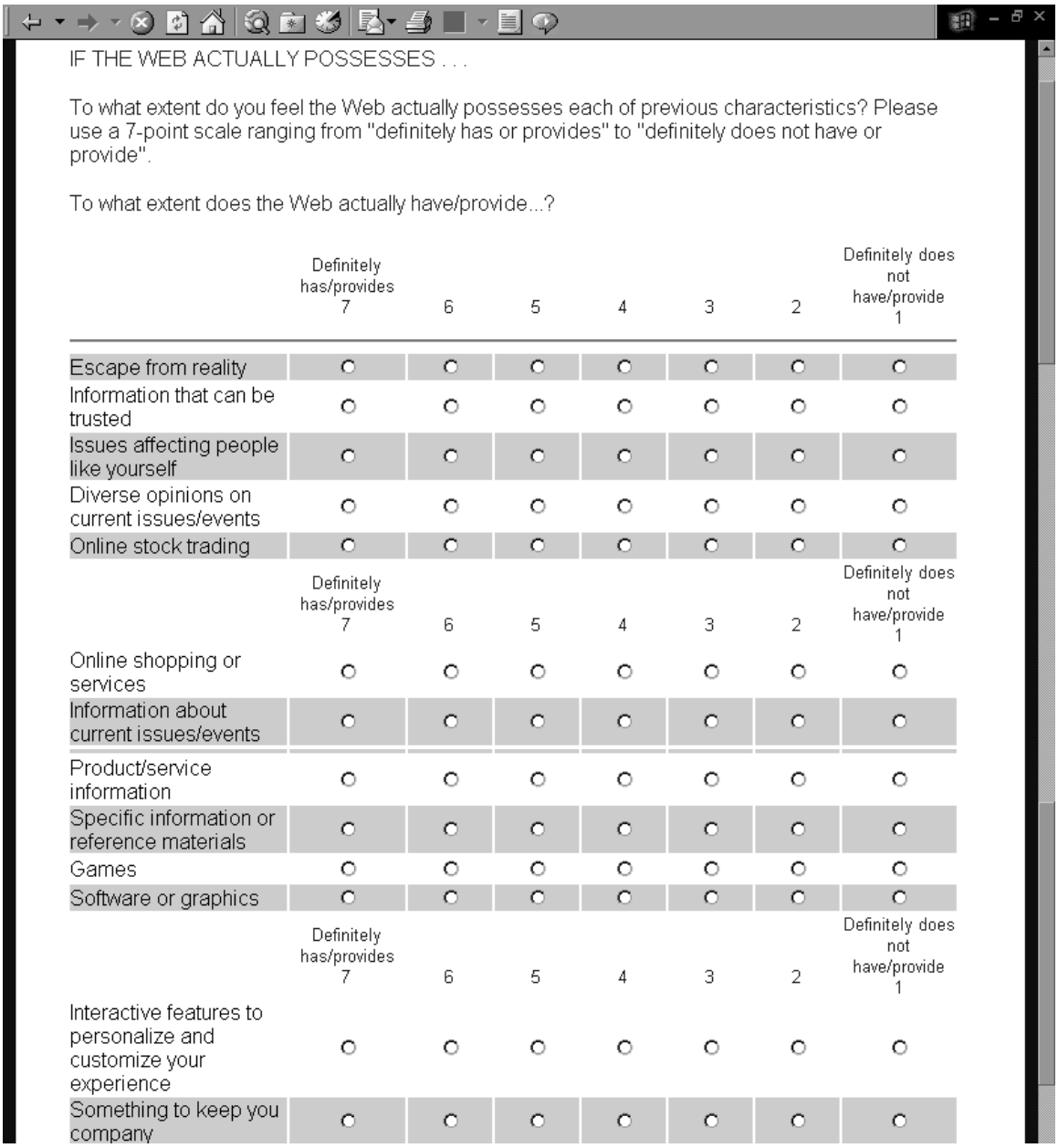
(PART 1 OF 2)



company							
Fun things to explore							
Something to occupy your time							
Something to talk about							
Help to make up your mind about important issues							
	Extremely desirable 7	6	5	4	3	2	Extremely undesirable 1
User's control over what and when they want to use the Web							
Ways to share Information/ideas with others (e.g., e-mails, chat rooms, news groups, etc.)							
Information prohibited from TV, radio, newspapers, or magazines							
Excitement							
Entertainment							

Next

(PART 2 OF 2)



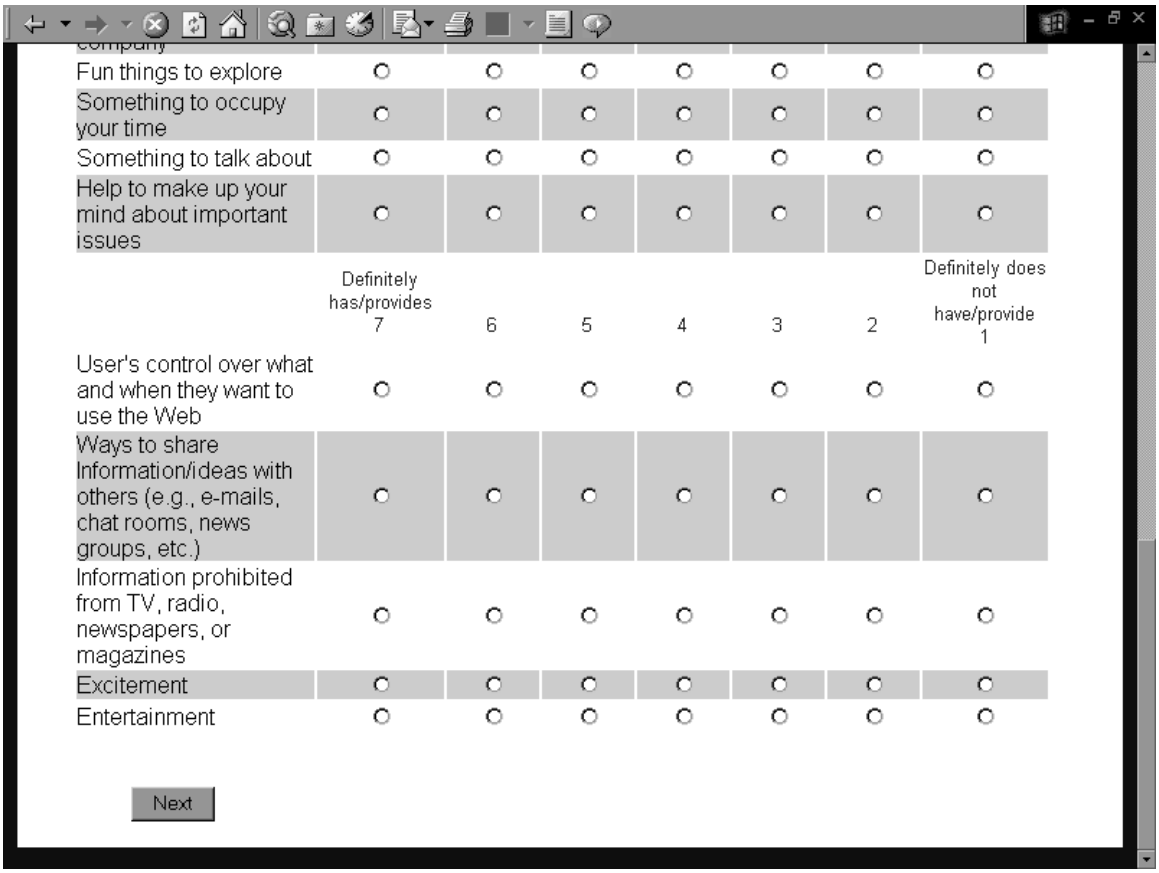
IF THE WEB ACTUALLY POSSESSES . . .

To what extent do you feel the Web actually possesses each of previous characteristics? Please use a 7-point scale ranging from "definitely has or provides" to "definitely does not have or provide".

To what extent does the Web actually have/provide...?

	Definitely has/provides 7	6	5	4	3	2	Definitely does not have/provide 1
Escape from reality	○	○	○	○	○	○	○
Information that can be trusted	○	○	○	○	○	○	○
Issues affecting people like yourself	○	○	○	○	○	○	○
Diverse opinions on current issues/events	○	○	○	○	○	○	○
Online stock trading	○	○	○	○	○	○	○
	Definitely has/provides 7	6	5	4	3	2	Definitely does not have/provide 1
Online shopping or services	○	○	○	○	○	○	○
Information about current issues/events	○	○	○	○	○	○	○
Product/service information	○	○	○	○	○	○	○
Specific information or reference materials	○	○	○	○	○	○	○
Games	○	○	○	○	○	○	○
Software or graphics	○	○	○	○	○	○	○
	Definitely has/provides 7	6	5	4	3	2	Definitely does not have/provide 1
Interactive features to personalize and customize your experience	○	○	○	○	○	○	○
Something to keep you company	○	○	○	○	○	○	○

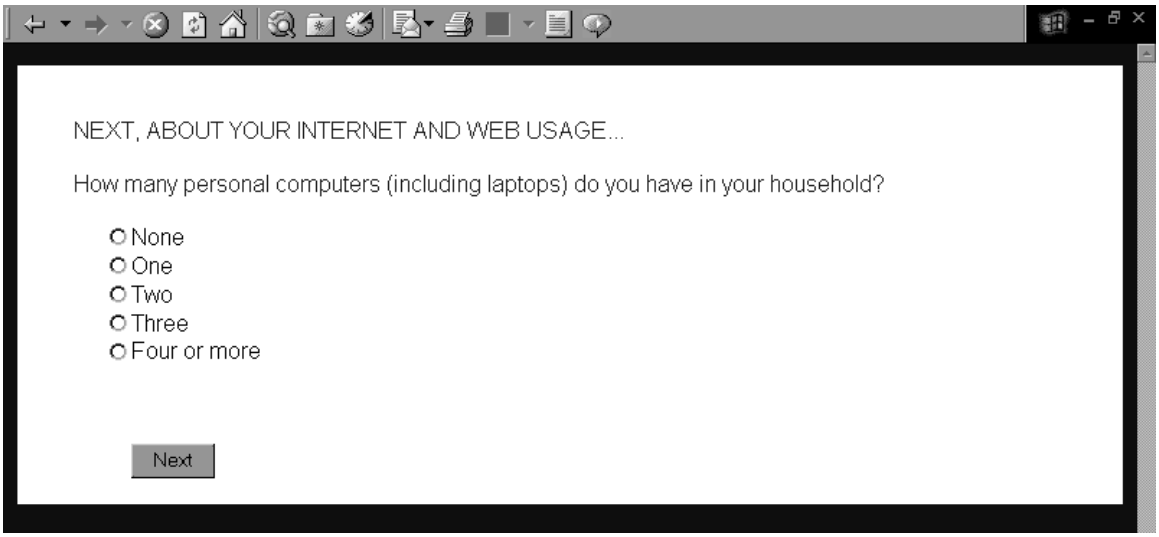
(PART 1 OF 2)

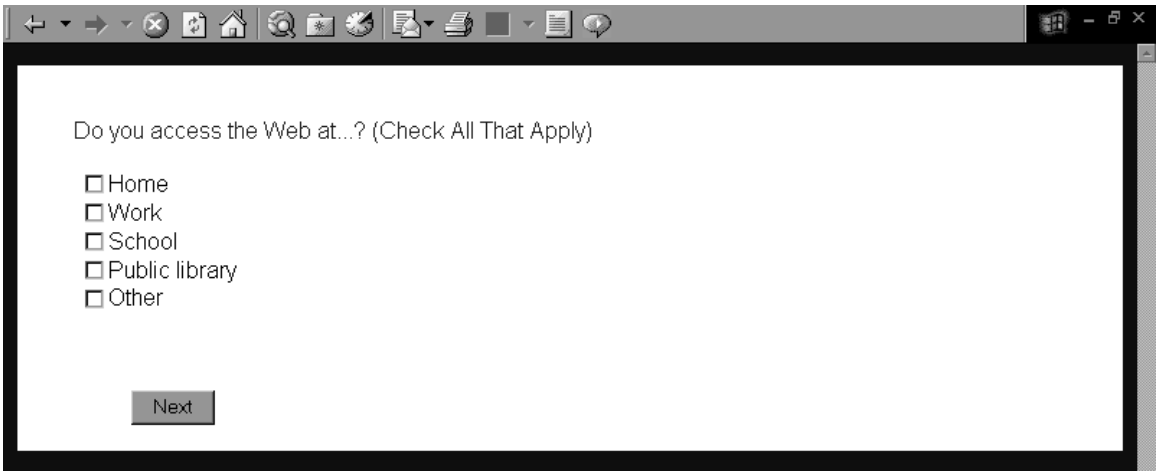


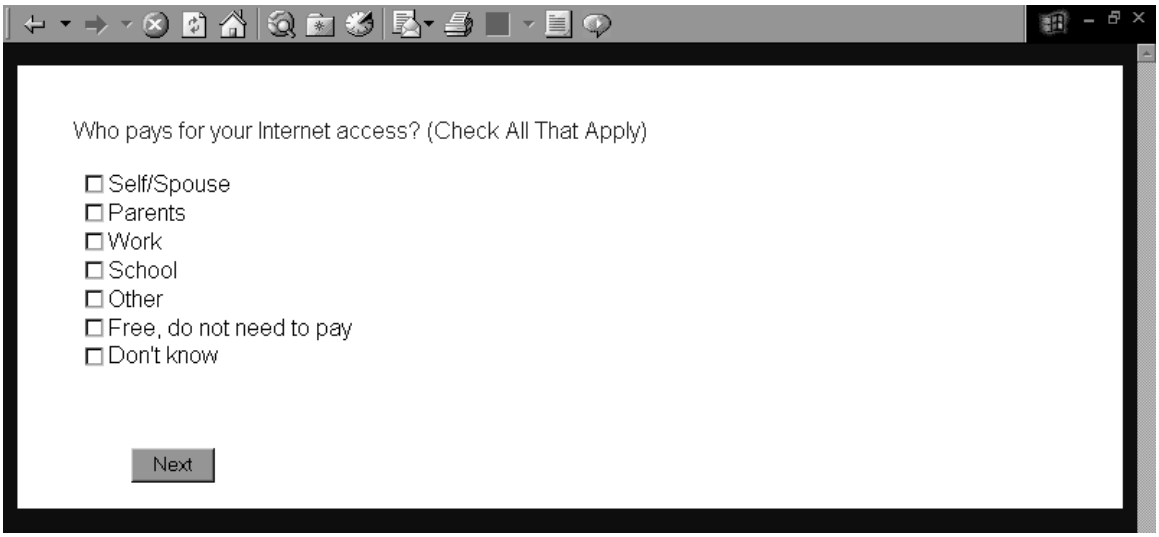
	Definitely has/provides 7	6	5	4	3	2	Definitely does not have/provide 1
Fun things to explore	O	O	O	O	O	O	O
Something to occupy your time	O	O	O	O	O	O	O
Something to talk about	O	O	O	O	O	O	O
Help to make up your mind about important issues	O	O	O	O	O	O	O
User's control over what and when they want to use the Web	O	O	O	O	O	O	O
Ways to share Information/ideas with others (e.g., e-mails, chat rooms, news groups, etc.)	O	O	O	O	O	O	O
Information prohibited from TV, radio, newspapers, or magazines	O	O	O	O	O	O	O
Excitement	O	O	O	O	O	O	O
Entertainment	O	O	O	O	O	O	O

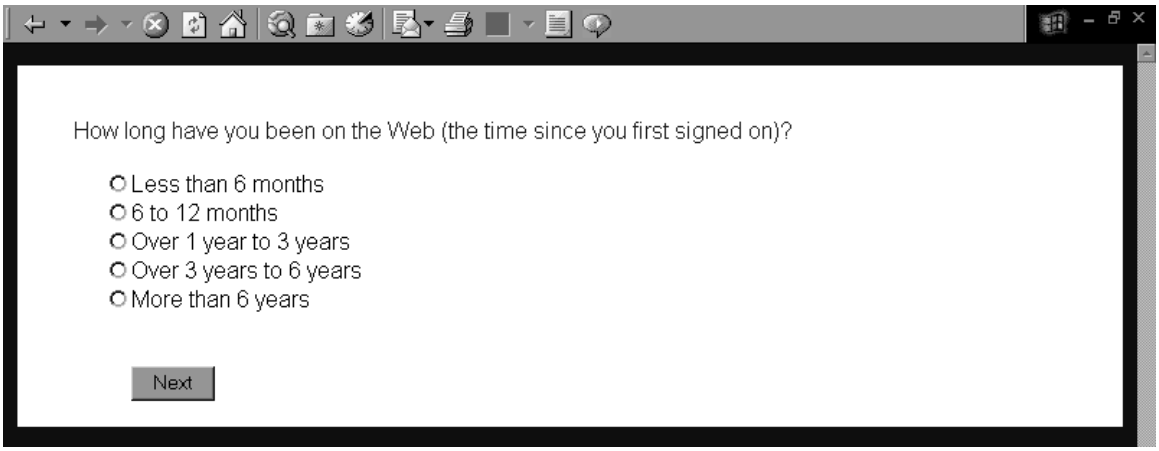
Next

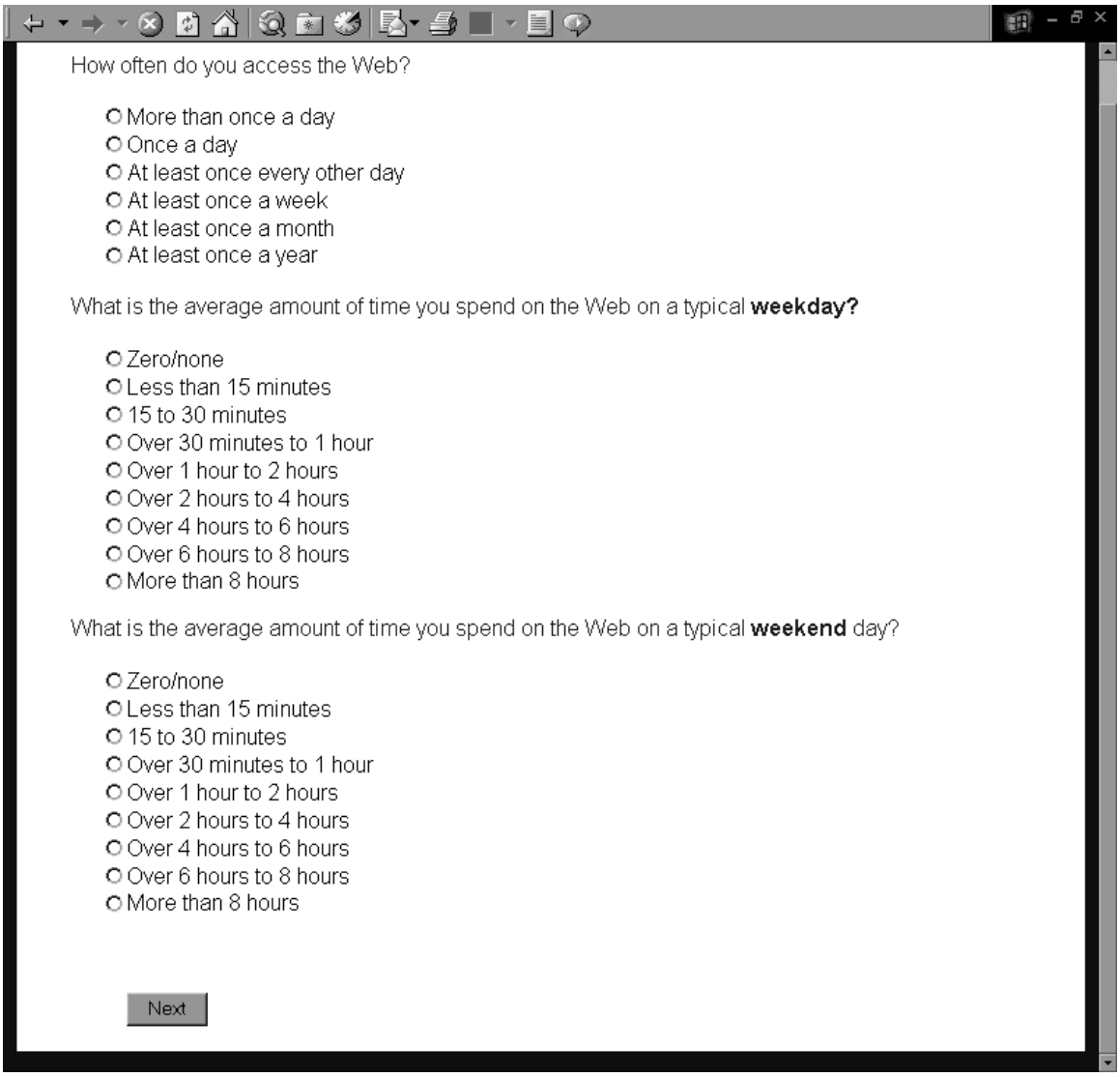
(PART 2 OF 2)

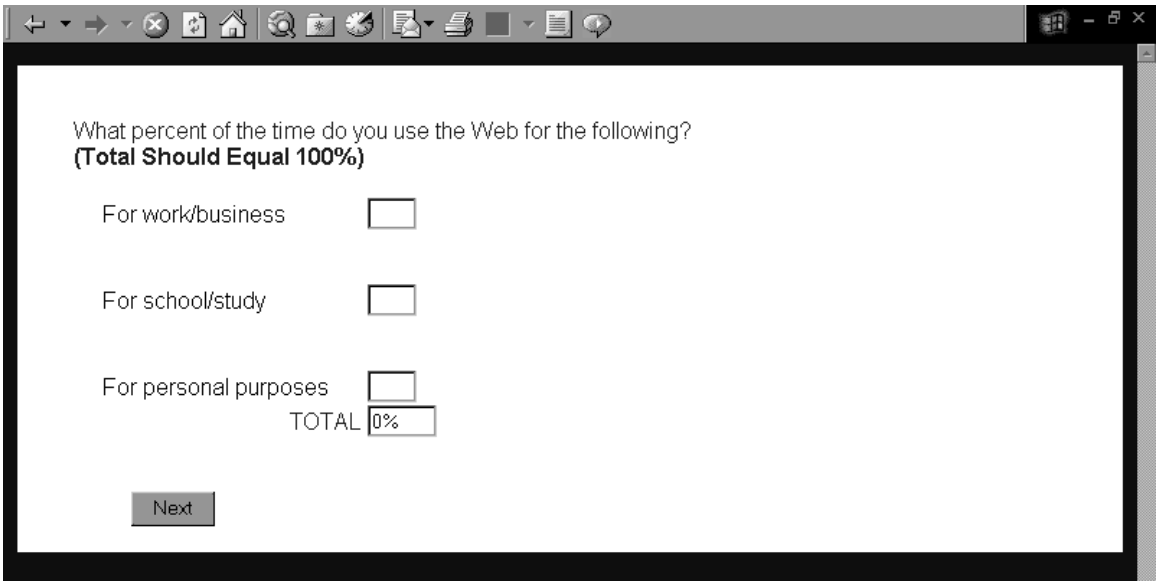

NEXT, ABOUT YOUR INTERNET AND WEB USAGE...
How many personal computers (including laptops) do you have in your household?
None
One
Two
Three
Four or more
Next

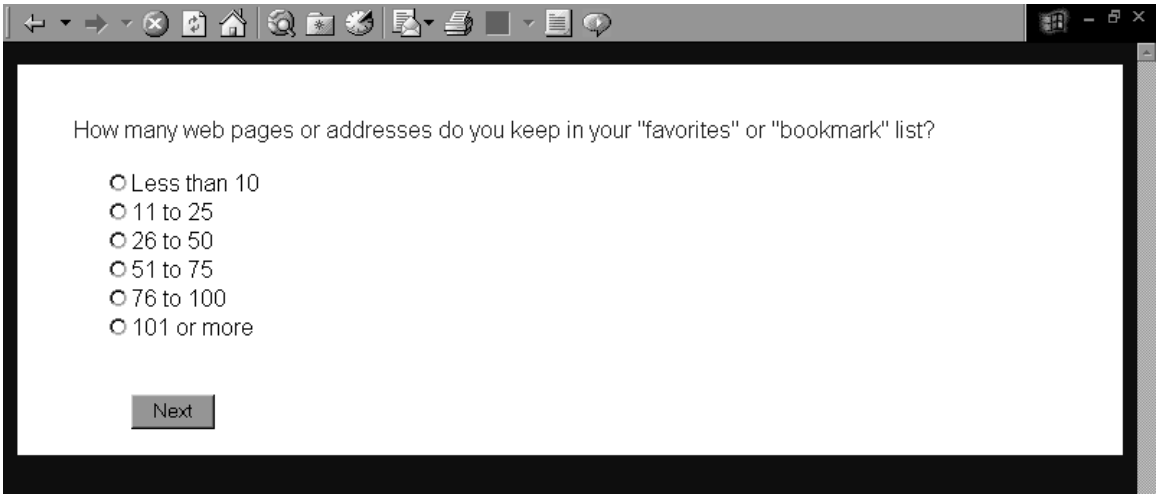

Do you access the Web at...? (Check All That Apply)
Home
Work
School
Public library
Other
Next

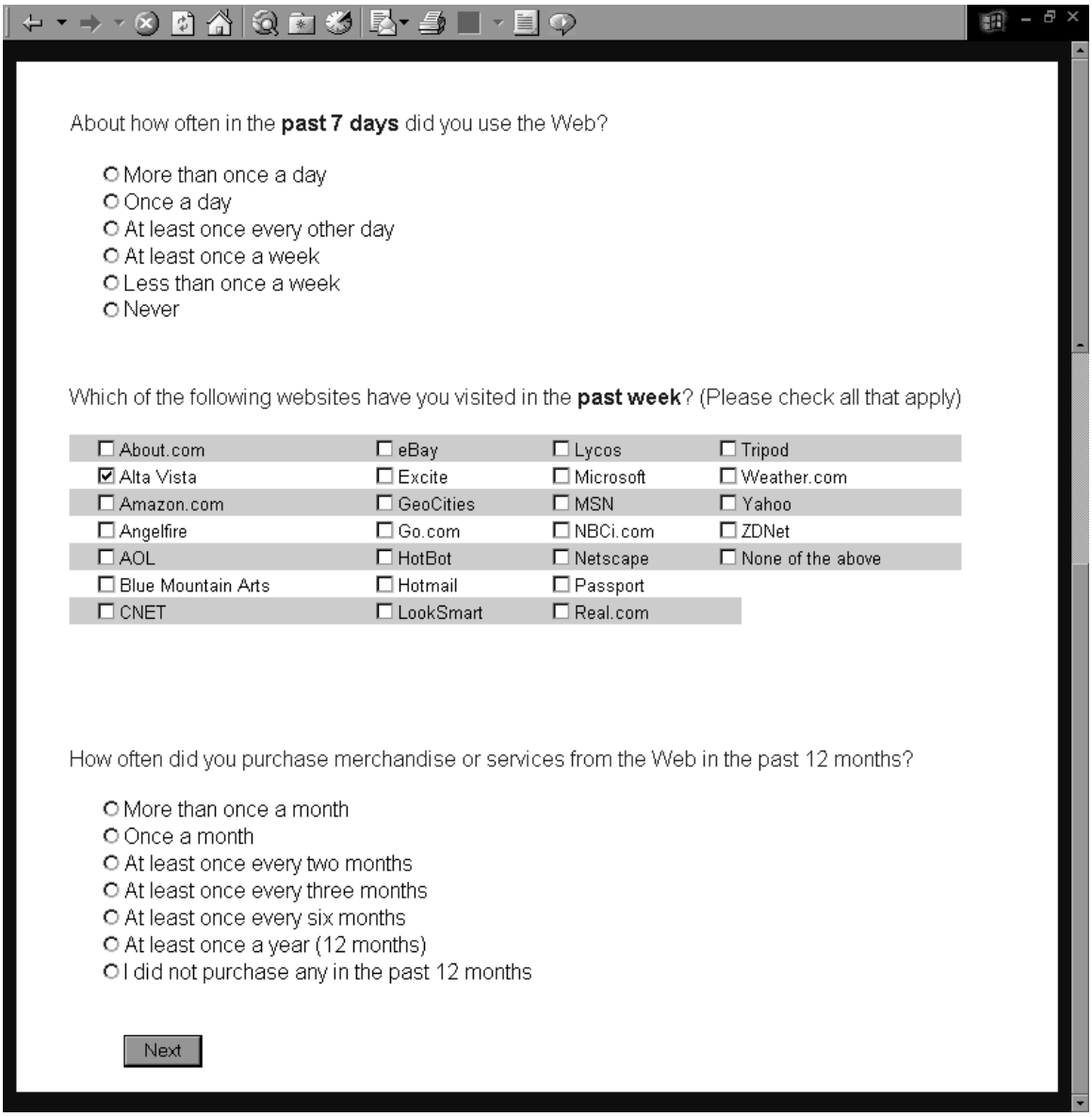

Who pays for your Internet access? (Check All That Apply)
Self/Spouse
Parents
Work
School
Other
Free, do not need to pay
Don't know
Next


How long have you been on the Web (the time since you first signed on)?
Less than 6 months
6 to 12 months
Over 1 year to 3 years
Over 3 years to 6 years
More than 6 years
Next


How often do you access the Web?
More than once a day
Once a day
At least once every other day
At least once a week
At least once a month
At least once a year
What is the average amount of time you spend on the Web on a typical **weekday?**
Zero/none
Less than 15 minutes
15 to 30 minutes
Over 30 minutes to 1 hour
Over 1 hour to 2 hours
Over 2 hours to 4 hours
Over 4 hours to 6 hours
Over 6 hours to 8 hours
More than 8 hours
What is the average amount of time you spend on the Web on a typical **weekend** day?
Zero/none
Less than 15 minutes
15 to 30 minutes
Over 30 minutes to 1 hour
Over 1 hour to 2 hours
Over 2 hours to 4 hours
Over 4 hours to 6 hours
Over 6 hours to 8 hours
More than 8 hours
Next


What percent of the time do you use the Web for the following?
(Total Should Equal 100%)
For work/business
For school/study
For personal purposes
TOTAL
0%
Next


How many web pages or addresses do you keep in your "favorites" or "bookmark" list?
Less than 10
11 to 25
26 to 50
51 to 75
76 to 100
101 or more
Next



About how often in the **past 7 days** did you use the Web?

- ○ More than once a day
- ○ Once a day
- ○ At least once every other day
- ○ At least once a week
- ○ Less than once a week
- ○ Never

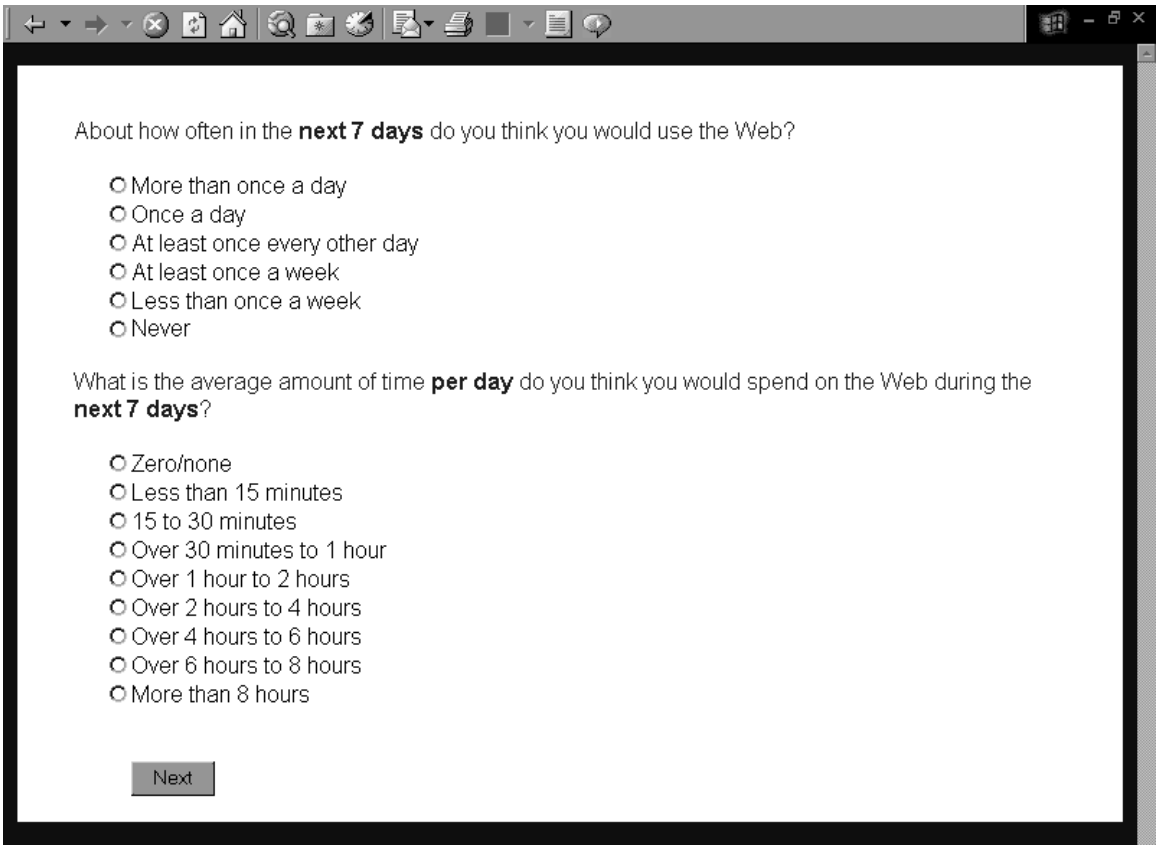
Which of the following websites have you visited in the **past week**? (Please check all that apply)

☐ About.com	☐ eBay	☐ Lycos	☐ Tripod
☑ Alta Vista	☐ Excite	☐ Microsoft	☐ Weather.com
☐ Amazon.com	☐ GeoCities	☐ MSN	☐ Yahoo
☐ Angelfire	☐ Go.com	☐ NBCi.com	☐ ZDNet
☐ AOL	☐ HotBot	☐ Netscape	☐ None of the above
☐ Blue Mountain Arts	☐ Hotmail	☐ Passport	
☐ CNET	☐ LookSmart	☐ Real.com	

How often did you purchase merchandise or services from the Web in the past 12 months?

- ○ More than once a month
- ○ Once a month
- ○ At least once every two months
- ○ At least once every three months
- ○ At least once every six months
- ○ At least once a year (12 months)
- ○ I did not purchase any in the past 12 months

Next



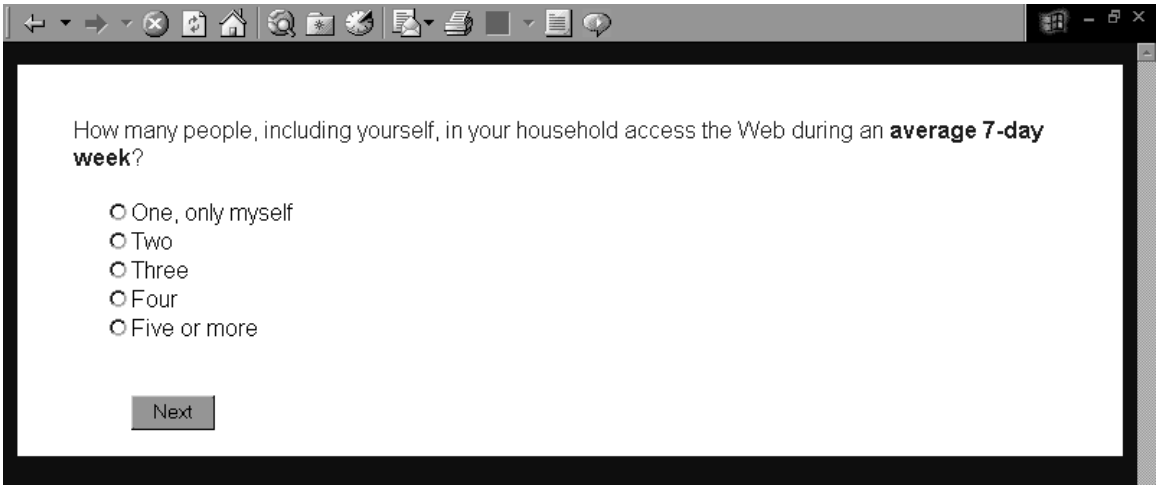
About how often in the **next 7 days** do you think you would use the Web?

- More than once a day
- Once a day
- At least once every other day
- At least once a week
- Less than once a week
- Never

What is the average amount of time **per day** do you think you would spend on the Web during the **next 7 days**?

- Zero/none
- Less than 15 minutes
- 15 to 30 minutes
- Over 30 minutes to 1 hour
- Over 1 hour to 2 hours
- Over 2 hours to 4 hours
- Over 4 hours to 6 hours
- Over 6 hours to 8 hours
- More than 8 hours

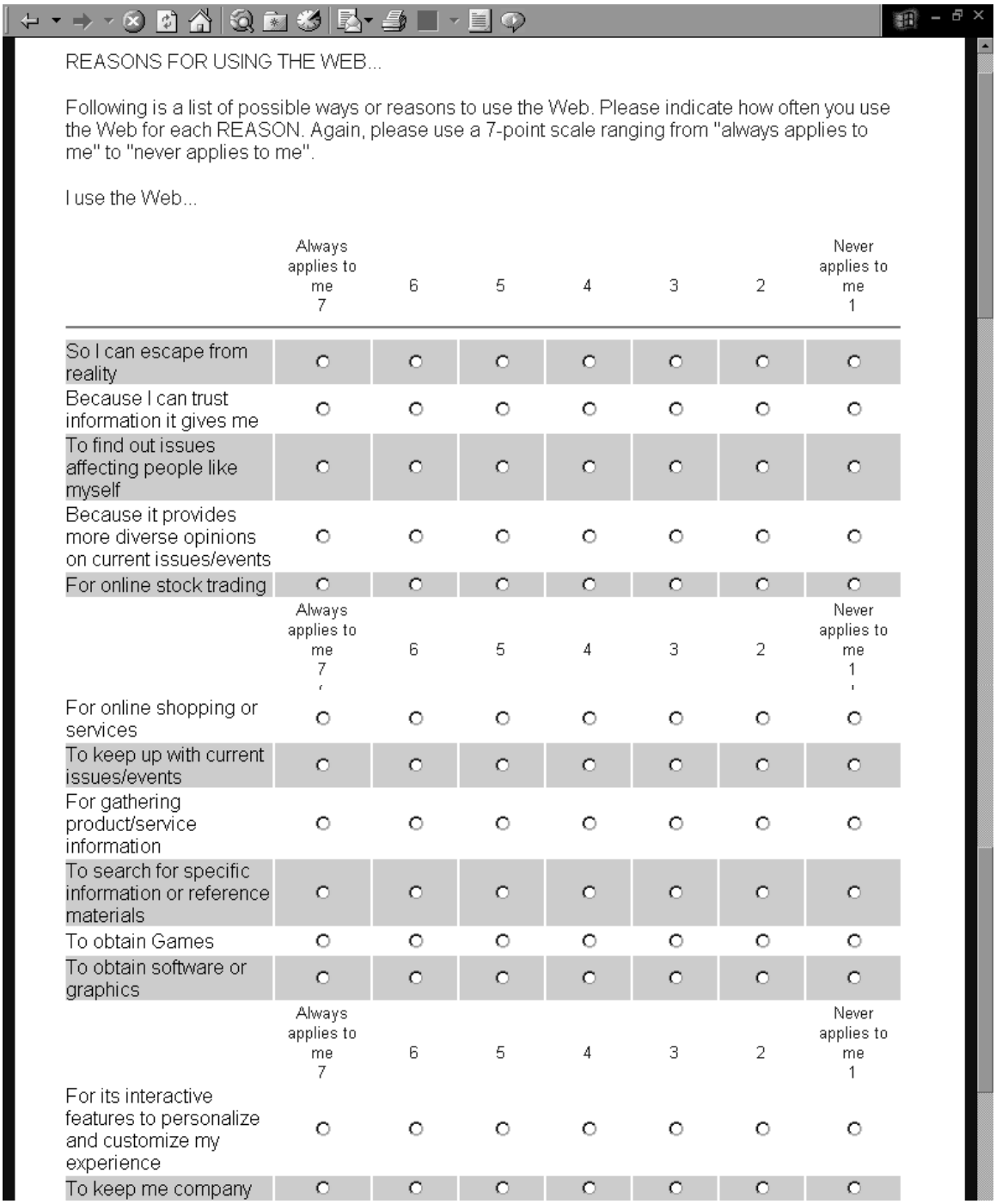
Next



How many people, including yourself, in your household access the Web during an **average 7-day week**?

- One, only myself
- Two
- Three
- Four
- Five or more

Next



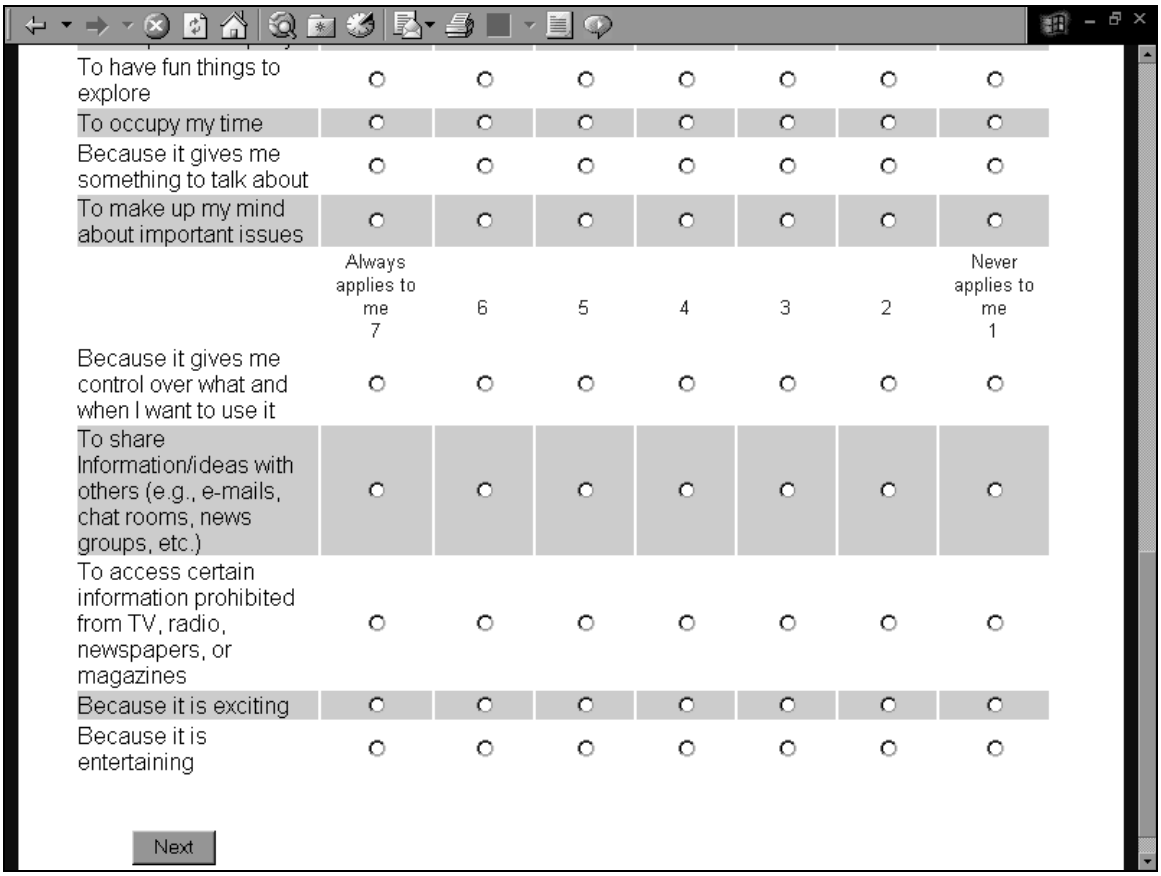
REASONS FOR USING THE WEB...

Following is a list of possible ways or reasons to use the Web. Please indicate how often you use the Web for each REASON. Again, please use a 7-point scale ranging from "always applies to me" to "never applies to me".

I use the Web...

	Always applies to me 7	6	5	4	3	2	Never applies to me 1
So I can escape from reality	○	○	○	○	○	○	○
Because I can trust information it gives me	○	○	○	○	○	○	○
To find out issues affecting people like myself	○	○	○	○	○	○	○
Because it provides more diverse opinions on current issues/events	○	○	○	○	○	○	○
For online stock trading	○	○	○	○	○	○	○
	Always applies to me 7	6	5	4	3	2	Never applies to me 1
For online shopping or services	○	○	○	○	○	○	○
To keep up with current issues/events	○	○	○	○	○	○	○
For gathering product/service information	○	○	○	○	○	○	○
To search for specific information or reference materials	○	○	○	○	○	○	○
To obtain Games	○	○	○	○	○	○	○
To obtain software or graphics	○	○	○	○	○	○	○
	Always applies to me 7	6	5	4	3	2	Never applies to me 1
For its interactive features to personalize and customize my experience	○	○	○	○	○	○	○
To keep me company	○	○	○	○	○	○	○

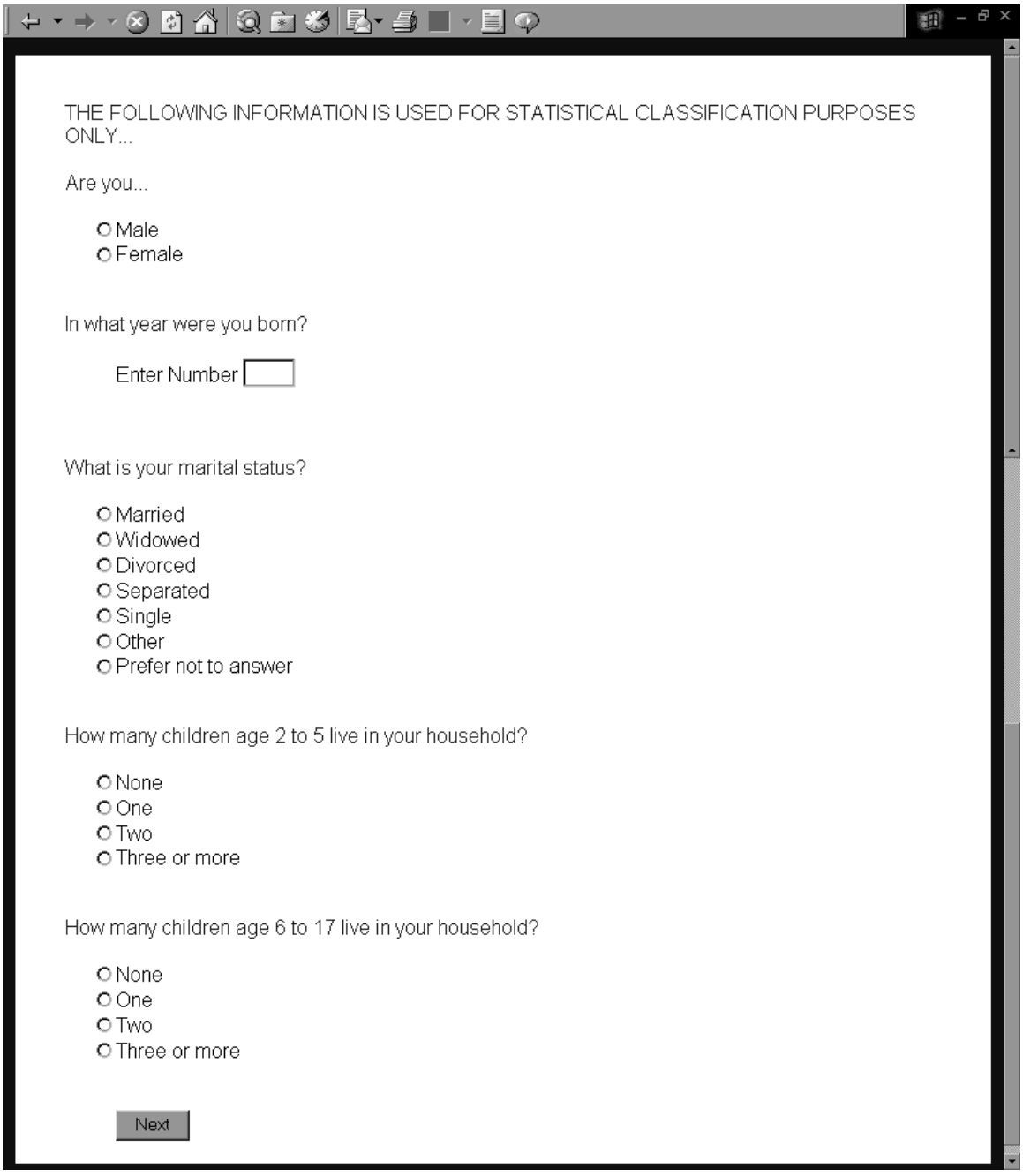
(PART 1 OF 2)



To have fun things to explore	○	○	○	○	○	○	○
To occupy my time	○	○	○	○	○	○	○
Because it gives me something to talk about	○	○	○	○	○	○	○
To make up my mind about important issues	○	○	○	○	○	○	○
	Always applies to me 7	6	5	4	3	2	Never applies to me 1
Because it gives me control over what and when I want to use it	○	○	○	○	○	○	○
To share Information/ideas with others (e.g., e-mails, chat rooms, news groups, etc.)	○	○	○	○	○	○	○
To access certain information prohibited from TV, radio, newspapers, or magazines	○	○	○	○	○	○	○
Because it is exciting	○	○	○	○	○	○	○
Because it is entertaining	○	○	○	○	○	○	○

Next

(PART 2 OF 2)



THE FOLLOWING INFORMATION IS USED FOR STATISTICAL CLASSIFICATION PURPOSES ONLY...

Are you...

- Male
- Female

In what year were you born?

Enter Number

What is your marital status?

- Married
- Widowed
- Divorced
- Separated
- Single
- Other
- Prefer not to answer

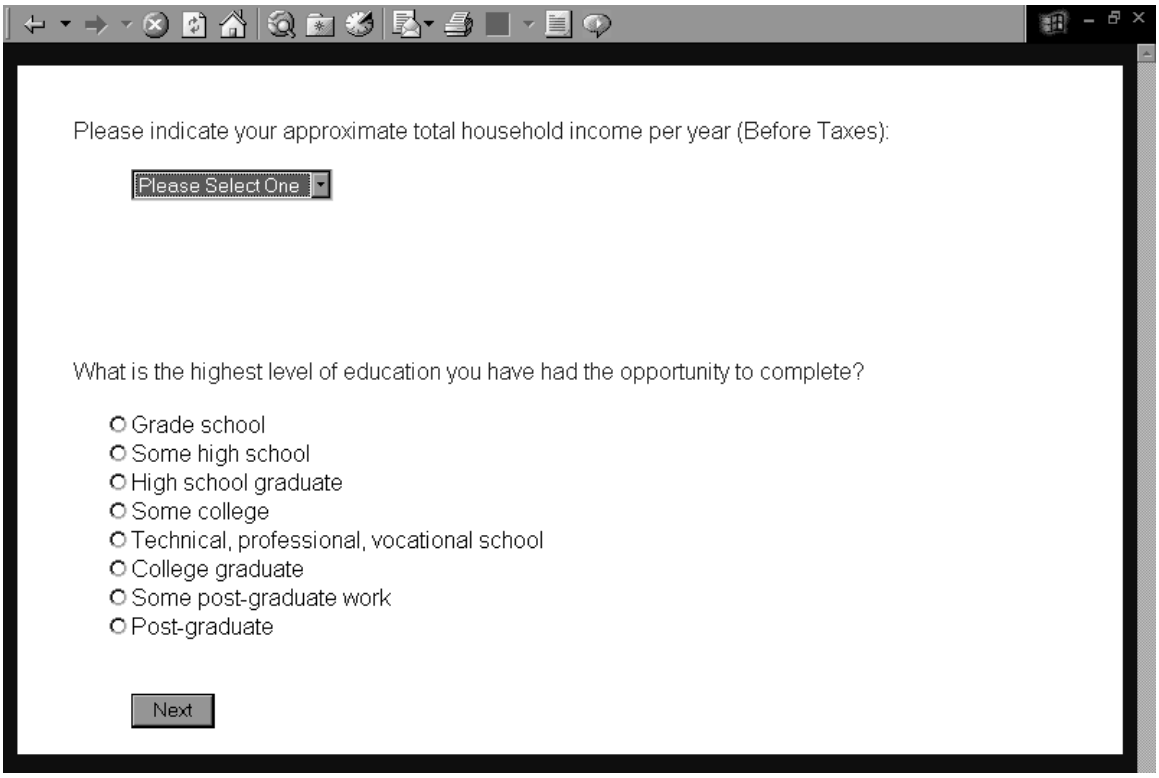
How many children age 2 to 5 live in your household?

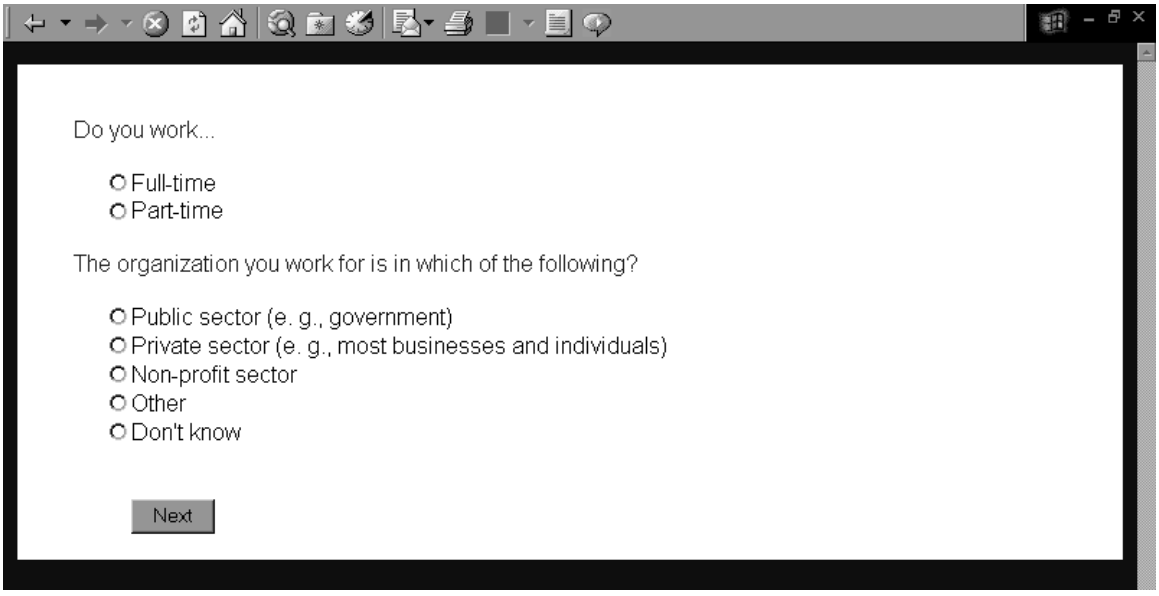
- None
- One
- Two
- Three or more

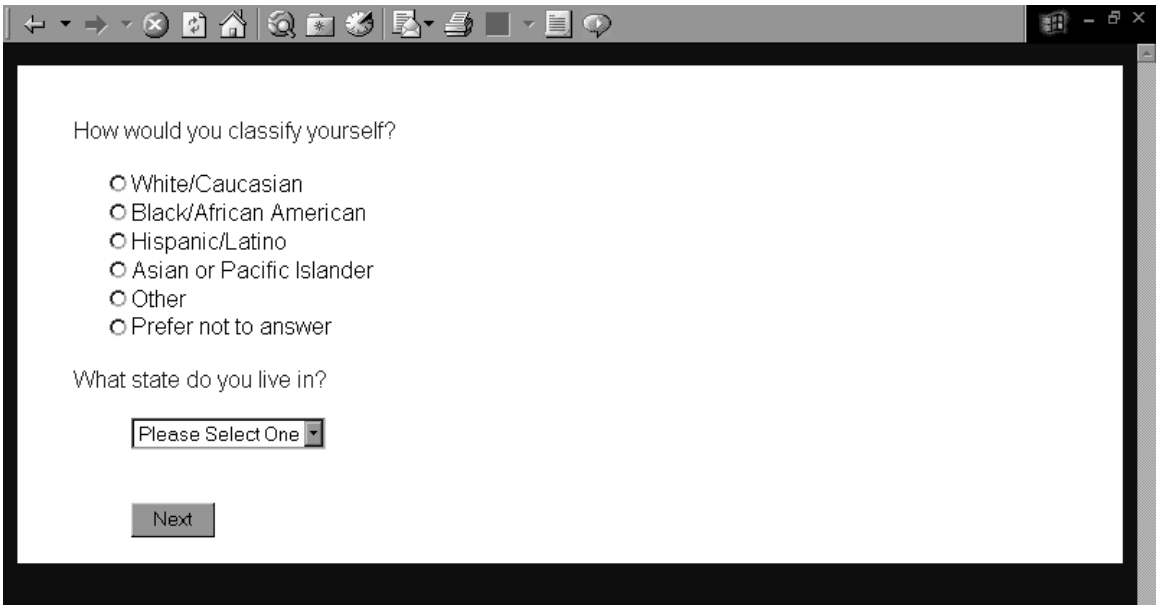
How many children age 6 to 17 live in your household?

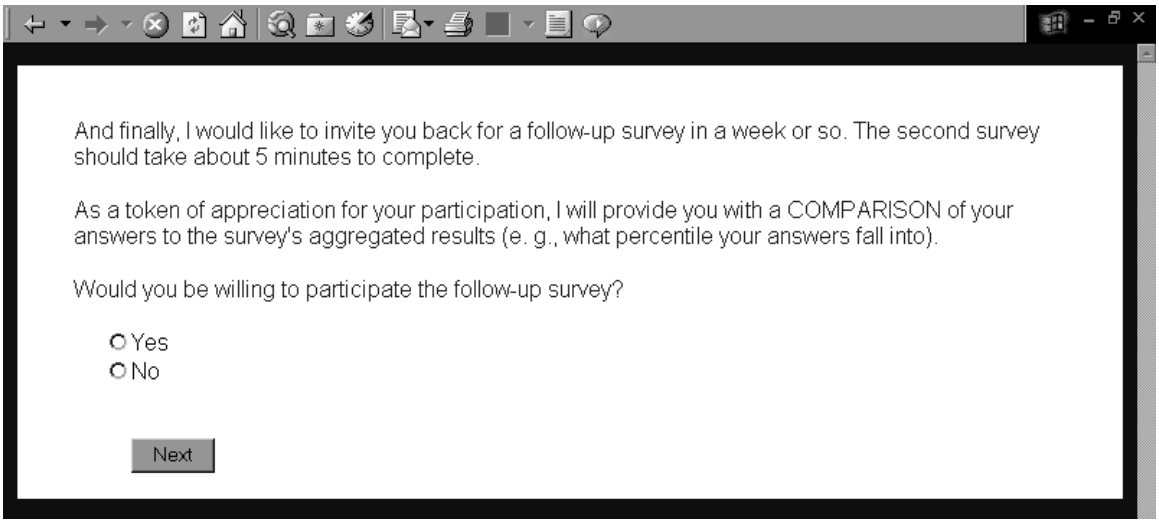
- None
- One
- Two
- Three or more

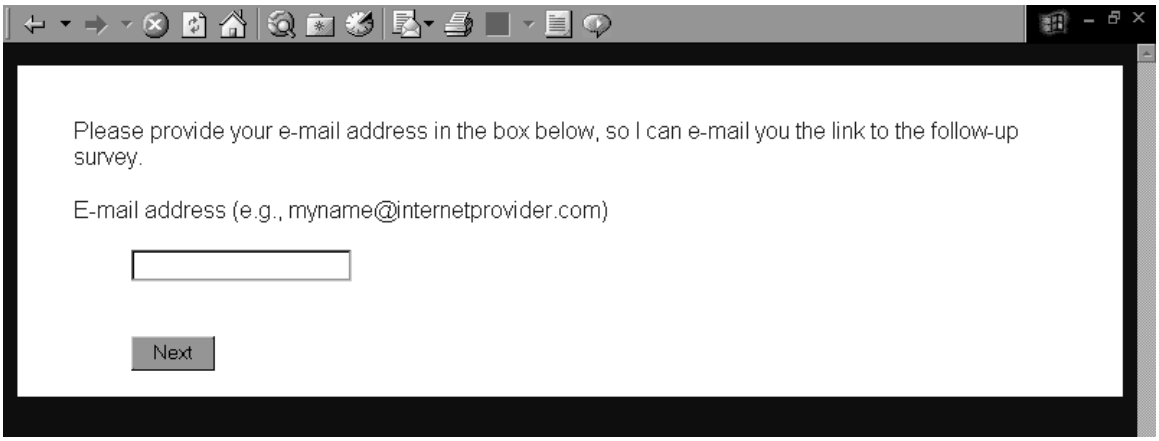
Next

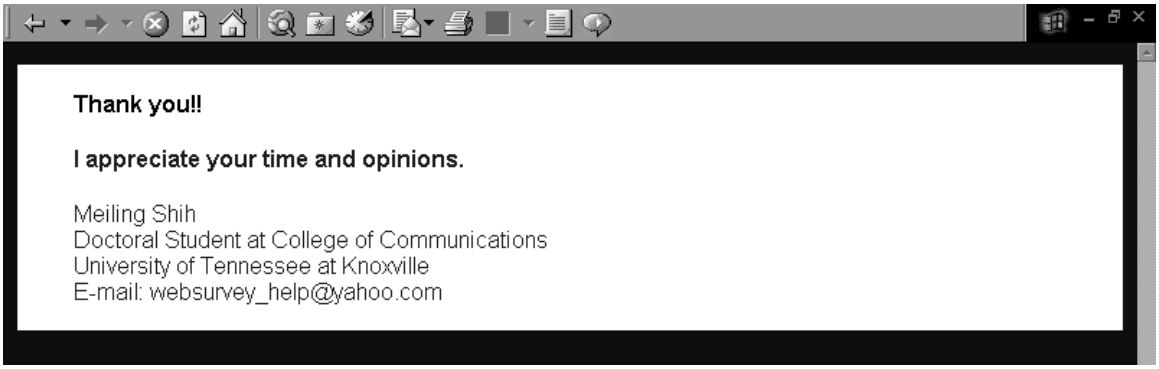

Please indicate your approximate total household income per year (Before Taxes):
Please Select One
What is the highest level of education you have had the opportunity to complete?
Grade school
Some high school
High school graduate
Some college
Technical, professional, vocational school
College graduate
Some post-graduate work
Post-graduate
Next


Do you work...
Full-time
Part-time
The organization you work for is in which of the following?
Public sector (e. g., government)
Private sector (e. g., most businesses and individuals)
Non-profit sector
Other
Don't know
Next


How would you classify yourself?
White/Caucasian
Black/African American
Hispanic/Latino
Asian or Pacific Islander
Other
Prefer not to answer
What state do you live in?
Please Select One
Next


And finally, I would like to invite you back for a follow-up survey in a week or so. The second survey should take about 5 minutes to complete.
As a token of appreciation for your participation, I will provide you with a COMPARISON of your answers to the survey's aggregated results (e. g., what percentile your answers fall into).
Would you be willing to participate the follow-up survey?
Yes
No
Next


Please provide your e-mail address in the box below, so I can e-mail you the link to the follow-up survey.
E-mail address (e.g., myname@internetprovider.com)
Next


Thank you!!
I appreciate your time and opinions.
Meiling Shih
Doctoral Student at College of Communications
University of Tennessee at Knoxville
E-mail: websurvey_help@yahoo.com

VITA

Meiling Shih was born in Taipei, Taiwan on June 29, 1964. She went to grade school, junior high school, and senior high school there. She graduated from Taipei Municipal First Girl's Senior High School in 1982. From there, she went to National Taiwan University and received a B.A. in History in 1986. After graduating from college, Meiling worked as editor for a children's weekly, and later she edited translation manuscripts for Taiwan's version of *Encyclopedia Britannica*.

In 1989, Meiling came to the United States to study Journalism with an emphasis on statistics at Henry Grady College of Journalism and Mass Communications at the University of Georgia. She received an M.A. in Journalism in 1991. She returned to Taiwan after an internship with a local magazine and worked as an analyst for Gallup Taiwan there. A continuing interest in research led Meiling back to the U.S., where she entered the College of Communications at the University of Tennessee, Knoxville in 1993. She entered the doctoral program with a major in Communications and secondary in statistics. Her research paper for political communication class received the Best Research Award for the university's 17th Annual Communications Research Symposium in 1994. In 1995, she also presented papers at the International Communication Association's 45th Annual Conference and at a conference on Communication and Our Environment (Chattanooga, Tennessee).

Upon completing coursework and qualification exam in 1996, Meiling moved to Detroit, Michigan and worked for MORPACE International, a major market research firm. She has been promoted twice to become a senior project director. Meiling received her doctoral degree in Communications in May 2002 from the University of Tennessee, Knoxville.