

Web Surfing Satisfaction

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Abstract

Although the WWW audience is growing exponentially, little research has explored the benefits that the audience derives from their use of the Web. Satisfaction is an important concept, because it is associated with continued/expanded use of media. This study was designed to explore the specific kinds of benefits associated with World Wide Web use. Based on prior research on television satisfaction, we hypothesized that variables associated with Web access, computer expertise and ownership, Internet access, connection speed, and effort, and Web use, amount of Web use, multimedia use, and Web sites visited would have an impact on the benefits received and satisfaction obtained from Web use. We conducted a Web-based survey of 250 students enrolled at two “wired” universities who were required to use the WWW for coursework. The results revealed that Learning was the most salient benefit of the Web, followed by Pass Time, and Entertainment. In general, Web access, computer expertise and Internet access, had a greater impact on benefits and satisfaction than Web use. Amount of Web use was positively linked to all benefits and satisfaction. Entertainment and sports Web sites were the ones most likely to be linked to beneficial Web use. The discussion relates the results of the study to prior research on satisfaction with television and concerns about displacement of television viewing by Web use.

Web Surfing Satisfaction

It is clear that the World Wide Web is no longer the sole territory of early adopters. By the end of 1999, researchers estimated that just over 100 million Americans were online, an increase of 35 million in 18 months (Petersen, 1999; Strategies Group, 1999). Several factors have lead to this explosion in the online audience. Computers and Internet service have become much less expensive over the past year. Now, not only are well equipped computers available for less than \$1000, but e-mail is free and access to the World Wide Web (WWW) can cost less than \$10 per month. There are even a growing number of providers offering “free” access to the Web, subsidizing costs through advertising. The growing push toward an advertising-supported Web suggests that Internet users will face even fewer barriers to entry. Moreover, several years ago the Web achieved a popular-audience-oriented critical mass; there is content on the Web to appeal to almost everyone. E-mail is still the most widely used online activity, but the most visited Web sites include everything from portals (search engines and Web directories), to software distribution sites, and sites providing news, games, sports, and entertainment (Petersen, 1999).

A good deal of research has been conducted to understand the Web audience.¹ Many research firms track Web activity, including the demographics of the audience, the sites they visit, the amount of time they spend online, and the hardware that they use (e.g., CyberAtlas, 2000). Scholars have explored the reasons motivating Web use (e.g., Ferguson & Perse, in press; Kaye, 1998; Korgaonkar & Wolin, 1999). Research, however, has not examined how satisfied the Web audience is with their Web surfing. The explosive growth of the online audience

suggests that many are enjoying surfing the Web. But, not everyone who has Web access and experience is a regular Web user (Nielsen, 1999; Peterson, 1999). Enthusiasm for the Web can wane as users find that the benefits from Web surfing do not outweigh their costs. This paper reports an examination of the benefits that the audience derive from their Web activity and an exploration of the influences on Web surfing satisfaction.

Satisfaction

Satisfaction is an affective reaction that marks pleasure or contentment and grows out of the gratification of a need, desire, or appetite. Satisfaction has been an important concept in mass communication research because of its impact on media use: Greater satisfaction is associated with continued media use. More satisfied newspaper readers spend more time reading the newspaper (Burgoon & Burgoon, 1980). Less satisfied cable subscribers complain more (Jacobs, 1996) and are more likely to discontinue cable subscription (LaRose & Atkin, 1988).

Initial explorations of media satisfaction were based on an expectation-confirmation model drawn from marketing (Oliver, 1981). This model held that satisfaction grows out of a process in which the audience compares their media experience against what they expected from that experience. If expectations are met, satisfaction results, and media use continues. If expectations are not met, dissatisfaction results, and media use is reduced or discontinued.

Research on cable television subscription has offered some support for the expectation-confirmation model. Umphrey (1989) found that almost 40% of subscribers who discontinued cable gave cost as the reason. Jacobs (1996) also found that cable subscribers who paid more and subscribed to premium services were more likely to complain to their cable provider than

basic cable subscribers. Together, these studies suggest that greater costs might be associated with greater expectations. When these expectations are not met, dissatisfaction results.

Other research, however, have noted that expectations about media use are not necessarily relevant to satisfaction. La Rose and Atkin (1988), for example, found that cable subscription costs were unrelated to subscribers' intentions to disconnect. Although marketing researchers speculate that product expectations are important to consumer satisfaction (Oliver, 1981), expectations about media use may be less important to media satisfaction. Instead, the perceived benefits of media use, ease of access, and the type of media use have been identified as the strongest predictors of media satisfaction (Perse & Ferguson, 1993).

Influences on Satisfaction

The uses and gratifications perspective holds that one way to understand the outcomes of media use is to explore the gratifications that the audience receives from their experience with a medium (Katz, Blumler, & Gurevitch, 1974; Rubin, 1994). According to the perspective, people have certain expectations about different media. If those expectations are met, one outcome is continued use of the medium. Earlier explorations of media satisfaction assumed that the expectations that an audience member holds about media uses would be used as a benchmark against which to judge the gratifications that they receive from media use. Satisfaction, then, would be based on how close gratifications match expectations. Palmgreen and Rayburn (1985) tested a full range of expectation-confirmation models of satisfaction. The discrepancy between expectation and benefits derived contributed modestly to satisfaction with television news viewing. The model that included only the benefits obtained from news viewing, however, was the strongest predictor of news satisfaction. Similarly, Dobos (1992) observed that expectations

contributed only a trivial amount to satisfaction with organizational media use. Instead, satisfaction resulted from the benefits obtained from specific media use. The only modest impact of expectations on satisfaction might be due to evidence that expectations about the mass media are normative in a society (Lichtenstein & Rosenfeld, 1984; Perse & Courtright, 1993). That is, most members of a society share a similar, generalized belief about the role and utility of media. Benefits, or gratifications obtained from media use, however, are individualized.

Benefits from World Wide Web use. Uses and gratifications studies have begun to uncover the reasons that motivate Web use. Based on responses from a variety of different samples, the online audience goes to the Web to seek information, entertainment, and some excitement, to relax, pass time, and to get away from daily pressures (Ferguson & Perse, in press; Kaye, 1998; Korgaonkar & Wolin, 1999). Many studies suggest that information is the primary motive for WWW use (e.g., Graphics, Visualization, & Usability Center, 1997; Kaye, 1998). Kaye (1998), for example, observed that the largest portion of her respondents, just over 44%, volunteered that they use the Web to gather information for education and research. Stafford and Stafford (1998) also found that information was most commonly mentioned aspect of WWW use. Other researchers, however, observed that the online audience is seeking entertainment from the Web (e.g., Ferguson & Perse, in press; Korgaonkar & Wolin, 1999).

It is clear that the Web audience goes online for a variety of reasons. The continued growth the audience and regular increases in amount of time people spend on the Web (Nielsen, 1999), suggests that people are deriving benefits from the Web use. The first research question of this study focused on the benefits that the Web audience receives from Web use:

RQ₁: What benefits do people obtain from Web use?

Ease of Web access. Ease of access to media content has emerged as a significant predictor of media satisfaction. Webster and Lichty (1991) explain that structural factors that are related to access to television programming have a large impact on amount of television exposure. So, greater television viewing occurs with more programming options, more household television sets, cable subscription, VCR and remote control ownership (see also Ferguson & Perse, 1993).

Perse and Ferguson (1993) hypothesized that newer television technologies, cable, VCR, and remote control devices should increase satisfaction with television viewing because they all make it easier for viewers to watch what they want and easily avoid programming they don't like. The authors found some limited support for their expectations. VCR use was associated with greater entertainment benefits; channel changing increased pass time and companionship benefits. Similarly, LaRose and Atkin (1988) observed that access to programming was associated with cable television satisfaction: Subscribers with access to a greater number of broadcast channels were more likely to disconnect.

Research on cable television satisfaction suggests that when cable subscriptions become a source of aggravation, subscribers are more likely to disconnect. The quality of cable companies' customer service has been linked to subscriber satisfaction. When service is unreliable, access is disrupted. Jacobs (1996) found that service problems, such as service scheduling, expertise, and reliability were associated with more subscriber complaints.

Ease of access to the World Wide Web is affected by a few factors. When people have access to a computer at home, work, or school, they are more likely to go online (U.S. Census Bureau, 1997). Age and computer experience have been linked to successful Web searches (e.g.,

Kubeck, Miller-Albrecht, & Murphy, 1999). Connection speed has an impact on satisfaction with the Web. Web users are impatient and easily frustrated by long response times and waiting for Web pages to load (Bucy, Lang, Potter, & Grabe, 1999). Experimental investigations of the online audience found that a slow Web response can be a stress to users. Ramsay, Barbesi, and Preece (1998) found that Web pages that took a long time to load were evaluated as “less interesting.” One frequently mentioned problem with the Web is web page retrieval and loading (e.g., Petersen, 1999; Pew Research Center, 1998; Pitkow & Kehoe, 1996).

Our next hypotheses predicted that factors linked to WWW access would be associated with greater satisfaction with Web surfing:

H₁: Greater benefits from Web use will be related to (a) online access, (b) computer expertise, (c) faster WWW connection speed, and (d) less effort used in Web surfing.

H₂: Web surfing satisfaction will be related to (a) online access, (b) computer expertise, (c) faster WWW connection speed, and (b) less effort used in Web surfing.

Web use and satisfaction. There are some indications that the type of media content used has an impact on satisfaction. Cable television, for example, offers “more of the same” types of programming as broadcast television, but also offers new and distinctive programming (Perse, Ferguson, & McLeod, 1994; Sparkes & Kang, 1986). Over time, subscribers value the new types of programming that cable offers (Sparkes & Kang, 1986). Perse and Rubin (1988) also found some support for the importance of type of media use on media satisfaction. Satisfaction with a

favorite television soap opera was predicted by greater attention to the program, suggesting that involved and attentive media use signals interest in the program.

Studies have found a positive connection between use of a medium and satisfaction with the medium. Viewers of a soap opera were more satisfied the more they watched the program (Perse & Rubin, 1988). Similarly, television satisfaction was predicted by greater television use. Clearly, continued use of a communication is a signal of satisfaction with that channel.

Uses and gratifications studies of the World Wide Web give indications that going online for some reasons is associated with greater Web use. Kaye (1998), for example, found that surfing the Web for entertainment (which included elements of excitement and relaxation), social interaction (or surfing with friends or as a source of conversation), and escape (to get away from work and daily pressures) were linked to greater Web use. Korgaonkar and Wolin (1999) observed that social escapism (which included elements of relaxation, escape, and companionship), information/learning, interactive control (which included elements of excitement), socialization (or surfing with friends or as a source of conversation), and economics (to facilitate purchases) were related to more web use. Ferguson and Perse (in press) noted that greater Web use was correlated with excitement/entertainment, pastime, relaxation/escape, and social utility motives.

Because of uses and gratifications expectations that continued media use grows out of gratifications of that use, our next hypothesis predicts a positive connection between Web use and Web surfing benefits:

H₃: Greater Web surfing benefits will be associated with greater Web use.

H₄: Web surfing satisfaction will be associated with greater Web use.

The technical attributes of computers affects how they are used (Steinfeld, Dutton, & Kovaric, 1989). Increased bandwidth has made multimedia (audio and video) a common aspect of the Web. In 1998, the Pew Research Center reported that already 46% of their sample had listened to an audio clip and watched a video clip online. There are some indications that multimedia increases some benefits of Web surfing. Perse and Dunn (1998) found that multimedia capabilities lead computer owners to see more computers as more useful at filling various communication needs. Multimedia was especially associated with reporting learning from computers and finding them useful to escape daily worries and pressures. Because multimedia should enhance the Web experience, our next hypothesis was:

H₅: Multimedia will be associated with greater benefits of Web surfing.

H₆: Multimedia will be associated with greater Web surfing satisfaction.

The benefits derived from media use are based, to a large extent, on the types of content that are use. Sparkes and Kang (1986), for example, found that continued cable subscription was associated with appreciating the channels that are unique to cable, no duplicated on broadcast television. So, use of certain Web sites should provide benefits to the Web audience. Search engines and portals are the most popular Web sites (see CyberAtlas, 1999, summary of Web traffic which is updated regularly). Entertainment and commerce sites, however, are also among the most-visited sites on the WWW. In December, 1999, the GO network (ABC's online site), NBC, Time Warner Web, Amazon, Barnes and Noble, and eBay were all in the 25-most visited sites (CyberAtlas, 1999). Little research, though, has considered the benefits associated with use of different Web sites. Our second research question, then, was:

RQ₂: What benefits are associated with use of different Web sites?

RQ₃: Which Web sites are associated with greater Web surfing satisfaction?

These research questions and hypotheses were the focus of the present study.

Method

Procedure and Sample

We conducted on-line survey Fall, 1997, among 250 college students at two universities, one in the Midwest and one on the East Coast. These students were an especially appropriate sample to study satisfaction with the WWW because they attended universities that provided high-speed Internet access in computer labs and in dorm rooms. Moreover, these students were enrolled in courses that involved instruction and assignments on the Web, including course home pages and required readings posted in PDF format on the Web.

As part of the study, the respondents first completed an online questionnaire linked to the course Web page. Completed confidential surveys were received from 236 respondents, all of whom received extra-credit in mass media courses for their voluntary participation. The HTML-coded survey assigned least (0) to most (8) for most of the scaled responses, with the assigned default value (9) for don't know/no response.

The Sample

The sample was 51.1% male (coded 0, female coded 1) and ranged in age from 17 to 46 ($M = 19.94$, $SD = 2.59$). Of the sample, 59.7% had access to a computer where they lived and, of those, 70.4% had access to the Internet. This compares to the national personal computer ownership of 37.4% in 1997 (U.S. Census Bureau, 1997), estimates that 47.1% of the U.S. population used a computer regularly in 1997 (U.S. Census Bureau, 1997), and estimates that 52.6% of U.S. adults used the Internet in mid-1997 (Strategis Group, 1999). As expected, the

sample was somewhat computer literate. The average respondent had been using computers for almost 6 years (range = 0 to 15, $\underline{M} = 5.84$, $\underline{SD} = 3.07$) and had been surfing the WWW for just over 2 years (range = 0 to 7, $\underline{M} = 2.02$, $\underline{SD} = 1.17$). Our sample members used the Internet regularly, on the average 5.46 times a week (range = 0 to 100 times, $\underline{SD} = 9.96$). They also checked their e-mail regularly, on the average 2.4 times a day (range = 0 to 10, $\underline{SD} = 1.94$).

Benefits of World Wide Web Use

Benefits. Respondents marked their agreement on a nine-point scale with statements about seven different benefits of WWW use. These statements were drawn from prior research exploring the impact of new television technologies on television satisfaction (Perse & Ferguson, 1993). The statements were: “Web-surfing helps me learn things that can help me,” “Web-surfing helps me pass the time,” “Web-surfing keeps me company,” “Web-surfing helps me forget about my work and worries,” “Web-surfing helps me relax,” “Web-surfing entertains me,” and “Web-surfing peps me up.”

Satisfaction. Web surfing satisfaction was measured with two items: “How valuable did you find your World Wide Web surfing in the past week?” and “How pleasing was your Web surfing during the past week?” The two items were correlated ($r = .43$, $p = .001$) so they were averaged to create a scale to measure Web surfing satisfaction. Web surfing satisfaction ranged from 0.0 - 8.0 ($\underline{M} = 4.16$, $\underline{SD} = 1.83$).

Web Access

Access. We used two questions to assess ease of access. First, respondents indicated if they had a home computer available where they currently lived. Most respondents (59.7%) had

access (coded 1, no computer coded 0). Then respondents marked if they had Internet access where they “live right now.” Once again, most (61.0%) did (coded 1, no access coded 0).

Computer expertise. Expertise was assessed by averaging responses to two questions about their experience with computers in general and with surfing the WWW. Responses to the two items were strongly correlated ($r = .70$), so responses were averaged to create a measure of computer and Web expertise. Expertise ranged from 0 to 8.00 ($M = 3.69$, $SD = 1.99$).

Web surfing effort. In order to measure how much effort respondents put into their Web surfing, we asked two questions that focused on their mental engagement that were drawn from Salomon and Leigh (1984) and used in previous research on recall of television channel repertoire (Ferguson & Perse, 1993). The two items were: “When I surf the World Wide Web, I usually think hard like I’m studying a book” and “I put a lot of mental effort into my World Wide Web surfing.” Responses to the two items were averaged to create a measure of effort ($r = .57$, $p < .001$). Web surfing effort scores ranged from 0.0 - 8.0 ($M = 2.14$, $SD = 1.99$).

Modem speed. Respondents indicated the speed of the modem that they use to access the WWW. There were 6 possible response options that ranged from 14.4 Kb/sec through “faster than 128 Kb/sec.” Most respondents (58.5%) didn’t know their modem speed or left the item blank. Because of the large number of missing values for this variable, it was excluded from further analyses.

World Wide Web Use

Web exposure. Respondents indicated how many minutes they surfed the Web “yesterday morning,” “yesterday afternoon,” “last night” and “on a typical day.” The number of

minutes spent on the Web “yesterday” were summed and ranged from 0 to 420 minutes ($\underline{M} = 35.11$, $\underline{SD} = 56.21$). On a typical day, respondents reported to spend an average of 1.64 hours (range = 0 to 12, $\underline{SD} = 1.75$). These two estimates were modestly correlated ($r = .30$, $p < .001$), so “yesterday’s” Web use was converted to hours and the two items were averaged to create a measure of typical daily Web use. Daily Web use ranged from 0 to 7.28 hours a day ($\underline{M} = 1.08$, $\underline{SD} = 1.10$).

Multimedia. Respondents indicated their capabilities of “playing audio and video (multimedia)” on the computer they used most often. Responses ranged from 0.0 - 8.0 ($\underline{M} = 4.68$, $\underline{SD} = 2.40$).

Web sites visited. Respondents also marked which of the top 100 Web sites they had visit in the “past week.” This list was compiled from a list of the 100 most popular Web sites from the week of September 11, 1997 (100 Hot, 1997). Of those sites, only 27 received 10 more hits by our respondents. Those 27 sites were sorted into 7 categories: search engines (e.g., Yahoo! Alta Vista), entertainment (e.g., Pathfinder, Sony), sports (e.g., ESPN, CBS Sportsline), utilities (e.g., CNET, Download.com), news (e.g., USA Today, ABC News), interactive (e.g., Hotmail, WebChat), and commerce (Virtual Flowers). Because each category had a different number of elements, responses were weighted. Those seven categories were used to represent the Web sites visited by our respondents. The number of top-100 Web sites visited by our respondents mirrors their endorsement of activities. Search engines were the most visited sites ($\underline{n} = 197$), followed by entertainment ($\underline{n} = 110$), sports ($\underline{n} = 74$), utilities ($\underline{n} = 39$), news ($\underline{n} = 73$), interactive ($\underline{n} = 65$), and commerce ($\underline{n} = 22$).

Statistical Analysis

After scale construction and reliability analysis, several steps were taken to answer the research questions and hypotheses. To answer the first research question, which concerned the benefits obtained from Web surfing, we computed descriptive statistics to see the range of benefits from Web surfing. Then, paired *t*-tests identified which benefits were the most salient. the significant differences among the strength of motives. We used two tests to assess hypotheses 1, 3, and 5 and Research Question 2. First, we computed Pearson correlation to examine the bivariate relationships between the variables. Then, we used hierarchical multiple regression to assess the multivariate relationships. Each benefit of Web surfing was regressed on access and use variables to assess their contribution to each benefit. Hypotheses 2, 4, and 6 and Research Question 3 were answered the same way. We included respondent gender as a control variable because previous studies had identified gender as a significant correlate of computer experience and ease (e.g., Whitley, 1997). Because of the large amount of missing data for one measure of access, WWW connection speed was excluded from the analyses. For other variables, cases with missing values were not included in analyses.

Results

Benefits of Web Use

The first research question explored the benefits of WWW use. Learning was the most salient benefit of Web surfing realized by our respondents ($M = 5.28$, see Table 2). It was significantly more endorsed as a benefit than Pass Time ($M = 4.19$, $t[228] = 5.49$, $p < .001$), than Entertainment ($M = 3.69$, $t[169] = 6.34$, $p < .001$), Relaxation ($M = 2.89$, $t[225] = 12.49$, $p < .001$), Escape ($M = 2.46$, $t[227] = 13.79$, $p < .001$), Excitement ($M = 2.44$, $t[167] = 11.75$, $p < .001$), and Companionship ($M = 1.91$, $t[230] = 17.87$, $p < .001$). Pass time benefits from

Web surfing were significantly more endorsed than Relaxation ($t[225] = 8.55, p < .001$), Escape ($t[227] = 10.50, p < .001$), Excitement ($t[166] = 9.06, p < .001$), and Companionship ($t[230] = 14.20, p < .001$). Entertainment benefits were more strongly endorsed than Escape ($t[168] = 6.02, p < .001$), Excitement ($t[165] = 7.58, p < .001$), and Companionship ($t[170] = 7.94, p < .001$). Relaxation benefits were more strongly endorsed than Escape ($t[224] = 3.57, p < .001$) and Companionship ($t[226] = 7.94, p < .001$). Companionship benefits were the least salient to our respondents. They were significantly less endorsed than any other benefit, including Escape ($t[229] = 4.13, p < .001$) and Excitement ($t[167] = 2.79, p < .01$). There were no significant differences in the salience of Pass Time and Entertainment benefits ($t[168] = 1.95, p = .06$) and between Escape and Excitement benefits ($t[166] = 0.60, p = .55$).

The different benefits of Web surfing were interrelated (see Table 1).

Table 1 about here

Learning benefits were correlated with Pass Time benefits ($r = .16, p < .05$), Relaxation benefits ($r = .16, p < .05$), and Companionship benefits ($r = .13, p < .05$). Pass Time benefits were significantly associated with Companionship benefits ($r = .45, p < .001$), Escape benefits ($r = .50, p < .001$), Relaxation benefits ($r = .56, p < .001$), Entertainment benefits ($r = .36, p < .001$), and Excitement benefits ($r = .53, p < .001$). Companionship benefits were linked to Escape ($r = .51, p < .001$), Relaxation ($r = .51, p < .001$), Entertainment ($r = .39, p < .001$), and Excitement benefits ($r = .53, p < .001$). Escape benefits were associated with Relaxation ($r = .68, p < .001$), Entertainment ($r = .51, p < .001$), and Excitement benefits ($r = .54, p < .001$). Relaxation

benefits were significantly linked to Entertainment ($r = .54, p < .001$) and Excitement benefits ($r = .56, p < .001$). Entertainment and Excitement benefits were related ($r = .63, p < .001$).

All the benefits of Web surfing were correlated with Web surfing satisfaction: Learning ($r = .42, p < .001$), Pass Time ($r = .30, p < .001$), Companionship ($r = .24, p < .001$), Escape ($r = .19, p < .01$), Relaxation ($r = .31, p < .001$), Entertainment ($r = .35, p < .001$), and Excitement ($r = .33, p < .001$).

Correlates of Benefits of Web Surfing

Pearson correlations provide some support for the study's hypotheses (see Table 1). Consistent with the first hypothesis, Learning benefits were positively related to Internet access ($r = .24, p < .001$) and computer expertise ($r = .22, p < .001$). Pass time benefits were positively linked to Internet access ($r = .22, p < .001$) and computer expertise ($r = .26, p < .001$). Companionship benefits were positively correlated with computer expertise ($r = .18, p < .01$). Escape benefits were positively related to computer expertise ($r = .25, p < .001$). Relaxation benefits were positive correlated with Internet access ($r = .24, p < .001$) and computer expertise ($r = .30, p < .001$). Entertainment benefits were positively related to computer expertise ($r = .17, p < .05$). Contrary to predictions of Hypothesis 2, Companionship, Escape, and Entertainment were unrelated to Internet access. Excitement benefits were not related to either Internet access or computer expertise. Effort was positively related to Learning ($r = .14, p < .05$), to Companionship ($r = .21, p < .01$), to Escape ($r = .17, p < .05$), to Relaxation ($r = .26, p < .001$), to Entertainment ($r = .17, p < .05$), and to Excitement benefits ($r = .23, p < .01$). Obtaining Pass time benefits was unrelated to effort.

For the most part, Hypothesis 3 was supported. All benefits but Learning were positively linked to Web use: Pass time ($r = .20, p < .01$), Companionship ($r = .20, p < .01$), Escape ($r = .20, p < .001$), Relaxation ($r = .17, p < .01$), Entertainment ($r = .18, p < .05$), and Excitement ($r = .22, p < .01$). There was essentially no support for Hypothesis 5. Of the seven benefits of the Web, only Learning was significantly correlated with multimedia ($r = .24, p < .01$).

The second research question asked which Web sites were associated with various benefits. The Pearson correlations indicate that visiting certain Web sites is related to different benefits. In general, entertainment Web sites are associated with all benefits but learning: Pass time ($r = .18, p < .01$), Companionship ($r = .18, p < .01$), Escape ($r = .20, p < .01$), Relaxation ($r = .21, p < .01$), Entertainment ($r = .30, p < .001$), and Excitement ($r = .24, p < .001$). Sports sites are linked to Escape ($r = .20, p < .01$), Entertainment ($r = .23, p < .001$), and Excitement benefits ($r = .15, p < .05$). News sites were correlated with Entertainment benefits ($r = .18, p < .05$). Interactive Web sites were linked to Pass time ($r = .15, p < .05$) and Escape ($r = .14, p < .05$) benefits.

Predicting Benefits of Web Surfing

Hierarchical multiple regression was used to explore the multivariate relationship between Web access and use and the benefits of Web surfing to test Hypotheses 1, 3, and 5 and to answer Research Question 2. The regressions are summarized in Table 2.

Table 2 about here

Learning benefits. On the first step, gender, computer access, Internet access, and effort explained 17.9% of the variance in Learning benefits ($R = .42, p < .001$). At this step, Internet access and expertise were significant predictors. At the second step, web use and web sites visited contributed an nonsignificant 5.4% to the variance. In the final analysis, the equation accounted for 23.4% of the variance in Learning benefits ($R = .48, p < .001$) and provided only limited support for Hypothesis 1 and no support for Hypotheses 3 and 5. Internet access ($\beta = .29, p < .001$) and computer expertise ($\beta = .14, p < .05$) were the only significant predictors.

Pass Time benefits. The variables entered on step one accounted for 13.2% of the variance in receiving Pass Time benefits ($R = .36, p < .001$). None of the variables, however, were significant predictors. Web use and Web sites, entered at the second step did not contribute significantly to the equation. The final equation accounted for 21.6% of the variance in Pass Time benefits ($R = .46, p < .001$). There was only limited support for Hypothesis 1 and no support for Hypotheses 3 and 5. Only computer expertise ($\beta = .17, p < .05$) and visiting interactive Web sites ($\beta = .17, p < .05$) were significant contributors to the equation.

Companionship benefits. Access factors, entered at step one, accounted for a nonsignificant 5.1% of the variance in Companionship benefits. At step two, Web use and Web sites accounted for an additional 11.2% of the variance ($p < .05$). The final equation accounted for 16.4% of the variance in receiving Companionship benefits ($R = .40, p < .05$) and provided limited support for Hypothesis 3: Web use was a significant positive predictor ($\beta = .20, p < .05$). Visiting news sites was another, negative predictor of Companionship ($\beta = -.18, p < .05$).

Escapist benefits. At step one, the access variables accounted for a nonsignificant amount of the variance in receiving Escapist benefits from the Web. At step two, Web use and

Web sites also added nonsignificantly to the equation. The final equation, however, was significant ($R = .39$, $p < .05$) and accounted for 15.5% of the variance in Escapist benefits. There was limited support for only Hypothesis 2. Computer expertise ($\beta = .18$, $p < .05$) was the only significant predictor.

Relaxation benefits. At step one, access factors predicted 16.2% of the variance in receiving Relaxation benefits from the Web ($R = .40$, $p < .001$). At this step, effort, expertise, and Internet access were significant aspects of the equation. The Web use and Web sites, entered at step two, did not significantly increase the amount of explained variance. The final equation accounted for 19.7% of the variance in Relaxation benefits ($R = .44$, $p < .05$). The analysis provided limited support for Hypothesis 2. Computer expertise ($\beta = .17$, $p < .05$) and Internet access ($\beta = .17$, $p < .001$) were both significant contributors. But, contrary to Hypothesis 2, effort ($\beta = .21$, $p < .01$) was a significant, positive predictor.

Entertainment benefits. At step one, access variables did not account for a significant amount of the variance in receiving Entertainment benefits from the Web. Nor did the variables entered at step 2 account significantly. In the final analysis, there was no support for any of the study's hypotheses. Access and use variables were unable to account for a significant amount of the variance in receiving Entertainment benefits from the Web.

Excitement benefits. On the first step, access variables significantly predicted 9.3% of the variance in receiving Excitement benefits from the Web ($R = .31$, $p < .05$). At this step, effort was a significant, positive predictor. The use factors, entered at step two, did not add significantly to the explained variance. In the final analysis, the equation accounted for 19.2% of the variance ($R = .44$, $p < .05$), and supported Hypothesis 3. Web use ($\beta = .23$, $p < .05$) was a

significant, positive predictor. But, contrary to Hypothesis 1, effort ($\beta = .26, p < .05$) was a significant, positive predictor of Excitement benefits.

Web Surfing Satisfaction

Pearson correlations provided partial support for Hypothesis 2 (see Table 1). Web surfing satisfaction was positively related to Internet access ($r = .20, p < .01$) and computer expertise ($r = .26, p < .001$). Contrary to the hypothesis, however, effort was positively related to satisfaction ($r = .27, p < .001$). Computer access was unrelated to satisfaction. Hypothesis 4 was supported. Satisfaction and web use were positively linked ($r = .23, p < .001$). There was also support for Hypothesis 6: Multimedia was positively related to satisfaction ($r = .25, p < .001$). Visiting some Web sites were associated with Web satisfaction: entertainment sites ($r = .26, p < .001$), search engines ($r = .13, p < .05$), news ($r = .13, p < .05$), and interactive sites ($r = .13, p < .05$).

Hierarchical multiple regression was used to explore the multivariate relationship between Web access and use and satisfaction with Web surfing to test Hypotheses 2, 4, and 6 and answer Research Question 3. The regression is summarized in Table 3.

Table 3 about here

On the first step, gender, computer access, Internet access, and effort explained 14.5% of the variance in Web surfing satisfaction ($R = .38, p < .001$). Internet access and effort significant predictors at this step. At the second step, web use and web sites visited contributed an additional 16.2% of the variance in Web surfing satisfaction. In the final analysis, the equation accounted for 30.7% of the variance in Web surfing satisfaction ($R = .55, p < .001$) and provided

support for Hypotheses 2, 4, and 6. Web use ($\beta = .25, p < .001$), effort ($\beta = .24, p < .01$), multimedia ($\beta = .23, p < .01$), and Internet access ($\beta = .16, p < .05$) were positive predictors of satisfaction; visiting shopping Web sites ($\beta = -.16, p < .05$) was a negative predictor of Web surfing satisfaction.

Discussion

One goal of this study was to explore some of the benefits of Web use. With the online audience increasing regularly, it is clear that people are obtaining some measure of satisfaction from their Web use. Learning/information benefits were by far the most salient benefits for our respondents. This might not be too surprising, given that our respondents were college students enrolled in classes that used many Web resources for instruction. This learning orientation, however, mirrors some of the findings of earlier studies (e.g., Graphics, Visualization, & Usabilities Center, 1995; Kaye, 1998) that identified information as a salient motive for Web use. People report to go to the Web to gather a wealth of information, including local information, news, and research for investments, purchases, and travel (Petersen, 1999). For our respondents, these learning needs appear to be satisfied.

Entertainment and Pass time were the next most salient benefits of Web surfing. Even though our respondents found informational utility in their Web use, they also found the Web a pleasant diversion and as a way to fill empty time. The strength of this diversionary benefit is consistent with Stephenson's "play theory" of communication. According the Stephenson (1988), all communication entered into voluntarily is motivated by entertainment and continues only as long as it is pleasurable.

The salience of these three benefits, learning, entertainment, and pass time, suggest that it might be fruitful to consider instrumental and ritualistic uses of the WWW. Research on the uses and gratifications of television have identified two general types of uses. Instrumental use is information-oriented and is associated with information-oriented television programs, such as news and news magazines. Ritualistic use, on the other hand, grows out of entertainment, pass time, and relaxation motives and is linked to watching a variety of different entertainment-oriented programs (e.g., Rubin, 1984). Future research might explore whether there are similar instrumental and ritualistic uses of the Web. This might be another step in exploring whether the WWW is a functional alternative to television and might displace home television viewing (Ferguson & Perse, in press).

Other benefits of Web surfing were not particularly salient to our respondents. Companionship, especially, was not endorsed as a benefit. Our respondents did not find that Web surfing was particularly good at “keeping them company.” This finding suggests that concerns about reduced social contact as a result of the Internet (e.g., Kraut, Patterson, Lundmark, Kiesler, Mukophadhyay, & Scherlis, 1998; Stoll, 1995) might be unfounded. The WWW might be useful at filling empty time, but it is not a good replacement for social contact. Future research might explore how different parts of the Internet, e-mail, listservs, and newsgroups, for example, compare to the WWW in providing companionship benefits.

We proposed two general hypotheses about the influences on benefits obtained from Web use. The first, which predicted that ease of access would increase the benefits received from Web surfing, found greater support. In general, computer expertise and Internet access facilitate benefits. Having the knowledge and skills to work a browser, fine-tune searches, download

multimedia, and upgrade multimedia players might increase learning and entertainment benefits of the Web. Future research should explore the dimensions of computer expertise that lead to greater satisfaction with the Web.

Internet access emerged as a relevant variable in obtaining some benefits from the Web, particularly learning, pass time, and relaxation benefits. Our measure of Internet access focused on home access. As students enrolled in “wired” universities, our respondents did have access to the Internet in the many computer labs on campus, but having home access produced benefits beyond those of lab access. The links between home access and relaxation and pass time benefits further suggest that there might be a ritualistic use of the WWW, as another way to occupy time and to rest. Coupled with our finding that pass time was the second-most salient benefit of the WWW and that greater Web use was associated with receiving pass time benefits, future research should explore the ritualistic use of the WWW. Perhaps passing time is one way that the WWW might be a functional alternative to television (Ferguson & Perse, in press).

Although we were unable to test our hypotheses concerning connection speed, future research should explore how access, especially high-speed connections, are linked to benefits of Web surfing. It was surprising that multimedia, which is best utilized with high-speed Internet connections, was linked only to learning benefits. Anecdotal reports note that college students make wide use of multimedia, especially downloading music, games, and videos. It might be that our respondents were too busy and occupied with school work to appreciate and spend time with more entertainment-oriented multimedia. Future research should explore how access in terms of connection speed and available time (e.g., Webster & Lichty, 1991) affect use of Web-based multimedia.

The results of this study offer some insight into satisfaction with the WWW. First, all benefits are positively related to satisfaction. Future research should explore if benefits are differentially related to satisfaction. That is, are certain benefits more important than others to Web users? Second, those more satisfied with the Web spend more time on the Web. This relationship is most likely a reciprocal one and reflects the uses and gratifications assumption that need gratification leads to continued media use (Katz et al., 1974). Clearly, more satisfying experiences on the Web lead people to be more likely to return to the Web.

Although multimedia did not have a multivariate relationship to any benefits of Web surfing, it was a significant predictor of Web satisfaction. Little research has explored how access to audio and video affects Web use. The results of this study suggest that multimedia enhances the Web experience. For our group of respondents, though, access to multimedia Web content was facilitated by Ethernet connections in campus residences and computer labs. Future research should explore the appeals of multimedia in less connected samples. But, multimedia is a growing presence on the Web. Already there are Web broadcasts of some concerts and in Fall, 1999, ABC “simulcast” an episode of the Drew Carey Show on the Web. There is already a growth in the number of Web users who have broadband connections to the Web using cable modems and DSL telephone lines. Future research should explore how multimedia both stimulates Web use and enhances benefits from the WWW.

One notable finding of our study was the use of commerce sites was negatively related to Web satisfaction. This, of course, is contrary to much of the writings about Web advertising and commerce (Korgaonkar, & Wolin, 1999). As students, our respondents might have been too pressed for money and time to appreciate shopping online. Future research might explore the

appeal of online shopping with different samples, or at different times of the year, such as the beginning of the semester (for books and supplies) or holidays (for gifts).

In general, the Web sites most associated with benefits were those providing entertainment, sports, and interactive content. Entertainment sites, for example, were correlated with all benefits but Learning. Sports sites were correlated with receiving Entertainment, Excitement, and Escape benefits. Future research should explore if those benefits, ones typically associated with television use, might lead the WWW to be a functional alternative to television. Interactive sites, those that enable e-mail and chat, were associated with Pass Time and Escape benefits. Once again, these findings do not lead us to conclude that the WWW will displace social interaction; companionship benefits were not associated with use of interactive sites.

Our hypotheses concerning effort were disconfirmed by our findings. We had expected effort to be a negative impact on benefits and satisfaction. Instead, the results of this study revealed that effort seems to have an overall positive impact on benefits and satisfaction. That is, more benefits are obtained when people put more, rather than less, thought and mental energy into their Web surfing. This finding gives rise to additional research questions. We had expected that devoting mental energy to Web surfing would be a sign of working harder to search for and appreciate Web-based content. Although the level of computer expertise reported by our respondents was only about average, effort might not have grown out of confusion or uncertainty about the Web. Instead, the connections of our measure of effort to benefits and satisfaction imply that effort might be an indication of mental involvement in Web content. Cognitive involvement has been linked to greater television satisfaction (Perse & Rubin, 1988). Involvement has been an important variable in mass communication research (e.g., Perse, 1990,

1998). Future research should explore how involvement is linked to Web use and different benefits of that use.

There are two notable limitations to our study. The first is the problem we had measuring connection speed, one of our measures of access to the Web. So many respondents provided missing data that the variable was unusable. We expect that the students just didn't know their connection speed. Ethernet access in wired dormitories and computer labs is transparent. That is, students don't need to purchase and install modems, so for them, connection speed isn't an important issue. This suggests to us that as access to the WWW becomes easier and less intrusive, the audience will expand even more rapidly, to include even more nontechnical users.

The use of a college student sample both limits and enhances our findings. These students were selected specifically because they had extraordinary access to the Web and were required to use the Web regularly for the class work. As such, they were an educated and experienced group with state-of-the-art access to the Web. Clearly, they do not represent the typical home Web user. Their focus on educational uses of the Web and informational benefits probably reflects their student-oriented concerns. Future research should explore the salient benefits of a larger group of nonstudent Web users. On the other hand, our sample might represent the Web audience of the future. College students on wired campuses have become accustomed to Ethernet connections that are hundreds of times faster than dial-up connections. This high-speed access allows students full use of the Web, including its multimedia attributes, as they download and experience Web-based audio and video. This population might expect and demand high-speed access in their offices and homes after they leave college. Future research should explore whether the benefits obtained from their experiences with high-speed Web access

lead college graduates to be willing to pay more for high-speed home access, such as cable modems and DSL lines.

Overall, the results of this study suggest that the marketing model of satisfaction (e.g., Oliver, 1981) may be more applicable to understanding satisfaction with the WWW, for now. The importance of access variables suggest that the costs associated with Web surfing, affect the benefits obtained. The results of this study also provide information about the benefits of Web surfing for an experienced sample with extraordinary access to the Internet. As the adoption of the WWW moves into the early and late majority stages, the Web audience is becoming more mainstream (Pew Research Center, 1999). With a critical mass of entertainment, informational, and commerce sites on the Web, the benefits of that our respondents obtained from their Web surfing are also becoming more mainstream, similar to those obtained from other media (Perse & Courtright, 1993). We believe that the next large impact on the uses and gratifications of the WWW will be the grow in high-speed Web access and the growth in availability and use of multimedia.

Notes

¹Our focus is the WWW, not the Internet as a whole. Although the WWW is only one aspect of the Internet, we focused on it, rather than e-mail, newsgroups, or other features of the Internet because it is the Web that has drawn media-related industries and multimedia content that resembles that of other mass media.

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| Table 1: Pearson Correlations | | | | |
|-------------------------------|------|--------|-----------|--------|
| | Age | Gender | Education | Income |
| Age | 1.00 | 0.12 | 0.08 | 0.15 |
| Gender | 0.12 | 1.00 | 0.05 | 0.10 |
| Education | 0.08 | 0.05 | 1.00 | 0.20 |
| Income | 0.15 | 0.10 | 0.20 | 1.00 |

| | Learn | Pastime | Company | Forget | Relax | Entertain | Excite | Satisfac |
|-----------|--------|---------|---------|--------|---------|-----------|--------|----------|
| Learn | | | | | | | | .42*** |
| Pastime | .16* | | | | | | | .30*** |
| Company | .13* | .45*** | | | | | | .24*** |
| Forget | .11 | .50*** | .61*** | | | | | .19** |
| Relax | .16* | .56*** | .51*** | .68*** | | | | .31*** |
| Entertain | .13 | .46*** | .39*** | .51*** | .54*** | | | .35*** |
| Excite | .05 | .50*** | .53*** | .54*** | .56*** | .63*** | | .33*** |
| Sex | -.01 | -.25*** | -.08 | -.12 | -.24*** | -.15 | -.20** | -.17* |
| Comput | .16* | .16* | .14* | .12 | .08 | -.06 | -.02 | .06 |
| I-Access | .24*** | .22*** | .10 | .13 | .24*** | .07 | .00 | .20** |
| Exper | .22*** | .26*** | .18** | .25*** | .30*** | .17* | .09 | .26*** |
| Effort | .14* | -.03 | .21** | .17* | .26*** | .17* | .23** | .27*** |
| Webuse | -.01 | .20** | .20** | .20** | .17** | .18* | .22** | .23*** |
| M-med | .24** | .04 | .08 | -.06 | .07 | .09 | -.01 | .25*** |
| Srchen | .11 | -.01 | -.01 | .04 | .05 | .09 | .01 | .13* |
| Enter | .06 | .18** | .18** | .20** | .21** | .30*** | .24*** | .26*** |
| Sports | .01 | .11 | .10 | .20** | .12 | .23** | .15* | .09 |
| Utility | .05 | .02 | .01 | .02 | .08 | .08 | .04 | .10 |
| News | .11 | .03 | -.06 | -.03 | .01 | .18* | .14 | .13* |
| Interact | .03 | .15* | .09 | .14* | .07 | .05 | .03 | .13* |
| Shop | .06 | -.01 | -.07 | -.03 | -.09 | -.02 | -.10 | -.09 |

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 2: Hierarchical Multiple Regression. Regression Benefits of Web Surfing

| | | Learn | | Pass Time | | Company | | Forget | | Relax | | Entertainme nt | | Excitement | |
|---------------|----------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|
| | Step | R ² Ch | Fin β | R ² Ch | Fin β | R ² Ch | Fin β | R ² Ch | Fin β | R ² Ch | Fin β | R ² Ch | Fin β | R ² Ch | Fin β |
| Access | 1 | .18** * | | .13** * | | .05 | | .06 | | .16** * | | .05 | | .09* | |
| Gender | | | .06 | | -.17 | | .09 | | .07 | | -.08 | | -.03 | | -.13 |
| Comp | | | .03 | | .04 | | .11 | | .06 | | .01 | | .14 | | -.04 |
| I-access | | | .29 | | .13 | | .03 | | .07 | | .17 | | -.09 | | .02 |
| Exper | | | .14 | | .18 | | .05 | | .18 | | .17 | | -.02 | | -.05 |
| Effort | | | .17 | | -.13 | | .15 | | .06 | | .21 | | .14 | | .26 |
| Use | 2 | .05 | | .08 | | .11* | | .10 | | .04 | | .11 | | .10 | |
| Webuse | | | -.03 | | .16 | | .20 | | .14 | | .13 | | .14 | | .23 |
| M-med | | | .13 | | -.03 | | .03 | | -.12 | | .00 | | .12 | | .07 |
| Srchen | | | .06 | | -.10 | | -.10 | | -.07 | | -.07 | | -.01 | | -.05 |
| Enter | | | -.16 | | .13 | | .16 | | .10 | | .08 | | .11 | | .06 |
| Sports | | | .10 | | -.04 | | .05 | | .12 | | .03 | | .21 | | .14 |

| | | | | | | | | | | | | | | | |
|---------------------|--|-------|------|-------|------------|-------|-------------|-------|------|-------|------|--------|------|-------|------|
| Utility | | | .05 | | -.09 | | -.07 | | .02 | | .09 | | .03 | | .04 |
| News | | | .12 | | .00 | | -.18 | | -.14 | | -.05 | | .13 | | .13 |
| Interact | | | -.03 | | .17 | | .09 | | .10 | | -.02 | | -.04 | | -.02 |
| Shop | | | .04 | | .08 | | -.06 | | .06 | | .05 | | .02 | | -.09 |
| Mean | | 5.28a | | 4.19b | | 1.91c | | 2.46d | | 2.89e | | 3.69bf | | 2.44d | |
| <u>SD</u> | | 2.17 | | 2.45 | | 2.91 | | 2.46 | | 2.35 | | 2.61 | | 2.23 | |
| Table 2 (continued) | | | | | | | | | | | | | | | |

Note. Equation 1: Step 1: $F(5, 159) = 6.95, p < .001$.

Final $F(14, 150) = 3.27, p < .001$.

Equation 2: Step 1: $F(5, 15) = 4.78, p < .001$.

Final $F(14, 148) = 2.92, p < .001$.

Equation 3: Step 1: $F(5, 157) = 1.70, p = .14$.

Final $F(14, 148) = 2.07, p < .05$.

Equation 4: Step 1: $F(5, 155) = 1.88, p = .10$.

Final $F(14, 146) = 1.91, p < .05$.

Equation 5: Step 1: $F(5, 154) = 5.94, p < .001$.

Final $F(14, 145) = 2.54, p < .01$.

| Table 3: Hierarchical Multiple Regression. Regressing Web Surfing Satisfaction | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------|---------------|-------------|
| | Step Entered | R ² Change | Final β | p < |
| Access | 1 | .15*** | | |
| Gender | | | -.05 | .56 |
| Computer Access | | | .00 | .96 |
| Internet Access | | | .16 | .05 |
| Expertise | | | .01 | .87 |
| Effort | | | .24 | .01 |
| Use | 2 | .16*** | | |
| Web use | | | .25 | .001 |
| Multimedia | | | .23 | .01 |
| Search Engines | | | .01 | .89 |
| Entertainment | | | .16 | .06 |
| Sports | | | .03 | .76 |
| Utility | | | -.02 | .81 |
| News | | | .10 | .21 |
| Interactive | | | .01 | .89 |
| Shopping | | | -.16 | .05 |
| Final R | | .55*** | | |
| Final R ² | | .31*** | | |
| <p><u>Note.</u> Step 1: $F(5, 159) = 5.40, p < .001$.</p> <p>Final equation $F(14, 150) = 4.75, p < .001$.</p> <p>*** $p < .001$</p> | | | | |