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Understanding Internet Usage

A Social-Cognitive Approach to Uses and Gratifications

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Several studies have applied uses and gratifications to explain Internet usage. Like Bandura's social-cognitive theory, the uses and gratifications framework explains media use in terms of expected positive outcomes, or gratifications. However, previous uses and gratifications research accounted for little variance in Internet behavior, although there were conflicting results. This research identifies new variables from social-cognitive theory that might further explain Internet usage and resolve inconsistencies in prior research. Measures of self-efficacy and self-disparagement were developed for the domain of Internet behavior. Internet addiction was interpreted as a deficient self-regulation within the social-cognitive framework. Finally, the negative outcomes of online behavior were analyzed for their impact on Internet usage. In a survey of 171 college students, the social-cognitive model explained 60% of the available variance in Internet usage using multiple regression analysis, a significant improvement over prior uses and gratifications research.

Keywords: Internet use, Internet behavior, social-cognitive theory, self-efficacy, self-disparagement, gratifications, multiple regression models

An understanding of Internet usage assumes considerable importance as society encounters problematic forms of online behavior. These include both instances of excessive use, in the form of so-called Internet addictions (Chou & Hsiao, 2000; Young, 1999), and underutilization by disadvantaged groups, known as the Digital Divide (Hindman, 2000; Hoffman & Novak, 1998; National Telecommunications and Information Administration, 2000). The new medium brings with it the opportunity to re-examine conventional models of media behavior.

THE USES AND GRATIFICATIONS PARADIGM

Uses and gratifications is perhaps the dominant paradigm for explaining media exposure in the field of communication studies. It has been applied to a wide range of conventional

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mass media (Palmgreen, Wenner, & Rosengren, 1985) as well as to interpersonal communication (Rubin, Perse, & Barbato, 1988) and now to the Internet (Charney & Greenberg, 2001; Dimmick, Kline, & Stafford, 2000; Eighmey & McCord, 1998; Ferguson & Perse, 2000; Flanagin & Metzger, 2001; Kaye, 1998; Korgaonkar & Wolin, 1999; Lin, 1999; Papacharissi & Rubin, 2000; Parker & Plank, 2000; Perse & Greenberg-Dunn, 1998). Uses and gratifications researchers typically start with descriptions of common media uses, obtain ratings of the frequency or importance of those uses, and factor analyze the results to obtain gratification factors that are then correlated with media use. However, uses and gratifications typically only account for between 1% and 15% of the variance in use of conventional media (Palmgreen et al., 1985). With two notable exceptions (Charney & Greenberg, 2001; Lin, 1999), uses and gratifications have disappointed when applied to the Internet as well. The purpose of this article is to critically examine uses and gratifications theory as it applies to the Internet and to propose a more comprehensive theory of Internet usage based on social-cognitive theory (Bandura, 1986, 1997).

Uses and gratifications theory assumes that audiences actively seek out media in a goal-directed way that provides them with the means of gratifying a wide variety of needs (Katz, Blumler, Gurevitch, 1974; Palmgreen et al., 1985). In recent years, the theory has been reformulated to stress comparisons between the gratifications sought from a medium with gratifications obtained (GO). The underlying process is now conceived as an iterative one in which initial expectations about the outcomes of media exposure (the gratifications sought) are continually modified through observation of the gratifications actually obtained from the media, feeding back into the gratifications sought through future media exposure (Palmgreen et al., 1985). Gratifications sought do not in themselves predict media behavior very well; they have far greater explanatory power when compared with the gratifications obtained (Palmgreen, Wenner, & Rayburn, 1981).

USES AND GRATIFICATIONS OF THE INTERNET

With its emphasis on active media use and its ability to span both mass and interpersonal communication, uses and gratifications was initially regarded as a natural paradigm for understanding the Internet (Morris & Ogan, 1996). However, studies of the uses and gratifications of the Internet have tended to repeat the pattern of weak predictions of media behavior common to this body of research.

Several studies have applied conventional mass media gratifications to computer media. Kaye (1998) found low correlations between weekly Web usage and entertainment ($r = .30$), social interaction ($r = .23$), and escape ($r = .17$) gratifications. Perse and Greenberg-Dunn (1998) compared respondents who chose computers as the source of each of nine typical mass media gratifications with those who did not in an analysis of variance. Perceptions that computers were a habit or were good for keeping busy were significantly related to computer use, with an eta squared of .04 in each case. Ferguson and Perse (2000) obtained a significant regression result that explained 9% of the variation in Web usage, mostly from a measure of "expertise" (based on prior experience with computers and the Web). None of the four gratifications factors tested was a significant predictor, although significant but low zero-order correlations (ranging between .20 and .27) with usage were observed. For Parker and Plank (2000), a relaxation and escape factor predicted Internet usage with a standardized beta of .302, indicating that approximately 9% of the variance was explained (no overall *R*-squared was reported). Lin (1999) found three classic mass media motivations (surveillance; escape, companionship, and identity; and entertainment) predicted 47% of the variance in a multi-item measure of the likelihood to adopt online services.

Other researchers have explored potentially unique gratifications of the Internet. Korgaonkar and Wolin (1999) found that factors of escapism, information control, interactive control (relating to the ability to control the presentation of information), socialization, and economic motivation differentiated light (less than an hour per day) and heavy Web users. The discriminant analysis did not yield variance explained; however, the improvement over chance for these five factors (the respondents' levels of education and household incomes were also part of the prediction equation) was modest (45%) although statistically significant ($p < .05$). Charney and Greenberg (2001) established eight gratification factors for the Internet (keep informed, diversion and entertainment, peer identity, good feelings, communication, sights and sounds, career, and "coolness"), and two of these (keep informed and communication) explained 36% of the variance in weekly time spent on the net. Papacharissi and Rubin (2000) added a measure of interpersonal communication motives to conventional mass media gratifications and found the former to be the only significant predictor in a regression analysis that accounted for 7% of the overall variance in Internet exposure. Eighmey and McCord (1998) identified personal involvement, entertainment, and personal relevance gratification factors. Finally, Flanagin and Metzger (2001) explored a variety of needs gratifications not found in the conventional mass communication literature, including persuading others, problem solving, relationship maintenance, status seeking and achieving personal insight. However, neither of the latter two studies related the gratifications to Internet usage.

Thus, the challenge remains to provide a more comprehensive explanation of media behavior than is forthcoming from the majority of uses and gratifications research. But also, we must examine why two studies of Internet uses and gratifications (Charney & Greenberg, 2001; Lin, 1999) were more successful than others, indeed to a degree unprecedented in the annals of uses and gratifications research.

A SOCIAL-COGNITIVE THEORY OF INTERNET USAGE

The gratifications sought–gratifications obtained formulation is seemingly indistinguishable from an important mechanism in social-cognitive theory, enactive learning. Enactive learning describes how humans learn from experience. In the social-cognitive view, interactions with the environment (the media environment, in this case) influence media exposure by continually reforming expectations about the likely outcomes of future media consumption behavior (after Bandura, 1986). Seemingly, this represents the same process that describes the relationship among gratifications sought, media behavior, and gratifications obtained (Palmgreen et al., 1985). Recognizing this parallel, we next examine social-cognitive theory as a source of further insight into Internet usage.

Social-cognitive theory explains behavior in terms of reciprocal causation among individuals, their environments, and their behaviors (Bandura, 1986, 1989, 1999). The triadic causal mechanism is mediated by symbolizing capabilities that transform sensory experiences into cognitive models that guide actions. The human capacity for vicarious learning allows individuals to acquire rules for conduct without physically enacting the behavior but rather, by observing others. Direct experience with enacting behavior also affects these perceptions and that is called *enactive learning*. Individuals use their capacity for forethought to plan actions, set goals, and anticipate potential behavioral consequences. Through evaluations of personal experiences and self-assessments of their thought processes, they employ a self-reflective capability that helps them better understand themselves, their environments, and variations in situational demands.

Outcome expectations, defined as judgments of the likely consequences of a behavior (Bandura, 1997), provide incentives for enacting behavior while expectations of aversive outcomes provide disincentives (Bandura, 1986). Food, drink, and physical contact are primary incentives that motivate human behavior from infancy, but adults respond to symbolic incentives as well. These include monetary incentives, social incentives (such as obtaining approval from others), and status incentives. Sensory incentives involve exposure to pleasing or novel sensations. Preferences for enjoyable activities are the basis for activity incentives. There are also internal, self-reactive incentives resulting from comparisons of personal actions with standards for behavior (see the following sections). The objective magnitude of incentives does not matter as much as perceptions of how incentives are contingent on a particular course of action.

Humans also possess a self-regulatory capability that provides the basis for purposive action through the subfunctions of self-monitoring, judgmental process, and self-reaction (Bandura, 1986, 1991b). Self-monitoring is the observation of one's own actions to provide diagnostic information about the impact of behavior on the self, others, and the environment (Bandura, 1991b). The judgmental process compares self-observations of behavior to personal standards, personal or social norms, and the valuation of the activity, particularly when the locus of control for the behavior resides in the individual. The self-reactive function supplies the behavioral incentive through the satisfaction derived from accomplishing an activity that meets desired standards. Dysfunctional forms of self-regulation may also affect behavior. Addictions mark the failure of self-regulatory functions (Bandura, 1999), and deficient self-regulation has been conceptualized as the mechanism of so-called Internet addictions (LaRose, 2001). Self-slighting of one's accomplishments is another form of dysfunctional self-monitoring that reduces the self-reactive incentive to persist, and self-disparagement of one's capabilities can also inhibit performance (Bandura, 1986).

Another important determinant of behavior is self-efficacy, or belief in one's capability to organize and execute a particular course of action (Bandura, 1997). Those who perceive themselves to be highly efficacious with reference to a particular task will invest sufficient levels of effort to achieve successful outcomes, whereas those with low levels of self-efficacy will not persist.

Applying social-cognitive theory to Internet usage, expectations about the positive outcomes of Internet use, such as encountering informative Web pages or making valued social contacts, should increase usage. Each type of incentive (i.e., sensory, monetary, social, status, activity, and self-reactive) may make unique contributions. Expected negative outcomes, such as having one's computer freeze up while surfing the Web, should discourage use. Internet self-efficacy, or individuals' beliefs about their capability in using the Internet to accomplish useful tasks (Eastin & LaRose, 2000), should also determine exposure to a medium that many users find troublesome (Graphic, Visualization and Usability Center, 2000).

Self-regulatory mechanisms are also important in a medium that invites intense self-reflection (Turkle, 1995). Self-disparagement of one's abilities to use the Internet may negate the self-reactive incentive to persist in the face of failure or aversive outcomes. Others may engage in self-slighting of their Internet skills, depriving themselves of the satisfaction of successful performance. Self-disparagement and self-slighting may afflict even those with high levels of Internet self-efficacy if they compare their abilities to unrealistic standards set by the most accomplished Web users and by constantly changing Internet technology.

Whether excessive use of the Internet is truly an addiction in clinical terms is a controversial issue (Mitchell, 2000; Shaffer, Hall, & Vander Bilt, 2000; Walther & Reid, 2000) that we

will not attempt to resolve here. From a social-cognitive perspective, the so-called addictions are another form of deficient self-regulation; users are aware that the time they spend online is excessive and disruptive but suspend their comparisons to desirable standards of conduct. However, deficient self-regulation is not limited to extreme “addictive” cases and might affect Internet usage even at moderate levels (LaRose, 2001). In the absence of self-regulation, Internet use may continue to mount, unabated.

Compeau and Higgins (1995) provided empirical support for this sociocognitive conceptualization in the domain of general personal computer usage. They found that self-efficacy and professional outcome expectations (e.g., improvements in productivity) predicted the amount of computer use, explaining 34% of the variance in usage. Longitudinal research provided evidence of the direction of causality (Compeau, Higgins, & Huff, 1999). However, the subset of outcome expectations that the researchers termed *personal outcomes* had an unexpected negative relationship to usage, which they attributed to the unrealistic nature of the personal outcomes presented to their respondents (e.g., “I will get a raise or a promotion as a result of computer use”). Moreover, the outcome expectation items used in these studies did not reflect the full range of incentives that motivate behavior under social-cognitive theory.

A SOCIAL-COGNITIVE CRITIQUE OF INTERNET USES AND GRATIFICATIONS

In sociocognitive terms then, gratifications may be viewed as outcome expectations. Attempts by uses and gratifications researchers (Babrow & Swanson, 1988) to distinguish gratifications from formulations involving outcome expectations were of no avail and failed to produce more robust explanations of media exposure, suggesting that they may be related constructs. The outcome expectation construct parsimoniously bridges the gulf between gratifications sought and gratifications obtained in uses and gratifications research. Outcome expectations reflect current beliefs about the outcomes of prospective future behavior but are predicated on comparisons between incentives expected and incentives attained in the past.

Uses and gratifications may yield weak predictions of media exposure because they ignore important incentive categories that motivate behavior. Table 1 shows how Internet gratification dimensions map onto Bandura’s (1986) incentive categories. This analysis was performed by applying the incentive definitions to individual gratification items and then characterizing gratification factors on the basis of their predominant incentive category. Perse and Greenberg-Dunn (1998) and Compeau et al. (1999) were included for the sake of completeness, although these studies did not examine Internet use per se but rather general personal computer use. Likewise, Eighmey and McCord (1998), Dimmick et al. (2000), and Flanagin and Metzger (2001) were included for completeness, but those studies did not investigate relationships between gratification factors and usage and so are not included in the analysis that follows.

The most commonly assessed incentive categories are activity (i.e., fun, entertaining, exciting, or boredom-relieving activities), social (e.g., social interaction or communication), novel sensory (i.e., information seeking), and self-reactive (i.e., to relax or escape). Each of these has been included as the major component of a gratification factor and found to be significantly related to usage in at least two of the studies analyzed. Pleasing (as opposed to novel) sensory incentives (e.g., interesting or enjoyable graphics or sounds) were included by Charney and Greenberg (2001) in a sights and sounds dimension, but that factor was not a predictor of Internet use. Status incentives (e.g., to win promotions or to seem “cool” or

TABLE 1
Incentive Components of Internet Gratification Factors

Study	Incentive Categories						
	Sensory and/or Pleasing	Sensory and/or Novel	Social	Status	Monetary	Activity	Self- Reflective
Kaye (1998)		XX	Xxx			XX	Xxx
Eighmey and McCord (1998)	X					X	X
Korgaonkar and Wolin (1999)		xXxx	X		XxX	xx	Xxxx
Perse and Greenberg- Dunn (1998) ^a		X	X			X	X
Compeau, Higgins, and Huff (1999)			x	x	x		Xx
Lin (1999)		xXx	x			Xx	xx
Charney and Greenberg (2001)	X	Xx	Xxxxx	xxx	x	Xxx	xxxx
Parker and Plank (2000)		X	Xx			X	X
Papacharissi and Rubin (2000)		xX	Xx	x	xX	xXX	xxx
Ferguson and Perse (2000)		xxX	Xxx			XX	XX
Dimmick, Kline, and Stafford (2000)		x	Xx		X	x	
Flanagin and Metzger (2001)		X	X	XX		X	XXXX

NOTE: X = incentive was a major component of a gratification factor; x = incentive was a minor component of a gratification factor. Bold indicates that the component was a significant predictor of usage. Multiple entries indicate that the incentive was represented in multiple gratification factors. Factors with no clear dominant component were listed as minor components. Thus, the entry in the Social row under the Kaye (1998) column indicates that there was one factor in which social incentives were a major component that was significantly related to usage. Social incentive items were also minor components of two other factors, one of which was significantly related to usage and one that was not.

a. Single-item measures were used in this study, so all components are listed as major components.

important) have never been a major component of Internet gratification factors, although they were minor components of those used by Compeau et al. (1999) as well as by Charney and Greenberg (2001) and Papacharissi and Rubin (2000). Monetary incentives (e.g., to find bargains online) also have received slight attention, although they were significant predictors of usage for Korgaonkar and Wolin (1999) and a major component of a gratifications factor that did not predict usage for Papacharissi and Rubin (2000). The tendency to overlook pleasing sensory, status, and monetary incentives may be due to a reliance on gratification items developed for television research (e.g., drawn from Rubin, 1983, and Greenberg, 1974) that may differ from those relevant to the Internet. The practice of asking about uses (as opposed to consequences) when eliciting new items may also create a bias in favor of certain types of incentives, notably activity incentives.

Negative as well as positive outcomes may shape behavior, a possibility generally neglected by uses and gratifications (although with some exceptions, Becker, 1979; Levy, 1977). The Internet regularly frustrates its users (Graphic, Visualization and Usability Cen-

ter, 2000), so this is a potentially significant oversight in Internet-related studies. Charney and Greenberg (2001) included a Net Frustrations measure but did not conceptualize this as a gratification in their terms or as an outcome expectancy in social-cognitive terms.

Although gratifications and outcome expectations are conceptually similar, the operational definitions found in uses and gratifications studies do not distinguish between use and the consequences of use. This is a particularly important issue with respect to novel sensory incentives related to information seeking. Consider the gratification item, "I use the Web when I want to find specific information" (Kaye, 1998). Because much of the information on the Internet is unreliable at best and erroneous or fraudulent at worst, the consequence of information seeking could be negative or neutral. A better construction would be "I use the Internet to get information I can trust" (as in Charney & Greenberg, 2001). This issue may not be as relevant in conventional mass media studies because professional journalistic standards apply to assure the quality of information in the mass media, but such standards are generally lacking on the Internet.

The response task is a related issue. In uses and gratification studies, respondents are typically asked to indicate whether they use the Internet for a particular purpose (e.g., Eighmey & McCord, 1998; Ferguson & Perse, 2000; Kaye, 1998; Korgaonkar & Wolin, 1999; Papacharissi & Rubin, 2000; Parker & Plank, 2000) but not the likelihood of achieving the goal that is implicit in the specified use. We may agree that we use the Internet to obtain information, but this says nothing about the perceived likelihood of obtaining useful information in the future. Indeed, negative experiences with bogus information could lead us to conclude that it is unlikely we will obtain useful data in the future. In contrast, the response task in Charney and Greenberg (2001) assessed agreement about whether specific stated outcomes were likely to result from Internet use, and Lin (1999) presented an outcome likelihood scale as the response task. At this point, we can perhaps understand why Charney and Greenberg and Lin achieved superior and unprecedented results compared to the other studies. They measured outcome expectations very much as they should be measured from the sociocognitive view, linking the media exposure behavior in question to expected outcomes.

The gratification opportunities construct, or consumers' beliefs that a medium allows them to obtain greater opportunities for satisfaction (Dimmick et al., 2000), is conceptually similar to outcome expectations. Gratification opportunities, but not more conventionally phrased gratification measures, predicted the majority of cases in which e-mail displaced the telephone as a mode of interpersonal communication, confirming this analysis. However, the predictions were weak,¹ perhaps because the gratification opportunities were operationally defined in terms of general beliefs about the opportunities afforded by a medium (e.g., "It fits peoples' work schedules") rather than personal beliefs about expected outcomes (e.g., "If fits my work schedule") and so may have lacked the necessary precision.

Even when outcome expectancies are properly assessed, uses and gratifications studies may fail to fully account for Internet usage because they neglect variables that are important in social-cognitive theory, notably self-efficacy. Self-efficacy is a determinant of behavior and a mediator between outcome expectations and performance, as we have seen, so this is a noteworthy oversight. Ferguson and Perse's (2000) finding that expertise (a measure of prior experience with the computers and the Web) predicted Web usage suggests a role for self-efficacy in that prior experience is an important determinant of beliefs about one's capability to perform a behavior (Bandura, 1997). Eastin and LaRose (2000) found that Internet self-efficacy was a powerful predictor of Internet usage.

Self-regulation also has been neglected in uses and gratifications research, although the process of assessing and modifying gratification and/or outcome expectations in light of experience (as described in Palmgreen et al., 1985) implies certain aspects of self-

monitoring and judgmental processes. Habit is an element of uses and gratifications theory (Palmgreen et al., 1985) that interacts with beliefs and expectations about media alternatives to help formulate gratifications sought. In practice, however, Internet researchers treated habit as a type of gratification, for example, "Because it is part of my usual routine" (Korgaonkar & Wolin, 1999); "Because it is a habit, just something I do" (Ferguson & Perse, 2000; Kaye, 1998); and "Always do something because it is a 'habit'" (Perse & Greenberg-Dunn, 1998). The single-item measures of habit used by Kaye (1998) and Charney and Greenberg (2001) were dropped from those studies due to insufficient loadings on gratification factors. A parallel item in Korgaonkar and Wolin (1999) was only a minor component of a seemingly unrelated socialization factor and a minor component of Ferguson and Perse's (2000) entertainment factor. Perse and Greenberg-Dunn (1998) kept their single-item "habit gratification" item as a distinct element in their analysis, and for them, it was a significant predictor of computer use. So whereas habit is a predictor of behavior, it does not appear to be a gratification. Rather, we interpret habit as an indicator of deficient self-regulation within social-cognitive theory (Bandura, 1991b) and propose (after LaRose, 2001) that the symptoms of so-called Internet addictions are really indicators of habitual use stemming from ineffective self-regulation.

HYPOTHESES

Thus, we expect outcome expectations to predict Internet usage, with independent contributions from distinct types of incentives. This is the basic premise of the uses and gratifications paradigm as seen through the lens of social-cognitive theory. By assessing outcome expectations in terms of likely behavioral consequences instead of typical uses, we expect to replicate prior successes (i.e., Charney & Greenberg, 2001; Compeau et al., 1999; Lin, 1999) while achieving moderate multiple correlations with usage.²

Hypothesis 1: Expected activity, pleasing sensory, novel sensory, and social outcome expectations will be positively related to Internet usage.

Expected negative outcomes of Internet usage should also affect behavior according to social-cognitive theory. Levy (1977) and Becker (1979) raised this possibility with conventional mass media behavior, but negative outcomes have not been conceptualized in prior Internet gratifications studies.

Hypothesis 2: Expectations of negative Internet outcomes will be negatively related to Internet usage.

Internet self-efficacy should explain additional variation in Internet usage. This proposition has been established in a related behavioral domain (Compeau et al., 1999) and in prior Internet research (Eastin & LaRose, 2000) but is not found in uses and gratifications research. Internet self-efficacy should be related to the expected outcomes of Internet use. The relationship is reciprocal: Belief in one's ability to use the medium to attain important goals should precede the achievement of desired outcomes, and successful attainment of desired outcomes should also strengthen beliefs in one's ability. However, within social-cognitive theory, self-efficacy should make a unique contribution to behavior over and above outcome expectations (Bandura, 1997).

Hypothesis 3: Internet self-efficacy will be positively related to Internet usage, independent of the effects of outcome expectations.

Finally, self-regulatory mechanisms should also impact usage, another set of variables not found in previous research on Internet uses and gratifications. Self-disparagement and self-slighting with respect to Internet-related abilities should decrease usage. Self-perception of an Internet addiction should be positively associated with Internet use because it indicates deficient self-regulation.

Hypothesis 4: Self-disparagement will be negatively related to Internet usage.

Hypothesis 5: Self-slighting will be negatively related to Internet usage.

Hypothesis 6: Self-perceptions of Internet addiction will be positively related to usage.

METHOD

Participants

The participants were 171 undergraduate students from an introductory communication class at a large Mid-Western university. Of the respondents, 35% were freshman, 22% were sophomores, 18% were juniors, and 25% were seniors. Furthermore, 60% were male, 40% were female, and the mean age was 21 years old.

Procedure

Questionnaires were administered over a 2-week period. Respondents picked up the questionnaire on the first day of class each week and returned it the second day of class that same week. In the interim, respondents kept a diary of their total Internet use (i.e., amount and type of use). Respondents were offered extra credit for participating in the study; an alternate extra credit assignment was provided for those who chose not to participate.

Operational Measures

Respondents indicated the likelihood of each Internet outcome using Likert-type scale items ranging from *very likely* (scored 7) to *very unlikely* (scored 1). The four-item Activity Outcomes ($\alpha = .87$) Scale measured the likelihood of finding enjoyable activities on the Internet (e.g., “feel entertained”). The six-item Novel Sensory Outcomes ($\alpha = .83$) Scale assessed the likelihood of finding information on the Internet (e.g., “get immediate knowledge of big news events”). Items used to measure these outcome expectancies were obtained from among top loading items on gratification factors identified by Charney and Greenberg (2001). These were supplemented with items corresponding to incentive categories established within social-cognitive theory.

However, the prior research did not include a satisfactory measure of pleasing sensory outcomes in that all of three of the items in its sights and sounds factor were double-barreled questions (e.g., “to look at graphics or animation”). Five new items were constructed for the Pleasing Sensory Outcomes ($\alpha = .80$) Scale indicating the likelihood of encountering aesthetically pleasing visuals online (e.g., “see Web pages with bright colors”). The candidate items were developed from focus group interviews conducted with participants who attended the same class as the current respondents in the term prior to this research. Charney and Greenberg (2001) also did not include a social outcome factor. Items for the Social Outcomes ($\alpha = .86$) Scale were assembled from several different factors to compose a five-item scale assessing the likelihood of developing relationships over the Internet (e.g., “find com-

panionship”). The four-item Negative Outcomes ($\alpha = .61$) Scale assessed the likelihood of encountering negative outcomes associated with Internet use (e.g., “have trouble finding what I am looking for”). It drew on two items from Charney and Greenberg’s Net Frustrations Scale and two suggested by a well-known survey of Web users (Graphic, Visualization and Usability Center, 2000).

Internet self-efficacy was assessed with eight Likert-type items ranging from *strongly agree* (scored 7) to *strongly disagree* (scored 1). Respondents rated their confidence that they could use the Internet in each of the ways specified, for example, to troubleshoot Internet problems ($\alpha = .93$; see Eastin & LaRose, 2000). Three self-regulatory constructs were also measured. Self-disparagement ($\alpha = .71$; e.g., “I feel my computer skills are inadequate”) and self-slighting ($\alpha = .77$; e.g., “I feel helpless when I can’t find what I am looking for on the Internet”) consisted of three items, whereas perceived Internet addiction ($\alpha = .77$) had four items (e.g., “I use the Internet so much it interferes with other activities”). All three of these constructs were measured with Likert-type items ranging from *strongly agree* (scored 7) to *strongly disagree* (scored 1). The items for the latter measure were derived from the definition of the Internet addiction disorder (Internet Addiction Support Group, 2000).

Internet usage was an additive index of four self-reported items ($\alpha = .82$). Participants were asked on a typical weekend day and on a typical weekday about how much time they spent on the Internet (both items coded 1 if none, 2 if less than an hour, 3 if 1 to 2 hours, 4 for more than 2 and up to 5 hours, and 5 if more than 5 hours), about how many days in a typical week they went on the Internet (responses ranged from 0 to 7), and how much time they spent surfing the Web each week (Coded 1 for none, 2 for less than an hour, 3 for 2 to 4 hours, 4 for 5 to 7, 5 for 7 to 9, 6 for 10 to 20, and 7 for more than 20 hours).

Analyses

All analyses were performed using the Statistical Package for the Social Sciences, Version 7.5 (SPSS, 1997). Pearson product-moment correlations (with pairwise exclusion of missing cases) were used to test all hypotheses. To assess the relative predictive utility of the various independent variables, they were entered into a multiple regression analysis, with Internet usage as the dependent variable.

When proposing new variables for an existing model, it is customary to perform stepwise regression in which previous variables (outcome expectations, in this case) are introduced first. However, the reciprocal causation mechanism posited by social-cognitive theory made this inappropriate, so all independent variables were entered in a single step.

RESULTS

A correlation matrix showing the relationships between variables is presented in Table 2. As stated in Hypothesis 1, activity outcomes ($r = .48, p < .001$), pleasing sensory outcomes ($r = .37, p < .001$), novel sensory outcomes ($r = .32, p < .001$), and social outcomes ($r = .37, p < .001$) were all positively related to Internet usage. Negative Internet outcomes were inversely related to Internet usage ($r = -.16, p < .05$), thus supporting Hypothesis 2.

Hypotheses 3, 4, 5, and 6 were also confirmed. Self-efficacy ($r = .65, p < .001$), self-disparagement ($r = -.48, p < .001$), self-slighting ($r = -.46, p < .001$), and self-perceptions of Internet addiction ($r = .65, p < .001$) were all found to be significantly related to Internet usage in the directions hypothesized.

TABLE 2
Pearson Product Moment Correlation Coefficients

	Variable									M	SD
	1	2	3	4	5	6	7	8	9		
1. Internet use										14.21	4.35
2. Activity outcomes	.48**									20.31	5.43
3. Pleasing sensory outcomes	.37**	.53**								27.74	5.45
4. Novel sensory outcomes	.32**	.46**	.68**							16.00	4.21
5. Social outcomes	.39**	.23**	.03	.10						10.92	6.42
6. Negative outcomes	-.16*	-.08	.00	-.11	-.09					19.20	5.48
7. Internet self-efficacy	.65**	.37**	.39**	.40**	.37**	-.24**				54.50	16.80
8. Self-disparagement	-.48**	-.31**	-.32**	-.30**	-.06	.31**	-.61**			9.29	4.24
9. Self-slighting	-.46**	-.26**	-.19*	-.22**	-.07	.45**	-.58**	.62**		10.12	4.80
10. Perceived addiction	.65**	.37**	.20**	.27**	.51**	-.11	.57**	-.29**	-.30**	15.00	5.80

* $p < .05$. ** $p < .001$.

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To gain an overall understanding of how each of these variables predicted Internet usage while controlling for the other variables, a multiple regression was conducted. The combination of these variables significantly predicted Internet usage ($F_{9,168} = 26.512$, $R^2 = .60$, $p < .001$; see Table 3).

Internet Self-Efficacy ($b = .652$), perceived addiction ($b = .411$), activity outcomes ($b = .208$), and self-disparagement ($b = -.144$) each uniquely predicted Internet use at an alpha level of $p < .05$. In combination, self-slighting, pleasing sensory outcomes, social outcomes, novel sensory outcomes, and negative outcomes only explained an additional .8% of the variance in Internet usage.

DISCUSSION

The conceptualization of Internet usage as a social-cognitive process received considerable confirming evidence. Positive outcome expectations, Internet self-efficacy, and perceived Internet addiction were directly related to Internet usage as expected. Negative outcome expectations, self-disparagement, and self-slighting were negatively related to usage. As was the case for Charney and Greenberg (2001) and Lin (1999), defining gratifications as outcome expectations once again explained greater variation in Internet usage than in uses and gratifications studies employing conventional operational definitions stressing frequent uses. Internet self-efficacy and perceived addiction explained considerable additional variance in usage beyond outcome expectations, indicating the value of adding these concepts to models of Internet usage.

Whereas negative outcome expectations were negatively related to usage, the relationship was a weak one that disappeared in multiple regression analysis. The measure of negative outcomes had marginal reliability, which could account for the disappointing result. However, scatterplot analysis indicated the possibility of a curvilinear relationship between negative consequences and usage (although modeling this element as a nonlinear component did not affect the results). That is, high expectations of negative consequences, such as having one's computer freeze up or having trouble finding information on the Internet, were associated with both very high levels of usage and very low levels of usage. It may be that encountering frustrations such as these while using the Internet may cause some users to give up, whereas others persist. Persistent users may spend more time on the Internet as they work their way back to the location where the freeze-up occurred or apply new search strategies, actions that would increase the amount of time spent on the Internet. This type of persistence is an inherent characteristic of individuals with high self-efficacy. There was a moderate correlation between negative outcome expectations and self-slighting and also a significant correlation with self-disparagement. Both variables had moderate negative correlations with the dependent variable, suggesting that these self-regulatory processes mediated the relationship between negative outcomes and usage.

Self-disparagement and self-slighting had strong negative correlations with Internet usage in themselves, although the latter relationship was attenuated in multiple regression analysis (possibly as a result of multicollinearity between the two). Both had moderately high negative correlations with Internet self-efficacy, suggesting it is an intervening variable between self-regulation and usage. Sociocognitive processes are dynamic and iterative ones in which conceptions of one's ability to perform a behavior are continually re-evaluated through experience. In the process of mastering the Internet, users may proceed from a state of helplessness and despair to one of confidence and mastery. Deficient self-regulatory beliefs may be critical in the early stages of Internet experience but lose their power after a sense of self-efficacy is attained.

TABLE 3
Stepwise Regression of Sociocognitive Variables on Internet Usage

<i>Variable</i>	<i>Beta</i>	<i>R² Change</i>	<i>F Change</i>	<i>Significant F Change</i>
Internet self-efficacy	.652	.425	123.504	.000
Perceived addiction	.411	.114	41.055	.000
Activity outcomes	.208	.035	13.733	.000
Self-disparagement	-.144	.013	5.048	.026
Self-slighting	-.080	.004	1.401	.238
Pleasing sensory outcomes	.056	.002	.846	.359
Social outcomes	.038	.001	.398	.529
Novel sensory outcomes	-.031	.001	.282	.596
Negative outcomes	.005	.000	.010	.922

NOTE: $F(9, 168) = 26.512$. $p < .001$. $R^2 = .600$.

Although outcome expectations were significant predictors of Internet usage, as they were in Charney and Greenberg (2001), the relative importance of the categories differed. In the previous research, an informational dimension (termed *novel sensory expectations* here) was the most powerful predictor of Internet usage, whereas here, the activity dimension (identified as a diversion-entertainment factor in the prior research) dominated. One possible explanation is that in the 3 years between the two studies, the character of the Internet changed so that it became increasingly regarded as a source of enjoyable activities rather than a repository of information. In that time, a variety of new enjoyable activities became widely accessible over the Internet, at least among the college populations surveyed in these two studies. These include playing multi-user games and downloading music from the Internet, both time-consuming, enjoyable activities that could greatly increase total Internet usage.

Pleasing sensory outcome expectations were distinguished from novel sensory ones to preserve the identity of informational gratifications that are a common element in uses and gratifications research. However, the two were highly correlated ($r = .68$, $p < .001$), suggesting that they may reflect the same underlying construct. In social-cognitive theory, both novel and pleasing stimuli fall under the category of sensory incentives, with novelty viewed as a means of enhancing the impact of pleasing stimuli (Bandura, 1986).

Perceived addiction was a powerful predictor of usage. There was a moderate correlation between perceived addiction and social outcome expectations ($r = .51$, $p < .001$), suggesting that excessive use of e-mail, newsgroups, or chatrooms may be implicated. *Addiction* may be a misnomer in that high scores on this measure were often associated with moderate levels of Internet use, whereas the term is usually reserved for deviant levels of use. This variable was conceptualized in terms of an acknowledged failure to regulate one's own Internet behavior, and that mechanism could operate across a wide range of usage as opposed to something that occurs only after a very high threshold is crossed. Thus, a more appropriate term might be *deficient self-regulation*, as proposed in LaRose (2001).

Limitations

This research used retrospective self-reports of media behavior, an approach that is frequently criticized as being inherently unreliable. However, a comparison of diary data and retrospective self reports of Internet usage made in this study revealed a .65 correlation between the two measures. This finding is consistent with studies comparing self-reports of

computer use with electronic log data (Deane, Podd, & Henderson, 1998) and with comparisons of self-reported and objectively measured computer game activity (Zielke, Schildmann, & Wirausky, 1995). It may be that the interactive nature of Internet consumption makes it more salient than passive consumption of conventional mass media, so that retrospective reports of behavior are more accurate. Within social-cognitive theory, retrospective self reports take on a special significance and reflect a self-monitoring process. "If [people] want to exert influence over their own actions, they have to know what they are doing" (Bandura, 1986, p. 336).

This study relied on a convenience sample of college students. College students are a logical choice for exploratory research on Internet usage because they enjoy ready access to Internet resources. However, these results should be replicated with more diverse populations. Other populations may be differentially affected by the various types of incentive dimensions that frame outcome expectations. Self-efficacy might play less of a role in populations with smaller proportions of relatively new Internet users.

A cross-sectional survey method was used to assess the explanatory power of new predictors of Internet usage behavior. Social-cognitive theory stresses dynamic relationships between these variables and reciprocal causation (e.g., among self-efficacy, outcome expectations, and the performance of behavior), mechanisms that are better understood through structural modeling or time-series approaches.

Theoretical Implications

Can uses and gratifications and social-cognitive theory coexist? If the uses and gratifications mechanism is identical with the enactive learning mechanism under social-cognitive theory, it is possible to conclude that the latter subsumes the former or makes it redundant. However, uses and gratifications has a 30-year tradition that offers many insights into communication behavior. As Blumler (1979) pointed out, the definite articles *the* or *a* are not appropriate prefixes to uses and gratifications theory: There are many theories of the phenomenon. So perhaps there is room to modify and expand uses and gratifications to incorporate sociocognitive constructs instead of pitting one theory against the other.

The incentive categories (i.e., social, status, activity, sensory, monetary, and self-reactive) found in social-cognitive theory could provide a consistent theoretical framework in which to explore the outcome expectations associated with the Internet. The Internet studies reviewed here drew on the same sources for their initial gratification items: studies of television use completed some two decades ago (Greenberg, 1974; Rubin, 1981, 1983). These were supplemented with items suggested by the authors' own theoretical analyses of the Internet and/or from suggestions elicited from focus groups. Following the accepted practice of uses and gratifications research, the items were subjected to exploratory factor analysis, yielding widely varying factor structures with as few as three (in the case of Lin, 1999) or as many as eight (Charney & Greenberg, 2001) separate dimensions. Our earlier analysis of the incentive dimensions found in Internet gratification factors (presented in Table 1) revealed that most gratification factors reflected multiple incentives, with some drawing from as many as five different categories. Future uses and gratifications research might build on the incentive categories from social-cognitive theory, probing for both positive and negative instances in exploratory qualitative research and then applying confirmatory rather than exploratory factor analysis (Hunter & Gerbing, 1982).

The reliance on past television research as the foundation for Internet usage studies may obscure variables that are salient in the online environment but not present in the television-viewing environment of a generation ago. Status cues have been overlooked, perhaps because there is little enhancement of status associated with television viewing (the typical

focus of prior research), at least not in the span of years (since the early 1970s) that uses and gratifications has been with us. Status cues may be highly salient for Internet use, however. The widely publicized Digital Divide effect heightens status cues by stressing the association between social status and Internet use. Monetary incentives are another category that are not very salient when talking about “free” (i.e., advertising-supported) media but are important to the many Internet users who still pay by the minute (e.g., when dialing long distance to reach an Internet service provider) and when examining pay sites and electronic commerce (as in Korgaonkar & Wolin, 1999). Finally, self-efficacy is unlikely to be an important determinant of television exposure, a behavior that does not involve complex skills to perform, but is an important variable when analyzing a complex and continually changing interactive medium such as the Internet.

The self-regulatory mechanisms described by social-cognitive theory may clarify the role of habitual media behavior. As we have seen, uses and gratifications researchers conceptualized habit as a distinctive element in the model (e.g., Palmgreen et al., 1985) but in Internet research have operationalized the construct as a gratification, with single items that are obscured by overall factor structures. However, habit or perceived addiction, as it was called in this study, explains unique variance in usage distinct from outcome expectations. Thus, including habit in factor analyses of gratifications and/or outcome expectations obscures the role of the variable.

Further conceptual elaboration of self-regulatory mechanisms in media behavior should explore media addictions in terms of faulty self-monitoring, failure to apply standards to media behavior, and inability to generate self-reactive incentives. Conventional mass media usage, particularly television viewing, also has a habitual quality that some have termed *addictive* (e.g., Finn, 1992; McIlwraith, 1998; Winn, 1985). Finn found evidence that models of addiction predicated on self-control and personal responsibility provided the most plausible explanations of television addiction. McIlwraith found correlations between television addiction and both poor attention control and daydreaming about guilt and failure, both possible indications of faulty self-regulation.

Research Implications

Thus, reformulating gratifications as outcome expectations (rather than as gratifications sought or gratifications obtained) in operational terms and organizing them into incentive categories may improve the predictive validity of uses and gratifications research in general. This would bring greater consistency to the measurement of gratifications (or incentive categories, in social-cognitive terms) as well. Status and monetary incentives should receive greater emphasis in future Internet-related studies.

Moreover, the identity and relative importance of the various categories of incentive motivators should be periodically reassessed when examining the Internet, perhaps beginning with a fresh approach to item elicitation and scale construction that does not rely on 20-year-old television research. There were indications of a shift in the primacy of incentive categories over a relatively short period time when comparing this study to Charney and Greenberg's (2001), completed only 3 years earlier.

A new approach to assessing negative outcomes may be in order. Each incentive dimension presents the possibility of both positive and negative outcomes. For example, the receipt of unwanted e-mail would presumably be a negative instance of a social incentive that mitigates against Internet use when weighed against the positive social outcomes, such as finding companionship. Inclusion of both negative and positive instances might further improve the variance explained.

However, negative instances do not relate consistently to positive outcomes, so creating a single additive scale for each incentive would reduce reliability and violate accepted procedures of scale construction. Another possibility is to weight outcome expectations by the corresponding evaluation of each outcome and then add the products across all outcomes, a procedure recommended by the theory of planned behavior (Ajzen, 1985) and emulated in certain uses and gratifications studies (e.g., Babrow & Swanson, 1988; Rayburn & Palmgreen, 1984). Outcome evaluations were obtained in this study but failed to produce any overall improvement in either the reliability of the outcome scales or the variance explained in Internet usage. Future efforts might develop measures of negative outcomes for each dimension of expected outcomes, beginning with qualitative elicitations of negative instances along each incentive dimension.

Future research should include self-efficacy and self-regulatory measures as part of a comprehensive model of media attendance. Social-cognitive theory recommends two further mechanisms that are known to communication researchers (Bandura, 1991a) but have not been conceptualized in uses and gratifications models of media exposure: vicarious reinforcement and social diffusion of innovations. In the context of Internet use, these mechanisms call attention to such variables as the competence levels, social characteristics, and role relationships of the peers, mentors, and experts on whom individuals rely for formal and informal Internet training.

Social Implications

The Digital Divide is described as a problem of differential access to Internet resources separating rich from poor and minorities from whites (Hoffman & Novak, 1998; National Telecommunications and Information Administration, 1999). However, uncertainty about how to get started on the Internet and how to deal with the complexities of computers may be nearly as important deterrents as economics and lack of access (Katz & Aspden, 1996). Efforts to bolster Internet self-efficacy using techniques proven effective in other behavioral domains may be needed to completely close the Digital Divide. These include enactive mastery, vicarious experience, verbal persuasion, and control of disruptive physiological responses that frustrations with the Internet may provoke. Moreover, the divide will not necessarily close even if Internet access is assured if minorities do not persist in their usage. The inability to find anything the user wants rivals cost as a factor preventing Internet usage in minority homes once they have computers (National Telecommunications and Information Administration, 1999). In this context, this is a problem of low outcome expectations. Users do not have sufficiently strong beliefs about positive outcomes—or perhaps believe too strongly in negative outcomes—to motivate continuing use (Eastin & LaRose, 2000).

The current policy of subsidizing the cost of access (e.g., through the e-rate program) reduces a monetary disincentive to Internet use, but there are other economic disincentives that are not being addressed, including the cost of support and the cost of access to information. Other monetary incentives take the form of e-commerce “bargains,” comparison shopping for big-ticket items and profits from stock transactions (cf. Korgaonkar & Wolin, 1999); these are not available to those who lack consumer credit resources.

Providing content that is specifically tailored to low-income and minority communities addresses sensory and activity incentives, an approach exploited by Web sites that cater to specific minority groups (e.g., <http://www.bet.com> and <http://www.blackvoices.com>). Some stress interactive communication, providing a potential source of social incentives (<http://www.blackplanet.com>). The participation of prominent community leaders in Web-related projects addresses the status dimension. Thus,

many of the components for a social-cognitive “solution” to the Digital Divide are becoming available, and perhaps promoting greater awareness of these options is all that is required.

However, efforts to publicize the Digital Divide as a social problem may have an unfortunate side effect by reinforcing self-disparagement and self-slighting among minority Internet users. The Digital Divide could become a dysfunctional social standard against which minorities compare their own behavior, concluding (erroneously) that performance failures are to be expected relative to their own community standards. To counteract this, interventions could provide realistic but encouraging feedback about the attainments of minority users as they explore the Internet and provide relevant points of social comparison from within minority communities (see Eastin & LaRose, 2000, for a further discussion of intervention strategies).

Social-cognitive theorists propose self-regulation as the key to understanding physiological addictions (Bandura, 1999), and behavioral addictions might be conceptualized with similar mechanisms, absent the physiological craving. Internet addictions represent a suspension of normal self-regulatory processes. The self-described “addicts” are aware that their usage is excessive but fail to apply standards that could supply the self-incentive to modify the behavior. Self-regulation might be restored by encouraging problem users to track their own behavior, setting realistic near-term goals for behavior change, developing multiple coping strategies, and identifying incentives that motivate abstinence (Perri, 1985). Social support is also important, including developing social support for abstinence and severing ties with other addicts (Bandura, 1999).

Coping self-efficacy, or one’s belief that she or he can successfully engage in actions that will overcome an addiction, affects the success of these self-regulatory efforts. As outlined above, coping self-efficacy may be bolstered through enactive mastery, verbal persuasion, vicarious experience, and control of physiological states. Thus, social-cognitive theory emphasizes self-help coupled with appropriate social support. The treatment paradigm for online addictions might stress the development of self-awareness of excessive usage and online communities that support moderation.

NOTES

1. However, the prediction may not have been very robust. The gratification opportunities analysis predicted 58.4% of the cases in which the respondent (self reported) used e-mail more than the telephone. However, with only two possible categories (used the phone the same or less; only a handful reported using it more), the chance level was 50%. No conventional estimate of the variance explained was provided.

2. This research builds on the gratification factors of Charney and Greenberg (2001) because that study produced the most successful predictions of actual Internet usage to date. However, their factors did not include any with major components for monetary, status, or self-reactive incentives, so these were not reflected in this study.

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