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THE ROLE OF HABIT
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By

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ABSTRACT

THE ROLE OF HABIT
IN THE SELECTION OF ELECTRONIC MEDIA

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Habit has been an essential construct from the earliest years of psychological investigation (for example James, 1890; Dewey 1922; Watson 1924), but has had an uneasy history in more recent theoretical approaches to human behavior that assume individuals always act as intentional decision-makers. In attitude/intention/behavior formulations such as the theory of planned behavior and the theory of reasoned action, intention is the sole direct antecedent of future behavior. Similarly, in the uses and gratifications paradigm, media use is assumed to be the result of intentional choice, and habit's only role is that of a gratification. Yet empirical studies in domains such as travel choice and health care have found habit to join intention as direct antecedents of future behavior.

To examine the role of habit in the selection of mass media, surveys of media habits and media intentions were matched to single-night media use diaries among a convenience sample of Midwestern university students (N=178) who had daily access to television, Internet, e-mail and Instant Messenger. Intention to use media on the night of the diary data collection was substantially correlated with future behavior ($r=.54$ for tv, .53 for Internet, .49 for e-mail and .48 for Instant Messenger, $p<.01$). However, the habitual use of media was also correlated with future behavior, ($r=.37$ for tv, .45 for Internet, .33 for e-mail and .48 for Instant Messenger.) Structural equation modes that

included habit, intention, media gratifications and future media selection behavior were tested, with the most appropriate fit being a model in which gratifications generated both habit and intention, and both intention and habit served as the direct antecedents of future behavior.

To Elaine,
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Introduction

Introduction

"Habit" is simultaneously one of the most accessible and most problematic ways of understanding repetitive human behavior. It is accessible, as habit comes quickly to mind as a rationale for one's own or other's repetitive behavior (Ouellette & Wood, 1998). The pioneering psychologist William James looked at habit as the first way of understanding human and animal behavior, calling all living creatures "bundles of habit" (James, 1898, p.104). For the choice of mass media, which is the behavioral focus of this research, habit is the primary reason given by individuals when they are asked to explain their own media use (Adams, 2000). Yet while habit is a popular and accessible way of describing the rationale for behavior, the utility of habit as a way of understanding behavior remains problematic (Ajzen, 2002).

Structure Of This Research

This research into habit is divided into five chapters. This first chapter will consider how the conception of habit has evolved from William James' work in the late 19th century through the present. The second chapter will review the literature of social psychological and mass media investigations into habit from the mid-20th century through the present, and present a series of hypotheses that will provide a foundation for the current investigation. The third chapter will provide the methods for the investigation, using both traditional mass media research and recent social psychology tools for the

study of habit. Chapter Four will present the results of that research, which involved a study of the interaction of habitual and intentional behavior on the choice of four mass media vehicles: television, the World Wide Web (Web), e-mail, and Instant Messenger. The final chapter will discuss the findings of this research both broadly and specifically in light of previous work.

The Psychology of Habit

Within psychology, there is a long tradition of investigation into habit that dates back to William James' (1890) contention that habit serves as the "flywheel of society," in effect maintaining a balance between the behavior of the individual and the expectations of others.

While James' introspectionist approach focused on internal processes, behaviorism, first outlined by John Broadus Watson in 1913, was characterized as "first, last, and always a psychology of habit formation" (Wozniak, 1994, p. 7). At its core, behaviorism explains behavior as an individual's response to its perceptions of its own external and internal physical environment. As such, identical environmental stimuli paired with identical internal characteristics would trigger the same behavior. Watson considered habits to be conditioned responses to stimuli that served to "rid the stimulus." For example, an adult stimulated by hunger pangs at home would be expected to physically travel to the pantry to get food, thus eliminating the hunger stimulus. An infant stimulated by hunger pangs has not yet learned the physical chain of responses that serve to lessen hunger (go to pantry, get out food, eat food), and would exercise his one behavioral response to the hunger stimulus: to cry (Watson, 1924, p. 200). Watson went

beyond the view that habit is the response to stimuli, requiring that habit also be efficient, in that a habit is learned when it could be accomplished more quickly or with fewer movements. As he considered individuals to be essentially misers of their own efforts, repetitive behavior was needed to reduce the effort required to achieve the goal of eliminating the initial stimulus (Watson, 1924, p. 207).

What is Habit?

While James did not explicitly define his conception of habit, others in psychology have. Dewey (1922) conceived habit as learned behavior that was triggered by the environment. Likening the repeated performance of behavior to a person's predilection for taking a paved road to blazing a new trail, Dewey observed that the benefit of habit was its efficiency: personal energy need not be expended in creating new behaviors when habitual behaviors sufficed. Dunlap (1949), in his treatise on habits, agreed with the contention that habit was learned behavior, adding that an individual appears to other as a collection of habits. Landis, Triandis and Adamopoulos (1978) viewed habit as the consistency of behavior across time.

But while defining habit as the temporal stability of behavior might be a valid heuristic, it does little to distinguish habit from reflex. Taken to extreme, breathing is habitual. Triandis (1979) distinguished habit from reflex. Reflexes are unlearned acts, while habits are learned. More importantly, Triandis considered habits to be "situation-behavior sequences that are or have become automatic, so they occur without self-instruction." Habit is then a learned behavior that is reflexively activated.

It has been argued in social psychology that the majority of mundane daily behaviors of individuals are expressions of habit (Bargh & Chartrand, 1999), and not under conscious control. As such, habit shares many of the features of automaticity (Bargh, 1994), a description of goal-oriented behavior that is activated without intentionality, with limited or no control, without awareness, and providing the individual the benefit of behavior with only a limited investment of cognitive resources (Bargh & Chartrand, 1999). Habit is goal-oriented, is controllable only to the extent that is can be overridden with effort, is performed with limited awareness, and are efficient in their use of cognitive resources. More specifically, habits are "a learned sequence of acts that have become automatic responses to specific cues, and are functional in obtaining certain goals or end-states" (Verplanken & Aarts, 1999, p. 104).

However, the value of the habit concept has been a subject of much disagreement in psychology. While habit has been widely accepted as a predictor of future behavior, its value in understanding behavior is controversial (Armitage & Conner, 1998). The dispute centers on the distinction between habit as simply descriptive labeling of recurring past behavior, in opposition to the conception of habit as an explanatory force in the understanding of current behavior. A meta-analysis of behavioral studies by Sheeran (2002) offered that intention, often proposed as the sole antecedent of behavior, explained a mean 28% of variance in behavior, and that the automatic activation of behavior may be responsible for a portion of the remainder. Ajzen (2002) considered the issue of why past behavior had a "residual impact" on later behavior beyond that of intention and perceived behavioral control, adopting the position that habituated behavior and reasoned action can co-exist. He argued that the theory of reasoned action (TRA)

and theory of planned behavior (TPB) both allow for a behavior to become habitual over time, then activated at the moment under a routine context. He contended that most behavioral patterns, such as going to a restaurant, involve a mix of controlled and automatic behaviors. He called them "semiautomatic response patterns."

In sum, the controversies are over the necessity of habit as a variable in the explanation of behavior (Ajzen, 2002), and as a concept that can be "unpacked" to help understand future behavior. The current argument is that habit should not be considered a black box unworthy of study, but as learned responses that are goal directed (Verplanken & Aarts, 1999). Thus, habit should no longer considered a variable with little explanative power, but the end result of goal-oriented behaviors that have been routinized through practice and triggered by the intersection of goal orientation and a stable environment (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001).

The Habitual Use of Mass Media

Yet for all the difficulties of including habit in research, media selection seems to be a domain in which its users are engaging in habitual routines most of the time. Regardless of the theoretical aversion to including habit in the models, habit, it could be said, has an annoying habit of making itself an important factor in explaining media selection. The overall media usage for the individual is relatively consistent from year to year and even day to day, with variations in use and selection attributed to external needs of work and life patterns such as weekend versus weekday programming, and not to desires for gratification (Elliott & Rosenberg, 1987). The commercial media system, which is dependent on the predictable and on-going selection of mass media by

individuals, which is in turn translated to revenue through advertiser support, relies on habitual viewing patterns to set prices (Ries & Ries, 2002), and commits upwards of 15% of advertising inventory for promotions that work to maintain habitual viewing (Eastman, 2000). In essence, the business of mass media is the translation of habit into revenue.

This dissertation proposed that social psychological approaches to habit may provide new avenues for understanding the apparent conflict between mass communication's uses and gratifications conception of media users as "active" and the psychological view of individuals whose behavioral scripts are automatically recalled and executed for the majority of their day-to-day behaviors. This dissertation explored whether habit, arising from past media use behavior, is what drives an individual's future media selection behavior. In this way, habit is not just the absence of immediate thought, but also the shadow of recurrent past activity, automatically replayed in the future.

Chapter 2

LITERATURE REVIEW

Introduction

This chapter will explore whether electronic mass media use in the domain of media selection is either wholly automatic or completely conscious, or a complex combination of unthinking habitual behaviors and thoughtful responses to current needs. In doing so, this chapter will review the role of habit as it has appeared in the uses and gratification paradigm of mass media research, with particular emphasis on the conception of and empirical investigations into the active audience. The chapter will then turn to the conception of habit in psychology, the delineation of habit from intent, and empirical investigations into the measurement of habit strength in social and cognitive psychology. It will then offer a series of hypotheses that will serve to structure this investigation by connecting the uses and gratifications approach to habit with the social and cognitive psychology approach to habit.

Definitions of Habit and Related Constructs

As presented in the previous chapter, habits are "learned sequences of behavior that have become automatic responses to specific cues, and are functional in obtaining certain goals or end-states" (Verplanken & Aarts, 1999, p.104). Habits are similar to reflexes in that they are automatic, but differ from reflexes in that they are learned (Dewey, 1922). According to Triandis (1979) habits are "situation-behavior sequences that are or have become automatic, so they occur without self-instruction. The individual

is usually not "conscious" of these sequences. Triandis delineated habits from reflexes, in that reflexes do not require learning, while habits are learned. However, Triandis argued that cognitive scripts, or patterns of behavior (Abelson, 1981) are habits.

Additionally, habit is the outcome of the repetition of past behavior that was used to satisfy wants and needs (Watson, 1924), and in this way, habit is reflective of past intentional behavior. In the past, the behavior that satisfied wants or needs took thought to perform, but repeated over time, the same behavior no longer requires thought for its execution (Ouellette, 1996).

While the habit construct has often been measured by the frequency of past behavior, past behavior should not be considered to be synonymous with habit (Ouellette & Wood, 1998). Past behavior is indicative of a portion of the habit construct, in that the behavior was learned and had some perceived utility in achieving the intended goal. However, for the behavior to be habitual it needs to be automatic, in that it exhibits some degree of unintentionality, some degree of uncontrollability, it is performed without much awareness, and it is efficient in the use of cognitive resources (Bargh, 1994; Bargh & Chartrand, 1999; Bargh et al., 2001). Verplanken and Aarts (1999) argued that habit is a subset of automatic behavior in that it is intentional to the extent that it is used to achieve goals. Additionally, habit is not totally uncontrollable, in that it can be overruled by conscious effort. They concluded that the most salient components of automaticity for habit were the lack of awareness and the minimization of cognitive resources required for the performance of the behavior. In sum, habit is seen not as the complete automation of behavior, but as a construct that exhibits some of the primary components of automaticity.

While habit can be thought of as a subset of automaticity, intention has been defined as the self-provided instruction for behavior (Triandis, 1979). Intention is by definition a volitional process, and as such, occupies the opposite end of the activity continuum from habit (Babrow, 1989; Babrow & Swanson, 1988). Intention has been considered to be an index of the motivation of the individual to behave in a certain way, and contains both the direction of the behavior (perform the behavior/don't perform the behavior) and the intensity of the behavior (how much effort is to be expended on its performance) (Sheeran, 2002).

Habit in the Uses and Gratifications Paradigm of Mass Media Research

It has been proposed that the uses and gratifications paradigm has been the dominant perspective of mass media research for the latter part of the 20th century (Rice, Chapin, Pressman, Park, & Funkhouser, 1996). Within uses and gratifications, one of the primary assumptions is that the individuals who comprise the audience are active in their selection of mass media (Katz, Blumler, & Gurevitch, 1974a). Within uses and gratifications research, mass media selection is seen as a thoughtful process, with the behavior of media selection an outcome of the intersection of an individual's expectation of benefit from the upcoming mass media selection with the individual's past experience in having prior needs fulfilled by the proposed mass medium. Thus the role of habit in the uses and gratifications paradigm is not as a psychological process, but as a gratification. In this view, an individual repeats behavior because the repetition of the behavior itself is satisfying, as opposed the repetition is the result of past satisfactions, sought out again.

Despite the foundational concept of mass media use as active, occasional research within the uses and gratifications paradigm has included the activation of habitual behavior as a variable (Abelman, 1987; Barwise, Ehrenberg, & Goodhardt, 1982; Conway & Rubin, 1991; Greenberg, 1974; Levy & Windahl, 1985; Lin, 1993; Perse & Dunn, 1998; Perse & Rubin, 1988; Rosenstein & Grant, 1997; Rubin, 1983, 1984; Stone & Stone, 1990). The conflict between the conception of the audience as active and the observation of individual behavior as at least partly habitual runs through the uses and gratifications literature. For example, Palmgreen, Wenner and Rosengren (1985) located "habitual media behavior" as a concept that was driven by the structure of society, the structure of media technology, and the make-up of the individual. The habitual use of media also interacted with the needs of the individual and the expectations of the individual about both media use and its alternatives.

Stone and Stone (1990) provided perhaps the most appropriate definition of habit within uses and gratifications, specifying habit as learned behavior that is repeated over time. They proposed that the repetition of behavior is intrinsically enjoyable and pleasurable, a contention which may be tenable for the use of mass media for entertainment, but perhaps less so for the use of mass media on an instrumental basis. The contention that habit is always pleasurable begs the question of whether people engage in habit because they have learned the outcome of the habit is beneficial in obtaining some sort of gratification, or they engage in habit simply because engaging in habit is pleasurable.

Habit and Audience Activity

Empirically, the habit gratification within the uses and gratifications paradigm can be traced to Greenberg's (1974) pioneering uses and gratification study, in which British schoolchildren provided their rationales for media use. While based on the foundational idea that the audience was an active participant in its use of media, a substantial portion of Greenberg's respondents suggested that their own media use was "just a habit" or "just something they did," perhaps undercutting the assertions that media use was active, or alternatively, that individuals were capable of describing their own media use behavior. The reliance of individuals on "habit" as an explanation of their own media use continued through the 1990s. A focus group study on media usage motivations among 98 U.S. adults provided "habit" as the primary rationale for the selection of television as a medium, but intentional viewing as the primary rationale for tuning in to a specific program (Adams, 2000). Based on these open-ended self-reports, television viewers past and present were, in their own way, arguing against the foundational assertion that media use is active, a dispute that has been reflected in the mass media literature of media selection.

Blumler (1979) questioned the reliance on audience activity as a given when he argued that the notion of audience activity was not necessarily an element of the uses and gratifications ideology that could only be thought of as an either/or phenomenon, but as a variable open for empirical investigation. He suggested that media activity could be looked at during different points of an episode of media use: pre-exposure, during consumption of the medium, and reactions to the medium post-exposure.

Levy and Windahl (1984; 1985) expanded Blumler's (1979) temporal audience activity conceptualization with the addition of a second dimension of qualitative orientation that included selectivity, involvement and utility. The use of media by individuals is situated within a matrix, in which, for example, some members of the audience demonstrate their activity in the uses and gratifications sense by engaging in cognitive processing, as involvement, during exposure to the program in progress. Perhaps the most fruitful area for discussion in the Levy and Windahl typology of audience activity is the intersection of selectivity, as in the choice of medium or programming, and pre-exposure, as the undefined period prior to media use during which the thoughtful decisions are made. Levy and Windahl did not specify the limits of the pre-exposure timeframe; arguably, it could run from the initial awareness or adoption of a medium to the moment of exposure. For example, for a young adult the pre-exposure phase of media selection could be anywhere from the initial childhood experience with television up through the moment of switching on the television for a night's viewing. Selectivity was considered as the goal-oriented outcome of the interplay among "the individual's desire to gratify certain social and psychological needs, the individual's learned expectations about media qualities and settings, and the individual's continuing experiences with a given medium" (Levy & Windahl, 1984, p. 54-55). In unshackling the selection process from the use of media, Levy and Windahl may have provided an opening for the creation of media use habits. If the intentional selection of media in the past develops expectations about the benefits of media selection in the future, then there is less reason for the individual to have to expend cognitive resources to make decisions about future media use. In other words, past selectivity drives future media habits. It is

the interplay of these two events, pre-exposure and selectivity, that engages the primary question of this research: to what extent is the selection of a specific medium such as television from all the other options, including foregoing media exposure or selection of a competing medium such as the Internet, evidence of an active thought process?

Rubin (1984) approached the selection of television programming as either "ritualistic" or "instrumental." Ritualistic viewing was considered to be frequent and unselective. In contrast, instrumental viewing was defined as "purposeful, selective, and goal-directed" (Rubin, 1984, p. 75). However, similar to Levy and Windahl in their assertion that audience activity was variable, Rubin suggested that ritualistic/instrumental differentiation might not be a dichotomy that applied to an individual as much as it was a variable that could change with the viewing situation. An individual might ritually view certain programs, but use other programs in an instrumental sense. While not explicitly defining habit, Rubin associated ritualistic viewing with habit. To Rubin, habit was frequent behavior, and it was also unselective, in that habitual television viewers did not seek out particular programs, preferring to watch whatever was available. In the uses and gratifications paradigm, this confounds the frequency of behavior with the gratification that is created by undertaking familiar tasks. Additionally, this is at odds with the cognitive approach to habit, as habit is goal directed, and not unselective.

Empirical Uses and Gratifications Studies of Habit

Greenberg (1974) conducted one of the earliest empirical mass media investigations to establish habit in the uses and gratifications perspective. First, 180 English schoolchildren at ages 9, 12, and 15, wrote short essays on "Why I Like

Television." Those essays were analyzed, and Greenberg concluded that children's television viewing reflected eight rationales: to pass time, as a means of diversion, learning about the world, learning about the self, arousal, relaxation, companionship, and habit. The eight television viewing rationales each were then rewritten as three or four items each on a questionnaire that was administered to 726 English schoolchildren, using a 4-point scale that varied from "a lot" to "a little." The exploratory factor analysis accounted for 56% of the total variance. Of interest to this research were the four items that loaded onto a single factor: "because I just like to watch" (.78), "because I just enjoy watching" (.72), "because it's a habit" (.58), and "because it's so much fun" (.48). Greenberg called the resulting factor "habit," and as a whole, the four habit items represented 14% of the common variance. An additional 5% of the variance was accounted for by two different factors that Greenberg called "Pass Time 1" and "Pass Time 2," that included "when I'm bored" (.70 on Pass Time 1), "when I have nothing better to do" (.64 on Pass Time 1), "because it passes the time away" (.60 on Pass Time 2), and "because it gives me something to do" (.50 on Pass Time 2). Across the three age groups, the single habit factor and the two pass time factors exhibited the highest mean strengths of the eight factors, which Greenberg perceived as denoting the power of habit and pass time in the use of television. "Habit" and "pass time," often combined into a single factor, found their way into multiple uses and gratifications studies over the succeeding years (for example, Conway & Rubin, 1991; D. A. Ferguson & Perse, 2000; Perse & Dunn, 1998; Perse & Rubin, 1988; Pingree et al., 2001; Rubin, 1983; Rubin & Step, 2000).

Yet the habit and pass time factors raise as many question as they answer. Greenberg drew these items from open-ended self-reports of media users in which frequently appearing phrases such as "it's just a habit" or "it's just something I do" were then presented as scalar items to a different sample, and then factor analyzed. Semantically, the ideas represented may have tapped motivations different from habit itself. For example, the item "because it's fun" may rely on an active desire to seek entertainment, not habit. Even the item that specifically called out habit is problematic. Prior research has shown that respondents sometime focus on seemingly inconsequential words in an item (Sudman, Bradburn, & Schwarz, 1996), so it is possible that subjects focused on the word "just," as in "just like" and "just enjoy" as a way of communicating that their motivation for viewing television is indeterminate and perhaps not open for self-report. In this way the subjects reported habit or even enjoyment as a viewing motivation as much as they are offered "just" as a proxy for "I can not/will not articulate my reasons for media use." In other words, these responses do not bespeak active, "self instructed" media selection at all, but an automatic, even unconscious, process. Beyond the indeterminacy of the language in the items, a second area of concern was the relatively modest loading of .58 from the habit item on the habit factor itself (LaRose, 2001). In sum, what the uses and gratification factors as "habit" may not be a gratification, but an indeterminate artifact of the over-interpretation of exploratory factor analyses.

The difficulty of parceling out habitual media selection from active, thoughtful processing of potential media use was shown by Levy and Windahl's (1984) study of news viewing by 390 adults in Sweden. They operationalized selectivity as the degree to

which the subjects planned their schedules around news programs, thought it important to view the entire news program, and checked the time so as not to miss the news program. The three items intercorrelated moderately ($r = .52$, $p < .001$), and were summed to provide their measure of pre-activity. Pre-activity correlated moderately with measures of postactivity such as discussing the content of the news program ($r = .53$, $p < .001$), indicating perhaps that those viewers who planned their news viewing also were active in their thinking about news following the program. The pre-activity measure also correlated moderately ($r = .45$, $p < .001$) with a gratification-seeking surveillance factor that included, for example, "knowing about things that influence my life," and a gratifications-obtained factor ($r = .40$, $p < .001$) that included items such as "get facts for opinions." Levy and Windahl concluded that their evidence supported an argument that the television audience was not absolutely active, but that audience activity differed by individual, medium and content (they called it "communications setting"), and temporal location in the communication sequence. They argued that contrary to the activity assumption of the uses and gratifications paradigm, audience activity could vary. This study demonstrated one of the primary difficulties of measuring audience activity via self-report: repetitive behaviors such as "always making time to watch the news" can be described as an indicator of an active audience in the uses and gratifications paradigm, but also by psychologists as an indicator of habit. "Always making time" implies the behavior is recurrent, while "to watch the news" implies both a goal. The daily performance of the behavior suggests that it requires little effort. In sum, selectivity and habit may not be completely adversarial constructs.

The repetitive use of television as seen by Levy and Windahl (1984) was evidenced on grand scale by Barwise (1982), who analyzed the Arbitron viewing diaries of 18,000 individuals in New York City, Los Angeles and San Francisco. He argued that an individual's loyalty to a program, as evidenced by viewing of episodes week after week, was an indicator of an active audience. In primetime this was the case 70 % of the time, and 90 % of the time during daytime programming. The Barwise hypotheses of active program selection seems to have been undercut by empirical findings of substantial "inheritance effects" in television programming, in which the individual viewership of one program is predicted to a large degree by the individual's viewing of the previous program (Comstock, Chaffee, Katzman, McCombs, & Roberts, 1978; Webster & Phalen, 1997). Additionally, the Barwise investigation is an example of the difficulties of placing habit within the realm of audience activity, in that the repeated behavior of tuning in to the same program week after week was considered an indicator of audience activity. In contrast, repeated behavior in some social psychological paradigms (Bargh, 1992, 1994) are considered indicators of habitual behavior, possibly entailing a reduced degree of cognitive activity, or mindlessness, for its performance (Timmerman, 2002). In this sense, the "active selection" of media in these uses and gratifications studies was the opposite of mindful activity as defined in psychological studies, reflecting the sometime profound disparity between the conceptions of habit in mass media research and psychological research.

In a ratings reanalysis, Rosenstein and Grant (1997) compared weekend television viewing to the same hours of weekday television viewing, and found that more than 80% of the variance in weekend viewing was accounted for by only two factors: viewing to

the previous weekend hour, and habitual viewing to the same hour during weekdays, with habit defined as routinely performed activity. Rosenstein concluded that "habit does play a significant role in shaping individual viewing behavior" (Rosenstein & Grant, 1997, p 12).

While Rosenstein and Grant defined habit as routinely performed activity, their operationalization of habit as the coincidence of viewing in a specific weekday time with a weekend viewing at the same time failed to account for the possible contextual differences between weekdays and weekends. For instance, an individual may habitually turn on the television upon awakening. However, if the individual's weekday and weekend wake-up times differed, perhaps as a result of work requirements, then Rosenstein and Grant's analysis would understate this habitual use of television.

Similar results to Greenberg (1974) were obtained from a survey of the television viewing rationales of 626 Midwestern adults, in which two "habit" items ("Just because it's there" and "Because it's a habit, it's just something I do") and three "pass time" items ("When I have nothing better to do," "Because it passes the time away, particularly when I'm bored," and "because it gives me something to do to occupy my time") loaded on a single factor with an eigenvalue of 6.66, explaining 49.7 % of the common variance (Rubin, 1983). Data from a survey of 300 Midwestern television viewers found only one substantial factor, for habit/pass time, among a four-factor solution that accounted for a mere 42 % of the total variance. A canonical correlation analysis provided some support for the instrumental/ritual dichotomy, with 40 % of variance in common obtained from habit, pass time, entertainment and relaxation items, and 37 % of the variance in common obtained from information, learning, and gathering behavioral guidance (Rubin, 1984).

Rubin and Perse (1987) extended the study of audience activity to the viewing of soap operas, with a single "habit" item ("Because I just like to watch") loading onto an entertainment factor that also included items for enjoyment and excitement gratifications. However, a similar item ("Just because it's on") in the domain of television news viewing loaded not upon an entertainment factor, but on "pass time."

The use of exploratory factor analysis in the aforementioned studies demonstrated the problematic nature of unlocking habit within the uses and gratifications paradigm. Typically, three or more items are required to compose a single factor (Agresti & Finlay, 1997, p. 630), so the single-item or two-item approach undermines the creation of a single factor. The solution for uses and gratifications researchers was to combine habit items with pass time items, and thus confound repetitive use of a medium because it is a habit with the active selection of a medium because it occupies time, is somehow pleasant to use, or relieves a dysphoric mood. Indeed, the typical item "It's a habit that I just enjoy" confounds habitual behavior with another well-defined gratification of media use, entertainment. An example of this approach, in which the three Greenberg (1974) habit items were compressed into a single habit item ("It's an enjoyable habit I like doing") had the highest level of agreement as a rationale for primetime soap opera viewing within a study of 289 adult television viewers in Memphis (Stone & Stone, 1990), but it is impossible to parcel out the potential gratifications for "enjoyment" of watching soap operas from the habit of watching soap operas.

Admittedly, multiple empirical studies have shown substantial correlations between the uses and gratifications habit indicators and the uses and gratifications pass time indicators. But using media to pass the time may co-occur with habit not because

they are identical constructs, but because passing time with mass media implies that the media use behavior is less challenging cognitively than the non-media use alternatives. Like habit, passing time is easy, but unlike habit, passing time is not necessarily frequent.

In one of the strongest challenges to the uses and gratifications assertion of mass media selectivity, Elliott and Rosenberg (1987) followed the media selection behaviors in the face of a newspaper strike. They expected to see compensatory media usage during the strike, as frustrated newspaper readers turned to television for news, or replaced their local newspaper with out-of-town or national publications. In fact, there was little change in media use behavior. Elliott concluded that the gratifications obtained from newspaper reading were related to habitual behaviors of newspaper reading, and not the fulfillment of instrumental needs of, for example, surveillance of events in the local community (Elliott & Rosenberg, 1987, p 687). However, Elliott didn't test for habit, instead concluding that since reading behavior and perceived gratifications are only loosely related in their data, then "habit" must drive newspaper reading. In sum, this study provided support for the assertion that a portion of media selection is habitual, in that a learned behavior is automatically repeated. The uses and gratifications paradigm would have the newspaper-deprived subjects compensating with new behavior. Instead, given the given the environmental change (no newspaper), the behavior simply ceased and was not adapted.

The diffusion of the Internet provided an opportunity to extend the habit conceptualization to a new medium. Ferguson and Perse (2000) adapted the television uses and gratifications items in an online survey of 236 undergraduates' Internet usage, concluding that "there were more similarities between web surfing and television viewing

than differences (D. A. Ferguson & Perse, 2000, p. 171). Four factors emerged: entertainment, pass time, relaxation-escape and social information. The habit items, "I just like to do it" (factor loading of .78) and "It's a habit, it's just something I do" (.45) loaded onto the entertainment factor, along with four other dimensions of gratifications of web use, "It amuses me," "It's exciting," "It entertains me," and "It's thrilling." Similar to earlier studies, the single item that directly called out habit, "it's a habit, it's just something I do," was only a moderate addition to its own factor. A similar study (Papacharissi & Rubin, 2000) among 279 undergraduates had a single habit item which may be more related to enjoyment than habit, ("I just like to use it") loaded onto the last usable factor (.69), also comprised of two entertainment items. LaRose and Eastin (2002), noting that previous uses and gratifications research may have suffered from the under-determination of the habit variable, used three items ("the Internet is part of my usual routine," "I find myself going online about the same time each day," "I would miss the Internet if I could no longer go online") with an alpha of .76, to examine a relationship between habit strength and Internet usage (β =.239, t = 3.23, p<.001). The overall regression equation that included habit explained 28 % of the variance in Internet use.

The question of the extent to which habit drives media use and its subsequent gratifications perhaps has been lost in the newest round of uses and gratifications research on the Internet (for example Flanigan & Metzger, 2001; Papacharissi & Rubin, 2000; Ruggiero, 2000). In some of this research it was assumed that since the computer requires the physical manipulation of devices such as a computer keyboard and mouse, there must be a corresponding conscious effort, and therefore computer use is inherently "active" (Rodgers & Thorson, 2000). However, this conclusion confounded mental

activity with physical operation of a device. It is possible that the decision to select a computer for a communications task could become habitual, while the accessing of content on the computer could remain within the realm of audience activity. In this way computer use could mirror the television model envisioned by Barwise (1982), in which the selection of a medium was automatic, but the selection of programming was a taken as evidence of audience activity. But like television, the possibility exists that the navigating of the Internet programming is also automatic. The inheritance effects of one program's viewers staying tuned for the following program (Rosenstein & Grant, 1997) is mirrored by the usage patterns of the Internet, in which the usage to one site is a function of the links to other popular site (Nielsen//NetRatings, 2000). Internet research that included habit as a distinct component has shown it to be a powerful predictor of Internet usage (LaRose, Mastro, & Eastin, 2001).

Habit in Social and Cognitive Psychology

There is an on-going debate about the usefulness of studying habit in psychology (Ajzen, 2002). Triandis (1979) theorized that the chance of a behavior's occurrence is predicted by a weighted combination of habit and behavioral intention, multiplied by the physiological arousal and facilitating conditions that can constrain the behavior. Habit, to Triandis, includes the automatic performance of behavior, as well as the individual's perceptions of the outcome of the behavior when performed in the past. Intention is the self-instruction to perform the behavior. Physiological arousal spans from 0 (asleep) to 1.00 (extreme arousal), while facilitating conditions are external to the individual, and take into account the barriers and incentives to the behavior that occur in the

environment. Extending this formulation to electronic mass media selection, habit would be the automatic selection of the media device, intention would be the self-instruction to use the mass media, physiological arousal would be the physical state of the individual, asleep or awake, and facilitating conditions would be the operation of the media system. For example, a power failure would mean the facilitating conditions would score a 0, and thus prevent the media selection from occurring, regardless of the media selection habits, behavioral intention, or physiological arousal state of the individual.

Landis, Triandis and Adamopolous (1978) tested a model in which habit, defined as the consistency of behavioral frequency across time or settings, was placed in a model in which the probability of an act equaled the weighted functions of habit and behavioral intentions, multiplied by the facilitating conditions. In a study of the classroom interaction styles of 77 teachers, classroom behavior was habitual and not intentional, in that teachers did as they had done in the past, for example, in their use of praise in the classroom. There was no link between a teacher's intention and their behavior, which the authors suggested was due to mismatches between surveyed intention and behavior. New behavior was proposed to be under the control of intention, but as behavior is repeatedly executed, habit plays a larger role, while the role of behavioral intent decreases.

In opposition to locating habit as a direct antecedent of behavior are the theory of planned behavior (Ajzen, 1985), its predecessor, the theory of reasoned action (Ajzen & Fishbein, 1980), and the expectancy value formulations of Fishbein and Ajzen (1975). All are similar in foundation to the uses and gratifications paradigm, in that they presume individual behavior to be the outcome of thoughtful processing of information about the consequences of behavior. More specifically, the Theory of Planned Behavior maintains

that behavior is intentional, and intention itself is a result of attitudes towards the behavior and subjective norms. The attitude towards the behavior is in turn a result of beliefs that the behavior leads to particular outcomes, and the evaluation of these outcomes. Subjective norms are driven by the perceived beliefs that others have towards the individual's behavior, and the extent to which the individual is motivated to comply to with norms of those referents (Eagly & Chaiken, 1993, p. 172). Thus, similar to uses and gratifications, the structure of the theory of planned behavior and theory of reasoned action have little theoretical rationale to add non-thinking, automatic processes such as habit to the model.

The theory of planned behavior has seen substantial use in the prediction of health-related behavior such as smoking, eating, exercise and sexual practices. Overall, the TPB variables explain an average 41% of intention and 35% of behavior (Godin & Kok, 1996). However, in many health-behavior studies habit was a better predictor of behavior than intention. For example, in a survey plus diary study of the dietary activities of 800 Italian adults, the consumption of fatty foods was better predicted by past consumption than it by intention (Saba, Vassallo, & Turrini, 2000).

The problem with neglecting habit in the theory of reasoned action and theory of planned behavior models is the empirical finding that both habit and intention can be direct antecedents of behavior (Ouellette, 1996). Ouellette and Wood (1998) conceptualized habit as well-learned, routinized behavior that an individual repeats across time. Using this conceptual definition, they conducted a meta-analysis of studies involving multiple behavioral domains, and found a .59 correlation for daily or weekly tasks between habit, usually operationalized as past behavior, and "future" behavior,

measured one or two weeks following the initial data collection. For behaviors that were performed at wider time intervals or in unstable contexts, for example, attendance at protest rallies, the correlation between habit and future behavior dropped to .27. Overall, they found a .39 correlation between habit and future behavior across all studies, giving habit a somewhat larger correlation with future behavior than that of attitudes (r=.33), and smaller than that of intention (r=.54). In the one study that looked at television use (Ouellette, 1996), intention and perceived behavioral control predicted 19 % of the variance in television viewing. Adding habit improved the prediction to 24 % of viewing.

The role of habit in these formulations was also questioned by Bagozzi (1982), who in a study of the relationship of past behavior, intention and future behavior, created a structural equation model that showed future blood donation behavior to be directly affected only by the intention to give blood, and indirectly by the past blood donation practices of the individual. He suggested that since the target behavior of blood donation required planning, assessment, and weighing of consequences, habit would play no direct role. However, he also suggested that habit would play a role for inconsequential behavior.

Ajzen (2002) argued that habit plays no role, directly or indirectly, in the exercise of behavior. He maintained that in the absence of a method of measuring the habit construct beyond that of behavioral frequency, habit was solely an indication of behavioral stability, and not some underlying psychological process. He went on to challenge what he called the circular reasoning of habit: one infers that behaviors

repeated over time are habit, and thus habit becomes the explanation for the repeated behaviors (Ajzen, 2002 p.110).

Conner and Armitage (1998) reviewed the role of past behavior in studies using the theory of planned behavior (Ajzen, 1985) and the theory of reasoned action (Ajzen & Fishbein, 1980), finding an overall .68 correlation between past and future behavior for behavioral domains such as exercise, smoking, and consumption of sweet and fatty foods. While sidestepping the issue of identifying the process by which past behavior relates to future behavior, they argued that past behavior should be considered for addition into the theory of planned behavior model as moderator of intention, which in turn is the sole predictor in the model of behavior. In their review, past behavior was equated with habit, as measures for both were semantically indistinguishable.

This circular reasoning, that the frequency of past behavior is the primary indicator of habit, has undermined the habit construct as a valid predictor of future behavior. However, multiple studies in domains such as travel, health and exercise have provided a case for the inclusion of habit into explanations of the performance of human behavior (Armitage & Conner, 1998). The dispute centers on the distinction between habit as simply descriptive of past behavior, in opposition to the conception of habit as an explanatory force in the understanding of current behavior. In sum, the controversy is between habit as a description of the frequency of past behavior versus habit as a concept that can be "unpacked" to help understand current and future behavior.

One current argument is that habit should no longer be considered a black box unworthy of study, but as learned responses that are goal directed (Verplanken & Aarts, 1999). Thus, habit should no longer considered a variable with little explanatory power,

but the end result of goal-oriented behaviors that have been routinized through practice and triggered within a stable environment by the intersection of goal orientations and a environmental stimuli (Bargh et al., 2001).

Bargh (1989) disentangled the overlap of past behavior and habit by applying the concept of automaticity to complex cognitive processes. Defining automaticity as a process that is unintentional, involuntary, effortless, autonomous, and occurring outside of awareness, Bargh argued that most, if not all, complex cognitive activities are a combination of both automatic and controlled processes. Additionally, Bargh submitted that these while these elements describe automaticity, not all of these elements are required for a behavior to be considered automatic.

The developmental rationale for inclusion of automatic processes is that an individual's capacity for self-regulation is limited. If an individual had unlimited capacity for processing information, then automatic behavior would be unnecessary. But as individuals are limited in the quantity of cognitive processing available, automaticity provides the benefit of replaying behaviors that were beneficial in the past without incurring additional processing cost in the present. For example, in an experiment by Baumeister (1998), subjects who had to prevent themselves from eating from a plate of chocolate chip cookies were less persistent on a word completion task than the control group. Resisting temptation has a psychic cost, an observation expanded to conclude that individuals have a limited store of cognitive activity. The role of automaticity is to avoid the misallocation of cognitive resources, so the execution of routine cognitive processes maintains some capacity to cover less routine needs (Bargh & Chartrand, 1999).

A series of empirical studies in the domain of travel choice served to extend the Bargh concepts of automaticity and controlled cognitive processes to habit. Consistent with Bargh, strong habits were associated with less processing of information about options for travel, thus suggesting that habitual choices require fewer cognitive resources (Aarts, Verplanken, & van Knippenberg, 1997; Verplanken, Aarts, & Van Knippenberg, 1997). Habit could even override intention among individuals with strong preferences for, and habitual use of, a specific mode of travel (Verplanken, Aarts, Van Knippenberg, & Moonen, 1998). Habit was further developed as a subset of automaticity, with the addition of habit as being intentional in the sense of being goal-directed and to some extent, controllable. In addition, habit was considered to require environmental stability, especially when the habit was in a formative stage (Bargh, 1992).

However, Abelson (1981) proposed that scripts, as expectations of behavioral responses, were tolerant of environmental variation. Scripts, to Abelson, were not habits, but response programs that control habits. Scripts describe the steps of the execution of a behavior. The scripts save cognitive energy, in that they provide a mechanism for identical responses to varied events. For example, an individual who has learned to negotiate a menu at one restaurant can then carry out the script for menu reading at different restaurants. The skill has been learned, and modest changes in environment can use a variation of the same script.

Environmental stability was considered by Ouellette (1996) to be the degree to which an individual's surroundings are unaltered across time, thus providing a fixed stage for the performance of behavior. Once formed, the habitual behavior could be conducted in situations generalized from the learning stage. And finally, habit was considered to be

functional, in that the outcome of the behavior should be linked to reward (Verplanken & Aarts, 1999).

Empirical Applications of Cognitive Approach to Habit

Habit has been treated as a factor that varies in strength. In past research, the typical measurement of habit strength has been via self-report (Verplanken et al., 1998; Verplanken & Orbell, 2002) in which a higher number in the self-reports indicated a stronger habit. The frequency of behavior may vary with factors unrelated to habit, such as social constraints, the preferences of others or situational pressures, such as environmental impediments to the performance of the behavior (Ouellette, 1996).

In contrast, recent approaches to measuring habit tap dimensions of automaticity using laboratory-based methods instead of self-report. For example, Ouellette (1996) studied repetitive behaviors in the domains of recycling, condom use, drinking, television viewing and exercise, in which habit was measured via response latency to computer-projected words. The speed of response was presumed to be an indicator of the ease of accessibility, which in turn indicated habit. An extensive series of studies in the domain of transportation, decisions provided individuals with scenarios that required a transportation mode choice, and their responses were elicited under time pressure, which was intended to trigger schema responses, thus tapping the "effortless" dimension of automaticity (Verplanken et al., 1998). Aarts and Dijksterhuis (2000) followed a similar strategy to elicit habit strength, in which subjects were asked to simultaneously add a set of numbers and answer questions about travel mode choices. In trials in which subjects were required to suppress their typical choice (for example, subjects who primarily used

bicycles for transportation could not answer "bicycle"), the typical, habitual choice was more frequently elicited under conditions of cognitive load, tapping the "unintentional" dimension of automaticity. Aarts and Dijksterhiuis concluded that an individual's limited cognitive resources were strained by the effort of suppressing the easily accessible answer, which then allowed the non-thinking, habitual response to be activated.

However, the laboratory-based methods were often unwieldy to administer when compared to self-report, prompting Verplanken and Orbell (2002) to develop a multi-item scale of habit strength, the Self-Reported Habit Index (SRHI). Using a modified item-list based on Bargh's (1994) perspective of automaticity as goal-oriented, to some extent uncontrollable, lacking in awareness, and efficient, habit was defined as "behavior that is intentional in origin, to a limited extent controllable, executed without awareness, and efficient in the use of cognitive resources" (Verplanken & Orbell, 2002, p. 9). Additionally, borrowing from the theory of planned behavior (Conner & Armitage, 1998), Verplanken and Orbell characterized habit as a part of an individual's self-identity, in that frequently executed behavior was assumed to be a part of the organization of everyday life. For example, someone who habitually watches professional football games might consider himself a NFL fan. And finally, tapping into previous definitions of habit as repeated behavior, habits were considered to be behaviors that had a history of repetition.

From this theoretical basis, a 12-item scale, the Self-Report Habit Index (SRHI) was tested to assess its factor structure, test-retest reliability, convergent validity with other forms of habit strength measures, and its ability to discriminate between high-frequency daily behaviors versus lower frequency weekly behaviors (Verplanken &

Orbell, 2002). The items were suggested by a review of the literature of automaticity. A principal component analysis suggested that the SRHI was one-dimensional, with between 48 and 55 % of the variance being accounted for in the first factor. A test-restest with a one-week delay indicated an acceptable degree of reliability ($r = .91$, $p < .001$). The convergent validity of SRHI was indicated by correlating the SRHI scores with corresponding self-reported behavioral frequency measures, with watching a popular daily television program correlated at .74, eating candies at .55, and listening to music at .65. Additionally, the SRHI correlated at .58, $p < .001$ with the previously described response frequency task, in which subjects responded as quickly as possible between travel mode choices for a given destination.

Finally, the SRHI was tested for its ability to discriminate between daily and weekly habits. Mean scores for daily and weekly habits differed significantly ($t = 2.31$, $p < .03$) with lower SRHI scores for weekly behaviors than for daily behaviors. In sum, the 12-item SRHI appears to advance the study of habit through its basis in automaticity, a single component structure, acceptable test-retest reliability, and moderate to strong correlations between the SRHI scores and traditional behavioral frequency measures. Additionally, unlike measures of habit strength that rely upon testing under cognitive load or measuring reaction times, the SRHI is administered efficiently as a paper-and-pencil questionnaire.

The Connection Between Intention and Behavior

While James (1890) may have seen habit as the predecessor to action, and habit is often proposed as the most powerful, albeit un-illuminating, predictor of behavior

(Triandis, 1971), multiple lines of social psychology research that focus on behavioral outcomes, including the theory of reasoned action (Ajzen & Fishbein, 1980; M. Fishbein & Ajzen, 1980) and its successor, the theory of planned behavior (Ajzen, 1985), offer intention as the sole direct antecedent of behavior. As noted earlier, the intention-behavior connection appears to have wide empirical support: Sheeran's (2002) analysis of 10 meta-analyses reported a mean correlation between intention and behavior of .53 within a group of studies comprised of 422 hypotheses and a combined sample size of 82,107. So while intention may account for 28% of the variance of behavior in these studies, could habit, in the guise of automaticity, be responsible for some of the unexplained variance?

The interaction of habit and intention is significant for the prediction of behavior (see Aarts et al., 1997; Verplanken et al., 1998), but the individual addition of each to the prediction of behavior may vary with the behavioral domain. Individuals are often aware and accepting of their own habits, and thus will report the intention of conducting those behaviors at specific times in the future. However, behaviors performed frequently may be less under intentional control than behaviors performed infrequently. For example, brushing one's teeth every morning may be more habitual than intentional, while going for a yearly dental checkup more intentional than habitual. Most people can choose to access electronic mass media on a daily basis, thus placing media use in the domain of potentially frequently performed behaviors, yet the daily use of electronic media is not necessarily so routine as to obviate a modicum of intent in its selection.

Triandis (1971) asserted that behavior is driven by attitude towards the object, social norms, habits and expected consequences. The strongest predictor variable of

behavior is habit, followed by norms, expected consequences and finally attitude. However, while Triandis offered no explicit definition of habit, it seemed that habit represented repetitive behavior.

Babrow and Swanson (Babrow, 1989; Babrow & Swanson, 1988) integrated gratification seeking theory with expectancy-value theory (Palmgreen et al., 1985), suggesting that gratifications sought by individuals had a direct effect on the intention to watch news and soap operas, and those intentions were the sole antecedent of exposure to the programming. While their formulation did not include habit, it did provide the bridge from uses and gratifications to the intention-behavior theories, albeit an unsuccessful one empirically in establishing a connection between gratification and exposure.

Hypotheses

This review of the literature of mass media uses and gratifications and social psychology, specifically the theory of planned behavior, has shown the difficulties of integrating habit into theoretical models. The first problem is foundational: both theoretical approaches are based on the assumption that the individual is an active thinker and decision maker at all times. To the extent that a behavior is automatic, habit undercuts the assumption of an individual's mindful consideration of their behavior.

The second problem is that of specification and measurement, as the strength of habit has been confounded with its parts: how often a behavior is conducted, the ease to which is has been conducted, and the extent to which the behavior is part of a routine. This review has noted the difficulty of measuring habit. For uses and gratifications, the habit variable has been assembled from the atheoretical comments of schoolchildren, and

then statistically combined, and perhaps confounded with, actively sought entertainment gratifications. For the theory of planned behavior and other social psychological investigations, habit has been equated solely with the frequency of behavior.

This research envisioned an exploration into the relationship between habit and media selection. Habit was conceptualized as the automatic execution of learned behavior within a stable environment. As such, habit would be a predictor of media selection beyond that of the intention to use the media. Individuals would be expected to select media at a given point in time based on their habitual prior selection of that specific medium, as well as their intention to use the media.

This chapter has previously discussed the problematic nature of the measurement of habit strength, and has compared two measures of habit: the uses and gratifications habit/pass time factor (Greenberg, 1974; Rubin, 1984) and the self-report habit index (Verplanken & Orbell, 2002). The first hypotheses set sought to disentangle the measurement of habit, and then compared the rebuilt habit construct with past behavior performed within a stable context.

H1a: Habit and pass time gratifications are separate constructs.

H1b: Habit will be positively related to past media selection behavior.

The expression of habit requires to some extent a stable environment (Ouellette & Wood, 1998). Environmental elements, such as technical problems with a telephone line or the Internet, would of course affect an individual's selection of media at any point in time. Additionally, instability in the social environment, such as unexpected visitors, or transient necessities, such as work or school deadlines, would also serve to lessen the role of habit strength in its ability to trigger behavior (Conner & Armitage, 1998).

Environmental stability can also be thought of as "facilitating conditions" (Triandis, 1979) in that in their absence, the behavior is unable or less likely to occur. As such, the second hypothesis deals with the relationship of habit strength, the stability of the environment, and media choice, with the prediction that the instability of an individual's environment will moderate the exercise of habitual behavior. In the domain of media selection, a higher degree of environmental stability should lead to a greater correspondence between habitual behavior and future.

H2: A higher degree of environmental stability will allow for the greater exercise of habit in the choice of media.

The final hypothesis investigated the overall argument that media selection behavior is the result of a combination of habitual choices and intentional planning. Eagly and Chaiken (1993, p.209) proposed a composite model that provided, in part, for habit to directly affect behavior, which added habit alongside of intention as the direct precursor to behavior (Triandis, 1977). In domains such as the selection of travel mode (Aarts et al., 1997) and exercise (Ouellette, 1996), habit was a predictor of future behavior that explained additional variance compared to intention alone. Extending this research to the domain of media selection, both intention and habit were predicted to cause media selection behavior. This is in opposition to the research tradition of uses and gratifications, in which all media choice is active, "self-instructed" behavior (Greenberg, 1974). However, it is consistent with an early conceptual model (Palmgreen et al., 1985), in which "habitual media behavior" that position habit as a distinct gratification. Additionally, this model is also in opposition to the theory of planned behavior, which in its original formulation, made no allowance for habit (Ajzen, 1985). This model is

consistent with the reciprocal causation model within social cognitive theory (Bandura, 1994), in which outcome expectations, functionally similar to gratifications (LaRose et al., 2001), propel both the ongoing development of unthinking, habitual behavioral and the thoughtful responses to novel situations. This model also provides for habit to influence intent, as individuals may be aware of their habit, and use this awareness in the formulation of behavioral intention (Ouellette, 1996).

Stone and Stone (1990) suggested that habit was a psychological reinforcing mechanism within the uses and gratifications perspective, in that gratifications, repeatedly experienced over time, would habituate the individual to media use, and in doing so, reduce the cognitive load of selecting mass media. A possible example might be daily news programs: an individual watches a news program over time to obtain gratification, and that gratification reward reinforces the habitual viewing of news. No intention to watch news is now necessary: it has been made, and made again, in the past. More recent experiences with gratification from unfamiliar programs would require an intentional decision to continue to seek out the program. A hypothesized model based of this view is pictured in figure 2-1. This model is similar to the theory of planned behavior (Ajzen, 1985) in the linkage from intention to behavior, but in the TPB formulations, there is no connection from habit to behavior.

As discussed earlier, habit has been intermittently viewed in the uses and gratifications paradigm as one of many gratifications to be obtained from media use. As uses and gratification theorists (for exampleBlumler, 1979; Katz, Blumler, & Gurevitch, 1974b; Rubin, 1984) considered the audience to be active in their use of media, a model of the process of media selection could have intention as the sole antecedent of future

media selection, with habit being one of an array of gratifications that precede the creation of media selection intentions. Figure 2-2 presents a model of the process, adapted from Palmgreen (1985).

In contrast to the two models presented above, Landis et al (1978) theorized that habit and intention are additive predictors of behavior. Intention is the outcome of expectations of gratification from the act, while habit is a function of past behavior. Figure 2-3 models the process, as it relates to habit, gratifications, intention and future behavior. Thus the three competing models provide alternative views to the role of habit in the selection of electronic media, with model 1 (Stone & Stone 1990) hypothesized as the most appropriate for the understanding of how habit causes media selection behavior.

H3: Both the habitual use of a medium in the past and the intention to use the medium in the future will directly cause the medium to be selected.

Summary

In an effort to come to an understanding of the role of habit in the selection of electronic media, this chapter reviewed the concept of habit as it has appeared in mass media literature and psychology. Within uses and gratifications, habit has been a troubling concept. Individuals ascribe their day-to-day selection of mass media to habit, and seem to perform the behavior effortlessly and with little thought. However, within the uses and gratifications paradigm, the active and intentional use of mass media is assumed. In contrast, social psychological definitions and investigations of habit have perhaps been more theoretically based, with a seeming consensus that habit is a form of automaticity. This chapter argued that an individual's behavior is the outcome of both

habit and intention, and presented three hypotheses to develop a relationship between habit, intention and behavior in the domain of mass media selection.

This research tested the proposition that future behavior is the outcome of both intention and habit. In this way, a behavior is repeated frequently in the past to become habit. Given the appropriate stability in the environment of the individual, habit then becomes a predictor of future behavior, along with intention. Similar to the model by Bentler and Speckert (1979) that proposed to incorporate past behavior into theory of reasoned action, this model may be especially applicable to the interpretation of mass media selection, as mass media use can be both quite repetitive (Bentley, 2000; Lin, 1996; Rubin, 1984), and can also involve the exercise of deliberate choice (Ouellette & Wood, 1998). The following chapter will describe in detail the methods used to test those hypotheses.

Figure 2-1

Hypothetical model adapted from Stone and Stone (1990)

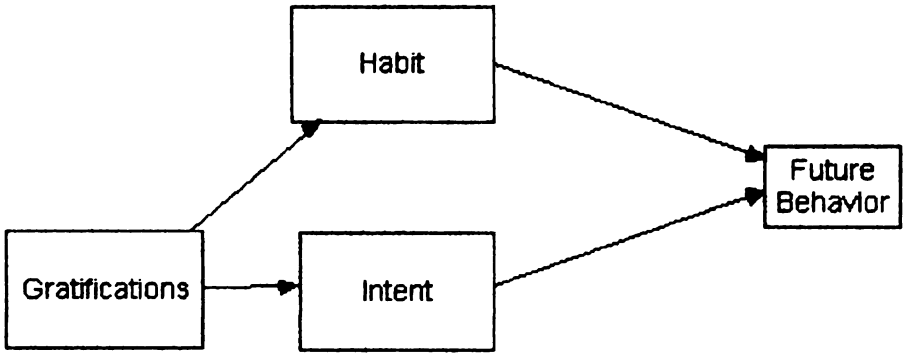


Figure 2-2

Hypothetical Model Suggested by Palmgreen (1985)

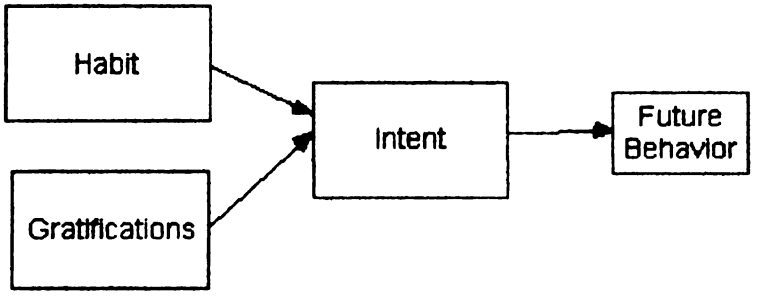
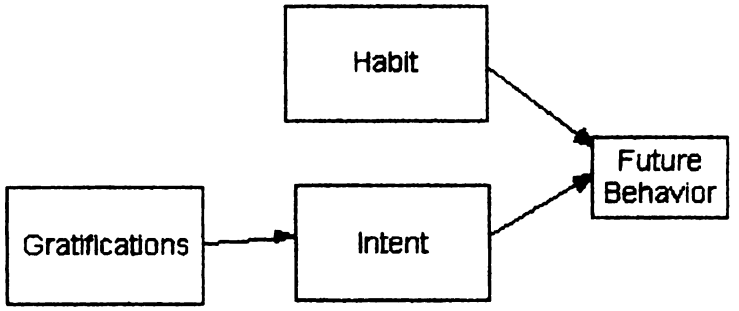


Figure 2-3

Hypothetical Model Suggested by Landis, Triandis, Adamopolous (1978)



Chapter 3

METHODS

Introduction

This investigation sought to delineate the differences between the intentional and habitual selection of mass media at a particular point in time. As such, it required 1) the measurement of both media selection intent and habit, followed by 2) the recording of the media selection behavior. Four media were chosen as target behaviors: television, World Wide Web (Web), e-mail, and Instant Messenger. The rationale for the selection of the four media was three-fold. First, prior research that compared intention and habit to future behavior was limited to television (Ouellette, 1996; Verplanken & Orbell, 2002), while individuals have at their disposal multiple media, and the processes of between-media choice are of growing interest to mass media scholars (Coffey & Stipp, 1997; Kayany & Yelsma, 2000; Morrison & Krugman, 2001; Owen, 1999; Perse & Dunn, 1998) and industry (Bhatia, 2000; Bruskin & Worldwide, 2000). Second, the four media differ in terms of the number of years of experience, ranging from life-long experience with television to a few years with the emerging medium of Instant Messenger. As habits are theorized to increase in strength over time (Ouellette & Wood, 1998), applying these measures to behaviors that have been performed over multiple time spans allowed an investigation into differential habit strengths. Third, different media fulfill different needs in the uses and gratifications perspective. Television is one-way and substantially a medium of entertainment, while World Wide Web, e-mail and Instant Messenger can be two-way and offer users a broader range of capabilities (Morrison & Krugman, 2001). This study's use of the four media provided an opportunity to investigate the claims of

Internet theorists that computer mediated communications are especially active (Power, Kubey, & Kiousis, 2002).

Research Design

The research design followed a pattern for this investigation similar to those of previous studies of the habit/intent versus intent/behavior relationship, in which self reports of past behavior, usually collected via survey, were matched to self reports of future behavior, usually collected via diary (Aarts & Dijksterhuis, 2000; Aarts et al., 1997; Aarts, Verplanken, & van Knippenberg, 1998; Ouellette, 1996). However, this present investigation employed a larger sample than all but one of these previous studies.[1] Ajzen and Fishbein (1980) demonstrated that the measurement of intent is more accurate the shorter the duration between the recording of intent and possible performance of the behavior, as outside factors such as change in environment may mitigate the behavior-attitude linkage, so this investigation incorporated a single day between the measurement of intent and the reporting of the subsequent future behavior.

Data Collection Instruments

The pencil and paper survey was comprised of the 12 Self Reported Habit Index and 6 uses and gratifications habit/pass time items for the measurement of habit for each medium (television, World Wide Web, e-mail, and Instant Messenger), one for the measurement of intent to use each medium on the succeeding night, and four demographic items. The complete survey instrument is contained in Appendix A. All habit items employed a seven-step Likert type scale from "strongly agree" to "strongly

[1] N's for other survey-diary studies ranged from a low of 42 to a high of 200, with a mean of 95.3, SD=54.5.

disagree." For each target medium, habit was assessed using two competing batteries of items. The first was the six habit/pass time statements previously used in uses and gratifications research (Rubin, 1983). These were: I watch/use (medium) at home... "just because it's there," "just because I like it," "just because it's a habit, it's something I do," "because it passes the time," "when I've got nothing else to do," and "when there's no one else to talk to or be with." The second battery of habit questions was developed from the Self Reported Habit Index, hereafter referred to as the SRHI (Verplanken & Orbell, 2002). The SRHI was developed from an automaticity perspective that habits are behaviors which to some extent uncontrollable, are efficient in their ability to free mental capacity for other tasks, and to some extent executed with only limited awareness (Bargh, 1992, 1994). Verplanken (2002) created the SRHI as a 12-item instrument that combines controllability, efficiency and awareness with measures of frequency of past behavior and the extent to which the target behavior is a part of the individual's identity or personal style. The 12 items were: Watching/using (medium) at home is something that... "I do often," "I do automatically," "I do without having to consciously remember," "makes me feel weird if I don't do it," "I do without thinking," "belongs in my daily routine," "I start doing before I realize I'm doing it," "I would find hard not to do," "I have no need of thinking about doing," "is typically "me,"" and "I have been doing for a long time." In sum, these two measures, developed independently, were intended to take different paths to explore the strength of the media selection habits.

Ajzen and Fishbein (2002; 1980) argued that questions of behavioral intent require four elements in order to establish a high degree of correspondence between the psychological processes and the subsequent behavior: action, target, context and time. In

the case of media selection, the action is the use of the media, for example, "watching" or "using." The target is the media selected, as in "television" or "e-mail." The context is the location of the action and target, such as "at home." Finally, the time is the temporal dimension of the action, target and context, for example, "tomorrow night." For this investigation's behavioral intent, the action was the word typically associated with the selection of the target media: television was "watching," while Web, e-mail and Instant Messenger carried the action "using." Thus following these guidelines, the intent to use each target medium was assessed by a single estimate of the time, in minutes, that was expected for at-home media use. The single intention measure does raise the possibility of problems with reliability. Sutton (1998) noted most studies in the theory of reasoned action and theory of planned behavior tradition employ a single item for intention, as it is difficult to develop multiple items for intent, given the specificity of the action, location and time recommended for intention items. However, intentions do exhibit stable test-retest characteristics (Sheeran, 2002).

The survey incorporated multiple dimensions of past media choice behavior. The first dimension of past behavior was the dichotomous *selection* of each of the target media, assessed with the item "Do you watch/use (medium) at home?" This variable was used to develop the media user groups. The second dimension of past behavior was the *duration* of media use under stable conditions, assessed with the item "On a typical weeknight, approximately how many minutes do you watch/use (medium)?" The word "typical" implies the stability of the environment, while the duration of media use was a proxy for the frequency of behavior within a given time period, as a ratio response to the question "how often do you watch/use media on a weeknight" was not projected to be

answerable by the respondents, while a duration was more easily self-calculated (Menon, 1994; Sudman et al., 1996). The third item was media use history, recorded as number of year's use of the medium.

Each individual who completed the media behavior habit and intent survey was given a pencil and paper diary with instructions to record the following night's media use. The diary instrument is located in Appendix B. Diaries have been shown to be a suitable device for self-recording of life events (Wheeler & Reis, 1991), with a single-day diary best for recall of mundane behavior (Butcher & Eldridge, 1990). In order to ensure recording of media selection matching the intent and behavior questions in the survey, the diary followed a check box format for at-home use of television, Web, e-mail and Instant Messenger for each of the nine hours of the evening, from 6pm to 3am. In order to capture partial-hour use of the medium, respondents were instructed to record their media use for any part of the hour. Additional response categories allowed for the respondent to record "not at home" and "asleep" for the target hours. Following the hour-by-hour diary, respondents estimated the total number of minutes spent using TV, the Web, e-mail and Instant messenger, which became the target variable for the assessment of media selection.

As the execution of habits is theoretically dependent, in part, on the stability of the environment (Ouellette & Wood, 1998), a series of 15 items on a Likert-type, 7 point scale (strongly agree to strongly disagree) assessed the stability of the environment: tonight "was a typical night," "I had more interruptions than usual," "I was under more pressure than usual," "I had more visitors than on a typical weeknight," "I spent more time on the phone than usual," "I had more incoming e-mails than usual," "I received

more Instant Messages than usual," "I went out more than on a typical weeknight," "I spent more time on family affairs than on a typical weeknight," "I spent more time on household tasks than on a typical weeknight," "I had an unusual amount of problems with the World Wide Web," "I had an unusual amount of problems with e-mail," "I had an unusual amount of problems with Instant Messenger," and "I had an unusual amount of problems with my television service."

Survey and Diary Collection Procedure

The data were collected over two weeks in June 2002, from undergraduate students attending one of four introductory advertising and telecommunications classes at Michigan State University. If a student was enrolled in multiple classes, he/she participated only once in the data collection. Students were read a University Committee on Research Involving Human Subjects-approved statement requesting volunteers for the study. Volunteer rates averaged 90% of students attending class on the recruitment day. Those students who volunteered were given the pencil and paper survey which was filled out in class. Upon receipt of the completed survey, students were then given the diary form, and instructed to use the diary form to record the following night's activities. Students that completed both the survey and diary were awarded extra credit by their instructors.

In an effort to minimize mortality on the diary section of the research, students who completed the survey were e-mailed three follow-up messages in the succeeding 36 hours. See Appendix C for a sample message. The first e-mail, sent within eight hours of completion of the survey, thanked the students for their participation in the survey, and reminded them that extra credit was only available to those who completed the diary for

the following night's media use. The second e-mail, sent approximately 24 hours after the completion of the survey, reminded students to use the diary to record that night's media use. The third and final e-mail, sent the morning following the target diary use night, asked students to return their diary forms to their instructor. To avoid a potential demand for e-mail use during the target hours of the following evening, no reminder e-mails were sent in the afternoon before or the evening of the diary data collection, but it remains possible that subjects accessed e-mail in order to read the message sent earlier in the day. Of the 178 students who completed the survey, 165 also completed the diary, for a mortality rate of 8%.

The dates of the data collection were arranged to minimize conflicts with summer semester exams, weekends, and major television events such as World Cup games involving United States teams and the Stanley Cup hockey championship games. In practice this meant that data collections for surveys were completed on Mondays and Tuesdays, with the respective diaries being filled out for media use on Tuesday and Wednesday nights. This practice resulted in data being collected for what the respondents judged to be a typical night, as 62.6% of the diary respondents "strongly agreed," "agreed" or "slightly agreed" with the statement "Tonight was a typical night for me."

Data Entry, Screening and Missing Data

To minimize data entry errors, data from the survey and diary were entered into a database by a paid assistant using online forms (Websurveyor) customized to match the pencil and paper forms. Each survey and diary was crosschecked to the entries in the

database by the researcher, and entry errors were corrected. The data file was then translated to SPSS, version 11 for Windows.

Missing data in this investigation took two forms and were handled independently. Random missing data, in which the individual failed to enter a response to a single question, were seen in a small number of items in 12 (6%) surveys, and following accepted procedures, were replaced with the means (Klein, 1998). Non-random missing data, in which the respondent failed to complete a portion of the survey or the diary, was seen in 22 (12%) cases. These were deleted from all but the demographic analysis. The data for ratio questions on the total amount of intended media use and actual media use on the target night were log-transformed to lessen problems created by skewed data. Outliers were then removed, as were responses from individuals who reported no past use of the target media.

Description of Respondents

The designation of four media as target behaviors and the demands of the data collection process required a sample with both access to multiple media and a willingness to participate in a two-step data collection. The 178 respondents to the survey, all undergraduate college students, fit the criteria in that they had access to, and were users of, multiple media. From their self-report within the survey, 93.3% watched television at home, 89.9% reported at-home use of the World Wide Web, 89.4% reported at-home use of e-mail, and 48.6% reported at-home use of Instant Messenger. The mean age of respondents was 22 years (SD=1.92), with a range of 19 to 35 years. Of the 172 respondents who reported their sex, 58.7% were male. There were no significant

differences between men and women in the number of years experience with watching television ($t = .707$, $df = 159$, ns.), using the Web ($t = 1.140$, $d = 154$, ns.), e-mail ($t = .408$, $df = 153$, ns.) or Instant Messenger ($t = .093$, $df = 84$, ns). There were no significant differences between men and women on the intended duration of their media use for the following night, or on the duration of media use on the target night. In addition, there was no difference between men and women in their non-response to the diary ($t = 1.922$, $df = 1$, ns). In light of the lack of sex difference, the data for males and females were combined for all remaining analytic operations.

As expected, the majority of respondents (95%) typically watched television while at home, and accessed the Web (91%) and e-mail (90%) from home as well. Fewer respondents (49%) reported using Instant Messenger at home, comparable to the 48% of teenagers in the United States who have sent at least one Instant Message (Pew, 2001)

In terms of the respondents' history of media use, television had the longest span, at 19.27 years (SD=2.62), while Instant Messenger had the shortest number of years of use, at four years. For the typical day's behavior, the respondents reported spending the most time in the past with television, and the least with e-mail, perhaps a function of the asynchronous nature of e-mail. In terms of intention to use media on the target night, the longest intended duration was television, and the least, Instant Messenger. The short duration of planned Instant Messenger use may have been a result of collecting data in the summer, when fewer members of an individual's "buddy list" would be expected to be online. Media use on the target night was less than reported as typical weeknight use. A slightly smaller percentage of respondents reported watching television, and substantially smaller percentages of respondents used Web, e-mail, and Instant

Messenger compared to their typical self-reported media use. Additionally, the duration of media use was significantly lower on the target night, as compared to their typical media use duration. See table 3-1. Results of the theorized habit strength items from the SRHI and uses and gratifications habit/pass time measure are presented in tables 3-2 and 3-3.

Data Analysis

This research first used confirmatory factor analysis (CFA) and then structural equation modeling (SEM) as appropriate to test the three sets of hypotheses (J. C. Anderson & Gerbing, 1988). CFA is recommended to test the relationship between an underlying factor, such as habit, and its observed variable structure. In opposition to exploratory factor analysis (EFA), CFA is a test of the strength of the hypothesized relationship, in which the only indicators linked to an underlying factor are those suggested by theory or prior research (Bollen, 1989). The goodness-of-fit between the underlying factor and its hypothesized observed indicators function as the test of the adequacy of the measurement scheme. Once the CFA is completed, structural equation modeling (SEM) allows the researcher to regress the factors on to a variable in order to determine causality (Bentler, 1988). For example, in this research the habit strength of each of the four media, along with intent and environmental stability, were regressed upon the selection of media on the target night.

Environmental Stability

The environmental stability measure was somewhat problematic in both design and execution. Typically, CFA is best used for measures developed through theory or prior research (Bollen, 1989). However, little prior research is available to establish the role of environmental stability in the exercise of habit. Ouellette (1996) measured stability as the occurrence of the consistent activity just prior to the target behavior. For example, "eating a meal" could be a stable context for the habitual target behavior of "brushing teeth." A missed meal would then be considered an indicator of an unstable environment, and would be expected to lead to a lessening in the habitual target behavior of brushing teeth. In the present research, the establishment of pre-behaviors as indicators to environmental stability was problematic, as the frequency of the target behaviors of media use was expected to be so high that specific pre-behaviors as envisioned by Ouellette could not be established. Instead, 15 items including statements about social interruptions, work pressure, family engagements and technical problems were included in the diary collection. Those items were also tested using an exploratory factory analysis ("SPSS for Windows, 11.5," 2001). Indicators that dealt with the technical stability of the media system (for example, "I had unusual problems with my TV/Web/e-mail/Instant Messenger service"), quantity of electronically-delivered interruptions (e.g. "I had more incoming e-mails/telephone calls/Instant messages"), and hypothesized social pressures ("I had an unusual number of visitors") or activities (for example, "I had more to do/went out more") were for the most part unreliable and were discarded from further analysis. Instead, environmental stability was assessed using a single item, "Tonight was a typical weeknight for me," an indicator semantically

reflective of the typical day criteria for stability. The mean for the environmental stability was 4.9 (SD = 1.48). For analyses requiring environmental stability, the sample of those using media was split at the midpoint of the scale, with individuals strongly agreeing, agreeing, or slightly agreeing to the "typical weeknight" statement placed in the high stability group (n= 105), and those neutral, slightly disagreeing, disagreeing or strongly disagreeing with the "typical weeknight" statement placed into the low stability group (n=51). Means for each item are presented in table 3-4.

Hypothesis Testing

Once the multiple-item measures for habit, and single item measures for intention, past behavior, and environmental stability were constructed, this investigation then used Pearson product-moment correlations ("SPSS for Windows, 11.5," 2001) and structural equation modeling (Arbuckle, 1999) as appropriate to test the three sets of hypotheses. H1a, habit and pass time are separate constructs, was tested by placing the SRHI and uses and gratifications items into a confirmatory factor analysis. First, the SRHI and uses and gratification items were tested as if they each were indicators of separate constructs. Unreliable indicators were dropped, and the modification index generated by the AMOS program was then used to suggest alterations to the model (Arbuckle & Wothke, 1999). A new measure of habit was then created, and used to test H1b, habit will be positively related to past media selection behavior, via Pearson product-moment correlations for all four media. The second hypothesis investigated the role of the stability of the environment in the moderation of habit's effect on future behavior. To test this hypothesis of the moderating effect of stability on the exercise of

habit, the sample was split into a high stability and low stability group (Ouellette, 1996; Ouellette & Wood, 1998). Pearson product-moment correlations between habit and future behavior indicators were then compared to evaluate the role of the environment, with more substantial correlations between habit and future behavior expected for the high stability group versus the low stability group. .

The final hypothesis proposed that both habit and intent directly determine behavior. For this hypothesis, the model suggested in the previous chapter was submitted to a SEM analysis for all four media. The model was assessed for the goodness of fit to the data, and refinements to the model proposed and tested.

The recommended analysis procedure for a structural equation model involves assessing multiple statistics to develop a convergent picture of the fit between the model and the data (Klein, 1998). The χ^2 statistic essentially tests the validity of the factor loadings, factor variances/covariances, and error variances. A small χ^2, perhaps equal to the degrees of freedom, is a desired but rarely observed outcome in empirical research. The P value tests the extent to which the χ^2 statistic is a result of obtaining the null hypothesis, so a larger P value is a marker of a model which may provide an adequate fit between the hypothesized model and the data.

However, since the χ^2 statistic is prone to difficulties based on the sample size, degrees of freedom and violations of the central distribution theorum, alternative goodness of fit statistics are provided. In common use is the goodness of fit index (GFI). The GFI is related the amount of variance and covariance that is explained by the model. GFI values close to 1.00 are indicative of a well-fitted model, although both statistics can be influenced by sample size. An index of choice for evaluating a SEM is the

comparative fit index (CFI), which compares the hypothesized model with the independence model, while accounting for sample size. A CFI of .95 or above is an indication of a well-fitted model. One final statistic for evaluation of a SEM model is root mean square error of approximation (RMSEA). The RMSEA is the discrepancy between optimum and observed parameter values, divided by the degrees of freedom. In doing so, the RMSEA is sensitive to the complexity of the model. RMSEA values less than .08 are considered acceptable, with below .05 considered a good fit (Arbuckle & Wothke, 1999).

Summary

The hypotheses presented in Chapter 2 were investigated by means of matched surveys and diaries that measured the habitual selection of media, intent to use media at a particular point in time, and the actual use of media. Compared to prior research in this area, a larger sample was used, and a habit measurement scale new to mass media research, the SRHI, was contrasted with the traditional uses and gratifications items for habit/pass time measurement.

Table 3-1

Profile of At-Home Media Use

	Television		Web		E-mail		Instant Messenger	
Item	M	SD	M	SD	M	SD	M	SD
Years of use	19.27	2.62	5.29	1.98	5.42	1.86	3.83	2.04
Past behavior[a]	2.00	.26	1.62	.39	1.28	.31	1.39	.53
Intention[b]	1.82	.47	1.30	.61	1.08	.47	.90	.79
Future behavior[c]	1.82	.64	1.11	.81	.81	.63	.74	.85
n	142		139		141		69	

[a]Duration of media use on "typical weeknight." Log transformed

[b]Intended duration of media use on target night. Log transformed.

[c]Actual duration of media use on target night. Log transformed.

Table 3-2

Item Means and Standard Deviations: Self Reported Habit Index

	Television		Web		E-mail		Instant Messenger	
Item	M	SD	M	SD	M	SD	M	SD
I do often	5.19	1.65	5.58	1.44	5.61	1.40	5.17	1.75
Automatically	4.67	1.68	4.43	1.72	4.77	1.84	4.43	1.93
Unconsciously	4.67	1.69	3.78	1.78	4.20	1.90	4.00	1.97
Weird not to	2.69	1.45	3.71	1.75	3.56	1.95	3.23	1.82
Without thought	4.20	1.68	3.60	1.67	3.79	1.97	3.84	2.00
Effortless	3.46	1.61	3.40	1.63	3.70	1.90	3.31	1.84
Routine	4.29	1.73	4.92	1.70	5.18	1.63	4.37	1.89
No realization	3.50	1.65	3.36	1.68	3.57	1.88	3.61	1.81
Hard not to	3.56	1.67	4.00	1.79	4.13	1.96	3.54	1.72
No thinking	4.20	1.44	3.72	1.61	4.00	1.76	3.68	1.76
Typically "me"	3.68	1.56	3.90	1.75	4.19	1.84	4.04	1.90
Doing long time	5.37	1.53	4.88	1.51	5.07	1.54	4.52	.80
n	142		139		141		69	

Note. 7 point scale, from 1 "Strongly agree" to 7 "Strongly disagree"

Table 3-3

Item Means and Standard Deviations: Uses and Gratifications Habit/Pass Time

	Television		Web		E-mail		Instant Messenger	
Item	M	SD	M	SD	M	SD	M	SD
It's there	4.70	1.61	4.22	1.67	4.06	1.92	5.00	1.84
Because I like it	5.82	1.04	5.82	1.06	5.37	1.49	5.62	1.44
It's a habit	4.77	1.71	4.31	1.71	4.63	1.83	4.51	1.90
Passes the time	4.98	1.43	4.42	1.65	3.61	1.72	4.74	1.99
Nothing to do	5.28	1.32	4.50	1.63	3.77	1.78	4.85	1.86
No one else	4.99	1.59	4.24	1.68	3.86	1.90	5.10	1.85
n	142		139		141		69	

Note. 7 point scale, from 1 "Strongly agree" to 7 "Strongly disagree"

Table 3-4

Item Means and Standard Deviations: Environmental Stability

Item	M	SD
Typical weeknight [a]	4.87	1.48
More interruptions	4.20	1.67
More pressure	4.23	1.85
More visitors	4.83	1.75
More to do	3.96	1.86
More incoming calls	5.29	1.44
More incoming e-mails	5.27	1.41
More instant messages	5.72	1.41
Went out more than usual	4.65	1.86
More family affairs	5.28	1.60
More household tasks	4.77	1.63
More web problems	5.73	1.33
More e-mail problems	5.76	1.36
Instant Messenger problems	5.90	1.34
More TV problems	6.00	1.41
n	156	

Note. 7 point scale, from 1 "strongly agree to 7 "strongly disagree."

[a]Reverse coded.

Chapter 4

RESULTS

Introduction

This chapter reports the results of the data analysis based on the SRHI measure of habit, the uses and gratifications pass time measure, and the environmental stability measure discussed in the previous chapter. The data for habit strength, environmental stability, intention to use the media and the actual use of the four selected media on the target night were assessed via Pearson product-moment correlations and structural equation models (SEM) to ascertain the relationships among the variables.

Findings

Disentangling Competing Measures of Habit

The first set of hypotheses compared the conceptual definitions of habit as it has appeared in uses and gratifications research and research in automaticity. The first hypothesis predicted that habit and the pass time gratification would be separate constructs. To test this, a series of confirmatory factor analyses were performed. See figure 4-1 for a portrayal of the hypothesized model, and table 4-1 for a summary of the regressions for all media. Indicators that did not meet the .45 criteria (Arbuckle & Wothke, 1999) were removed. For all four media, the 12 items of the SRHI met the criteria, and were retained. The results for the uses and gratifications habit/pass time measure were mixed. The indicator having the most direct semantic connection with self-reported habit, "because it's a habit," was retained. Two other indicators, "Because it's there" and "Because I like it" failed to meet the criteria and were deleted.

The Pearson product-moment correlations between the SRHI and the uses and gratifications habit/pass time measure were substantial, at .86 ($p<.01$) for television, .78 ($p<.01$) for Web, .52 ($p<.01$) for e-mail, and .56 ($p<.01$) for Instant Messenger, indicating that the two measures were functionally redundant. An examination of the modification indices for the items showed the most substantial cross-loading between the uses and gratifications habit/pass time item most conceptually identified with habit, "because it's a habit," and the first of the SRHI items, "it's something I do often," with 22.1 for television, 25.7 for Web, 23.2 for e-mail, and 15.0 for Instant Messenger. The high cross loading suggested that the uses and gratifications "it's a habit" item would be more appropriate within a habit factor, and thus was included with the 12 SRHI items in a revised factor, leaving the three other uses and gratifications habit/pass time items, "it passes the time," "when there's nothing else to do," and "when there's no one else to talk to" retained as their own factor. See figure 4-2 for a graphic representation, and table 4-2 for a list of the regressions for all four media. The revised model exhibited a statistically significant improvement of the χ^2 statistic for all four media. See table 4-3 for a summary. Thus, the CFA supported the hypothesis of H1a, that habit and the pass time gratification are distinct constructs.

H1b, habit will be positively related to past media selection behavior, was a test of the convergent validity of the habit measure. As discussed in chapter 3, the frequency of past behavior in a stable context is an oft-used indicator of habit. The self-assessment of action in a stable, or typical, situation was captured by a "typical weeknight" duration measure. As expected, habit was correlated with the "typical night" duration of past

media use for television ($r = .39$ $p<.01$), Web ($r=.49$, $p<.01$), e-mail ($r=.40$, $p<.01$) and Instant Messenger ($r=.55$, $p<.01$).

A second test of the convergent validity of the habit construct was a positive relationship between the number of years of the exercise of the behavior and the strength of the habit. The strength of habit has been proposed to increase over time (for exampleLandis et al., 1978; Ouellette, 1996; Verplanken et al., 1998). However, in this study the habit factor was correlated only with the number of years of use of Instant Messenger ($r=.26$, $p<.05$) and uncorrelated with the number of years of media use for television, Web and e-mail. Prior studies in the domain of travel choice have shown the SRHI to be reflective of the number of years of behavioral performance (Verplanken & Orbell, 2002), but the result were not replicated by this study. Thus, in creating a link between habit and the duration of media use behavior in a stable environment, H1b was partially supported by the data. See table 4-4.

Media Selection, Habit and Environmental Stability

The stability of the environment has been proposed as a moderating factor in the execution of habitual behaviors (Ouellette & Wood, 1998) in that habit should play a larger role in behavior when the context is stable, as an unstable environment hinders the execution of habit. H2, habit will be positively related to media selection when controlling for the stability of the environment, was tested by dividing the users of each of the four media into a high stability and low stability group, based on the individual response to the "typical weeknight" item. The habit scores comprised of the responses to the combined SRHI items and the uses and gratifications habit item (habit), past years of

use of the medium, and actual use of the target media (future behavior) are presented as Pearson product-moment correlations in table 4-5.

The data showed scant support for the contention that the stability of the environment permits the execution of habitual behavior. Habit was correlated to future media selection in the high stability group, but also the low stability group. A secondary indicator of habit, the number of years of use, was uncorrelated with future media selection for all media except Instant Messenger ($r = .26$, $p<.05$)

Habit, Intent, and Media Selection

The third hypothesis contended that both habit and intention directly predict future behavior. The three theoretical models presented in chapter two were adapted for testing using SEM, which generated maximum likelihood estimates of the paths between variables. Future behavior was operationalized as the duration of media use during the target time period. Habit was operationalized as the mean of the SRHI items plus the uses and gratifications "it's just a habit" item, as tested earlier by a CFA. Intention was operationalized as the duration of media use planned for the following evening. Gratifications were a subset of the many possible choices in the uses and gratifications paradigm: the pass time measure, also confirmed via a previous CFA. Also added to the structural equation model were error variances for each observed variable. These error variances were set a unity (Byrne, 2001).

The correlations for each medium are presented in tables 4-6, and the structural equation models for the four media are summarized in tables 4-7 through 4-9. Comparative fit index (CFI) scores were acceptable for the first model, but sub-optimum

for the second and third model. For a perfect fit, the CFI scores would approach 1.00. An alternative to the CFI, the goodness of fit index (GFI) was acceptable for the first model and for television in the second and third models. The differences in the χ^2 statistic were compared for the three models, and divided by the difference in the degrees of freedom to indicate which model best fit the data. Model 1 (suggested by Stone & Stone, 1990) was clearly superior to the other two models. The values are summarized in table 4-10. Of the three models presented, the best fit to the data with the lowest error was the formulation in which gratifications caused both intention and habit, which in turn caused future behavior.

H3 predicted that both habit and intention would be direct antecedents of future behavior, and this was demonstrated by model 1. There were statistically significant paths from habit to future behavior for television (β=.19, $p<.05$), Web (β=.19, $p<.05$) and e-mail β=.22, $p<.05$). The result for Instant Messenger was directionally consistent (β=.16) with the other media, but did not achieve statistical significance.

The path model for all four media consistently demonstrated a strong relationship between intention and future behavior. The model specified a path from gratification to both habit and intention. The gratification-habit link was seen for all four media, and a gratification-intention link was seen for three of the four media as well.

However, root mean square errors (RMSEA) were well above the recommended .08 (Arbuckle & Wothke, 1999) for all three models, indicating a substantial degree of error in all three models given the number of parameters and the degrees of freedom. A review of the modification indices for the models indicated the presence of a substantial path between habit and intention, consistent with LaRose's (2001) observation that

individuals are aware of their own habits. A modification of the model suggested by Stone and Stone (1990), with habit causing a portion of both intention and future behavior was tested. See figure 4-6. This revised model exhibited superior fit statistics versus the previous three models, with acceptable RMSEA values for three of the four media. See table 4-10.

Summary of Results

This chapter presented the results of the research design for this investigation. The first set of hypotheses tested the validity of the Self Reported Habit Index (Verplanken & Orbell, 2002) and the uses and gratifications habit/pass-time measure (Greenberg, 1974). In uses and gratifications literature habit is often combined with the pass time gratification into a single factor. H1a provided evidence that habit and pass time are distinct constructs. H1b looked at the relationship of a new habit measure that combined the habit indicators of the SRHI with the uses and gratifications habit items. This habit measure was related to the amount of habitual use, but not to the number of years that the behavior had taken place.

The second hypothesis described the role of the stability of the environment in the exercise of habitual behavior, predicting a positive effect for stability on the relationship between habit strength and future behavior. There was little support for the role of environmental stability in the exercise in mass media habits. Possible reasons for the lack of effect will be discussed in the following chapter.

The third hypothesis explored the relationship between habit, intention, gratifications and behavior in the selection of mass media. Consistent with Stone and

Stone (1992) and other theorists who seek a role for habit as one of the direct antecedents of behavior (for example Bargh et al., 2001; Landis et al., 1978), habit and intention served as direct antecedents of behavior.

In sum, the results of this research have provided additional validation to the SRHI as a measure of habit strength, questioned the effect of environmental stability in the triggering of habitual behavior, supported the contention that habit directly causes behavior. The following chapter will discuss these findings in a broader context.

Table 4-1

Confirmatory Factor Analysis for SRHI and Uses and Gratifications: Standardized Regression Weights

		Television	Web	E-Mail	Instant M.
SRHI	I do often	.75*	.67*	.67*	.80*
	Automatically	.86*	.81*	.79*	.90*
	Unconsciously	.78*	.80*	.81*	.88*
	Weird not to	.58*	.71*	.79*	.81*
	Without thought	.80*	.86*	.84*	.87*
	Effortless	.62*	.78*	.81*	.79*
	Routine	.77*	.67*	.70*	.85*
	No realization	.67*	.79*	.80*	.88*
	Hard not to	.71*	.71*	.77*	.83*
	No thinking	.58*	.81*	.82*	.82*
	Typically "me"	.74*	.77*	.80*	.90*
	Doing long time	.56*	.61*	.60*	.75*
Uses and grat. habit/ pass time	It's there	.33	.55*	.66*	.65*
	Because I like it	.38	.55*	.55*	.69*
	It's a habit	.74*	.79*	.63*	.77*
	Passes the time	.59*	.88*	.88*	.76*
	Nothing to do	.22	.80*	.80*	.92*
	No one else	.31	.81*	.78*	.90*
n		142	139	141	69

Note. See Figure 4-1 for path model.

* Items retained for SEM

Table 4-2

Revised Confirmatory Factor Analysis Regression Weights

		Television	Web	E-mail	Instant M.
Habit	I do often	.72*	.54*	.59*	.78*
	Automatically	.85*	.79*	.77*	.86*
	Unconsciously	.77*	.79*	.79*	.87*
	Weird not to	.58*	.67*	.78*	.76*
	Without thought	.79*	.83*	.85*	.79*
	Effortless	.57*	.76*	.80*	.72*
	Routine	.74*	.62*	.87*	.78*
	No realization	.67*	.82*	.78*	.81*
	Hard not to	.71*	.68*	.82*	.76*
	No thinking	.56*	.80*	.78*	.77*
	Typically "me"	.52*	.75*	.75*	.89*
	Doing long time	.62*	.75*	.53*	.72*
	It's a habit	.61*	.81*	.67*	.66*
Pass time	Passes the time	.81*	.90*	.83*	.60*
	Nothing to do	.45*	.80*	.85*	.99*
	No one else	.49*	.84*	.82*	.93*

Note. See Figure 4-2 for path model.
* Items retained for SEM

Table 4-3

Tests of Invariance Between Competing Habit Measures

	Television		Web		E-mail		Instant Messenger	
	χ^2	DF	χ^2	DF	χ^2	DF	χ^2	DF
CFA Model 1 (figure 4-1)	5.19	1.65	5.58	1.44	5.61	1.40	5.17	1.75
Revised CFA Model (figure 4-2)	4.67	1.68	4.43	1.72	4.77	1.84	4.43	1.93
$\Delta\chi^2$/DF	4.16, p<.01		3.25, p<.01		3.99, p<.01		2.94, p<.01	

Table 4-4

Correlations Between Habit and Measures of Past Behavior

Variable	1	2	3
		Television (n = 142)	
1. Habit[a]	—	.39**	.02
2. Behavior[b]		—	-.07
3. Years of use			—
		Web (n = 139)	
1. Habit[a]	—	.49**	.03
2. Behavior[b]		—	.09
3. Years of use			—
		E-mail (n = 141)	
1. Habit[a]	—	.40**	.09
2. Behavior[b]		—	.15
3. Years of use			—
		Instant Messenger (n = 69)	
1. Habit[a]	—	.55**	.26*
2. Behavior[b]		—	.40**
3. Years of use			—

*p < .05. ** p < .01.

Notes. [a] SRHI plus surviving uses and gratifications habit item. [b] Duration of typical night media use.

Table 4-5

Pearson Product-Moment Correlations: Habit and Measures of Past Behavior Under Conditions of High and Low Stability

Variable	1	2	3
	Television (n = 96 high stability, n = 46 low stability)		
1. Habit[a]	—	.40**	.04
2. Behavior[b]	.38**	—	-.04
3. Years of use	-.04	-.13	—
	Web (n = 99 high stability, n = 40 low stability)		
1. Habit[a]	—	.45**	-.05
2. Behavior[b]	.61**	—	.09
3. Years of use	.17	.08	—
	E-mail (n = 99 high stability, n = 42 low stability)		
1. Habit[a]	—	.39**	.12
2. Behavior[b]	.41**	—	.20
3. Years of use	.02	.02	—
	Instant Messenger (n = 48 high stability, n = 21 low stability)		
1. Habit[a]	—	.52**	.26*
2. Behavior[b]	.63**	—	.45**
3. Years of use	.25	.32	—

*p < .05. ** p < .01.

Notes. Coefficients above the diagonal represent condition of high stability. Coefficients below the diagonal represent conditions of low stability. [a] SRHI plus surviving uses and gratifications habit item. [b] Duration of typical night media use.

Table 4-6

Pearson Product-Moment Correlations: Gratification, Intention, Habit and Behavior

Construct	1	2	3	4
		Television (n =142)		
1. Gratifications[a]	—	.17*	35**	.28**
2. Intention[b]		—	-.04	.54**
3. Habit[c]			—	.37**
4. Future behavior[d]				—
		Web (n =139)		
1. Gratifications[a]	—	.33**	.62**	.26**
2. Intention[b]		—	.33**	.53**
3. Habit[c]			—	.45**
4. Future behavior[d]				—
		E-mail (n =141)		
1. Gratifications[a]	—	.08	.70**	.19*
2. Intention[b]		—	.28**	.49**
3. Habit[c]			—	.33**
4. Future behavior[d]				—

Table 4-6 (continued)

Construct	1	2	3	4
		Instant Messenger (n =69)		
1. Gratifications[a]	—	.39**	.66**	.27*
2. Intention[b]		—	.58**	.51**
3. Habit[c]			—	.48**
4. Future behavior[d]				—

*p < .05. ** p < .01.

Notes. [a] Pass time. [b] Intended duration of media use on target night. [c] SRHI plus surviving uses and gratifications habit item. [d] Actual duration of media use on target night.

Table 4-7

SEM Results for Structural Model 1: Suggested by Stone and Stone (1990)

		TV	Web	E-mail	Instant M.
Model Summary	β Habit→Future behav.	.19*	.19*.	.22*	.16
	β Grats→Intent	.20**	.32**	.05	.30**
	β Intent→Future behav	.57**	.43**	.22*	.47**
	β Grats→Habit	.35**	.62**	.70**	.66**
Fit Statistics	χ^2	17.32	10.4	15.6	16.1
	DF	2	2	2	2
	P	.00	.00	.00	.00
	GFI	.94	.96	.95	.90
	CFI	.86	.94	.89	.82
	RMSEA	.23	.17	.22.	.32

*P < .05, **P< .01

Note: See Figure 4-3 for path model.

Table 4-8

SEM Results for Structural Model 2: Adapted from Palmgreen (1985)
See Figure 4-4 for Path Model

		TV	Web	E-mail	Instant M.
Model Summary	β Grats→Intent	.08	.15	-.23**	-.07
	β Habit→Intent	.35**	.29**	.40**	.55**
	β Intent→Future behav	.62**	.49**	.30**	.55**
Fit Statistics	χ^2	26.0	76.2	102.9	41.0
	DF	3	3	3	3
	P	.00	.00	.00	.00
	GFI	.91	.82	.28	.81
	CFI	.79	.44	.18	.53
	RMSEA	.23	.42	.49	.43

*P < .05, **P< .01

Note: See Figure 4-4 for path model.

Table 4-9

SEM Results for Structural Model 3: Suggested by Landis, Triandis (1978)

		TV	Web	E-mail	Instant M.
Model Summary	β Grats→Intent	.20**	.32**	.05	.30*
	β Intent→Future behav	.58**	.44**	.23**	.46**
	β Habit→Future behav	.19**	.19*	.23**	.16
Fit Statistics	χ^2	35.4	78.2	109.4	54.3
	DF	3	3	3	3
	P	.00	.00	.00	.00
	GFI	.90	.82	.78	.78
	CFI	.71	.43	.13	.36
	RMSEA	.28	.43	.50	.50

*P < .05, **P< .01

Note: See Figure 4-5 for path model.

Table 4-10

SEM Results for Structural Model 4: Final Model

		TV	Web	E-mail	Instant M.
Model Summary	β Habit→Future behav.	.18**	,19*	.22**	.16*
	β Grats→Intent	.08	.14	-25*	.56**
	β Intent→Future behav	.55**	.43**	.22	.46**
	β Grats→Habit	.35**	.62**	.70**	.66**
	β Habit→Intent	.34**	.28**	.42**	.56**
Fit Statistics	χ^2	1.2	2.8	2.1	1.0
	DF	1	1	1	1
	P	.00	.00	.00	.00
	GFI	1.00	.99	.99	.99
	CFI	1.00	.99	1.00	1.00
	RMSEA	.03	.11	.08	.00

*P < .05, **P< .01

Note: See Figure 4-6 for path model.

Table 4-11

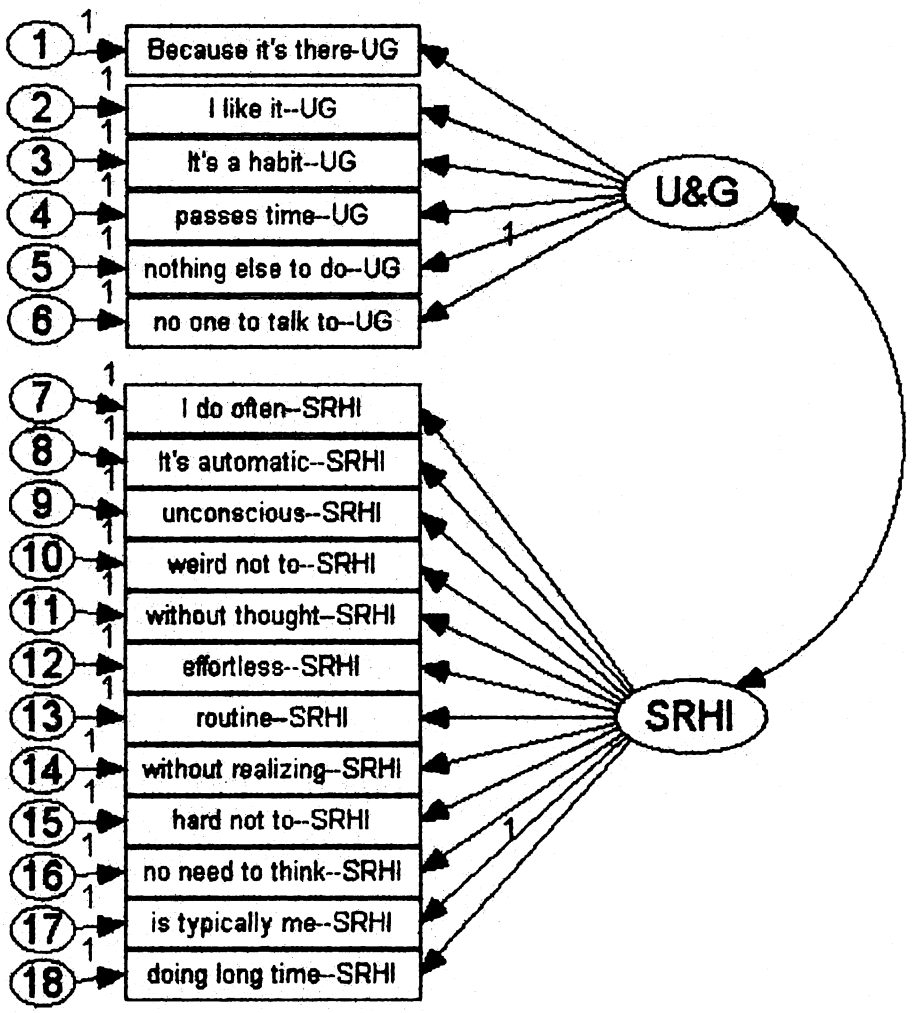
Tests of Invariance Between Theories of Intention, Habit and Behavior

	Television	Web	E-mail	Instant M.
Model	$\Delta\chi^2$/DF	$\Delta\chi^2$/DF	$\Delta\chi^2$/DF	$\Delta\chi^2$/DF
SEM Stone and Stone (fig. 4-3) vs. SEM Palmgreen (fig. 4-4)	18.7**	65.8**	87.3**	24.9**
SEM Stone and Stone (fig. 4-3) vs SEM Landis (fig. 4-5)	18.0**	67.8**	93.8**	24.9**
SEM Final model (fig. 4-6) vs. SEM Stone and Stone (fig. 4-3)	16.1**	7.2**	13.5**	15.1**

*P < .05, **P< .01

Figure 4-1

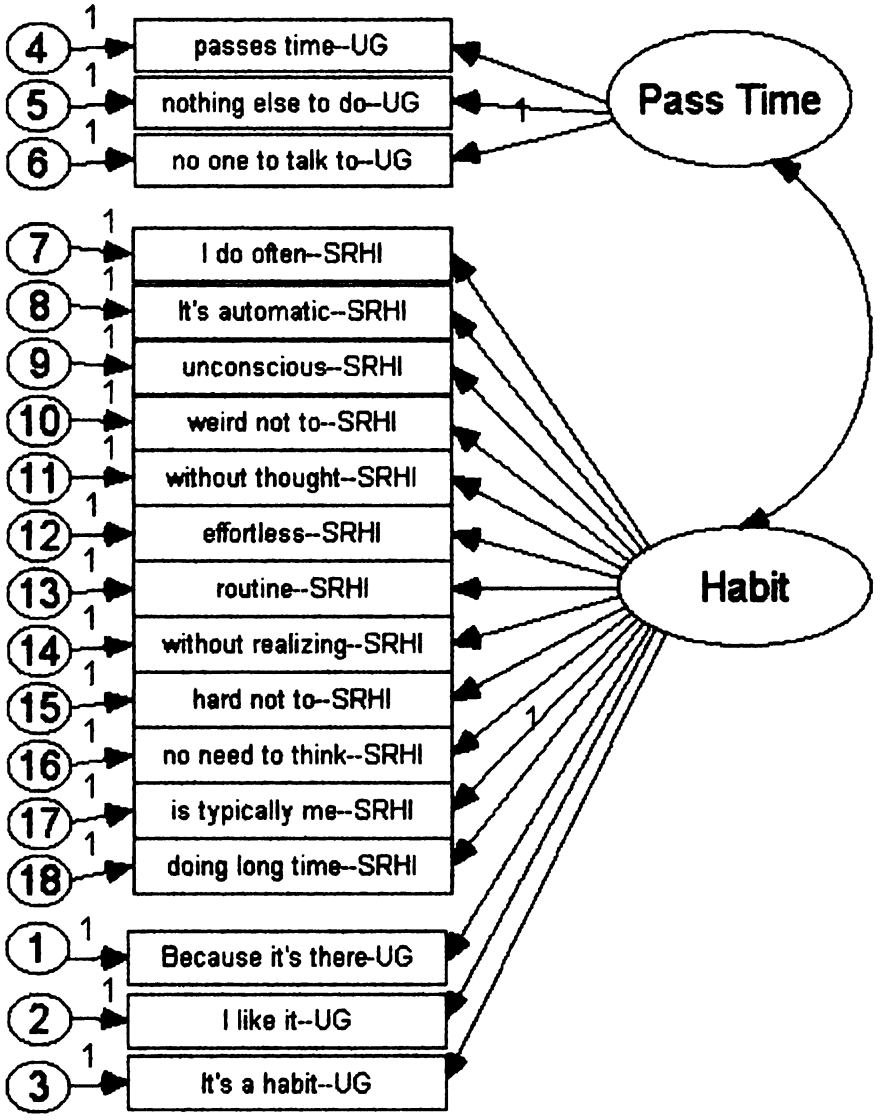
Confirmatory Factor Analysis 1*



Note. See Table 4-1 for Weights

Figure 4-2

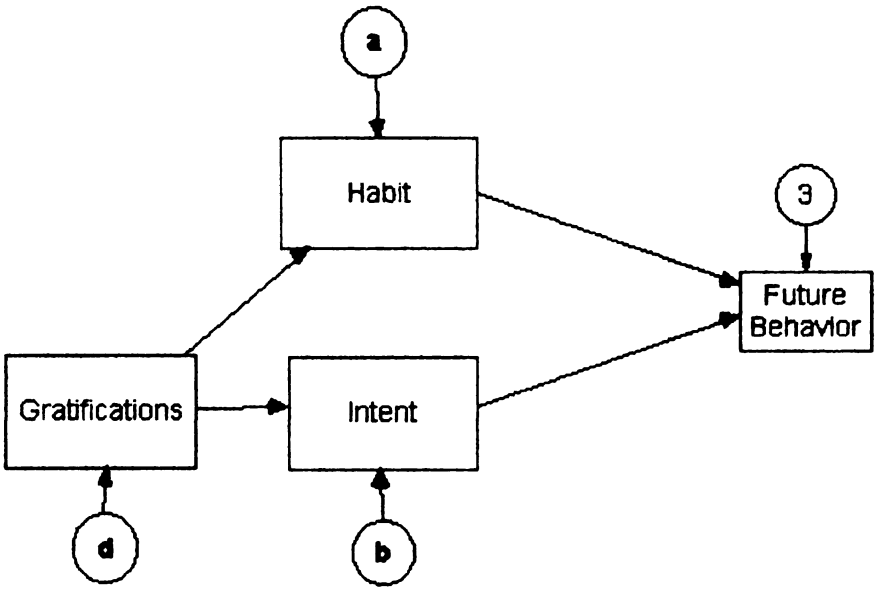
Revised Confirmatory Factor Analysis



Note. See Table 4-2 for Weights

Figure 4-3

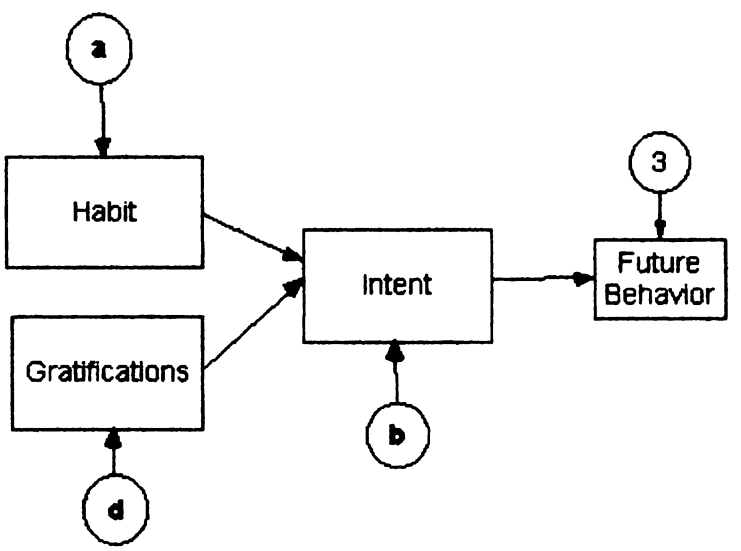
Structural Model 1: Suggested by Stone and Stone (1990)



Note. See Table 4-7 for regression weights and fit statistics

Figure 4-4

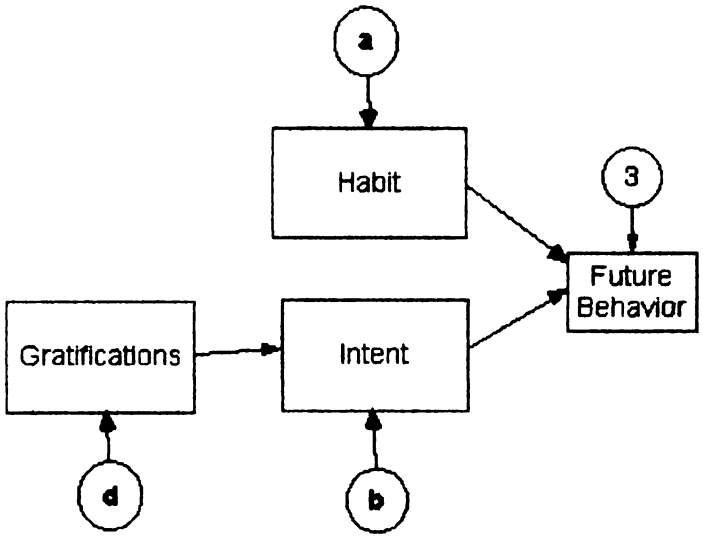
Structural Model 2: Adapted from Palmgreen 1985



Note. See Table 4-8 for regression weights and fit statistics

Figure 4-5

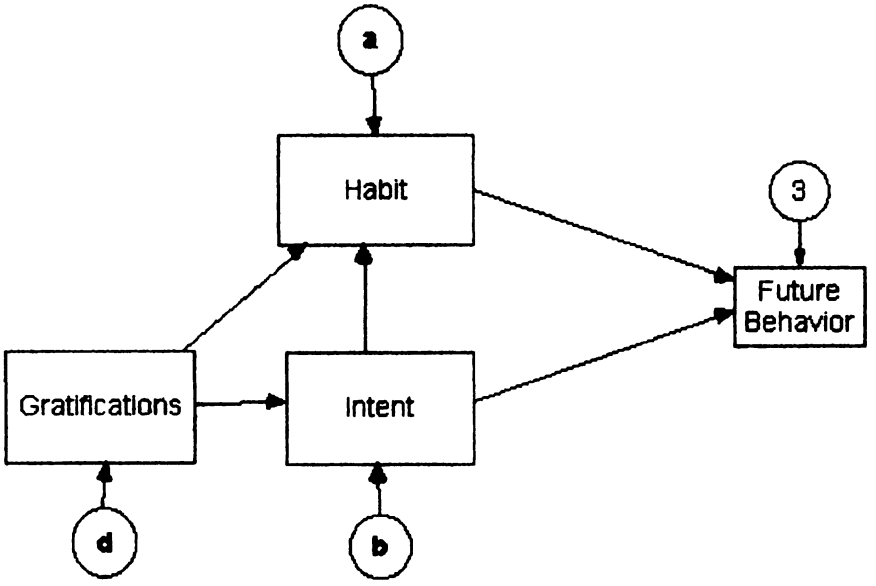
Structural Model 3: Suggested by Landis, Triandis (1978)



Note. See Table 4-9 for regression weights and fit statistics

Figure 4-6

Structural Model 4: Final model



Note. See Table 4-10 for regression weights and fit statistics

Chapter 5

Discussion

Significance of Findings

Habit was an essential construct from the earliest years of psychological investigation (for example Dewey, 1922; James, 1898; Watson, 1924). But the concept of habit has been a victim of vague theoretical formulations in paradigms in which individuals are assumed to act as intentional decision-makers. The significance of this research is that it has attempted to re-insert the habit construct into theories of media selection behavior.

In this chapter, the questioning will continue of the foundational assertion of the uses and gratifications paradigm that media selection is intentional, and the parallel TRA/TPB argument that behavior's sole direct antecedent is intention. This chapter will discuss these issues in more detail, outline the limitations of this research, and suggest potential avenues for future research.

The Relationship of Habit, Intention and Behavior

There is a vast amount of empirical support for the connection between intention and future behavior (Sheeran, 2002). To the extent of investigating the intention-future behavior linkage, this study replicated the significant paths from intention to behavior for television, Web, E-mail and Instant Messenger use.

But where do intentions come from? In expectancy-value formulations, the seeking of gratification has been proposed as the driver of intentional media use (Babrow, 1989; Babrow & Swanson, 1988). People plan to use media when they can predict the benefits of the outcome. However, in this research, the connection between gratifications

and intentions was not consistent across the four media. While this research tested only one possible gratification that of passing time through media use the lack of connection provides only partial support. Instead, gratifications were a substantial and consistent predictor of habit. This suggested that the rewarded behavior of using mass media to occupy empty time resulted in a stronger habit, but not always in higher intention. This is supportive not of uses and gratifications as much as it is classical conditioning, in that rewarded behavior is repeated without an intermediate step of forming a conscious intention.

The final model that was considered in the previous chapter suggests that intention is also an outcome of habit. This is consistent with the social cognitive theory conception of self-regulation as a mechanism by which individuals plan their future behavior to be in harmony with their past activities (Bandura, 1994, 2001). While the execution of habit may occur with limited awareness, individuals are aware of their routine behaviors. When asked what they plan to do at a specific time in the near future, the individuals who foresee a "typical" set of circumstances would be expected to call upon his or her own past behavior as a guide to their future behavior. It is in this way that habit guides intention.

To the extent that habit is the automatic activation of behavior, the finding of habit directly creating media use is contradictory to the assertion that the audience is active in its selection of mass media. To accommodate habit into the uses and gratifications perspective is to stretch the temporal aspect of audience activity back to the time when media use habits were first formed by the individual. In other words, audience

activity is not solely an active process occurring at the time of media consumption, but also can be the previously stored and automatically activated instructions for media use.

The multiple ways in which people can use electronic medium provided an attractive domain in which to test the theories of the linkage of intention, habit and behavior. Behaviors performed frequently may be less under intentional control than behaviors performed infrequently. For example, brushing one's teeth every morning may be more habitual than intentional, while going for a yearly dental checkup more intentional than habitual (Bagozzi, 1982). Most people can choose to access electronic mass media on a daily or even minute-to-minute basis, thus placing media use in the domain of potentially frequently performed behaviors. Perhaps this is the reason that individuals in this study exhibited both intentional and automatic selection of mass media: even the theories of automaticity require that at some point even the most inconsequential behavior has to be intentional, if they are to be practiced enough to become automatically activated (Bargh, 1994; Bargh & Chartrand, 1999). In this way, the occurrences of intentional behavior in the present turn into the building blocks for future habitual behavior. The intentional behavior is routinized over time, and becomes so frequent, easy, and efficient in the use of cognitive resources that is can be activated by environmental cues. Similar in the way a clock radio is activated in the future by the intersection of a plan made in the past and the current time, to an extent future media selection is the intersection of gratifications obtained in the past and the availability of the same medium in the present.

In sum, he findings of this research advance our knowledge of the process by which individuals choose from the range of media at their disposal. The interaction of

habit and intention on individual choice was extended to multiple, simultaneously available media. The single-day time span between the measurement of intention and the execution of the behavior provided a test for the proposition that both habit and intention directly influence behavior.

The Role of Environmental Stability in the Execution of Habit

This research also sought to question the role of the stability of the environment in the execution of habitual behavior. Research in habit often asks subjects to report behavioral frequencies within time periods self-assessed as "typical." In this research, television was the only medium to be affected by the environment. Perhaps the effect of stability on television selection versus the lack of effect of stability on computer-mediated communication is in the nature of how television is valued by the student sample. Not only is their use of television lighter and more selective than the population as a whole (Pingree et al., 2001), they think of television as less valuable than other media (Pew, 2001; Rainie, 2001). As a result, they can reduce viewing or attention to television as other needs arise (D. Anderson & Burns, 1991). In this way the finding of this research are consistent with the contention that stability affects behavior, although it was visible in what may have been the least important behavior to the sample, with an increase in magnitude of instability needed to produce a change in the habitual performance of more valued behaviors.

It is possible that the self-report of stability was flawed by the student sample. While the research was conducted near the middle of the summer semester, within a week that saw no major on-campus or off-campus events, it is reasonable to offer that the

unusual nature of a summer semester might preclude the establishment of a routine that can be objectively considered "typical," although the continuous upheaval of a summer semester might seem routine to the individual. Additionally, this study did not include those who neither intended to use nor used mass media on the target night. Given the narrow time-span between the data collection for the survey and the diary, individuals who predicted that they would have an atypical night may have declined to participate in the survey, diary or both. Finally, this present study used a single-item, and thus potentially unreliable, measure of environmental stability.

Alternatively, it is possible that the need for stability in the performance of habitual behavior is overestimated. Certainly extreme instability, for example a power failure, will prevent the execution of a behavior. However, Abelson (1981) argued that behavioral scripts tolerate all but the most salient changes to an environment. The proposed process of habituation allows for behavioral scripts to be performed in settings somewhat different from the original. For example, individuals who habitually use seatbelts use them in an seats in all cars, not just in their own car, or while in the driver's seat (Aarts et al., 1998). In the case of media selection, stability of the environment may not be necessary. Ouellette (1996) was unable to establish a difference between past and future behavior under conditions of low and high stability for television, but did see differences for non-media activities such as recycling. This present research confirms Ouellette's findings for television, and extends those finding to other electronic media. Perhaps media use is so integrated into the lives of individuals that the threshold of instability required to prevent its use is higher than the threshold for complying with

diary instructions. In other words, media use is so ingrained that it requires something approaching catastrophe to interrupt its activation.

The Measurement of Habit

In the uses and gratifications paradigm, the habit-pass time measures have been criticized for their lack of construct and face validity. As noted in chapter 2, the habit-pass time measures load unevenly and modestly on their own factor, or are placed into other factors such as "entertainment." The face validity of the items is also questionable. For example, one commonly used item, "It's a habit, it's *just* something I do," (emphasis added) confounds self-reported habit with an inability to provide an alternative explanation. Additionally, the paucity of items relating to habit directly influences the reliability of the measure's ability to interpret habit, as does the combination of two different motivations such performing a behavior because it's an activity that's frequently performed and performing a behavior because it fills time or provides companionship.

This research tested a new measure of habit, the SRHI (Verplanken & Orbell, 2002), that provided the potential advantages of face and construct validity. There were substantial and consistent correlations between past media use and a habit scale based primarily on the SRHI. Hypotheses 1a and 1b found a substantial correlation between past media selection behavior and both the uses and gratifications habit/pass time measure time and the SRHI, providing evidence that while SRHI is a valid measures of habitual behavior, while the uses and gratifications habit/pass time measure is a combination of competing motivations. The CFA loadings of the 12 items of the SRHI were consistent from medium to medium, while for television, two of the six items of the

uses and gratifications habit/pass time measure needed to be withdrawn of misidentification and lack clear conceptualization. In sum, the SRHI provided a distinct measure of habit that highlighted the confounded nature of the habit/pass time "gratification."

Limitations of Current Research

This research has several limitations that may have an undesired impact the empirical and theoretical findings. As noted earlier, the use of a student sample prohibits generalizing the degree of connection between habit, intent and behavior to a general population, although it should not alter the theoretical relationships. Of special interest is the reduced television use of students against the general population (Pingree et al., 2001). The media use patterns of college students cannot be generalized to the adult population. Television use is particularly problematic with college students, as they spend substantially less time using television than those not attending college, and less time than the US adult population as a whole. Web, e-mail and Instant Messenger use for this group is far above that of the US adult population as a whole (Rainie, 2001). In sum, college students are users of multiple media, but use the media at different rates than the general population.

Perhaps a more challenging limitation is the reliance on self-report for the measurement of the mundane behavior of media choice. Individuals may not be aware of their behavior, especially those with as little consequence as watching television and reading e-mails. The diary format may help in this regard, as it forces the individual to recount his/her behavior on an hour-by-hour basis. To the extent that individuals are

unaware of their mindless activity, this research would underreport the relationship between habit and behavior. Alternatively, it is not unusual for individuals to record in diaries what they intended to do, or what they usually do, instead of their actual behavior (Wheeler & Reis, 1991). This could produce an undesirable inflation of the relationships between the reported behavior and habit, and reported behavior and intention.

An additional measurement issue was the use of the overall duration of media use as the sole indicator of media selection. Triandis (1979) suggested that habit might not be predictive of the intensity of the behavior. Attenuated correlations between habit and the duration of media use may have been a function of the difficulty of accurately reporting the duration of media use. To paraphrase Ferguson's (1994) study in which he looked at the difficulty of measuring frequent, mundane behavior, it would be as if subjects were being asked to ascertain not how many times they had looked at their watch, but how long they had looked at their watch.

While using a ratio measure for the dependent variable was optimum for the employment of structural equation modeling (Klein, 1998), the duration of media use may not completely capture the pattern of media selection. For example, it would be arguable that an individual who turned on the television 6 times in the course of a night for 10 minutes is a more frequent, and thus more habituated, media user than another individual who watched a single program for one hour. As this research was constructed, both individuals' media use for the target night was considered the same, which may have undervalued the frequency of behavior and overvalued the duration. What was measured was less the initiation of a behavior in the logging on to the Internet or the checking of an e-mail as the continuation of the behavior, with duration as an indicator of

habitual activity. An alternative analytic method that allows dichotomous outcomes, either logistic regression or discriminant analysis, may have produced different results.

As discussed earlier, the single-item measure of environmental stability was not an optimum way to evaluate the potential effects of stability on the execution of habit. The "typical night" measure may not have captured the typicality of the individual's environment. Further development of a multiple items is called for.

One final limitation of this research was a result of the attempt to synthesize two different research traditions, that of uses and gratifications and TRA/TPB. Proponents of both traditions have proposed models that are larger than those tested here. The sole gratification offered in the model was pass time. Attitudes and subjective norms, both antecedents of intention in the theory of planned behavior and theory of reasoned action, were not included in the models. To some extent the use of habit/intent/behavior triad may have excluded alternative explanations to the findings.

Suggestions for Future Research

Perhaps the most intriguing area for additional research is in the specification of how habits develop, especially for mass media use. Diffusion of innovation theory (Rogers, 1995), often used in health studies as a method of understanding how a new intervention can compete with repetitive past behavior, is strong on how a new idea is first introduced to societies and individuals, but less so on how the innovation comes to be assimilated and employed in an ongoing, habitual manner (Fichman & Kemerer, 1999). Perhaps there are opportunities for cross fertilization between theories of

diffusion and theories of habit. At what point on the diffusion curve does a new technology no longer require the active processing of its benefits?

This research has also raised questions about the role of stability in the exercise of habit. Future research could refine the conceptualization and operationalization beyond what has been done here. Perhaps a significant degree of stability is not necessary for the exercise of habit, as much as simply the dichotomous existence of facilitating conditions (Triandis, 1979). In that way, stability might be an open door to the exercise of habit, but not something that increases its affect on behavior.

Another intriguing question posed by the results of this research was the correspondence between the new habit construct and the pass time items. While this research has demonstrated that habit and pass time are separate constructs, the large correlations, especially between pass time and e-mail ($r=.70$, $p<.01$), and Instant Messenger ($r=.66$, $p<.01$), open the possibility that an unspecified variable is bringing together the two constructs, perhaps self-regulation or addiction.

Some of the future research is suggested by the methodological limitations of this current project. A random sample from a mainstream population would allow for generalizing the investigation of habit, while a larger sample might provide more between-media consistency, avoiding the difficulties engendered by the relatively small n's for new media such as Instant Messenger. The measurement of media-use behavior should be expanded to include frequency as well as duration, to capture briefer bursts of the execution of both intention and habit. This research employed self-report of media use, a sometime problematic technique given the limitations of individuals to remember

mundane behaviors, even for brief periods. Machine-based behavioral recording methods would provide a greater degree of reliability for future research.

This current research has provided a place for the role of habit in the execution of intentional behavior. An important next step is to develop a greater understanding of the development of habit as it applies to mass media selection. The process by which habits are initiated, regularized, and perhaps discarded in the use of mass media is a worthy area of study for the understanding of the on-going interaction of thinking and thoughtless activity.

Conclusion

Vast sums of human capital are expended on the consumption of mass media, with the typical American using over 30 hours per week of television, a similar amount of radio (Nielsen, 2001) , and for most, additional encounters with the Web, e-mail or Instant Messenger (Pew, 2001). In opposition to James' (1898) contention that habit is the "flywheel of society," habit may not a blindly spinning mechanism, but one that works efficiently in tandem with intention, as people work through the routine and not-so-routine events of their days.

Appendix A

Survey Instrument

Mass Media Survey

INSTRUCTIONS

I would like your help with a study of how people like you use electronic devices such as computers and television. To do that, I am asking you to take part in a two-part study. This first part will ask you about your media use. The second part of the study asks you to keep a diary of your media use tomorrow night. Please complete this survey now. I will give you the diary form when you hand in this survey.

Please answer all the questions to the best of your ability. There are no right or wrong answers–just what's right for you.

Do you watch TV at home? O Yes O No *(If "No," skip to the next page)*

Circle the number that best represents your response to each of the following statements.

I watch TV at home...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
just because it's there	1	2	3	4	5	6	7
because I like it	1	2	3	4	5	6	7
because it's a habit, it's just something I do	1	2	3	4	5	6	7
because it passes the time	1	2	3	4	5	6	7
when I've got nothing else to do	1	2	3	4	5	6	7
when there's no one else to talk to or be with	1	2	3	4	5	6	7

Watching TV is something that...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
I do often	1	2	3	4	5	6	7
I do automatically	1	2	3	4	5	6	7
I do without having to consciously remember	1	2	3	4	5	6	7
makes me feel weird if I don't do it	1	2	3	4	5	6	7
I do without thinking	1	2	3	4	5	6	7
would require effort not to do	1	2	3	4	5	6	7
belongs in my daily routine	1	2	3	4	5	6	7
I start doing before I realize I'm doing it	1	2	3	4	5	6	7
I would find hard not to do	1	2	3	4	5	6	7
I have no need to think about doing	1	2	3	4	5	6	7
is typically "me."	1	2	3	4	5	6	7
I have been doing for a long time	1	2	3	4	5	6	7

How many years have you been watching TV? Years ☐

On a typical WEEKNIGHT, approximately how many minutes do you watch TV? Minutes ☐

Do you use the World Wide Web at home? O Yes O No *(If "No," skip to the next page)*

Circle the number that best represents your response to each of the following statements.

I use the World Wide Web at home...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
just because it's there	1	2	3	4	5	6	7
because I like it	1	2	3	4	5	6	7
because it's a habit, it's just something I do	1	2	3	4	5	6	7
because it passes the time	1	2	3	4	5	6	7
when I've got nothing else to do	1	2	3	4	5	6	7
when there's no one else to talk to or be with	1	2	3	4	5	6	7

Using the World Wide Web at home is something that...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
I do often	1	2	3	4	5	6	7
I do automatically	1	2	3	4	5	6	7
I do without having to consciously remember	1	2	3	4	5	6	7
makes me feel weird if I don't do it	1	2	3	4	5	6	7
I do without thinking	1	2	3	4	5	6	7
would require effort not to do	1	2	3	4	5	6	7
belongs in my daily routine	1	2	3	4	5	6	7
I start doing before I realize I'm doing it	1	2	3	4	5	6	7
I would find hard not to do	1	2	3	4	5	6	7
I have no need to think about doing	1	2	3	4	5	6	7
is typically "me."	1	2	3	4	5	6	7
I have been doing for a long time	1	2	3	4	5	6	7

How many years have you been using the World Wide Web ? Years ☐

On a typical WEEKNIGHT,
approximately how many minutes do use the World Wide Web? Minutes ☐

Do you use e-mail at home? O Yes O No *(If "No," skip to the next page)*

Circle the number that best represents your response to each of the following statements.

I use e-mail at home...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
just because it's there	1	2	3	4	5	6	7
because I like it	1	2	3	4	5	6	7
because it's a habit, it's just something I do	1	2	3	4	5	6	7
because it passes the time	1	2	3	4	5	6	7
when I've got nothing else to do	1	2	3	4	5	6	7
when there's no one else to talk to or be with	1	2	3	4	5	6	7

Using e-mail at home is something that...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
I do often	1	2	3	4	5	6	7
I do automatically	1	2	3	4	5	6	7
I do without having to consciously remember	1	2	3	4	5	6	7
makes me feel weird if I don't do it	1	2	3	4	5	6	7
I do without thinking	1	2	3	4	5	6	7
would require effort not to do	1	2	3	4	5	6	7
belongs in my daily routine	1	2	3	4	5	6	7
I start doing before I realize I'm doing it	1	2	3	4	5	6	7
I would find hard not to do	1	2	3	4	5	6	7
I have no need to think about doing	1	2	3	4	5	6	7
is typically "me."	1	2	3	4	5	6	7
I have been doing for a long time	1	2	3	4	5	6	7

How many years have you been using e-mail ? Years ☐

On a typical WEEKNIGHT, approximately how many minutes do use e-mail? Minutes ☐

Do you use Instant Messenger at home? O Yes O No *(If "No," skip to the next page)*

Circle the number that best represents your response to each of the following statements.

I use the Instant Messenger at home...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
just because it's there	1	2	3	4	5	6	7
because I like it	1	2	3	4	5	6	7
because it's a habit, it's just something I do	1	2	3	4	5	6	7
because it passes the time	1	2	3	4	5	6	7
when I've got nothing else to do	1	2	3	4	5	6	7
when there's no one else to talk to or be with	1	2	3	4	5	6	7

Using the Instant Messenger at home is something that...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
I do often	1	2	3	4	5	6	7
I do automatically	1	2	3	4	5	6	7
I do without having to consciously remember	1	2	3	4	5	6	7
makes me feel weird if I don't do it	1	2	3	4	5	6	7
I do without thinking	1	2	3	4	5	6	7
would require effort not to do	1	2	3	4	5	6	7
belongs in my daily routine	1	2	3	4	5	6	7
I start doing before I realize I'm doing it	1	2	3	4	5	6	7
I would find hard not to do	1	2	3	4	5	6	7
I have no need to think about doing	1	2	3	4	5	6	7
is typically "me."	1	2	3	4	5	6	7
I have been doing for a long time	1	2	3	4	5	6	7

How many years have you been using Instant Messenger? Years ☐

On a typical WEEKNIGHT,
approximately how many minutes do you use Instant Messenger? Minutes ☐

The following questions are about your plans using TV, the World Wide Web, e-mail and Instant Messenger for TOMORROW NIGHT.

Circle the number that best represents your response to each of the following statements

Tomorrow night between 6 and 9pm...	Very unlikely	Unlikely	Somewhat unlikely	Neutral	Somewhat likely	Likely	Very likely
I will watch TV	1	2	3	4	5	6	7
I will use the World Wide Web	1	2	3	4	5	6	7
I will use e-mail	1	2	3	4	5	6	7
I will use Instant Messenger	1	2	3	4	5	6	7

Tomorrow night between 9 and midnight...	Very unlikely	Unlikely	Somewhat unlikely	Neutral	Somewhat likely	Likely	Very likely
I will watch TV	1	2	3	4	5	6	7
I will use the World Wide Web	1	2	3	4	5	6	7
I will use e-mail	1	2	3	4	5	6	7
I will use Instant Messenger	1	2	3	4	5	6	7

Tomorrow night between midnight and 3am...	Very unlikely	Unlikely	Somewhat unlikely	Neutral	Somewhat likely	Likely	Very likely
I will watch TV	1	2	3	4	5	6	7
I will use the World Wide Web	1	2	3	4	5	6	7
I will use e-mail	1	2	3	4	5	6	7
I will use Instant Messenger	1	2	3	4	5	6	7

Tomorrow night, how many minutes do you expect to spend...

watching TV		Minutes
using the World Wide Web		Minutes
using e-mail		Minutes
using Instant Messenger		Minutes

You're almost done...just a few more questions.

Besides yourself, how many adults (ages 18 and up) live in your household? ☐

How many children (under 18) live in your household? ☐

What is your gender? **Male** **Female**

What year were you born? 19___

Thanks! That's it for part one. Please hand this survey in to the researcher, and you'll receive instructions on completing tomorrow night's media use diary.

Appendix B

Mass Media Diary

Mass Media Diary

INSTRUCTIONS

This is the second and final part of a two-part study on media use. Please fill in this diary of your media use at home for TOMORROW NIGHT, from 6pm until 3am, or when you go to bed (whichever is earlier). Put a check mark in each box for each medium that you used within any hour. Put a check mark even if you used the medium for a short time.

Tonight is... O Monday O Tuesday O Wednesday O Thursday

And the date is..

Place a ☑ if you used the medium at home at any time within this hour	TV	World Wide Web	E-mail	Instant Messenger	I wasn't home this entire hour	I was sleeping this entire hour
6:00pm -6:59pm						
7:00pm-7:59pm						
8:00pm-8:59pm						
9:00pm-9:59pm						
10:00pm-10:59pm						
11:00pm-11:59pm						
Midnight-12:59am						
1:00am-1:59am						
2:00am-2:59am						

Tonight, how many minutes did you spend...

watching TV		Minutes
using the World Wide Web		Minutes
using e-mail		Minutes
using Instant Messenger		Minutes

Please turn the page

Circle the number that best represents your response to each of the following statements

Tonight...	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
Was a typical weeknight for me	1	2	3	4	5	6	7
I had more interruptions than usual	1	2	3	4	5	6	7
I was under more pressure than usual	1	2	3	4	5	6	7
I had more visitors than on a typical weeknight	1	2	3	4	5	6	7
I had more to do than on a typical weeknight	1	2	3	4	5	6	7
I spent more time on the phone than usual	1	2	3	4	5	6	7
I had more incoming e-mails than usual	1	2	3	4	5	6	7
I received more Instant Messages than usual	1	2	3	4	5	6	7
I went out more than on a typical weeknight	1	2	3	4	5	6	7
I spent more time on family affairs than on a typical weeknight	1	2	3	4	5	6	7
I spent more time on household tasks than on a typical weeknight	1	2	3	4	5	6	7
I had an unusual amount of problems with the World Wide Web	1	2	3	4	5	6	7
I had an unusual amount of problems with e-mail	1	2	3	4	5	6	7
I had an unusual amount of problems with Instant Messenger	1	2	3	4	5	6	7
I had an unusual amount of problems with my television service.	1	2	3	4	5	6	7

Compared to a typical weeknight, tonight	Strongly agree	Agree	Slightly agree	Neutral	Slightly disagree	Disagree	Strongly disagree
I watched more TV than usual	1	2	3	4	5	6	7
I used more e-mail than usual	1	2	3	4	5	6	7
I used the World Wide Web more than usual	1	2	3	4	5	6	7
I used Instant Messenger more than usual	1	2	3	4	5	6	7
I thought about media choices more than usual	1	2	3	4	5	6	7

The following information will be used for awarding extra credit

Your name:	
Class in which you are to receive credit:	
Instructor's name:	
Your e-mail address:	

That's all! Please fold this diary and return it to your instructor at the next class meeting. You will need to return this diary in order to receive credit for participation. Thanks for your help with this project.

Appendix C

Participant Instructions

Recruiting announcement

We would like your help with a study of how people like you use electronic devices such as computers and television . To do that, we are asking you to take part in a two-part study. Part one will ask you to take 20 minutes or less to fill out a survey that asks questions about your media use. Part two, which will take 10 minutes or less, will ask you to keep a diary of your media use for one evening. As a reward for participation, you will receive 2 extra-credit points in this class. Your participation is voluntary, and alternate extra credit assignments are available.

The main benefit of the study will be to add to our knowledge of how people make choices to use different media sources. There is no risk to participating in the study. You can terminate your participation at any time and you may choose not to respond to specific questions. If you have any questions or concerns about the study you may contact Dr. Robert LaRose in the Telecommunication Department (larose@msu.edu) or Dr. Ashir Kumar with the human subjects committee (355-2180).

If you choose to participate, please read this consent form, sign in the space provided below, and return the form by the end of class today to the researcher. You will be given an envelope containing the survey form. Fill out the survey, and then you will be given the diary and instructions.

Data gathered from you will be held in strict confidence, and your privacy will be protected to the maximum extent allowed by law.

Thank you for your time.

Diary Reminder e-mails

-----Original Message-----
From: Jay Newell [mailto:newelljj@msu.edu]
Sent: Wednesday, June 12, 2002 2:11 PM
Subject: Mass media diary reminder

Here's a reminder to use the pink diary sheet to record your mass media use tonight (Wednesday). Please give the completed diary sheet to your instructor the next time you're in class, and I'll get you on the extra-credit list.

Thanks again for participating in this study.

Jay Newell
MSU College of Communication Arts & Sciences
309 Comm Arts
East Lansing, MI 48824-1212
(517) 353-5020
newelljj@msu.edu

-----Original Message-----
From: Jay Newell [mailto:newelljj@msu.edu]
Sent: Tuesday, June 18, 2002 1:16 PM
Subject: Extra credit reminder

Here's a reminder to use the pink diary sheet to record your mass media use tonight (Tuesday). Please give the completed diary sheet to your instructor on Wednesday or Thursday, and I'll get you on the extra-credit list. Thursday is the last day that diary sheets can be accepted.

Thanks again for participating in this study.

Jay

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309 Comm Arts
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