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Internet Habit and Addiction

presented by

Michael S. Mackert

has been accepted towards fulfillment
of the requirements for the

__Master of Arts__ degree in _____Telecommunication_____

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INTERNET HABIT AND ADDICTION

By

Michael S. Mackert

A THESIS

Submitted to
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ABSTRACT

INTERNET HABIT AND ADDICTION

By

Michael S. Mackert

As Internet use continues to become more and more commonplace in the United States, issues related to those who spend a great deal of time online gain importance. This study looked to identify Internet addicts and habitual users from a sample recruited from an online community, and then look to profile these two groups and look for possible differences between these two differing types of user on a variety of emotional and behavioral characteristics. This study also investigated the possibility of relationships between habitual consumption of other mass media and the Internet.

After successfully identifying addicts and habitual users of the Internet, profiles were established to provide general approximations of how these groups differ in terms of demographic characteristics and what they do online. It was determined that addicts are more likely than habitual users to use the Internet for social purposes and to distract themselves from unpleasant thoughts in their daily lives. Addicts also exhibit poorer attentional control when compared to habitual users. No significant relationships were discovered between habitual use of other media and the Internet.

The thesis concludes with a final discussion of limitations – primarily the type of Internet users that comprised this sample – and directions for future research.

To my parents, family, and friends.

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I. INTRODUCTION

I believe television is going to be the test of the modern world, and that in this new opportunity to see beyond the range of our vision we shall discover either a new and unbearable disturbance of the general peace or a saving radiance in the sky. We shall stand or fall by television.
-E. B. White

White's comments about television have, at least in some ways, certainly proven to be true. There is evidence that the average person in an industrialized country spends half their leisure time watching television, or approximately three hours per day. The only activities that take more time out of a person's day are working and sleeping. At such a rate, the average person will spend nine years of their life in front of the television (Kubey & Csikszentmihalyi, 2002). Debates about the negative effects of television on society – in terms of violence and sex, in particular – are well known in both the popular and scientific literature. Television habit and addiction have also been studied in-depth.

In some ways, the emergence of the Internet as a common aspect of people's lives takes another step beyond television in mass communication. If television – a one-way and non-personalized medium – can spur such incredible levels of use, it seems likely that the Internet can be an even more powerful mass medium with its ability to personalize messages to individual users and its introduction of an interactive element.

The Internet has already had an impact on society and the world to a degree that few technologies can match. It has changed the way companies do business, the way people all over the world communicate, and the ways in which

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people spend their leisure time. It has revolutionized the way teachers teach in the classroom, and the way students go about their class work. Truly, it is challenging to think of anything that has not been affected, directly or indirectly, by the emergence and growth of the Internet.

Internet use is certainly becoming more popular, as the average home Internet user spends over ten hours online per month (Nielsen NetRatings, 2002). It is hardly surprising that some people consider this to be too much time spent online. It is also not particularly surprising that some heavy Internet users are viewed as Internet addicts, much like heavy television viewers are labeled as television addicts. But what really constitutes Internet addiction? What is the difference between people who use the Internet out of habit for work or leisure, and those who truly have a psychological addiction to the Internet?

Bringing some of these issues further to light are tragic stories that unfortunately are not urban legends. One example of such a story is Shawn Woolley, a 21 year old man from Wisconsin who spent up to twelve hours a day playing the online game EverQuest, ignored his family, lost his job, and eventually committed suicide – apparently almost immediately after something catastrophic happened to his EverQuest character (Miller, 2002). EverQuest is an online role-playing game in which people control virtual characters that interact with characters controlled by other people around the world and EverQuest itself. Players go on adventures alone or with other gamers, make online friends and enemies, and otherwise immerse themselves in this online world. Online games similar to EverQuest and online communities in general are

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littered with stories of people whose lives offline were affected dramatically by such a dedication to their online lives. But hundreds of thousands of people play EverQuest without any dramatic effect on their offline lives, and some of those people likely spend large amounts of time playing the game, too. It would be useful to discover the difference between someone who can spend a lot of time online and continue to lead a healthy life and someone who lets their online activities ruin their offline life. Of course, Shawn Woolley's story is not unique. Any online community of a reasonable size likely has some stories of members' lives that have been influenced either positively or negatively by their time spent online with the community – including people who meet online and marry in real life, or end up with marital problems due to the quantity of time they spend online.

Just as those who have a problem with EverQuest represent a very small percentage of the overall population that uses EverQuest, many people watch the same television shows every week without being labeled television addicts or having their television usage negatively impact their lives. Likely, this is simply a sign that most television viewers have a certain set of shows they like to watch on a weekly basis. And it seems entirely possible that this could be true of those whose Internet activity has a very habitual component to it – checking the same set of sites every morning for news and weather, for example. A key point of research needs to be looking to determine what separates these two groups, what enables one person to use a particular medium habitually and another to fall into a destructive addictive relationship with the medium.

Such dedication to online "lives" makes one wonder how different activities online might affect the offline behavior of those who spend a great deal of time on the Internet. Research that helps illustrate the fact that television viewing could affect the way people behave – for instance, viewing physical aggression on television can be linked to increased verbal aggression exhibited by viewers (Sebastian et al., 1978); or viewing violence contributes to physical aggression (Paik & Comstock, 1994) – makes it clear that parents should keep an eye on how often children watch television and what they are watching. The increased likelihood of finding inappropriate material on the Internet only makes it more important that parents keep an eye on what their children are doing online. Anything that can shed more light on how and why different people use the Internet in varying ways and to varying degrees can only help ensure that people are using this form of mass media in a healthy manner.

This research study seeks to employ a classification scheme to identify addicts and habitual users, as well as discover various differences that may exist between people who use the Internet habitually and those who might have a real psychological addiction to the Internet. It will also look for possible relationships between habitual use of the Internet and other mass media. In many ways, this study takes its cue from the study of television habit and addiction, adopting some of the literature and tools of those studies to investigate Internet habit and addiction.

II. LITERATURE REVIEW

In an attempt to gain a better understanding of some of the root causes of Internet habit and addiction, this literature review will begin with a description of habit and what conditions make it easy to form habits and a general review of addiction. This is supported by research that has already been conducted related to television habit and addiction. A summary of current statistics related to Internet use then provides a background for the discussion of Internet habit and addiction. Throughout the literature review parallels and extensions will be drawn to apply these topics to the concept of Internet habit and addiction.

Habit

Every day the actions of people everywhere are controlled, to one degree or another, by habit. Many people think of the word habit and relate it to something negative – smoking, for instance. But there is nothing that says a habit is automatically negative. Ouelette and Wood (1998) discuss the idea that well-practiced behaviors that take place in constant contexts become habitual as the mental processes that initiate and control their performance becomes automatic. Conversely, behaviors that are not well-practiced or that take place in inconstant contexts are likely to require conscious decision making to complete the behavior. Past behavior can contribute to intentions of future behavior, and behavior is guided by intention (Ouelette and Wood, 1998). Habits can reinforce themselves as a positive feedback loop. As an example, individuals who spend

a lot of time on the Internet are likely to continue this behavior if it is something they are used to doing in a stable context. This stability could be the result of daily use of a personal computer at work, checking e-mail as part of the routine of returning home from work or school, or any number of other similar stable environments that people who spend a lot of time online might experience. Other non-Internet examples could include things as simple as getting a cup of coffee to start the day at work or a particular set of steps necessary to close down a business at the end of the day.

It is important to realize that despite the fact that habits can be automatically performed, this does not mean they are never volitional. Automatic behaviors can be nonvolitional, but they can also be part of intentional action systems (Bargh, 1989; Logan, 1989; Posner & Rothbart, 1989). Oulette and Wood (1998) offer the automatic, but volitional, activities of driving and exercise as examples of these types of behavior. Daily Internet use at work, school, or home could serve as another example.

On a similar note, Heckhausen and Beckmann (1990) explained that once plans about how to act when particular cues or conditions occur are in place they no longer require conscious control. When the relevant cues and conditions are applicable, intentions to act become automatic or quasi-automatic (Heckhausen and Beckmann, 1990). Again, it is easy to see how this applies to people who spend a great deal of time on the Internet. Employees who arrive at work every morning and immediately check their e-mail and a few favorite websites exhibit this type of automatic behavior. Routines of this nature illustrate the concept that

after a period of time habitual activities no longer require conscious control. Instead, it is the goals of the actions that become relevant (Vallacher & Kaufman, 1996; Vallacher & Wegner, 1987). In this case the goal would be getting ready for a new workday. Eventually these actions become transparent to the individual, much as one does not pay attention to how a complicated piece of machinery operates as it does its work (Vera & Simon, 1993).

One aspect of a habit that makes it difficult to break is its tendency to evoke ironic thoughts (Wegner, 1992). For example, a person that is trying to spend less time online is often plagued with thoughts of what they are missing by not being on the Internet. This then increases the person's preoccupation with being on the Internet and could contribute to the person relapsing back into their established habits of time spent online.

The concept of habit certainly has its place in studying Internet addiction. Most individuals who make use of the Internet while at work or school could probably find evidence of habitual aspects of their online activities. For many, using the Internet to complete work or school functions has become as commonplace as using the telephone – and it requires as little thought for these individuals to use the Internet as it does to use a phone. This type of habitual, volitional behavior at work or school could potentially lead to using the Internet more at home; a person who spends all day online might naturally do the same at home without really thinking about it.

Addiction

There are several relevant models of addiction that are applicable to the concept of media (in this case, television and then Internet) addiction. These models were developed while studying more conventional forms of addiction, such as alcohol and drug addiction. Researchers then modified the models for use in studying possible media addiction.

One such model is the operant conditioning model of addiction, which originated from work in the first half of the 20th century (Center for Substance Abuse Prevention, 1995). The operant conditioning model looks at addiction as a four-step process: initiation to the activity, a transition to ongoing use, addiction, and finally a change in behavior (Marlatt et al., 1988). One important note is that an individual's use of the media must only be excessive compared to that person's previous use of that particular media. Media addiction cannot be viewed on an absolute scale (LaRose, Lin & Eastin, in press). Like an addiction to a chemical substance, the operant conditioning model holds that after a certain point a media addiction can only be halted with professional help (Marks, 1990).

Another theory of addiction is that certain personality types are prone to addiction. Particular behavior traits are associated with these personality types, including difficulty controlling impulses, a tendency to display antisocial behaviors, low self-esteem, difficulty in coping with stress, egocentricity, and a drive for power (Center for Substance Abuse Prevention, 1995; Smith, 1986). Several research studies have shown correlations between personality traits and

television addiction (McIlwraith et al., 1991; Finn, 1992). Greenberg et al. (1999) also found correlations between various media addictions – the Internet among them – and alcohol addiction (Greenberg et al., 1999).

A third model of addiction, the disease model, was developed around 1935 – shortly after the repeal of prohibition (Center for Substance Abuse Prevention, 1995). This model asserts that the problem of abuse is a disease that cannot be cured. Those who suffer from this disease can never use the substances they are addicted to in moderation; they will always relapse into excessive use (Center for Substance Abuse Prevention, 1995). Of course, those who suffer from media addictions are not actually taking a physical substance into their bodies, but the same concepts apply. This model of addiction has been used by researchers to define media addictions in the past when studying addictions to video games and television (Griffiths, 1991; McIlwraith et al., 1991). Such studies have then been adapted for use in studying possible Internet addictions (Smith, 1986; McIlwraith et al., 1991).

The prime diagnostic manual used by psychotherapists in North America is the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) that was published in 1994. Interestingly enough, this book never uses the term addiction, favoring the term "substance dependence" (Kubey, 1996). DSM-IV offers seven possible criteria for making a diagnosis of substance dependence (DSM-IV, 1994). Directly from DSM-IV, these criteria are:

1. Tolerance, as defined by either of the following: (a) a need for markedly increased amounts of the substance to achieve intoxication or desired effect or (b) markedly diminished effect with continued use of the same amount of the substance.

2. Withdrawal, as manifested by either of the following: (a) the characteristic withdrawal syndrome for the substance or (b) the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms.

3. The substance is often taken in larger amounts or over a longer period than was intended.

4. There is a persistent desire or unsuccessful efforts to cut down or control substance abuse.

5. A great deal of time is spent in activities necessary to obtain the substance, use the substance (g. g., chain smoking), or recover from its effects.

6. Important social, occupational, or recreational activities are given up or reduced because of substance abuse.

7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

Three of the seven possible criteria must apply within a one-year period for a diagnosis of dependence to be made (DSM-IV, 1994). Looking at the criteria above, it is hardly difficult to see how some apply to those who could be termed

media addicts. While the first criteria is likely not as applicable, the second through seventh are certainly relevant. It is quite possible that Shawn Woolley recognized that his time spent playing EverQuest was ruining his life, but was unable to stop playing the game. Dr. Allen J. Frances, who oversaw the most recent revision of DSM-IV commented in the *New York Times* that "Under the broader definition, many kinds of compulsive behavior could be considered addictive, including obsessive sex or compulsive television viewing" (Goleman, 1990).

Clearly, there are aspects to all three of these models that can be seen to apply to possible media dependence – whether that dependence is to television, the Internet, or something else entirely. Researchers simply must look at which particular model best suits their needs, or if some aspects of all three models might apply to their work. This particular study will make widest use of the disease model, though aspects of the operant conditioning and addictive personality models will also be explored.

Some people, in general conversation, tend to think of habit and addiction as two sides of the same coin. The terms habit and addiction are frequently used interchangeably – as people talk about smoking, for instance. Truly, though, they are not that similar and the two concepts cannot be used as if they are the same. Habit is more about a routine that someone gets into, something they become familiar with. At a certain point, they hardly even think before or while doing the habitual behavior. These models of addiction, on the other hand, view the

relevant behavior as something that the person must make a conscious (if unwilling) decision to do.

Television Habit and Addiction

This study will utilize methods and concepts from the study of television habit and addiction. As stated earlier, the average individual in an industrialized nation spends approximately three hours per day watching television. At such a rate, a person who lives for seventy-five years would spend nine years of their life watching television. Certainly, people enjoy watching television, and this could explain such a remarkable statistic. But that would fail to explain why Gallup polls conducted in 1992 and 1999 reported that two out of five adult respondents, and seven out of ten teenage respondents, commented that they spend too much time watching television. Other surveys have reported consistently that ten percent of adults view themselves as television addicts (Kubey & Csikszentmihalyi, 2002).

The question arises as to what types of people tend to label themselves as television addicts. Robert D. McIlwraith used a measure called the Short Imaginal Processes Inventory (SIPI) to study self-described television addicts. He found that these individuals tended to be more easily bored and distracted than non-addicts, and addicts said that they used television to distract themselves from unpleasant thoughts or to fill time (McIlwraith, 1998). Other studies have also shown that heavy television viewers tend to be less active and are less likely to participate in community activities (Kubey & Csikszentmihalyi,

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2002). The next logical question is in which direction the correlation goes. Do people turn to television out of natural boredom or loneliness, or does watching television make a person more susceptible to boredom and loneliness? Most researchers tend to believe the former is the case, but there are certainly those who hold the opposite view (Kubey & Csikszentmihalyi, 2002). It is entirely logical that a similar conclusion could be drawn related to those who find themselves online to relieve boredom or loneliness. The interactive nature of the Internet and its ability to bring together people to chat and talk on community websites could make it an even more effective means for filling time and escaping feelings of loneliness.

One of the most successful methods of researching television usage and its effect on people has been the Experience Sampling Method (ESM). In ESM, research subjects are given a beeper, and then report their activities and feelings whenever they are beeped by researchers at randomly specified intervals (Kubey, 1996). ESM has shown that television viewing typically involves less concentration and alertness than all other reported activities except "doing nothing" (Csikszentmihalyi & Kubey, 1981). The main positive experience reported by television viewers is relaxation, which can make it more difficult to turn the set off. Additionally, this state of relaxation and lowered alertness continues after an individual stops watching television (Kubey, 1984).

It is worth emphasizing that a significant reason people turn to television is to avoid negative thoughts that can contribute to a negative mood (Bryant & Zillmann, 1984). It is especially effective in reducing stress and mild tension

(Milkman & Sunderwirth, 1987). Utilizing the ESM method mentioned above, Kubey and Csikszentmihalyi showed that people who had bad days tend to view television more at night, while those who reported an enjoyable day often watched less television those nights (Kubey & Csikszentmihalyi, 1990). It has also been shown that those who label themselves as television addicts are more likely to make use of television as a distraction from unpleasant thoughts (McIlwraith, 1990).

It is natural to draw a parallel to Internet usage as an escape from negative thoughts and unhappiness in "real life." Those who spend time on community websites can often find a significant percentage of the population that seem not to be especially content with their life offline and use the Internet as an outlet to interact with other people and escape their daily troubles. Some people certainly take this to another level with role-playing websites where they can cease to be themselves, taking on an alternate persona to take their escape from reality even further. In this way the Internet offers users a greater variety of ways to escape reality than television. While television certainly offers a wide variety of channels, the experience is more or less the same no matter what channel the person is watching. The Internet offers a comparatively wider array of options for submersing themselves in activities that let them escape offline troubles to varying degrees.

Another major reason that television viewers tend to start watching is to fill open and unstructured time (McIlwraith, 1990). In one study it was determined that light viewers (less than two hours of viewing per day) tended to have less

trouble handling time alone and unstructured situations than heavy viewers, who watch more than four hours per day (Kubey, 1986). This tendency to use television to avoid loneliness and unstructured time has led some researchers to theorize that extraverts could become dependent on television due to their low tolerance for boredom (Kubey, 1996). In some ways this characterization flies in the face of popular conceptions of many people that could be considered Internet addicts. Most people would likely not consider a "geek" that spends hours and hours involved in role-playing websites or communities online an extravert. At the same time, though, it does not necessarily make sense that a more introverted individual would care to interact with people online for hours on end.

Again, echoes of the complaints voiced by critics of television can be heard today in criticism of the Internet. For those investigating Internet usage – and other mass media, for that matter – looking to such studies of television viewing is certainly a useful exercise.

Internet Usage and Other Mass Media

Some recent statistics related to Internet use can help create a background and frame of reference for a discussion of Internet usage. It is difficult to talk about typical (or atypical) levels of Internet use without some sort of benchmark.

Nielsen NetRatings reported in September of 2002 that the average home user from the United States with Internet access spent a little over ten hours per month online, with the average surfing session lasting approximately half an hour (Nielsen NetRatings, 2002). Going back to a slightly earlier report from Nielsen

NetRatings, people who also spend time online at work are apt to spend up to twice as much time online as individuals who only have Internet access at home (Nielsen NetRatings, 2001). Some research indicates that a significant portion of the time these employees spend online at work is not work-related. In one example, an internal study by the United States Treasury Department found that 51% of the time Internal Revenue Services employees spent online was for their own personal use (MetroNet, 2001). Nielsen NetRatings has also reported that the Internet population of the United States consists of 48% men and 52% women (Nielsen NetRatings, 2001).

With this basic background information in place, the interesting questions related to Internet habits and addiction can be formulated. Particularly, do people who do not frequently use the Internet use it for different types of things as compared to people who spend a great deal of their time online? For example, it is reasonable that newer users might first be attracted to the Internet for e-mail, so they can stay in touch with family and friends. They also might be particularly interested in looking for information, or trading multimedia files over the Internet. But there are some uses of the Internet that are more advanced, or that might not occur to a newer user such as taking part in community-oriented websites. It is reasonable to believe that as a person advances to higher levels of Internet use, they graduate to spending less time on simple activities such as e-mail and gathering information, to more advanced online activities such as becoming a member of an online community. There is, in fact, evidence for the concept of users "graduating" to more advanced uses of the Internet over time.

Several examples include significant (20% or more) differences between veterans and newcomers in using the Internet to shop, look for information on hobbies, and looking for financial information on the Internet (Fox & Rainie, 2001). There is also evidence that veterans and newer users differ on the ways they use the Internet – veterans are much more likely to use it for work purposes than newer users, for example (Cummings & Kraut, 2002).

The different ways in which a person might take advantage of the Internet as their level of use increases is especially interesting when one looks at habit and addiction. It seems likely that advanced uses of the Internet are more apt to fulfill social needs. A person may come to identify themselves with a particular community, and if they have taken part for a long time it may become extremely difficult to leave the community. This might be what makes it so challenging for people to leave a community website.

How Internet use affects the use of other media is another topic that merits attention. In one study of American and Mexican businesspeople, 21.2% of the subjects reported that their viewing of television had decreased since they started using the Internet extensively (Witmer & Taweesuk, 1998). The same study included 47.8% of respondents reporting a decrease in library use, 23.9% of respondents reported less magazine reading, 24.2% replied their newspaper reading decreased, and 19.7% reported reading fewer books for leisure purposes. While it is possible that widespread use of the Internet can replace existing use of other mass media, it is also plausible that habitual use of other mass media – watching the same television shows every week, or reading the

paper every morning – could make it more likely for an Internet user to slip into similar habits while using the Internet.

Diffusion theory looks at the characteristics of innovations and the characteristics of those who adopt them. Some research indicates that there are two kinds of innovations – continuous and discontinuous (Rogers & Shoemaker, 1971). In terms of mass media, continuous innovations would represent a variation of existing channels, while discontinuous innovations are more difficult to adopt – perhaps including the purchase of new equipment or learning a new set of skills. Studies of computer adoption indicated that it is an extremely discontinuous innovation (Lin, 1998). The fact that computer adoption, and learning to use the Internet on top of that, is such a discontinuous innovation could mean that Internet usage would not correlate especially well with the use of other mass media. A user who invests the time and money to get online and use the Internet extensively might be looking to replace existing mass media habits, as opposed to simply augmenting their existing media usage. This would be in line with the media substitution hypothesis, which suggests the introduction of a new medium causes users to change their existence of existing media (Krugman, 1985). A relationship between habitual use of varying media – television and the Internet, for example – might indicate that some people are more likely than others to get into a set routine of utilizing mass media, no matter what the mass medium happens to be specifically.

Despite the fact that this study looks to take its cue from studies of television habit and addiction, it would be shortsighted to ignore research of Internet

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addiction. One analysis of Internet addiction and gratification items found that there are seven factors present: virtual community, information seeking, aesthetic experience, monetary compensation, diversion, personal status, and relationship maintenance (Song et al., 2002). While the latter six factors have been examined in depth, Song et al. point out that the virtual community factor has been studied much less extensively. As will be made clear in later chapters, this is an item that will play a particularly important role in this study, based on the way the sample for this study was recruited.

This study has its roots in studies of television habit and addiction, but is also interested in the relationship between use of the Internet and other mass media. The research questions outlined in the next section provide the basis for the remainder of this study.

Research Questions

This research study is interested in increasing knowledge regarding Internet habit and addiction. The four research questions below each touch on a different issue related to the topics discussed in the literature review.

RQ1: How can an individual be labeled as an Internet addict or a habitual user?

This first research question serves as a foundation for the rest of the study. This question seeks to identify Internet users as habitual users, addicts, or

neither. Further analyses of the two categories of interest – addicts and habitual users – are conducted in research questions two through four.

RQ2: What are the demographic and utilization profiles of addicts and habitual users?

This question is meant to look at what kinds of people might be more likely to become Internet addicts, or to use the Internet habitually. This second research question looks at demographic characteristics to determine if addicts and habitual users differ on generic demographic-style characteristics. It also profiles utilization patterns of habitual users and addicts.

RQ3: How do addicts and habitual users differ in their attitudes toward Internet use, self-perception, and a variety of emotional measures?

This third question looks deeper into possible differences between addicts and habitual users, moving beyond any possible differences in the demographic or utilization profiles between these two groups.

RQ4: How is use of other mass media related to Internet habit and addiction?

This final question looks for a possible relationship between use of other mass media and how it might be related to the way habitual users and addicts make use of the Internet. Possible relationships between use of other media and how it might affect Internet usage patterns could help lead to an understanding of why people use the Internet to varying degrees.

III. METHODOLOGY

Data Collection

The data for this research study were collected via an online survey in the summer of 2003 that consisted of three Web pages, beginning with an introduction at http://wotmania.com/internethabitaddiction. Each page of the survey consisted of approximately forty questions, to help prevent fatigue as respondents proceeded through the survey. Data were stored in a mySQL database, a freely-available enterprise database product intended to store vast quantities of data with no trouble. The survey data for each respondent were updated at the end of each page of the survey to capture data even from those respondents who chose not to complete the entire survey.

Sample

The sample for this study was a convenience sample of 907 users from an online community called wotmania. wotmania is a community-based website visited primarily by fans of Robert Jordan's *The Wheel of Time* series of fantasy books. Only those members of the community 18 and over and United States citizens were permitted to take part in the study.

wotmania first opened for the public in October 1998. It grew slowly in its early history, though it now averages thousands of visitors per day. Figure 1 shows a graph of wotmania's growth since it was founded. wotmania includes a number of features common to community websites, including messages boards,

a chat room, and an internal messaging system. It also includes a number of features built around *The Wheel of Time* – quizzes, theories, and articles.

Figure 1: wotmania Page Views Over Time
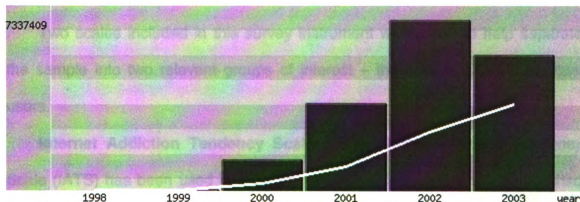
wotmania currently has almost 30,000 registered users. In general, members of the wotmania community tend to be experienced users of the Internet, though there are also newer Internet users who take part in the community. Most members of the community take part in other online communities as well. Demographic information is provided in the next chapter.

Measures and Data Analysis

This survey instrument was designed to address the four research questions posed in the previous chapter. First, measures used to identify subjects as habitual or addicted users are outlined, followed by measures used to assess the demographic and utilization profiles of habitual and addicted users. Next, measures used to look further into the emotional and behavioral tendencies of these two groups are outlined. Finally, the measures used to look at any

possible relationship between other mass media and the Internet are described. The entire instrument is attached as the Appendix: Survey Instrument.

RQ1: How can an individual be labeled as an Internet addict or a habitual user?

Two scales included in this survey instrument were used to help separate the sample into two relevant groups of interest – the addicts and the habitual users.

Internet Addiction Tendency Scale: The Internet Addiction Tendency Scale (IATS) has been used in a variety of studies, including a study published by Song et al. in 2002 (Song et al., 2002). The IATS is a six-item Likert measure designed to measure a person's likelihood of being addicted to the Internet. The mean scores for each item are in the 4.00 – 5.00 range, and the Cronbach alpha reported for the measure is .80. Table 1 shows the six IATS items, as well as means and standard deviations reported in previous studies.

Table 1: IATS Items, Means, and Standard Deviations

IATS Item	M	SD
1. The Internet is part of my usual routine.	4.77	2.02
2. I use the Internet so much that it interferes with other activities.	3.07	1.89
3. Web surfing is a habit I have gotten into.	4.01	1.89
4. I use the Internet without really thinking why.	4.38	1.99
5. I would miss the Internet if I could no longer go online.	4.72	2.04
6. I often spend much longer on line than I intended to when I started.	3.96	1.98

M = Mean, SD = Standard Deviation

For the purposes of this study, the IATS was used to designate those members of the sample that were addicted and separate them from the rest of the respondents.

Custom Habit Scale: A Custom Habit Scale (CHS) was used to separate those who used the Internet habitually from those that did not. Four items from the survey were used to create this CHS. These four items were:

- I find myself going online at about the same time each day.

- I check my e-mail at the same time(s) ever day.

- I find myself browsing the Web at the same time(s) every day.

- Checking e-mail is part of starting my day at work/school.

For the purposes of this study the CHS was used to label those who use the Internet very habitually, and separate them easily from the rest of the sample respondents.

Data Analysis: The mean values for individuals on the IATS and CHS measures were used to separate the sample into three groups – addicts, habitual users, and those who fell into neither group. A full explanation of how this process took place is provided in the next chapter.

RQ2: What are the demographic and utilization profiles of addicts and habitual users?

A number of items on the survey were included to be used in creating generic profiles of addicts and habitual users. These items are outlined below.

Demographic Information: Respondents were asked to provide background demographic information. Items included in this request for

demographic information included gender, race, age, years of formal education, and family income. This demographic information provided data for the first step in creating generic profiles that might help differentiate between addicts and habitual users.

Internet Activities: A number of other items were included in this survey to look for possible differences in the common activities on the Internet among addicts and habitual users. Respondents were asked to confirm if they used the Internet for a variety of purposes. These Internet activities included e-mail, browsing the Web, searching for specific information, visiting online communities and discussion groups, trading multimedia files, playing games, shopping, gambling, and chatting.

Internet Usage and History: Several items were included in this study to look for possible differences between addicts and habitual users in terms of the amount of time these people spend online in a given week and how long these individuals have been on the Internet.

Data Analysis: Data analysis for this research question consisted of chi-square analyses and t-tests. Chi-square analyses were used to look for possible differences between the two groups and the activities they partake in online. T-tests were used to look for differences in demographic variables and Internet usage data.

RQ3: How do addicts and habitual users differ in their attitudes toward Internet use, self-perception, and a variety of emotional measures?

A variety of items and scales were included in this survey to look for other possible differences between addicts and habitual users. Further information about these items and scales are provided next.

Internet Affinity Scale: The Television Affinity Scale (TAS) was originally a three-item Likert measure designed by Greenberg in 1974 to measure the intensity of an individual's attachment to television. It was later modified by Rubin in 1981 to include five items. Cronbach alphas for the five-item TAS ranged from .79 to .93 (Rubin, Palmgreen & Sypher, 1994). For this particular study the TAS was modified slightly to replace references to television with references to the Internet – and renamed the Internet Affinity Scale (IAS). In general responses to the TAS tend to be relatively low, with most averaged affinity scores in the 2.00 – 3.00 range (Rubin, Palmgreen & Sypher, 1994). This would seem to indicate most respondents do not see television as particularly important in their lives. The TAS and IAS items are displayed in Table 2.

Table 2: TAS and IAS Items

TAS Items	IAS Items
1. Watching television is one of the more important things I do each day.	1. Being on the Internet is one of the more important things I do each day.
2. If the television set wasn't working, I would really miss it.	2. If the Internet wasn't working, I would really miss it.
3. Watching television is very important in my life.	3. Being on the Internet is very important in my life.
4. I could easily do without television for several days.	4. I could easily do without the Internet for several days.
5. I would feel lost without television to watch.	5. I would feel lost without the Internet.

The IAS could be used to look for possible differences in how addicts and habitual users look at the Internet, their tendency to be attracted to it. It also provided a point of comparison against earlier studies of television habit and addiction.

Short Imaginal Processes Inventory (SIPI): The SIPI has been used in studies of television habit to look for possible correlations between different levels and types of imaginal processes and television viewing habits. The SIPI is a Likert measure with forty-five items that measures three constructs – positive constructive daydreaming, guilt and fear of failure daydreaming, and poor attentional control. Table 3 provides more information about these three constructs (Huba et al., 1982). Coefficient alphas reported for the SIPI are in the .80-.83 range, for each of the three constructs. The SIPI was derived from the full Imaginal Processes Inventory developed by Singer and Antrobus in 1970.

Table 3: SIPI Constructs (High Scorers)

Positive-Constructive Daydreaming	Guilt and Fear-of-Failure Daydreaming	Poor Attentional Control
Believes that daydreams are worthwhile, solve problems, help generate original ideas, are stimulating, leave warm feelings and generate pleasant thoughts. Daydreams have vivid visual and aural qualities. Believes that daydreams provide answers to problems, help to plan alternatives and have significance. Daydreams have future time-frame.	Has daydreams with depressing, frightening, panicky qualities. Has fantasies of winning awards, being expert, and recognized in a group. Has fantasies of fearing responsibilities, not being able to finish a job, failing loved ones, becoming angry, getting even, and aggressing toward enemies, having friends discover lies, feeling guilty, and afraid of doing something wrong.	Tendencies toward mind wandering and drifting thoughts. Easily loses interest, tends to become bored, cannot work at something for along time, easily distracted by telephone, television set, or talking.

Use of the SIPI helped look for significant differences in the attitude and psychological makeup of addicts and habitual users. It also helped provide a point of reference when comparing the results of this study to the results of studies of television habit and addiction.

Data Analysis: Data analysis for this research question was completed exclusively with t-tests. These t-tests were used to look for trends and differences between groups on the emotional and behavioral items contained in the general survey instrument.

RQ4: How is use of other mass media related to Internet habit and addiction?

Other items were included in this survey instrument to look for possible differences between addicts and habitual users in how they use other mass media or combine their mass media. These items included questions about television, radio, and newspaper usage.

Data Analysis: T-tests were used to look for these differences between addicts and habitual users and how they use other mass media and the Internet.

IV. RESULTS

This chapter contains a summary of the analysis conducted on the data collected for this study. The chapter begins with an overview of the demographics of the sample that took part in this study. This will be followed by results guided by the four research questions.

Sample Demographics

The 739 members of the sample who provided information about their gender included 511 males (69.1%) and 228 females (30.9%). The average age of the sample was 25.34 (SD = 7.14), determined from the 741 members of the sample who elected to report their age. Figure 2 shows a breakdown in the age range of the sample in this study.

Figure 2: Sample Age Range
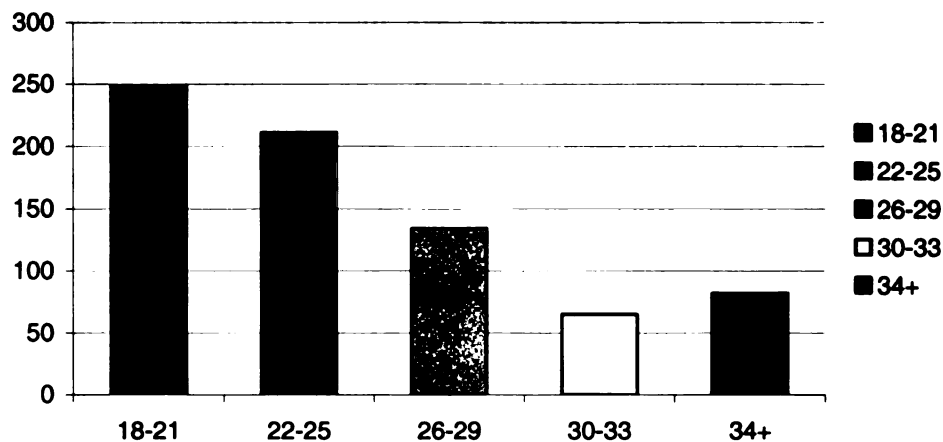
Of those responding to the survey, 738 individuals provided information about their race. This sample was predominantly Caucasian (89.7%). The most represented minority in the sample was Asian at 3.1% of the sample. Figure 3 provides a full picture of the racial background of the study sample.

Figure 3: Sample Racial Background
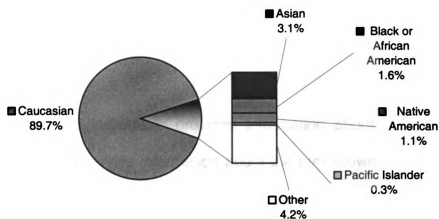
Judging from the 743 respondents who reported their education level, this sample was also a very educated group, as illustrated by Figure 4. 82.0% of those providing information about their education level had gone beyond high school, with 25.8% of those responding reporting more than four years of higher education.

Figure 4: Sample Education
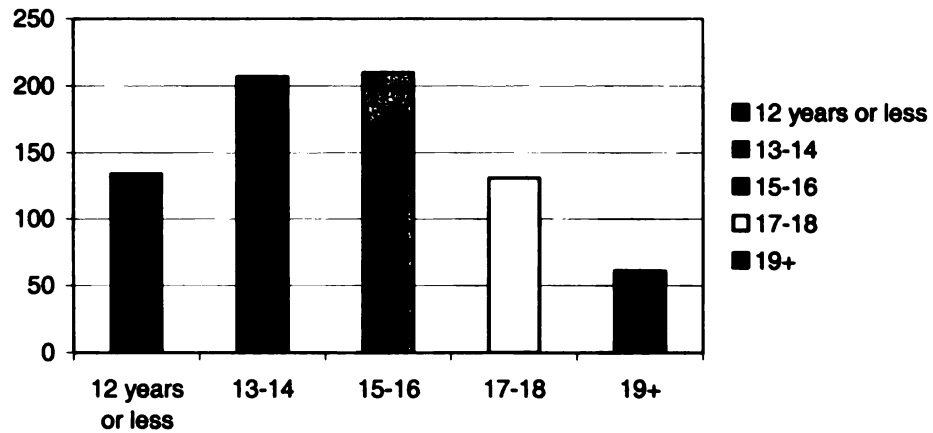
A total of 725 individuals provided information about their yearly family income. Figure 5 provides information about the breakdown in family income of this sample. The largest reported response for this item included respondents with household income of more than $75,000 per year (29.4%). Only 9.4% of respondents reported yearly household income of less than $20,000 per year.

Figure 5: Sample Family Income
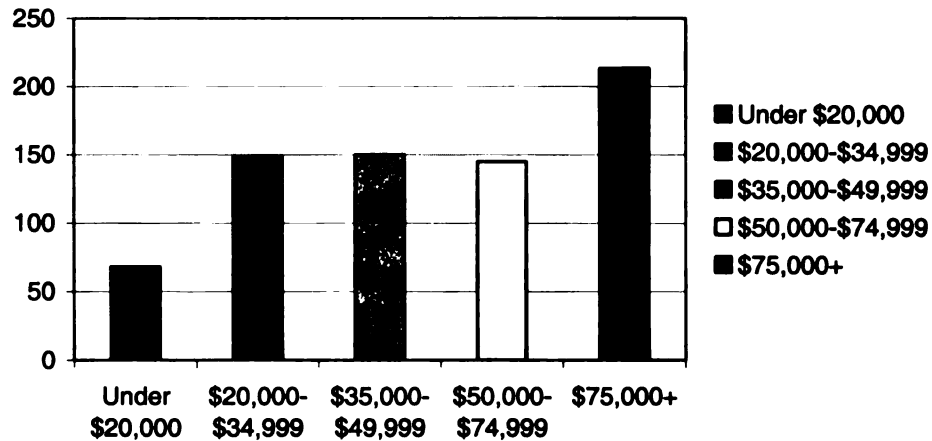
wotmania's community in general is a rather wealthy and educated set of individuals, and is primarily Caucasian. The demographic information discussed quantifies this specifically, and provides background information about these individuals to be considered throughout the rest of the analysis and discussion.

RQ1: How can an individual be labeled as an Internet addict or a habitual user?

Before any further analysis could take place, the members of this sample were divided into groups for analysis. For the purposes of this study, it was determined that the sample was divided into two groups by using two scales within the general survey instrument. The first scale was the Internet Addiction Tendency Scale (IATS), which for the purposes of this study was used to label addicts. The second scale used for this separation process was the custom habit

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scale (CHS), comprised of four items that measured how much the processes of habit marked their Internet use.

To divide the sample appropriately, those respondents who achieved a score of 6.00 or more (a score equated to "agree" or higher on the IATS as a whole) on the IATS were marked as addicts. Scores on the CHS were not factored into this first step in the selection process. Next, those respondents who scored 6.00 or more (corresponding to "agree" or higher on the CHS) on the CHS were marked as habitual users. Those who did not score higher than 6.00 on either the IATS or CHS were marked as being neither a habitual user of the Internet nor an addict. A value of 6.00 or higher was chosen as the cut point such that those who were marked as addicts or habitual users scored a firm "agree" or higher on the relevant scales. Table 4 shows a breakdown of the sample into these three segments.

Table 4: Division of Sample – Addicts, Habitual Users, and Neither

Addicts	Habitual Users	Neither
139	108	657

It is important to note that some members of this sample – 40 individuals – scored higher than 6.00 on both the IATS and the CHS. For the purposes of this study these individuals were all considered addicts, as the compulsive nature of the addict would likely override the habitual aspect of online behavior that this study was interested in.

With this division complete, the 657 individuals who were neither addicts nor habitual users were discarded from the survey. This study was primarily interested in the difference between addicts and habitual users, so these individuals had nothing to contribute to this aspect of the study.

Having two sets of respondents labeled as addicts and habitual users it became possible to analyze these two groups for differences and address the issues posed in the remaining three research questions. These three questions are addressed in the following three sections.

RQ2: What are the demographic and utilization profiles of addicts and habitual users?

The second research question sought to provide profiles of addicts and habitual users. The first step to creating this profile was investigating any differences in the demographic information between addicts and habitual users. The second step was looking for differences in what these two groups of people do while they are online.

The first step involved running a combination of chi-square analyses and t-tests to look for differences between these two groups on demographic variables. It was determined that there was no difference between the groups in terms of gender composition – neither group was more likely to be composed more highly of males or females. These groups were also investigated for possible differences in their ages, level of education, and family income. It was determined that these groups only differed significantly in terms of formal education at the $p < .05$ level, with habitual users on average reporting an

additional two years of education − 16.16 years of formal education for habitual users compared to 14.16 years of formal education for addicts.

To take the second step, a chi-square analysis was used to compare addicts and habitual users for any differences that might exist in the activities these two groups partake in while online. It was discovered that these two groups were in fact significantly different at the $p < .01$ confidence level in their likelihood to use the Internet for a variety of uses. Based on the results from this sample, addicts are more likely than habitual users to use the Internet to trade multimedia files, play games, and to chat. Habitual users are more likely than addicts to shop online. There was also a less significant difference (significant at the $p < .10$ level) between habitual users and addicts in reporting browsing the Web, with habitual users being slightly more likely than addicts to browse the Web.

As an extension of this investigation of how habitual users compared to addicts in terms of what these individuals do online, respondents were asked to define what percentage of their time on the Internet was related to work, leisure, and school purposes. Respondents were also asked to report how much time they spent online in a given week, as well as how long they have been on the Internet. Their responses were analyzed with a t-test, and the results are shown in Table 5.

Table 5: Addicts vs. Habitual Users – Utilization Differences

	Addicts	Habitual Users	t
Percentage of Internet use for work.	12.46	28.53	-5.047**
Percentage of Internet use for leisure.	69.00	51.75	4.284*
Internet Use (Hours/Week)	43.42	29.16	13.2580**

$* \ p < .05, \ ** \ p < .01$

As can be seen in Table 5, habitual users are significantly more likely than addicts to use the Internet for work purposes. Conversely, and certainly on a related point, addicts are more likely to use the Internet for their leisure. The two groups did not differ significantly in reporting the percentage of Internet use dedicated to school purposes. It is also clear that addicts spend significantly more time online than habitual users, more than fourteen additional hours each week. The two groups did not differ significantly in terms of how long they have been on the Internet.

The final results of this exercise in profiling addicts and habitual users are shown in Table 6.

Table 6: Generic Profiles of Addicts and Habitual Users

Addicts	Habitual Users
• More likely to trade multimedia files. • More likely to play games online. • More likely to use the Internet to chat. • More likely to use the Internet for leisure purposes. • Tend to use the Internet more in an average week than habitual users.	• More likely to shop online. • Slightly more likely to browse the Web. • More likely to have progressed further in formal education. • More likely to use the Internet for work purposes.

Having derived profiles of habitual users and addicts, the next step was to further examine these two groups of respondents to search for interesting emotional and behavioral differences that might exist.

RQ3: How do addicts and habitual users differ in their attitudes toward Internet use, self-perception, and a variety of emotional measures?

The third research question expressed an interest in delving more into the emotions and behavioral differences that might exist between habitual users and addicts. A number of survey items used in this survey shed light on these issues. Table 7 lists the results of a variety of items. Items are color-coded to help guide the discussion following the table.

Table 7: Addicts vs. Habitual Users – Emotional and Behavioral Differences

	Addicts	Habitual Users	t
1. I can find social support online.	5.39	4.56	4.312**
2. I know how to get in touch with groups online that share my interests and concerns.	6.09	5.69	2.714**
3. I feel confident turning to an online discussion group for help.	4.48	3.80	2.958**
4. I have a lot of close friends in my local community.	4.74	5.22	-2.052*
5. I would miss friends I have made online if I could no longer talk with them.	4.73	3.61	3.828**
6. I have better friends online than I do in my local community.	3.40	2.17	4.640**
7. I participate in a lot of clubs and group activities offline.	3.70	4.46	-2.937**
8. When I run into problems online, I panic.	2.53	1.77	4.276**
9. I use the Internet so much it interferes with other activities.	5.74	3.00	15.617**
10. I get strong urges to be on the Internet.	5.63	3.44	11.206**

11. I have a hard time keeping my Internet use under control.	4.89	2.58	11.352**
12. I have unsuccessfully tried to cut back on my Internet usage.	3.60	2.25	6.058**
13. I get tense, moody, or irritable if I can't get online when I want to.	4.73	2.63	10.111**
14. I would miss the Internet if I could no longer go online.	6.80	5.95	7.624**
15. I am confident I can keep my Internet use under control at all times.	4.79	5.95	-6.377**
16. I think about the Internet even when I am not online.	4.88	3.36	7.205**
17. I often go online without thinking why I need to.	6.22	3.83	14.031**
18. I often spend much longer on the Internet than I meant to.	6.37	4.00	12.809**
19. Sometimes I think I spend too much time online.	5.59	3.75	8.667**
20. Going online is an important part of my day.	5.82	4.92	4.716**
21. I would say that I am addicted to the Internet.	5.19	2.52	12.240**
22. SIPI – Fear of Failure	37.56	33.78	3.7867**
23. SIPI – Poor Attentional Control	47.12	41.85	5.2700**
24. People who use the Internet are better off than those who do not.	5.45	5.02	2.109*
25. I tend to visit the same websites when I am on the Internet.	6.64	6.19	4.056**
26. I sometimes try to conceal how much time I spend online from my family or friends.	3.88	2.07	7.450**
27. I often find myself at the same websites day after day, even if I have no specific reason for visiting them.	6.08	4.95	5.370**

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

First, the items highlighted in light gray (1-7) are all related to the social aspect of these individuals' lives and how the Internet plays a role in their lives. It is clear from looking at these highlighted items that addicts are much more likely to be using the Internet to fulfill social needs – they report having better friends online than they do offline, and their attachment to these online friends is made more clear by the fact they would miss these people if they could no longer go

online. These addicts know how to find groups online that meet their needs and interests. They feel comfortable turning to these groups for help and comfort. Conversely, habitual users are more likely to report participating in groups and activities offline, as well as having a lot of close friends in their local community. The items highlighted in red make it clear that addicts, at least in this sample, are using the Internet to meet social needs that are not being satisfied in their offline lives.

Next, the items highlighted in medium gray (8-21) all shed light on the same general point – how the Internet factors as a remarkably prominent part of the lives of addicts when compared to habitual users. As can be seen from these items addicts are more likely to report becoming irritable when not online, as well as thinking about the Internet when not online. These addicts report strong urges to be online, and report less confidence in keeping their Internet use under control. They are also much more likely than a habitual user to have failed in an attempt to cut back on their level of Internet usage. These addicts go online without thinking why they need to, and then they stay on for longer than they initially planned. From these results it is obvious that the Internet plays a very prominent role in the lives of these addicts, and represents something that these people feel they would miss if it were no longer a part of their lives.

The items highlighted in dark gray (22-23) come from the SIPI, and show that addicts and habitual users differ significantly on two of the SIPI's three scales. Based on the results of the SIPI, addicts are more likely to exhibit poor attentional control. They are also more apt to have daydreams that exhibit

characteristics of guilt and fear or failure. The third SIPI scale, which reports the likelihood of respondents to have positive and constructive daydreams, did not result as significantly different between these two groups.

Other items in Table 7 that are not highlighted (24-27) still merit attention. As one example, both addicts and habitual users are likely to report that those who use the Internet are better off than those who do not, but the difference is slight – addicts are only marginally more likely to believe this. It is also worth noting that despite the habitual patterns exhibited by those labeled in this study as habitual users, addicts are still more likely to visit the same set of websites when they are online – even if they have no particular reason for visiting them.

Addicts, not surprisingly, are much more likely to report concealing the level of their Internet use from family and friends. Still, addicts as a group achieve an average of only 3.88 on this question, roughly equal to the 4.00 that would mean "neither agree nor disagree" for that particular survey item. Habitual users, by contrast, averaged to a 2.08 on that item, the equivalent of a "disagree" response for the group as a whole.

To conclude, three things are particularly clear from the data represented in Table 7. First, addicts are much more likely to be using the Internet to meet various social needs online that are not being taken care of in their local community. Second, these addicts are more likely to exhibit poor attentional control and have negative, fear of failure daydreams. Third, the Internet plays a key role in the lives of addicts, much more so than it does in the lives of habitual

users. Before this paper turns to a full discussion of the implications of these results, the fourth research question must be addressed.

RQ4: How is use of other mass media related to Internet habit and addiction?

The fourth research question was interested in a possible relationship between the consumption of other mass media and how different individuals make use of the Internet. Table 8 offers information about the only two items related to other mass media that displayed a significant difference between addicts and habitual users.

Table 8: Other Mass Media

	Addicts	Habitual Users	t
I read the newspaper every day.	3.23	3.80	-2.085*
I often listen to music while I am online.	5.41	4.69	2.773**

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

As can be seen, habitual users were somewhat more likely to read the newspaper every day than addicts. But this conclusion is reached with less confidence than many of the other t-test results cited previously in this study – this result is affirmed only at the p < .05 level, as opposed to most results reported that were confident at the p < .01 level. Additionally, it should be noted that even the habitual users still attain an average of only 3.80, which falls just short of the 4.00 value that would equate to "neither agree nor disagree" on this particular survey item.

The second item listed in the table, which relates to listening to music while online, shows that addicts are significantly more likely to listen to music while online than those that use the Internet more out of habit. There is a difference there of almost a full point in the scale for this item, and the confidence level is correspondingly higher.

Other survey items that related to use of the television were not significantly different between addicts and habitual users. These questions asked respondents if they watched the same television shows every week, as well as a parallel question to the music question discussed previously – whether or not those in this sample tend to spend time online while watching television. Again, addicts and habitual users did not differ significantly on these items.

Summary

The results of this study began with a successful separation of the sample into two relevant groups – addicts and habitual users. The remaining individuals who did not fall into one of these two groups were discarded from the analysis.

After this division was made, profiles were outlined for addicts and habitual users. This profiling process resulted in profiles that suggest addicts are more likely to trade multimedia files, play games, chat, and use the Internet for leisure purposes. Habitual users, by contrast, are more likely to shop online, browse the Web, progress further in formal education, and use the Internet for work purposes.

This was followed by an analysis of data that looked at the emotional and behavioral differences between these two groups. Three primary results of this investigation established that addicts are more likely to use the Internet for social purposes, exhibit poor attentional control and have negative daydreams, and have let the Internet become a very important part in their everyday lives.

Finally, relationships between other mass media and the Internet were investigated. It was determined that within this sample the only significant results were that addicts were more likely to combine media and listen to music while online, and habitual users were more likely to read the newspaper every day.

V. DISCUSSION

The previous analysis addressed the four research questions posed in this study. Now, the implications of the results are discussed. After a discussion of these implications, the limitations of this study will be examined, followed by a summary of directions for future research.

Implications

There are a variety of implications that come from the results of this study. Following are perhaps the most relevant and compelling.

First, it would appear that this study shows a relationship that has been established in previous studies of television habit and addiction – that those who are addicted to this particular media are more likely to have poor attentional control and tend to have negative daydreams. While no conclusions about the direction of this relationship can be determined from this particular study, previous work has hinted that those individuals with shorter attention spans and excess negative thoughts tend to turn to the media as a way to distract themselves from these negative thoughts.

Assuming that is the case and the way the relationship operates, one must wonder what the possible outcomes might be of plans in some schools – from elementary schools to colleges – to put laptop computers in the hands of every student and Internet access in the classroom. Teachers already struggle to hold the attention of their students, while more and more children are diagnosed with

disorders like Attention Deficit Disorder. Putting laptops with Internet connections into the hands of such students might be a recipe for disaster – giving students the perfect outlet to distract themselves from what is going on around them that they might not be interested in. Having a lack of attentional control is one of the chief characteristics of those who are Internet addicts. It seems worth considering whether giving these students an Internet connection that is always on for their use in the classroom might just be opening a door and allowing certain at-risk students to get online more than might be healthy for them. Any decision related to programs about putting laptops and Internet access in the hands of every student should certainly consider the possibility that this might be the first step in the addiction process for certain students.

Another implication comes from the fact that Internet addicts are clearly more likely than habitual users to be using the Internet for social purposes. These addicts use the Internet as a way to meet social needs that are not satisfied in their lives offline. This knowledge presents some interesting possibilities. As an example, parents who are concerned about the potential for their children becoming addicted to the Internet would do well to monitor both their offline and online friendships. If their children are more attached to their online friends or become increasingly dependent on online friends for social interaction, parents might wish to investigate. This could also become something that merits attention as policymakers continue to determine the efficacy of home-schooling. Evaluating how a child develops in a home-schooling situation necessitates looking at more than educational progress – it must take into

account the social development of home-schooled children. There is a possibility that children who are home-schooled lack a crucial social component in their lives due to the lack of classmates that would be present in a traditional school setting. It might make sense that policymakers should enforce some sort of social requirements for home-schooled children, to encourage their participation in clubs and other activities in the local community. At the very least it should emphasize to parents that they should ensure their children – home-schooled or otherwise – are active with friends in their local community. A strong social network offline should help prevent children from depending more exclusively on online friends and sliding into addiction.

Some of the differences between addicts and habitual users point to key points that might be of particular use to those looking to treat Internet addicts. As mentioned previously, DSM-IV outlined seven symptoms of addiction, only three of which must have been present within the last year for a diagnosis of dependence to be made. Many of the characteristics that separate addicts from habitual users – exhibiting withdrawal symptoms when not online, a failure in efforts to cut back on Internet use, foregoing other social or recreational activities to be online, and continuing to use the Internet despite the belief that they spend too much time online – have places on that list of symptoms. This has several interesting implications. First, this lends more credence to the fact that Internet addiction fits in with this disease model of addiction, and is a real problem that merits attention from medical professionals. Second, this might help medical professionals get a better grip on the best ways to treat Internet addiction, by

borrowing from methods of treating other diseases that meet the DSM-IV criteria and applying them to this growing problem of Internet addiction. Finally, this improved knowledge of how Internet addiction fits into the disease model of addiction should help policy makers and researchers get effective literature into the hands of those worried that those they care about might have a problem with Internet addiction. Continued efforts to educate the general public on the signs of other problems of this nature – alcoholism, drug addiction, and gambling problems – have increased public awareness of these problems and likely helped people recognize the signs in themselves or those they care about and seek treatment. Elevating the problem of Internet addiction to a similar status would likely help any number of people battling with this particular dependence in their lives.

On a related note, the efforts to look for differences in demographic and utilization profiles between addicts and habitual users simply points to the fact that – at least for the individuals in this sample – there was not a great deal of difference between these two groups. There was no greater likelihood to be an addict based on gender, family income, or race. There was only a slight increase in likelihood that a habitual user is more educated than an addict. It is even possible that some of the differences that did exist – the addicts' preference for using the Internet to chat and visit community sites – might simply exist due to the nature of this sample. This shows two things. First, it further demonstrates that at least with this sample there is not a great deal of support for the addictive personality theory of addiction – the disease model is clearly more applicable.

Second, it highlights the fact that there is really no way of just looking at a person and what they like to do online and labeling that individual as an addict. More needs to be learned about how a person feels about the Internet to look for signs of Internet addiction – they cannot simply be designated as an addict because they are a certain gender, or a certain age, or like to do certain things online.

As discussed in the literature review, there is a theory that as people adopt a new media habit it can supplant an older media habit. It was considered a possibility in this study that those who reported habitual use of other media – the television, radio, or newspaper – might report similar habitual use of the Internet. For the most part the data did not confirm this type of substitution phenomenon. It is possible that this is due to the fact that the Internet is a much more active media – as opposed to the very passive nature of television or the radio where the user can sit and absorb the media's message – and is not particularly comparable to traditional mass media. Alternatively, it is possible that this particular sample, due to the fact that these individuals use the Internet primarily for communication purposes, are not the type of individuals that would habitually make use of passive media like the television or radio. Should it be discovered that there is actually a link between a particular pattern of usage of television or radio and Internet addiction, though, it could provide parents and others with a type of early warning system. For instance, if habitual use of the television was determined to contribute to an eventual addiction to the Internet, it would be possible for parents to evaluate the television viewing habits of their children and determine if they might be more inclined to become addicted to the Internet when

they were exposed to it. As it stands, the data of this study do not support such a link. This simply means that parents must keep an eye on how their children interact with a variety of media, and not expect the healthy usage of one – the television, for instance – to translate into the healthy usage of another – the Internet.

Given the addicts' preoccupation with being online and strong urges to get on the Internet, forthcoming technology is likely to present these addicted individuals with even more opportunities to meet these needs. More and more cellular telephones are coming with Internet access as a feature and included as part of the cellular service. It likely will not take long for many popular websites to build features into their services that are geared toward those visiting the site via a cellular phone. Community websites in particular could capitalize on the addicts' need to know what their online friends are up to and keep in touch with them. As websites continue to build more and more features that make it easy to stay in touch with online communities and news at all times, it will become much more difficult for those looking to cut back on their time online to accomplish this goal. It is certain in the coming years that the Internet will continue to become more and more pervasive, and this could very well translate to more people having to come to grips with the problem of Internet addiction.

The items discussed above are all grounded in the results of this study and look at possible real world implications of this study and its results. While they represent a variety of theoretical implications, those discussed really only begin to scratch the surface of what could be touched upon. But it must be recognized

that certain limitations of this study could limit the ways in which these results can be generalized to the general population. These limitations are discussed in the next section.

Limitations

The primary limitation of this research is undoubtedly the sample on which this study was conducted. This was a convenience sample, and by no means could be considered representative of the United States population as a whole. While it is was certainly a relevant sample for studying Internet habit and addiction – many of the members of this sample are heavy users of the Internet – it is likely that this sample was not even representative of the entire population of heavy Internet users in the United States, either. It could easily be argued that the site from which these subjects were drawn would attract a certain type of heavy user, those looking to meet communication and socialization needs on the Internet. This could possibly lead to a skewed set of results when looking at all Internet addicts, as those deemed addicts in this particular sample might be more likely than the average Internet addict to be spending time online for social reasons. So while this is definitely a reasonable sample to study, generalizations made from the results must be made with caution.

This study is also limited by the general limitations of survey research, primarily that it is dependent on the self-reports of those taking such a survey. Self-report measures can be error-prone, as the placement or wording of survey items can bias results. Additionally, survey research cannot establish evidence

about causation. While it is possible to look for relationships between variables and compare mean values for survey items, a survey cannot nail down in which way the relationship between variables necessarily must go.

Future Research

The first step in extending the results of this study would likely be verifying the results with a different sample. As mentioned in the previous section, the individuals in this sample tend to use the Internet more to meet communication and social needs – they were recruited from an online community. Comparing the results of this study to another with a different sample without this predisposition would present an interesting point of reference. A different sample might very well show different tendencies concerning behavior and attitudes to time spent online that would be the result of a different set of needs driving the online use.

Taking further steps to define the online behavior of habitual users would be another good move for future research. This study used a rather simplistic way of defining a habitual user. Extending the methods of identifying habitual users, and then further investigating their behavior online to tease out more differences from addicts would be beneficial.

Finally, it would likely be useful to spend more time investigating the differences between addicts and habitual users. Some of the more obvious and expected characteristics were easily identified in this study. Other, subtler

characteristics of addicts could be identified with advanced statistical analysis on

a more representative sample of Internet users.

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VI. CONCLUSION

The purpose of this study was to learn more about Internet habit and addiction. Among the goals was to identify addicts and habitual users of the Internet, profile and look for differences between these two groups, and identify any relationships that might exist between the habitual use of other mass media and the Internet.

Given the results of this study, it certainly seems that it is indeed possible to pick out addicts and habitual users from a sample of Internet users. These users have differing characteristics that make it plausible to identify them, ranging from a lack of control over the time they spend online to the characteristics of their daydreams. Learning more about what separates these groups will likely become increasingly important as the Internet continues to pervade more and more aspects of daily life. This is due to an increased need to identify those who have a real problem spending too much time online, as opposed to those who have made a habit of using the Internet as a tool to meet a variety of needs – at work or school, or simply for leisure purposes.

As an extension of that, learning more about how these different types of users feel about their time spent online will likely become increasingly important as well. Anyone in the medical field looking to treat Internet addiction could benefit from a greater understanding of how the "typical" Internet addict feels about their behavior. And those looking to help others build effective habits in their lives – employers looking to make workers more productive, for example –

could benefit from learning more about the attitudes of those who have made a habit out of using the Internet for productive purposes.

Additionally, the idea that habitual use of various mass media are related will continue to make more sense and gain importance as convergence blurs the lines between the mass media. Those directing strategy for media outlets would likely be interested in learning more about how they can effectively extend their reach in the coming years. Coming to a better understanding of how peoples' habits using one medium affect their usage of another will become more and more important to such decision makers as converges progresses.

While this study in many ways barely begins to scratch the surface of the topics covered, it also shows the potential importance and depth of information that could be achieved through continued study of these topics. The set of subjects discussed here will only continue to grow in importance over the coming years, and this study can serve as a foundation for continued work in this area.

VII. APPENDIX: ONLINE SURVEY INSTRUMENT

The following questions will be on a Likert scale (1-7), with responses varying from strongly disagree to strongly agree.

1. People that I respect think it is good I use the Internet.
2. I feel confident using the Internet to look for information.
3. I think of myself as a regular Internet user.
4. I can find social support online.
5. I know how to get in touch with groups online that share my interests and concerns.
6. I consider myself to be "netizen."
7. When I run into problems online, I panic.
8. I feel confident turning to an online discussion group for help.
9. Using the Internet has been a good thing in my life.
10. I feel confident learning advanced skills related to the Internet.
11. People who use the Internet are better off than those who do not.
12. I feel comfortable using words/terms related to the Internet.
13. I use the Internet so much it interferes with other activities.
14. I get strong urges to be on the Internet.
15. The Internet is part of my usual routine.
16. I have a hard time keeping my Internet use under control.
17. I use the Internet to research purchases I make in stores.
18. I have unsuccessfully tried to cut back on my Internet usage.
19. I find myself going online about the same time each day.
20. I have a lot of close friends in my local community.
21. I get tense, moody, or irritable if I can't get online when I want to.
22. I tend to visit the same websites when I am on the Internet.
23. I would miss the Internet if I could no longer go online.
24. I am confident I can keep my Internet use under control at all times.
25. I think about the Internet even when I am not online.
26. I sometimes try to conceal how much time I spend online from my family or friends.
27. I often go online without thinking why I need to.
28. I often spend much longer on the Internet than I meant to.
29. Sometimes I think I spend too much time online.
30. Going online is an important part of my day.
31. I tend to browse the Web, often visiting new websites when I am on the Internet.
32. I could not do my work (work or school) if I did not have the Internet.
33. I spent a lot of time purchasing things on the Internet.
34. I use the Internet less than I used to, because I decided I was online too much.
35. I would miss friends I have made online if I could no longer talk with them.

36. I have better friends online than I do in my local community.
37. I tend to watch the same television shows every week.
38. I read the newspaper every day.
39. I would say that I am addicted to the Internet.
40. I tend to listen to the same radio shows every week.
41. I often spend time online while I am watching television.
42. I often spend time online while eating my meals.
43. I often listen to music while I am online.
44. I check my e-mail at the same time(s) every day.
45. I find myself browsing the Web at the same time(s) every day.
46. I often find myself at the same websites day after day, even if I have no specific reason for visiting them.
47. Checking e-mail is part of starting my day at work/school.
48. I participate in a lot of clubs and group activities offline.

The following questions will be on a Likert scale (1-5), with responses varying from "definitely untrue or strongly uncharacteristic of me" to "very true or strongly characteristic of me."

1. I tend to be quite wrapped up and interested in whatever I am doing.
2. A really original idea can sometimes develop from a really fantastic dream.
3. In my fantasies, a friend discovers I have lied.
4. I do not really "see" the objects in a daydream.
5. I am the kind of person whose thoughts often wander.
6. In my dreams, I see myself as an expert, whose opinion is sought by all.
7. Sometimes an answer to a difficult problem will come to me during a daydream.
8. My mind seldom wanders from my work.
9. I imagine myself failing those I love.
10. I picture myself as I will be several years from now.
11. I find that I easily lose interest in things that I have to do.
12. My daydreams often contain depressing events which upset me.
13. I am not easily distracted.
14. In my dreams, I show my anger toward my enemies.
15. My fantasies usually provide me with pleasant thoughts.
16. My ability to concentrate is not impaired by someone talking in another part of my house or apartment.
17. The sounds I hear in my daydreams are clear and distinct.
18. I imagine myself not being able to finish a job I am required to do.
19. Daydreaming never solves any problems.
20. No matter how hard I try to concentrate, thoughts unrelated to my work always creep in.
21. In my daydreams I become angry and even antagonistic towards others.
22. My daydreams are often stimulating and rewarding.
23. I can work at something for a long time without feeling the least bit bored or restless.

24. In my daydreams, I am always afraid of being caught doing something wrong.
25. Faced with a tedious job, I notice all the other things that I could be doing.
26. I seldom think about what I will be doing in the future.
27. In my fantasies, I receive an award before a large audience.
28. My daydreams offer me useful clues to tricky situations I face.
29. I tend to be easily bored.
30. Unpleasant daydreams don't frighten or bother me.
31. The "pictures" in my mind seem as clear as photographs.
32. In my daydreams, I fear meeting new responsibilities in life.
33. I find it hard to read when someone is on the telephone in a neighboring room.
34. I find myself imagining ways of getting even with those I dislike.
35. I am seldom bored.
36. My daydreams often leave me with a warm, happy feeling.
37. I picture myself being accepted into an organization for successful individuals only.
38. Daydreams do not have any practical significance for me.
39. I find it difficult to concentrate when the TV or radio is on.
40. I daydream about what I would like to see happen in the future.
41. In my daydreams I feel guilty for having escaped punishment.
42. My thoughts seldom drift from the subject before me.
43. I find my daydreams are worthwhile and interesting to me.
44. I never panic as the result of a daydream.
45. I have difficulty maintaining concentration for long periods of time.

The following questions will be on a Likert scale (1-5), with responses varying from strongly disagree to strongly agree.

1. Being on the Internet is one of the more important things I do each day.
2. If the Internet wasn't working, I would really miss it.
3. Being on the Internet is very important in my life.
4. I could easily do without the Internet for several days.
5. I would feel lost without the Internet.

The following questions will include boxes to let respondents answer the questions.

1. Over the last month, how much do you use the Internet on a typical weekday?
2. Over the last month, how much do you use the Internet on a typical weekend day?
3. In a typical week, how many days are you on the Internet?
4. How long have you been on the Internet, in years and months?
5. Do you use the Internet for work-related purposes?
6. Do you use the Internet for school-related purposes?

7. Do you use the Internet for leisure-related purposes?
8. What percentage of your online use is related to work/school/leisure?

The following items will have simple checkboxes to let respondents indicate whether or not they partake in these particular online activities.

1. E-mail
2. Browse the Web
3. Search for specific information
4. Visit online communities/discussion groups
5. Trade multimedia files (MP3s)
6. Play games
7. Shop
8. Gamble
9. Chat

The following demographic information will be collected to conclude the survey.

1. Age
2. Sex
3. Ethnicity
4. Years of Formal Education
5. Family Income

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