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THE RELATIONSHIP BETWEEN INTERNET USE  
AND DEPRESSIVE SYMPTOMS

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I am submitting herewith a thesis written by Darla J. Slicton entitled "The Relationship Between Internet Use and Depression." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Guidance and Counseling.




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Date November 1, 2000

# THE RELATIONSHIP BETWEEN INTERNET USE AND DEPRESSIVE SYMPTOMS

A Thesis

Presented for the

Master of Science

Degree

Austin Peay State University

Darla J. Slicton

November 2000



## DEDICATION

This thesis is dedicated to the memory of my aunt, Georgiana Richard, who always made me feel special.

## ACKNOWLEDGMENTS

I would like to thank my major professor, Dr. Charles B. Woods, for his guidance and patience. I would also like to thank Dr. LuAnnette Butler for her encouragement and Dr. Tom Timmerman for his technical expertise.

I would also like to thank all of the professors that made themselves so accessible to me during the tornado aftermath. Thank you to all of my family members who supported me throughout my years in college and for all of your encouragement. Finally, I would like to thank my friends, especially Stacie Mukina for making me laugh when things looked bleak.



## ABSTRACT

The Internet, which was initially designed to promote research between academic and military agencies, is today an important tool used in the dissemination of information. It is estimated that approximately 300 million people worldwide access the Internet each day (Smith, 2000). A growing concern is that for some individuals Internet use is interfering with their social and personal functioning. For example, excessive Internet use has been linked to depression (Kraut et al., 1998). A question that remains unanswered is: is there a specific aspect of Internet use that is problematic? This study attempted to first confirm earlier findings of a link with depressive symptoms using a more reliable measure. It also attempted to determine if excessive Internet use of chat rooms and Multiple User Domains (MUDs) was related to depressive symptoms. 95 male and female graduate and undergraduate students were recruited from Austin Peay State University and the Fort Campbell education center for this study. The results indicate that greater use of the Internet was associated with an increase in depressive symptoms. Participants infrequent use of chat rooms and MUDs precluded an accurate statistical analysis of this data.

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### INTRODUCTION

The Internet, which was originally developed as the Advanced Research Projects Agency Network (ARPANET), was developed in the late 1960's and early 1970's by the United States Department of Defense as an experiment in wide-area networking (Bowman, & Bowman, 1998). This network was to provide communication in the event of nuclear war. In 1973, the Department of Defense Advanced Research Project Agency Network (DARPA) initiated the Internetting project in order to investigate techniques and technologies for interlinking networks. The system of networks that emerged from this research was called the Internet (Parks, 1996).

Although initially designed as a military tool (Kiesler & Sproul, 1987), the Internet has become a powerful instrument used by approximately 300 million people each day (Smith, 2000). The Internet offers an unlimited array of information and provides an effective medium for communication. This vast array of information, which has always been available to the public, was never easily accessible. The ease with which computers can now access this material has allowed all facets of society to engage in its use. It appears, however, that greater accessibility has given rise to some unexpected consequences.

Although it first seemed far-fetched, there is now a growing concern that the anonymity the Internet affords its users provides encouragement for them to withdraw from their daily lives (Griffiths, 1997) and assume a new identity in the virtual realm of

the web. The fear is that for some individuals the time spent in this virtual realm is becoming excessive to the point of negatively affecting other aspects of their social and personal lives, including social involvement and psychological well being (Kraut, et al., 1998).

Before this very broad area could be studied, it was important to first distinguish between the various means of communication available on the Internet. The Internet is a system of linked computer networks that are located throughout the world. Modems and other various communications devices tie this linked network of computers together allowing the user unlimited access to a vast array of information, products, services, and communication devices. The user can purchase products from local and international vendors, carry on conversations with other computer users, as well as send and receive electronic mail. Computer users around the world can access these sites by logging in (connecting via modem) to the Internet.

The Internet, which has supported the interaction and communication between users for years, became more appealing and easier to use with the inception of the World Wide Web (WWW). The WWW provides the user with text and multimedia enhancement and includes such added features as graphics, audio, and video. It also allows the user to search through a myriad of web sites with relative ease. The software, which allows the user to access the various sites as well as their multimedia elements are known as browsers. The browser (e.g., Netscape Navigator, America Online, Microsoft Internet Explorer) relays your request to the web site you accessed, then displays the results on your screen (Dieberger, 1997).



One of the advantages of the Internet is that it allows the user to gather information and interact with other users. Once the user is on line, he/she has the option of accessing several communication devices to include chat rooms, textual virtual environments like Multiple User Domains (MUDs), and electronic mail (e-mail). While e-mail provides an asynchronous form of communication, chat rooms and MUDs permit users to simultaneously view the sending and receiving of messages and information (Bowman & Bowman, 1998). Each of these is discussed in more detail below.

Chat rooms are sites on the WWW where any number of computer users can type in messages to each other in real time, creating an online conversation (Manger, 1995). Chat rooms allow users to interact with each other without the face-to-face contact many individuals find uncomfortable (Griffiths, 1997). Chat rooms have become a meeting place for people to come together and discuss various topics. While many chat rooms have a particular topic, others are used purely for meeting people. The anonymity the web provides allows the user to create an online persona free from the socially imposed identities found within school, work, or home environments (Myers, 1987). Some chat rooms are designed as elaborate three-dimensional environments, which allow the visitor the ability to select an icon that represents them in this meeting place, thus making the user anonymous. While chat rooms allow the user to make contact with new groups of people, these new relationships do not revolve around their local community, family, or friends (Kraut et al., 1998).

Multiple User Domains (MUDs) are fantasy role-playing games, which allow the user to adopt various identities. The player is allowed to create a character, which is

represented by a screen graphic, or icon, and a virtual world, which they can enter or leave at will. The user is transported into a virtual realm of adventure where they can slay dragons or battle evil (Sleek, 1999). Some individuals find role-playing provides them with a sense of power they have never experienced before (Myers, 1997). A significant feature of most MUDs is that users can create objects that stay in this simulated environment and engage other users who are also logged onto the site.

Electronic Mail (e-mail) is a device that electronically sends the user's messages quickly anywhere in the world. Much of the appeal of e-mail is that it allows the user to send messages anytime, to anyone, for less money than it would cost to mail a letter or call someone on the telephone. This system, which is linked by high-speed data connections, creates a global network, which allows the user to compose messages and transmit them in seconds to one or more recipients across the office, the street, or the country.

Advocates of the Internet believe that this new technology is enhancing our quality of life in many ways. One example of this is the way in which computer applications are today being used routinely by teachers in classrooms to enhance instruction and challenge the less motivated student by allowing them greater access to worldwide communities (Bowman & Bowman, 1998). Proponents of the Internet also believe that the new communities that are being established in cyberspace are founded on individual liberty and are committed to pluralism, diversity, and community, an ideal our founding fathers envisioned for the newly established colonies more than two hundred years ago (Katz & Aspden, 1997). One study that empirically evaluated the positive



social impact of Internet use was conducted by Katz & Aspden. Katz & Aspden examined the issue of relationship formation on the Internet. In this study they conducted a national, random telephone survey with the intended purpose of comparing friendship formation and community involvement between users and non-users of the Internet. This study looked at five different Internet awareness/usage groups: 1) those not aware of the Internet, 2) non-users who were aware of the Internet, 3) former users, 4) recent users-those who started using the Internet in 1995, 5) longtime users-those who started using the Internet before 1995. The survey generated 2500 responses, 8% reported being Internet users, 8% reported being former Internet users, 68% reported being aware of the Internet but not using it, and 16% reported not being aware of the Internet. The sample of Internet users was augmented by a national, random telephone sample of 400 Internet users bringing the total of Internet users to 600. Of the 600 Internet users, 49% reported being longtime Internet users.

Katz & Aspden's (1997) study allowed the researchers to compare Internet users' and non-users' pattern of participation in social organizations. Katz & Aspden hypothesized that if Internet users belonged to more organizations than their non-user counterparts the opposition's position that the Internet negatively effects social relationships and psychological well being would not be supported. This study found no statistical differences in social participation in religious, leisure, or community organizations between users and non-users when demographic differences were controlled for. More importantly this study found that the Internet is fostering an atmosphere, which is cultivating friendships, creating a sense of community, and

increasing contact with friends and distant family members.

However, other studies suggest (Griffith, 1997; Young, 1996) that while the Internet as a whole is not problematic, specific applications may be used excessively. Applications for pleasure or personal interest that appear to have the potential to hinder social relationships include chat rooms and MUDs. The sheer size of this medium dictates that both risks and opportunities will arise as individuals alter the way in which they communicate with one another (Parks, 1996). It is estimated that as of December 1998 there were 3,689,227 web sites worldwide (Diegerger, 1997).

Has the technology, which allows us to retrieve information quickly, converse with distant friends and relatives, and make friends around the world begun to replace the critical day-to-day interactions we would otherwise participate in? The fear is that cyberchat will take the place of many types of real-life communication and reduce the number of times the user engages in face-to-face interactions. While the influx of this new communication technology has allowed us to explore areas that were virtually inaccessible prior to the Internet's inception, we might ask what are the consequences?

It can be argued that while specific Internet applications can lead to interference in user functioning excessive use of any medium can result in similar consequences (Scherer, 1997). The premise that people are using cyberrelationships to replace socialization within the family has been raised with other media (Brody, Stoneman, & Sanders, 1980). Ajayl (1995) argues that the excessive Internet use we are witnessing today is a continuation of trends that have existed for decades. People are increasingly spending more time with technology and less time on human interactions. He suggests

that this shift away from family and friends to technology can be traced to the appearance of the radio (1930's), television (1950's), and computers today.

In contrast to the optimistic view of Internet use noted by Katz & Aspden (1997), Kraut et al. (1998) examined the negative impact the Internet has on society. In this research a longitudinal study was used to examine the Internet's effect on social involvement and psychological well being. This study observed 169 individuals from 93 Pittsburgh area families for two years. The families were given computers, phone lines, and free Internet use. In return they agreed to fill out occasional questionnaires. The number of hours spent online was recorded electronically. The results of the study indicate that participants' levels of depression and loneliness as measured by the Center for Epidemiological Studies Depression Scale (CES-D) increased as Internet use increased. Specifically they reported keeping up with fewer friends, spending less time talking with their families, experiencing more daily life stressors, and feeling lonelier and depressed (Kraut et al.). The study employed self-report measures to assess each participant's level of social involvement and psychological well being before they went online and again a year or two later.

Kraut et al. (1998) found an unexpected consequence associated with Internet use. Specifically, their results indicate that there is a negative correlation between participant's level of Internet use and their reports of social activity and happiness. As their use of the Internet increased, the participants reported a decrease in the amount of social support they felt and in the number of social activities in which they were involved.



Although the findings of this study appear to provide strong evidence that the Internet is associated with declines in social participation and psychological well being, caution must be used when interpreting these results. This study was perhaps confounded by the small sample size and the fact that at least one family member in each group was currently engaged in a face-to-face group at the time the study was being conducted (Kraut et al., 1998).

Also of concern was the question of whether or not Kraut et al. (1998) actually assessed depression in their study (Rierdan, 1999). Participants in the Kraut et al. study completed only 15 of the 20 items on the CES-D. No explanation was given as to why 25% of the CES-D items were eliminated. Perhaps this omission biased the results. Another concern is that although the CES-D scale was originally designed to measure depressive symptoms, recent findings indicate that these scores should not be interpreted as indicative of depression.

Research indicates that scores on the CES-D are highly correlated with measures of anxiety, (Rierdan). Were the scores on the CES-D elevated because the subject was depressed, or were they elevated because the subject was experiencing some other type of distress? Another question to be asked is, were the scores on the CES-D related or unrelated to Internet use? While Kraut et al. (1998) reported that initial depression did not predict subsequent Internet use, doubts have been raised as to whether the construct of depression was actually being measured.

The purpose of this study was twofold. First, the study examined the hypothesis that individuals that scored higher on the Beck Depression Inventory (BDI) spent more



time on the Internet. The second hypothesis in this study was that scores of depression as measured by the BDI would be higher in individuals that spent more time in chat rooms and MUDs (synchronous communication) as measured by the demographic questionnaire (Appendix B).

## CHAPTER 2

### METHOD OF STUDY

#### Participants

95 male and female graduate and undergraduate students were recruited for this study. The participants were obtained from the campus population of Austin Peay State University and the education center at Fort Campbell. A sign up sheet was posted on a bulletin board in the Clement building in which participants could volunteer to participate in this study. Participants from Fort Campbell were solicited from psychology classes at the education center. Participation was voluntary. Each participant was given a packet, which contained the following: instructions for participation; an informed consent form, (Appendix A) a demographic questionnaire, (Appendix B) the Beck Depression Inventory, (Appendix C) and the Computer Use Survey (Appendix D).

#### Materials

*Beck Depression Inventory (BDI)*. The BDI was developed in 1961 by Aaron Beck et. al., and has been revised twice since development. It is among the most frequently used measures of depression. The BDI has been favored most likely because of its psychometric soundness. Its internal consistency reliability ranges from .73 to .95

with a test-retest reliability estimated between .48 and .86 over the course of several hours to several weeks. The BDI's concurrent criterion-related validity has been measured from .60 to .76 (Sundberg, 1992).

The BDI consists of 21 items designed to measure the participant's level of depression. Each item on the questionnaire was created to tap a specific symptom or associated attitude (i.e., cognitive, behavioral, affective, and somatic symptoms). Respondents are required to select one of four responses which range from 0-3 (*symptom is not present* to *symptom is present*). The instrument is scored by obtaining the sum of all items and ranges from 0 to 63.

*The Computer Use Survey* (CUS) was developed in 1998 by Kimberly Young for the purpose of measuring Internet use. This twenty-item, forced choice questionnaire was designed to measure the amount of time an individual spends on the Internet (Young, 1996). Because this instrument was recently developed, there is no report of its reliability or validity available.

*The Demographic Questionnaire* was developed in 1999 by Marc E. Pratarelli, Blaine L. Browne, and Kimberly Johnson for the purpose of measuring Internet addiction (Pratarelli, Browne, & Johnson, 1999). This 22-item questionnaire measures an individual's pattern and amount of use on particular Internet sites. Because this instrument was recently developed, there is no report of its reliability or validity.

## Analysis

The score on the BDI is obtained by taking the highest score circled for each item on the questionnaire and adding the total number of points for all items. Interpretation is based on the total score, which may range from 0-63. Among depressed patients, scores in the 0-9 range denote Minimal Depression, 10-16 suggest Mild Depression, scores of 17-29 are considered Moderate, and scores in the 30-63 range indicate Severe levels of depression.

The score on the Computer Use Survey is obtained by taking the highest score circled for each item on the questionnaire and adding the total number of points for all items. Interpretation is based on the total score, which may range from 0-100. Scores in the 20-49 point range indicate that the participant is an average on-line user. Scores from 50-79 points indicate that the individual may be experiencing occasional or frequent problems because of Internet use. Scores of 80-100 points indicate that the Internet may be causing a significant problem in the participant's life.



### RESULTS

Of the 95 participants surveyed, 64 were female and 31 were male. The average age of the participants was 27.60 with a range from 18 to 52 years of age. All participants were currently enrolled in classes at Austin Peay State University. The survey responses were screened for missing data and those that were not complete were omitted from further study. An examination of the participants scores on the BDI and the number of hours each participant accessed a computer to engage in Internet use were analyzed using the scores from the CUS and the demographic questionnaire. The internal consistency of the CUS as measured by Cronbachs Alpha was .91. A summary analysis of the data obtained from these instruments can be found in Table 3-1.

The first hypothesis in this study was that scores on the BDI would be positively correlated with scores on the CUS. The percentage of participants who fell into each of the four diagnostic categories of the BDI are shown in Table 3-2. Individual scores and summative scores on the BDI and CUS are presented in a scatterplot in Figure 1. A positive correlation was found to exist between depressive symptoms (as measured by the BDI) and Internet use as a whole (as measured by the CUS),  $r = +.430$ ,  $n = 95$ .

TABLE 3-1

Means, Standard Deviations, and Pearson Correlation Coefficients of All Variables

|          | Mean   | Std. Dev | BDI    | CUS    | Other  | Chat/MUD | Total | Age    | Sex   |
|----------|--------|----------|--------|--------|--------|----------|-------|--------|-------|
| BDI      | 9.726  | 8.255    | 1.000  |        |        |          |       |        |       |
| CUS      | 18.705 | 14.205   | 0.430* | 1.000  |        |          |       |        |       |
| Other    | 8.190  | 8.673    | 0.196  | 0.554* | 1.000  |          |       |        |       |
| Chat/MUD | 1.179  | 4.524    | 0.005  | 0.300  | 0.174  | 1.000    |       |        |       |
| Total    | 9.358  | 10.453   | 0.165  | 0.590* | 0.905* | 0.577*   | 1.000 |        |       |
| Age      | 27.600 | 8.723    | -0.181 | -0.075 | -0.012 | 0.092    | 0.030 | 1.000  |       |
| Sex      |        |          | -0.210 | 0.001  | 0.144  | 0.051    | 0.140 | -0.013 | 1.000 |

\*  $p < .05$

TABLE 3-2

Diagnostic Categories of the BDI and the Percentage of Participants That Fell Within Each Category

| Beck Depression Inventory | Interpretation      | % of participants included in each category |
|---------------------------|---------------------|---|
| 0 - 9                     | Minimal Depression  | 62.11                                       |
| 10 - 16                   | Mild Depression     | 23.16                                       |
| 17 - 29                   | Moderate Depression | 12.63                                       |
| 30 - 63                   | Severe Depression   | 2.10  |

The second hypothesis in this study was that scores on the BDI would be positively correlated with time spent in chat rooms and MUDs as measured by the CUS and the demographic questionnaire. This hypothesis could not be tested in any way because a very large proportion of the sampled population (72 of 95 participants) spent very little time in chat rooms and MUDs. Although a statistical analysis reported that there was no correlation ( $r = .005$ , see Table 3-1) the lack of data precluded an accurate analysis of the hypothesized relationship.

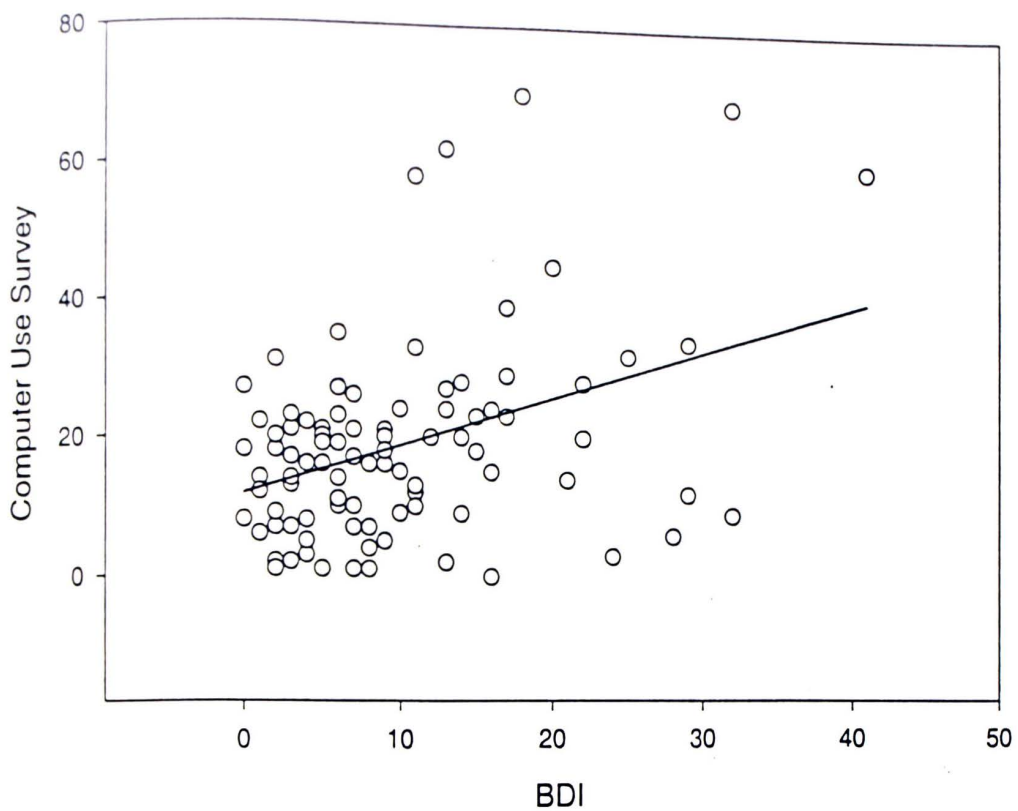


Figure 1 Individual scores and summative scores on the Beck Depression Inventory and the Computer Use Survey



### DISCUSSION

A growing concern that has accompanied the tremendous increase in Internet use in the past decade is that for some individuals Internet use is interfering with their social and personal functioning. The data from previous studies (Brenner, 1997; Kraut et al., 1998) indicate that excessive Internet use can be problematic. Research conducted by Kraut et al. suggests that as participants' use of the Internet increased their levels of depression and loneliness as measured by the CES-D increased. However, Katz & Apsden (1997) reported conflicting results which indicated that instead of increasing depression and loneliness Internet use was associated with fostering an atmosphere in which users were cultivating friendships and increasing contact with friends and distant family.

Due to the lack of conclusive and corroborating results on Internet use and depression, this study was undertaken. Two specific hypotheses were examined in this study. The first hypothesis was that scores on the BDI would be positively correlated with scores on the CUS. The results of this study indicate that a positive relationship does exist between depressive symptoms and Internet use as a whole. These findings support the first hypothesis in this study and corroborate the findings of Brenner (1997) and Kraut et al. (1998).

The second hypothesis in this study was that scores on the BDI would be positively correlated with time spent in chat rooms and MUDs. The lack of data

compiled from the participants in this study precluded an accurate statistical analysis of the data. Although 95 participants completed the surveys, 75% of the respondents never accessed either chat rooms or MUDs. These results were surprising because they contradict the statistics compiled by America Online regarding chat room use (CyberAtlas July, 1999). America Online reported in July 1999 that more than 750 million messages are sent each day through AOL's Buddy List and Instant Messenger services (chat lines). There are three times more messages sent each day than the 250 million phone calls completed by a leading telecommunications provider, and 250 million more messages than the 500 million letters sent each day via the United States Post Office (CyberAtlas - July, 1999).

There are a number of possible explanations for this outcome. One possibility is that the participants did not have time to access these applications due to the fact that they were currently enrolled in classes. Many of the students surveyed spent the majority of their time on the Internet researching educational reference sites and checking and responding to e-mail. Another possibility is that the demographic questionnaire did not ask the respondents about their Internet use in a clear and concise manner. The questionnaire offered too many categories from which the participant could choose and proved to be confusing. A questionnaire which just asked the respondent to indicate the number of hours spent in chat rooms, MUDs, e-mail, and reference sites would have served the purpose of this study more effectively.

The number of Internet users around the world is constantly growing. The Computer Industry Almanac (September 2000) reported that by the year 2002, 490 million people throughout the world will have Internet access, that is 79.4 per 1,000



people worldwide. With such a large number of individuals accessing the Internet daily it is imperative that the potential benefits and drawbacks of this medium be researched. The results of this study could eventually effect the way specific Internet applications are utilized. Specifically this information could be used to provide insight into not only the problematic applications being accessed on the Internet but more importantly, it might provide us with some insight into how Internet use is effecting other aspects of the individual's life. If Internet use is filling a void for individuals that are suffering from depressive symptoms we need to determine if this use is beneficial or harmful. If this use is indeed beneficial perhaps the Internet is serving a useful purpose. As a follow-up to this study, the inclusion of different populations of participants might provide more insight into chat room and MUD use.

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## REFERENCES



## REFERENCES

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## APPENDICES



## Appendix A

### Informed Consent Form

You are being asked to participate in a research study. This form is intended to provide you with information about this study. You may ask the researchers listed below about this study or you may call the Office of Grants and Sponsored Research, Box 4517, Austin Peay State University, Clarksville, TN 37044, (931) 221-7881 with questions about the rights of research participants.

1. The purpose of this research project is to investigate Internet usage.
2. The procedures to be used (what you will be asked to do). You will be asked to fill out two questionnaires; the Beck Depression Inventory (BDI) and the Computer Use Survey. You will also be asked to provide some demographic information about yourself. The study will take approximately 20 minutes to complete.
3. Regarding Risks and Benefits. You are being asked to respond honestly and to the best of your ability to the statements on the surveys. Every precaution will be taken to ensure that this information will be kept confidential. The information on the surveys are not likely to cause psychological distress, however if you wish to terminate participation at any time, you may do so with no questions asked.
4. What will happen to the information collected? The information collected from you will be used for purposes of scientific presentation and publication. In any such use of this information, your identity will be carefully protected. Your identity as a participant will never be revealed in any published or oral presentation of the results of this study. Information will be made public only in the form of summaries which make it impossible to identify individual participants. If you wish, you can receive a copy of the results and/or discuss the study with researchers on completion of the project. If you are interested in receiving such information, be sure to let the experimenters know this as soon as possible. Results however, will not be available until all participant's responses have been analyzed.

**Please read the statements below. They describe your rights and responsibilities as a participant in this research project.**

1. I have been informed orally and in writing of the procedures to be followed and about any discomfort which may be involved. I have also been told of any benefits that may result from my participation. Dr. Barrie Woods has offered to answer any further inquiries that I may have regarding the research and he can be contacted Monday through

Friday by phone at 221-7233.

2. I understand that I may withdraw from participation at any time without any penalty or prejudice, and to have all data obtained from me withdrawn from the study and destroyed.

3. I realize that by signing this form, I willingly consent to participate in this study. I also acknowledge that I have been given a copy of this form to keep.

---

Signature

---

Witness

---

Date

Appendix B  
Demographic Questionnaire

I am: \_\_\_\_ Male      \_\_\_\_ Female

Name: \_\_\_\_\_

Age: \_\_\_\_

Telephone number (optional) \_\_\_\_\_

**Highest schooling completed (check only the highest)**

- ☐ elementary school
- ☐ high school
- ☐ some college
- ☐ college graduate
- ☐ master's degree
- ☐ doctorate or equivalent

**I am primarily (full time): (check only one)**

- ☐ a student
- ☐ employed part-time nonprofessional
- ☐ employed full-time nonprofessional
- ☐ employed part-time professional
- ☐ employed full-time professional
- ☐ self-employed
- ☐ unemployed

I belong to \_\_\_\_\_ (number of) clubs or organizations on or off the Internet.

**I connect to the Internet through my**

- ☐ school or university
- ☐ work
- ☐ public server or freenet
- ☐ national Internet service provider (America On-Line, Microsoft network, etc.)

I spend an average of \_\_\_\_ hours per week on the Internet, e.g., WWW, email, etc

I spend \_\_\_\_ hours each week on personal Email

I spend \_\_\_\_ hours each week on Usenet

I spend \_\_\_\_\_ hours each week surfing the World Wide Web (WWW)

I spend \_\_\_\_\_ hours each week accessing educational or reference materials

I spend \_\_\_\_\_ hours each week talking or watching Internet Relay Chat (IRC) lines

I spend \_\_\_\_\_ hours each week using File Transfer Protocols (FTP) to send or receive files

I spend \_\_\_\_\_ hours each week playing MUD (Multi User Domain) or other on line games

I tend to connect to the net \_\_\_\_\_ and \_\_\_\_\_ (select One from each column).

- |                                   |  |
|-----------------------------------|--|
| <input type="radio"/> from home   | <input type="radio"/> mornings and daytime |
| <input type="radio"/> from work   | <input type="radio"/> evenings             |
| <input type="radio"/> from school | <input type="radio"/> as a night owl       |

The main reason(s) I use the Internet is (are) (check all that apply):

- ☐ school related assignments
- ☐ for my own personal growth and development
- ☐ for software
- ☐ to talk to friends far away
- ☐ to meet new people
- ☐ to talk to others who share my interests
- ☐ to keep track of new developments in areas of personal interest (hobby, culture, news, weather)

I consider myself \_\_\_\_\_ hacker.

- ☐ not at all a
- ☐ a moderate
- ☐ an expert

My relationship status is best described as

- ☐ never married
- ☐ not married by in a significant, long-term relationship
- ☐ married
- ☐ separated
- ☐ divorced
- ☐ not interested in a relationship at this time

I have been using the Internet for \_\_\_\_\_.



**The amount of time I spend on the computer(s) has caused me to**

- ☐ gain weight
- ☐ lose weight
- ☐ no change

## Appendix C

### Beck Depression Inventory

Circle the number of the statement within each item that best describes the way you feel today, namely, the way you are feeling right now. Be sure to read all the statements in each item before selecting one.

#### Inventory Item 1

- 0 I do not feel sad.
- 1 I feel sad.
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad or unhappy that I can't stand it.

#### Inventory Item 2

- 0 I am not particularly discouraged about the future.
- 1 I feel discourage about the future
- 2 I feel I have nothing to look forward to
- 3 I feel that the future is hopeless and that things cannot improve.

#### Inventory Item 3

- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see are a lot of failures.
- 3 I feel I am a complete failure as a person.

#### Inventory Item 4

- 0 I get as much satisfaction out of things-as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

#### Inventory Item 5

- 0 I don't feel particularly guilty.
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

#### Inventory Item 6

- 0 I don't feel I am being punished.
- 1 I feel I may be punished
- 2 I expect to be punished.
- 3 I feel I am being punished.

#### Inventory Item 7

- 0 I don't feel disappointed in myself.
- 1 I am disappointed in myself.
- 2 I am disgusted with myself.
- 3 I hate myself worse than anybody else.

### Inventory Item 8

- 0 I don't feel I am any worse than anybody else.
- 1 I am critical of myself for my weaknesses and mistakes.
- 2 I blame myself all the time for my faults.
- 3 I blame myself for everything bad that happens.

### Inventory Item 9

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

### Inventory Item 10

- 0 I don't cry any more than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time
- 3 I used to be able to cry, but now I can't cry even though I want to.

### Inventory Item 11

- 0 I am no more irritated by things than I ever am.
- 1 I am slightly more irritated now than usual.
- 2 I am quite annoyed or irritated a good deal of the time.
- 3 I feel irritated all the time now.



#### Inventory Item 12

- 0 I have not lost interest in other people.
- 1 I am less interested in other people than I used to be.
- 2 I have lost most of my interest in other people.
- 3 I have lost all of my interest in other people.

#### Inventory Item 13

- 0 I make decisions about as well as I ever could.
- 1 I put off making decisions more than I used to.
- 2 I have greater difficulty in making decisions than before.
- 3 I can't make decisions at all anymore.

#### Inventory Item 14

- 0 I don't feel that I look any worse than I used to.
- 1 I am worried that I am looking old or unattractive.
- 2 I feel that there are permanent changes in my appearance that make me look unattractive.
- 3 I believe that I look ugly.

#### Inventory Item 15

- 0 I can work about as well as before.
- 1 It takes an extra effort to get started at doing something.
- 2 I have to push myself very hard to do anything.
- 3 I can't do any work at all.

#### Inventory Item 16

- 0 I can sleep as well as usual.
- 1 I don't sleep as well as I used to.
- 2 I wake up one or two hours earlier than usual and find it hard to get back to sleep.
- 3 I wake up several hours earlier than I used to and cannot get back to sleep.

#### Inventory Item 17

- 0 I don't get more tired than usual.
- 1 I get tired more easily than I used to.
- 2 I get tired from doing almost anything.
- 3 I am too tired to do anything.

#### Inventory Item 18

- 0 My appetite is no worse than usual.
- 1 My appetite is not as good as it used to be.
- 2 My appetite is much worse now.
- 3 I have no appetite at all anymore.

#### Inventory Item 19

- 0 I haven't lost much weight, if any, lately.
- 1 I have lost more than five pounds.
- 2 I have lost more than ten pounds.
- 3 I have lost more than fifteen pounds.

### Inventory Item 20

- 0 I am no more worried about my health than usual.
- 1 I am worried about physical problems such as aches and pains or upset stomach, or constipation.
- 2 I am very worried about physical problems and it's hard to think of much else.
- 3. I am so worried about my physical problems that I cannot think about about anything else.

### Inventory Item 21

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

## Appendix D

### Computer Use Survey

**To assess your level of computer use, answer the following questions using this scale:**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**1. How often do you find that you stay on-line longer than you intended?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**2. How often do you neglect household chores to spend more time on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**3. How often do you prefer the excitement of the Internet to intimacy with you partner?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always



**4. How often do you form new relationships with fellow on-line users?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**5. How often do others in your life complain to you about the amount of time you spend on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**6. How often do your grades or school work suffer because of the amount of time you spend on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**7. How often do you check your e-mail before something else that you need to do?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**8. How often does your job performance or productivity suffer because of the Internet?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**9. How often do you become defensive or secretive when anyone asks you what you do on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**11. How often do you find yourself anticipating when you will go on-line again?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**12. How often do you fear that life without the Internet would be boring, empty, and joyless?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**13. How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**14. How often do you lose sleep due to late-night log-ins?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**15. How often do you feel preoccupied with the Internet when off-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**16. How often do you find yourself saying “just a few more minutes” when on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**17. How often do you try to cut down the amount of time you spend on-line and fail?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**18. How often do you try to hide how long you’ve been on-line?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

**19. How often do you choose to spend more time on-line over going out with others?**

- 0 = Does Not Apply
- 1 = Not Applicable or Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Often
- 5 = Always

20. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back on-line?

0 = Does Not Apply

1 = Not Applicable or Rarely

2 = Occasionally

3 = Frequently

4 = Often

5 = Always



## VITA

Darla Jean Slicton was born in Chicago, Illinois on January 18, 1957. She attended elementary school in the Cook County (Chicago) Area School District and graduated from Chesterton High School in June, 1975. The following September she entered Purdue University in Indiana and majored in Nursing. After seven years of active duty in the United States Army she married and had two children. In 1994 after a lengthy absence from academia she returned to college at Austin Peay State University. In May, 1998 she received her Bachelor of Science degree in Psychology, and in May, 2000 she received a Master of Science degree in School Guidance and Counseling.

She is presently seeking employment in Colorado where she relocated to in December, 2000.