2002

The Internet and youth engagement: An exploration of how youth spend their time online and its relation to civic involvement

Trevor P.D. Taylor
Wilfrid Laurier University

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

UMI®

0-612-75889-3

Canada

The Internet and Youth Engagement: An Exploration of How Youth Spend their Time
Online and its Relation to Civic Involvement
by

Trevor P. D. Taylor
B.A., Wilfrid Laurier University, 2000
THESIS
Submitted to the Department of Psychology
in partial fulfilment of the requirements for
Master of Arts
Wilfrid Laurier University
2002

© Trevor P. D. Taylor 2002

Abstract

A study was conducted to investigate the relationship between Internet use and civic involvement in youth. Participants consisted of 378 youth between the ages of 16 and 25 from across Canada. Participants completed an online questionnaire consisting of a measure called the Youth Inventory of Involvement, designed to assess civic involvement in youth. Brief measures of introversion/extraversion and depression were also completed. Participants then completed questions designed to assess the amount of time they spend online in an average week, as well as for what they use the Internet. Results indicate that there may be a non-linear relationship between amount of time spent online and involvement, with individuals at the extremes in terms of very low or very high Internet use showing lower levels of involvement than more moderate users. Different types of Internet users were identified and also differed in involvement. Contrary to some previous research a link between Internet use and depression was found. This study provides important evidence that a link between Internet use and involvement in youth does in fact exist and also identifies specific types of online activities that were found to be related to both involvement and psychological well-being.

Acknowledgements

I would like to say thank you to my advisor Dr. Mark Pancer for his help and guidance throughout the thesis process, and even more importantly, for his encouragement to continue my education beyond the bachelor's level. I would also like to thank my committee members, Dr. Anne Wilson and Dr. Eileen Wood, for their helpful comments and suggestions for improvement. Thanks are also due to my brother, Kevin Taylor, for all of his hard work in designing my online survey and to the many people who completed the survey and made this research possible. Finally, I have to say thank you to my wife Sharon for her understanding and support throughout the ups and downs of the thesis process.

Table of Contents

List of Tables

List of Figures

The Internet and Youth Engagement: An Exploration of How Youth Spend their Time

Online and its Relation to Involvement

Research on Internet-related phenomena has exploded in recent years. A recent PsycINFO search of the keyword "Internet" for the time period from 1984 to the present returned a whopping 1722 records, with research topics covering a vast array of subject matter. In fact, there is so much interest in the Internet and its impact on society that entire journal issues are being devoted to the topic (e.g., American Behavioral Scientist (2001) vol. 45(3), and the Journal of Social Issues - The Consequences of the Internet for Self and Society (2002) vol. 58(1)).

Perhaps this should be of no great surprise given the rate at which the Internet is being adopted into the everyday lives of citizens around the world. The number of people accessing the Internet has been climbing at an astounding rate with each passing year. For instance, in America, Putnam (2000) recounts that; "One survey organization reported that nearly one-third of the adult population (about sixty-four million people) had used the Internet as of the spring of 1999, up by more than ten million users from barely six months earlier" (p. 169). Moreover, it has been reported that in 2000, 66.9% of Americans used the Internet (Cole, 2000) and in 2001 this number rose to 72.3% (Cole, 2001). The number of Canadians that have Internet access has been growing by leaps and bounds over the past several years as well. According to a report from Statistics Canada, in 1999 forty-two percent of Canadian households reported that members of the household were accessing the Internet; in 2000 this number increased to fifty-one percent (The Daily, 2001). This same report showed that Canadians are logging on to the Internet more frequently, with 71% of wired households reporting that at least one person in the home

"used the Internet from home a minimum of seven times a week" (The Daily, 2001, p. 2) and are spending longer online, with 61% of Internet-using households reporting that someone used the Internet 20 hours a month or more.

Much like many other technological advances before it, the Internet has been most quickly adopted by the younger generations. Large-scale reports from both the United States and Canada show that households with children are more likely to be connected to the Internet (The Daily, 2001; Cole, 2000). One Statistics Canada report indicates that 85% of the nation's youth between the ages of 15 and 24 use the Internet, with this number rising to 87% in the province of Ontario and 92% in British Columbia (Rotermann, 2001). It would seem that the trend has quickly become established that youth who are not using the Internet are in the minority. This trend is not limited to just the North American population. A study of Internet usage and perceptions about the Internet carried out in Singapore by Teo and Lim (1998) found that youth and young adults are significantly more likely to use the Internet and to spend longer online than people in the 30 plus age range. Cole (2000) reports that the average number of hours per week spent online steadily increases from the age of 12 to 35, from a low of 5.6 hrs/wk to a high of 11.3 hrs/wk; with the average time spent online for all age groups (12 - 66+) being about 9.5 hrs/wk.

On a related note, in his highly influential book, *Bowling Alone: The Collapse and Revival of American Community*, Putnam (2000) systematically outlines a decline in political, civic, and religious participation as well as the reduction of connections in the workplace, informal social contacts, and volunteering in the U.S. since the 1960s. Interestingly, Putnam points out that while the number of non-profit and voluntary

organizations listed in America has tripled in number between the 1960's and the 1990's,

the number of people actually involved with these organizations has shrunk dramatically.

In other words, there are many more groups available for people to belong to but fewer

people actually taking part. Putnam delineates a number of factors that have played a role

in this decline in community participation. Intriguingly, technology is one of the factors

that Putnam has implicated as contributing to the downward spiral of civic involvement.

For instance, Putnam draws a very convincing link between the dramatic increase in the

number of hours spent watching television and the drastic decrease in the number of hours

spent in community activities (e.g., volunteer work, community clubs, political

involvement, etc.). As far as the Internet is concerned, Putnam concludes that it is still too

early to tell whether it is going to contribute to improving the current situation by drawing

more people together, or simply further exacerbate it by becoming a passive form of

entertainment much like television.

The race is already underway within the research literature to try and determine

just what kind of impact the increasing use of the Internet is having, and will have, on

things such as interpersonal communication, relationships, and civic participation. As one

would expect, there is a distinct split in how researchers feel that the Internet is going to

affect society, with optimists touting the Internet's great potential for bringing people

together and supplementing traditional lines of communication (e.g., Wellman, Quan

Haase, Witte & Hampton, 2001), and skeptics pointing out the negative repercussions

such as fleeting anonymous relationships replacing offline real world interactions (e.g.,

Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay & Scherlis, 1998).

A study of new Internet users during their first 1 to 2 years online by Kraut et al. (1998) found that increasing use of the Internet was linked to decreased communication with family members, a reduction in the size of users' social circle, as well as increased levels of depression and loneliness. However, a follow-up of the participants in this study failed to find continued negative effects on these measures (Kraut, Kiesler, Boneva, Cummings, Helgeson & Crawford, 2002). Furthermore, other researchers such as Wellman, et al. (2001) have found that adults' use of the Internet tends to supplement their communication via face-to-face and telephone interaction, not reduce it. Wellman et al. (2001) also found evidence that the more adults are involved in online organizational and political activity, the more they are involved in offline organizational and political activity as well. Katz, Rice, and Aspden (2001) have conducted telephone survey research on the impact of the Internet in America from 1995 to 2000 and, similar to Wellman et al. (2001), have found no evidence that Internet use is associated with lower levels of civic involvement and social interaction in adults. McKenna and Bargh (2000) have also offered a critique of research that has implicated the Internet as a cause of things such as loneliness and depression (e.g., Kraut et al., 1998), stating that they feel that much of the negative attention that the Internet has received may be entirely unfounded and that "the Internet by itself is not a main effect cause of anything" (p. 57). McKenna and Bargh (2000) offer specific critiques of Kraut et al's (1998) study such as its lack of a control group and the fact that participants scored rather highly on well-being and social involvement measures at pre-test and may simply have regressed towards the mean at follow-up. McKenna and Bargh (2000) further point out that individual differences play a large role in how a person will be affected by a communication medium such as the

Internet and that "the Internet per se is neither entirely good or entirely bad as to the kinds of interactive social effects it can have on individuals" (p. 59).

Interestingly, while past research has shown that youth are the predominant users of the Internet and that issues of involvement are particularly relevant to this population as well, to my knowledge no research has yet been conducted to specifically examine youth involvement and the Internet in combination. Kraut et al's (1998) study begins to touch on some of the issues related to youths' use of the Internet, such as the fact that youth spend longer online than their parents and that they use the Internet in different ways; however the relationships between psychological well-being, involvement, and Internet use are less well defined. So, whereas there is research indicating that heavier Internet use may be related to increased involvement, or at the very least no significant difference in level of involvement among adults (e.g., Wellman, Haase, Witte, & Hampton, 2001; Katz, Rice, & Aspden, 2001), there is no comparable analysis for youth. Given that youth use the Internet more than adults, and for different purposes, it seems reasonable to expect that the outcomes of that use may differ from adult outcomes as well.

If there are any concerns at all that Internet use may have an impact on civic participation, does it not make sense to examine the population that is using the Internet the most? After all, previous research has shown strong connections among youth who are involved and: higher grades in school (e.g., Eccles & Barber, 1999); a higher sense of competence and self-esteem (e.g., Conrad & Hedin, 1982); an increased likelihood of going on to higher education (e.g., Eccles & Barber, 1999); better social skills and wider social support networks (e.g., Roth, Brooks-Gunn, Murray, and Foster, 1998); lower problem and risky behaviours such as drug use, teen pregnancy, and aggression (e.g.,

Roth, Brooks-Gunn, Murray, and Foster, 1998); showing a better ability to get along with

adults (e.g., Conrad & Hedin, 1982); and having enhanced feelings of being empowered,

valued and important (e.g., Kirkpatrick-Johnson, Beebe, Mortimer, and Snyder, 1998;

Giles, & Eyler, 1994). Involvement of virtually any type has been found to be linked to

numerous benefits for youth; however, some research has suggested that volunteer work

and community service is especially beneficial (Eccles & Barber, 1999). Yet, according to

Statistics Canada we have seen a decrease in the number of youth between the ages of 15

and 24 who engage in volunteer activities, from 33% in 1997 to 29% in 2000 (Hall,

McKeown, & Roberts, 2001). This fact begs the question: Could this decline in

volunteering among Canada's youth be related to the rapid rate at which Internet use has

penetrated into households over the same time period? This is undeniably a very difficult

question to answer and one that cannot be fully addressed by a single study. However, it

does seem worthwhile to begin to explore the relationship and it is hoped that the present

study will serve as a starting point for this line of enquiry.

Therefore, the purpose of the present study was to investigate whether or not a

link actually does exist between youths' Internet usage and their involvement in

community activities. It was expected that a negative correlation would be found between

amount of time spent on the Internet and community involvement, due in large part to the

limited amount of time that heavy Internet users would have available for other pursuits.

Therefore, for the purposes of this study hours per week spent on the Internet was

examined as a continuous variable in order to determine if increases in the amount of time

spent on the Internet were correlated with a decrease in involvement in youth, or not.

Another aim of the present study was to explore the types of things for which youth use the Internet. For instance, do some youth use the Internet as a means of communicating with friends via email, instant messaging, and chat programs while others use it primarily as a form of entertainment through gaming, listening to music, and watching videos? It was expected that there would undoubtedly be a wide range of individual differences when it comes to the things that youth spend most of their time online doing, resulting in various subgroups of users. These subgroups of Internet users were expected to also differ in their levels of civic involvement. For example, youth who reported using the Internet for passive entertainment purposes were expected to demonstrate a reduced level of involvement much like Putnam (2000) has found with people who watch a great deal of television. This area is of particular interest given the fact that large-scale surveys have found that Internet users watch significantly less television than nonusers (Cole, 2001). Therefore, it is worthwhile to explore whether or not the time that would have been spent passively watching television is instead spent passively surfing the Internet; or alternatively, if this time is instead devoted to active social interaction via the Internet. It seems reasonable to expect that if time on the Internet is devoted to more passive activities, comparable to television viewing, that a lower level of overall involvement would also be found. In contrast, it also seems reasonable to expect to see higher levels of involvement in the individuals who are engaging in active social interaction via the Internet, perhaps due to having a more highly developed social network.

Given the mixed results of past research surrounding the relationship between depression and Internet use (e.g., Kraut et al., 1998 vs. Wastlund, Norlander, & Archer,

2001 and Kraut et al., 2002) it was somewhat difficult to make predictions as to what might be expected. However, it seemed worthwhile to attempt to explore this issue further and hopefully be able to add to the supporting evidence of one view or the other. Therefore, the relationship between depression and Internet use was also explored.

Similarly, extraversion can play a role in level of involvement, as people who are more outgoing will also be more likely to interact with others and potentially become involved in more activities. Extraversion may also contribute to differences in the way that people use the Internet (e.g., Kraut et al., 2002). Therefore, the relationship between extraversion, involvement, and Internet use was also examined.

Finally, it has been argued that the Internet may be an excellent medium for bringing people of like interests together in online communities. Online communities can take many forms and deal with an extremely wide variety of topics but regardless of the content that they deal with they will all have common elements. For instance, a typical online community will focus on a particular topic of interest (e.g., health care, tropical fishing, English literature, etc.), will require users to have a login and password, and will have an online chat feature or a message board to allow members to communicate with one another. It has also been argued that the Internet provides opportunities for people to engage in 'virtual volunteering' (Cravens, 2000), which is said to be a particularly viable route for young people to get involved with organizations that they otherwise would not be able to take part in because of constraints around factors like not being able to get to the physical location of the organization, or restrictions that the organization has regarding having people under the age of 18 working for them. A few examples of virtual volunteering activities include: conducting online research for an organization;

electronically visiting someone who is homebound, in a hospital, in a rest home or in a remote location; making a website accessible for people with disabilities; and providing online mentoring and instruction (for further examples of virtual volunteering see Cravens, 2000).

Therefore, a final goal of the present study was to collect some initial information on the degree to which youth participate in online communities on a regular basis, as well as whether or not they have ever engaged in virtual volunteering. Information on this topic would be beneficial for exploring the viability of future research on topics such as comparing whether or not youth are able to gain the same benefits from participating in online communities and doing 'virtual' volunteer work as they receive from engaging in comparable activities offline.

In summary, the primary purpose of the present study was to examine whether or not a link actually does exist between youths' Internet usage and their involvement in community activities. It was expected that youth who spend a great deal of time on the Internet would exhibit lower levels of involvement in comparison to youth who spend less time on the Internet. Another aim of the present study was to explore what kinds of things youth do on the Internet. It was expected that youth who conduct more 'social' types of activities on the Internet would be more involved than youth who conduct more 'passive' types of activities on the Internet. The relationship between depression and Internet use, as well as the relationships between extraversion, involvement, and Internet use were also explored. Finally, a replication of Putnam's (2000) findings with regards to the relationship between television viewing and involvement was conducted.

Method

Participants and Sampling Procedure

The present study was conducted using an on-line questionnaire. Participants were

recruited through the Wilfrid Laurier University undergraduate psychology participation

pool, by way of a posting on the Centre of Excellence for Youth Engagement central

communication program asking network partners for their assistance in sending people to

the online questionnaire, and also via an email message sent out to the author's friends and

family asking for their assistance in sending people to the site. The Centre of Excellence

for Youth Engagement is a consortium of partners from across Canada comprised of both

academic researchers and youth-serving agencies that are concerned with researching and

promoting the involvement of youth in all aspects of civic life. The Centre of Excellence

partners deal with a very diverse population of Canadian youth: from street youth to

university students; uninvolved to highly involved youth activists; and the full range of

ethnic backgrounds and ages. Youth were asked to participate in the study by going to the

website that was set up and completing the questionnaire online. Participants who came

through the psychology participation pool received partial course credit for their

participation, and all participants who entered their email address were entered in a draw

for movie passes and CD gift certificates as a thank-you for their participation (there were

a total of 5 prizes worth $20 each awarded).

A total of 378 youth between the ages of 16 and 25 completed the survey;

however four cases were excluded from all analyses due to the fact that they were outliers

on several measures (for instance they were more than 3 standard deviations above the

mean on the measure of pornography viewing time, with all four cases reporting 40 hours

per week of pornography viewing time). Of the remaining 374 cases, 260 were female, 112 were male and two participants did not report their gender. The mean age of participants was 20.36 years old (SD = 1.943). The vast majority of participants were from Ontario, with 349 people indicating it as their province of residence, 13 people were from Saskatchewan, 4 from British Columbia, 3 from Nova Scotia, 2 from Alberta, 2 from Prince Edward Island, and 1 from Newfoundland. Two hundred and thirty participants came through the psychology participation pool, 142 came via the email notification, 2 came via the Centre of Excellence for Youth Engagement, and one participant did not indicate how she heard about the survey.

Measures

An online questionnaire asked for demographic information on age, gender, province of residence, highest level of education completed, present work/school status, and how participants heard about the survey. Participants were also asked to indicate the number of hours per week that they spent in school, the number of hours per week spent at work, the number of hours per week available for leisure, as well as how many hours per week they spent doing volunteer work, if any. Following this, the questionnaire included measures of youth involvement, sociability (extraversion/introversion), depression, and Internet usage. Please refer to appendix A to see a copy of the complete questionnaire and appendix B for screenshots of the web-survey.

Youth Inventory of Involvement (YII). The Youth Inventory of Involvement scale was developed by Pancer, Pratt, & Hunsberger (2000) in order to measure young peoples' degree of civic involvement. The YII includes items on areas that youth can be involved in such as politics, school, their neighbourhoods and communities, as well as several

different kinds of activities that they can take part in such as being a member of a group or organization, making presentations, or organizing events. The measure consists of 30 activities and respondents indicate the extent to which they have participated in each of the activities on a 5-point scale ranging from 0 (they never did this over the previous year) to 4 (they did this a lot over the previous year). Total scores for the YII were calculated by summing the scores on the individual items. A lower total score indicates a lower level of involvement, with 0 being the lowest possible score, whereas a higher total score indicates a higher level of involvement, with 120 being the highest possible score. They YII has demonstrated strong internal consistency, as an alpha of .90 was found for the YII full scale (Pancer, Pratt, & Hunsberger, 2000). The YII can also be broken down into four subscales: political (e.g., Collected signatures for a petition drive), community (e.g., Helped organize neighbourhood or community events), responding (e.g., Signed a petition), and helping (e.g., Visited or helped out people who were sick). Reliability analyses for the total and subscales in the present study ranged from fair to excellent: the YII total scale demonstrated an alpha of .90, the political activities subscale demonstrated an alpha of .82, the community activities subscale demonstrated an alpha of .64, the responding activities subscale demonstrated an alpha of .58, and the helping activities subscale demonstrated an alpha of .84.

Introversion/Extraversion Scale. Immediately following the YII, participants completed a measure of introversion/extraversion developed by the author. After reviewing an extensive number of previously published measures of introversion/extraversion it was determined that existing scales were unsuitable for the present study because they were either too outdated in their use of language for use with a

young sample, or they were part of a longer overall measure of personality that would not

be conducive to a web-based survey. Therefore, a new 15-item measure of

introversion/extraversion was developed based loosely on previously published scales that

were reviewed (e.g., 16PF, NEO, Eysenck Personality Questionnaire Revised). The items

are rated on a 5-point scale by participants, ranging from 1 (strongly disagree) to 5

(strongly agree). Summing all scores marked on the introversion/extraversion scale, after

reverse scoring the appropriate items, produces the participant's introversion/extraversion

score. Higher total scores indicate that the individual is more extraverted in nature, with

75 being the highest possible score, whereas lower total scores indicate that the individual

is more introverted in nature, with 15 being the lowest possible score. The scale

demonstrated good reliability, with an alpha of .79.

Center for Epidemiological Studies Depression Scale (CES-D). This scale consists

of 20 items designed to measure depression in the general public (Radloff, 1977). The

CES-D items are rated by respondents on the degree to which they have been experienced

in the past week, ranging from 1 (Rarely to none of the time, less than 1 day) to 4 (Most

or all of the time, 5-7 days). Summing all scores marked on the CES-D, after reverse

scoring the appropriate items, produces the participant's depression score. Higher total

scores indicate a higher level of depression, with 80 being the highest possible score,

whereas lower total scores indicate a lower level of depression, with 20 being the lowest

possible score. The internal consistency of the CES-D has been shown to be high, with an

alpha of .85 in a sample of the general population and an alpha of .90 in a clinical patient

sample (Radloff, 1977). In the present study an additional six positively framed items

were developed and added to the end of the measure in an attempt to counteract any

negative feelings that may have been provoked in participants by completing this otherwise rather negative measure. However, the original 20-item scores are used for all analyses in order to be consistent with previous research. In the present sample the original CES-D measure demonstrated an alpha of .90.

Internet Usage. The final portion of the questionnaire consisted of a series of questions about the participants' Internet usage habits. First, respondents were asked to indicate how much time they spend on the Internet in an average week by selecting the appropriate number in a drop down menu. Respondents were then asked to indicate how much of the total time they spend online is work or school related and how much is for fun or leisure, again by selecting the appropriate numbers in drop down menus. Next, participants were asked to indicate how long they have been using the Internet (options ranged from less than 1 year to more than 10 years), how often they go online (options ranged from every day to once a year), and whether they would like to spend more time on-line in the average week (options were yes, no, or happy with current level of use). Participants then were asked how many hours of TV they watch each week by selecting the appropriate number from a drop down menu. The next line of questions were aimed at getting more detailed information about participants' Internet use. They were asked to indicate how many hours per week they spend online at home, work, school, friends' or relatives' houses, via a wireless device (e.g., cell phone), and at a public library in order to get a sense of where they access the Internet from. Participants were also asked to indicate what types of things they do on the Internet and how much time they spend on each of these activities in an average week. A list of 15 activities was provided and participants indicated how much time they spent on each by selecting the appropriate

number from a drop down menu; they were also able to input activities not listed in three spaces provided for "other" activities. The 15 activities that were listed were emailing friends and family, sending/receiving work or school related email, chatting with friends and family, chatting with strangers, researching information for school, researching information for work, playing games, watching videos or listening to music, viewing pornographic material, reading online newspapers or magazines, updating personal website, participating in online communities, shopping, banking, and just surfing. Participants were then asked if they regularly participate in any online communities and if they have ever done any virtual volunteer work and if so what types. Finally, participants were asked whether they felt that the types of activities they are involved in have contributed to their self-understanding, and whether they felt that their experiences on the Internet have contributed to their self-understanding, both of which were rated on a 5-point scale ranging from strongly disagree to strongly agree.

Procedure

Participants logged onto the website and saw an initial screen outlining the general nature of the survey, as well as all information necessary for them to make an informed decision about whether or not to take part in the study. After reading this information participants clicked a button indicating that they agreed to participate, at which time a screen appeared that asked for a valid email address so that a session id and password could be sent to them in case they were interrupted or needed to stop for some reason before they had finished the questionnaire. The participants were also informed that a random draw would be conducted at the end of the study using the email addresses collected in order to award prizes as a thank-you for their participation.

After the email address was submitted the actual questionnaire was brought up in their web browser. Participants then proceeded through the various sections of the questionnaire, receiving any pertinent instructions in written form at the beginning of the section. Pilot-testing indicated that it took between 10 to 15 minutes to complete the questionnaire.

The data collection period extended from March 18, 2002 through April 8, 2002.

Results

Descriptively, the present sample reported spending more of their time online in leisure than in school or work related pursuits and participants had been using the Internet for five years on average. Table 1 demonstrates the mean amounts of time spent in work versus leisure pursuits online, as well as the average number of years that participants reported that they have been using the Internet. The overwhelming majority of participants (82%) reported using the Internet on a daily basis and the location that participants spent the most amount of time online was at home (see figure 1 and table 2).

Table 1

Descriptive Internet Usage Means

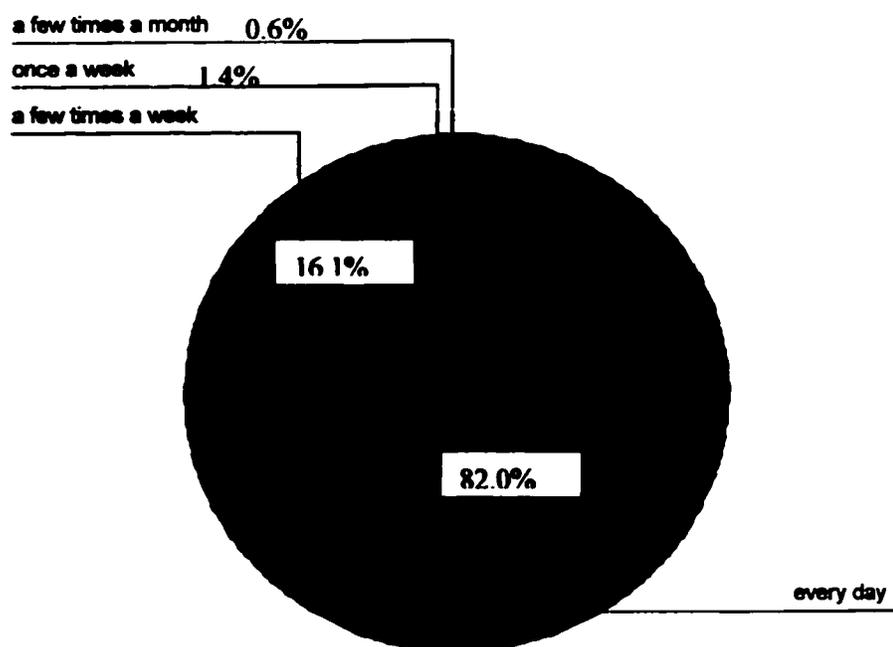| Usage Variable	Mean	S.D.	Range
School/Work Internet Time	3.8 hrs/wk	4.04	<1 hr – 40 hrs
Leisure Internet Time	6.2 hrs/wk	6.13	<1 hr – 40 hrs
Number of Years Using the Internet	5.0 yrs	1.76	<1 yr – 10 yrs

Figure 1

Frequency of Internet Access

a few times a month   0.6%

once a week   1 4%

a few times a week

16 1%

82.0%

every day

Table 2

Mean Number of Hours Spent Online at Different Locations

Location	Mean	S.D.
Home	7.66 hrs/wk	7.60
Work	0.83 hrs/wk	3.23
School	1.87 hrs/wk	3.99
Friends'/Relatives	0.40 hrs/wk	0.76
Wireless Device (e.g., cell phone)	0.14 hrs/wk	0.43
Public Library	0.20 hrs/wk	0.53
Other	0.17 hrs/wk	0.73

To begin with, the data on the amount of time spent on the Internet, and in particular the amount of time spent on each of the 15 types of Internet activities, were examined. Four definite outliers were identified. All four outliers were males and their ages were 16, 20, 21, and 20; they all reported 40 hours per week of pornography viewing time. Two of these cases also reported high amounts of time spent on chatting, game playing, and listening to music and watching videos (between 20 to 40 hours per week). One of the outliers appeared to be entering bogus information as he also reported spending 40 hours per week on friend chat, game time, music and videos, "cybersex", and "online mutual masturbation". The final outlier appeared to be quite normal on all Internet activities except for pornography viewing time. These four outliers were removed from all further analyses. Next, potential gender differences on each of the measures were explored. Means for all major dependent measures are reported below in tables 3 and 6. A significant difference was found on the YII helping activities subscale, with females scoring higher than males, $t(368) = -2.675$, $p = 0.008$. A significant difference was also found in the total amount of time spent online, with males reporting higher levels of Internet use than females, $t(179.72) = -2.331$, $p = 0.021$[1]. In terms of specific online activities males reported significantly higher amounts of time spent on school/work email, work research, viewing pornography, reading online newspapers/magazines, updating personal websites, and banking (all t's > 2 and all p's < 0.05).

---

[1] Note: Levene's test for equality of variance indicated that the assumption of equal variance had been violated; therefore the adjusted t is reported (hence the reduced degrees of freedom).

For the purposes of comparison the means and standard deviations for the YII scores from a study involving over 880 senior high school students are provided in table 4 (Pancer, Pratt, & Hunsberger, 2000). As can be seen, the means for the present study are quite comparable to the means from the previous research. The range for the YII total scores for the present study was from 0 to 90 and the overall mean was 34.49 (SD = 18.49). In order to provide a sense of how participants scored in terms of level of involvement (e.g., high vs. low) the total YII scores were divided by the total number of items on the YII and then these averages were grouped according to the YII response format. In other words, this procedure allowed participants to be grouped in to no involvement (corresponds to "you never did this"), low involvement (corresponds to "you did this once or twice"), moderate involvement (corresponds to "you did this a few times"), high involvement (corresponds to "you did this a fair bit"), and very high involvement (corresponds to "you did this a lot"). This break down is provided below in table 5.

Table 3

Means of Major Dependent Measures broken down by Gender

Dependent Variable	Gender	
	Male	Female
YII Total	32.97 (18.70)	35.03 (18.36)
YII Political	0.49 (0.62)	0.39 (0.57)
YII Community	0.79 (0.67)	0.85 (0.62)
YII Responding	⏴ 2.04 (0.85)	1.97 (0.80)
YII Helping	1.36 (0.82)	1.62 (0.89) *
Volunteering Hours	2.03 (3.63)	2.34 (3.23)
Extraversion	51.44 (8.82)	51.63 (7.72)
Depression	35.63 (10.60)	36.02 (9.55)
TV Hours	6.93 (6.39)	6.61 (5.64)
Hours Online	11.81 (9.06)	9.54 (7.51) *

Note. Standard deviations are presented in parentheses. Means in each row that have a * differ significantly at the $p < .05$ level or higher.

Table 4

Means on Youth Inventory of Involvement from a Comparison Group of Senior High School Students Broken Down by Gender

Dependent Variable	Gender	
	Male	Female
YII Total	29.78 (17.45)	34.16 (18.33)
YII Political	0.37 (0.58)	0.33 (0.48)
YII Community	0.75 (0.66)	0.83 (0.68)
YII Responding	2.02 (0.81)	2.04 (0.86)
YII Helping	1.14 (0.77)	1.55 (0.86)

Note. Standard deviations are presented in parentheses.

Table 5

YII Total Scores Averaged and Broken Down by Overall Level of Involvement

Level of Involvement Participants	Averaged YII Total Score Range	Number of	
No Involvement	0	1	(0.3%)
Low Involvement	0.01 – 1.00	176	(48.2%)
Moderate Involvement	1.01 – 2.00	154	(42.2%)
High Involvement	2.01 – 3.00	34	(9.3%)
Very High Involvement	3.01 – 4.00	0	(0.0%)

Note. Percentages are presented in parentheses.

Table 6

Means of the 15 Internet Activities broken down by Gender

Dependent Variable	Gender	
	Male	Female
Social Internet Activities	**5.53 (5.23)**	**6.06 (6.67)**
Friend/Family Email	1.99 (1.79)	2.21 (2.15)
Friend/Family Chat	3.20 (4.56)	3.65 (5.18)
Stranger Chat	0.33 (0.63)	0.20 (0.64)
Work Internet Activities	**4.02 (4.60)**	**3.32 (2.87)**
School/Work Email	1.39 (1.77)	0.98 (1.65) *
School Research	1.88 (2.83)	2.08 (2.10)
Work Research	0.75 (1.82)	0.26 (0.93) *
Play Internet Activities	**4.28 (5.90)**	**3.09 (5.44)**
Playing Games	1.08 (1.79)	0.68 (1.95)
Videos/Music	2.27 (4.01)	2.33 (4.44)
Viewing Pornography	0.93 (2.66)	0.07 (0.23) *
Information Internet Activities	**1.98 (3.02)**	**0.75 (2.40)** *
Online Newspapers/Magazines	1.34 (2.34)	0.49 (1.55) *
Updating Personal Website	0.42 (1.16)	0.08 (0.37) *
Online Communities	0.21 (0.34)	0.18 (0.96)
Life Management Internet Activities	**2.09 (3.07)**	**1.09 (1.98)** *
Shopping	0.22 (0.43)	0.10 (0.47)
Banking	0.30 (0.39)	0.19 (0.31) *
Just Surfing	1.57 (2.79)	0.80 (1.73)

Note. Standard deviations are presented in parentheses. Means in each row that have a * differ significantly at the $p < .05$ level or higher. Social, work, play, life mgt., and information activities are groupings of different Internet activities and are further explained under the "types of Internet users" section of the results.

Total Time on the Internet

Here the hypothesis that youth who spend more time on the Internet will be less involved than youth who spend less time online was examined. In order to accomplish this, participants' scores on the Youth Inventory of Involvement were correlated with the total amount of time that they reported spending on the Internet per week. The resulting correlation turned out to be small and non-significant, $r(365) = -.019$, $p = 0.723$. I then explored the possibility that the relationship between the amount of time spent on the Internet and offline involvement may be non-linear in nature. Initial multiple regression indicated that a cubic model of time spent online best fit the data. Therefore, a series of five regression analyses was run with the YII total and each of the subscale scores as the criterion variables and age in years, gender, hours per week spent on the Internet, hours per week spent on the Internet squared, hours per week spent on the Internet cubed, hours per week spent in school, hours per week spent at work, and hours per week available for leisure as the predictor variables (see table 7).

As illustrated in table 7 the squared and cubed time spent online predictor variables were significant or marginally significant in all but one case (YII community subscale), providing evidence of a non-linear relationship between time spent on the Internet and involvement. The fact that the hours per week spent online squared and cubed terms are significant shows that that the relationship between time spent on the Internet and involvement is not linear, but rather that it develops at a non-constant rate of change and will have two bends in the line.

In order to further assess the non-linear relationship between time spent on the Internet and other variables I divided the sample into five groups based on the reported

time spent online per week. The groups consisted of roughly equivalent numbers of cases and were broken down as follows in terms of the ranges that they encompassed: less than an hour per week to three hours per week; four hours per week to six hours per week; seven hours per week to ten hours per week; eleven hours per week to fifteen hours per week; and sixteen hours per week to forty hours per week. ANCOVA and MANCOVA analyses were then run with the five groups of time spent on the Internet serving as the independent variable, the Youth Inventory of Involvement total scores serving as the dependent variable in the ANCOVA and the YII subscale scores serving as the dependent variables in the MANCOVA, and age, gender, hours per week spent in school, hours per week spent at work, and hours per week spent in leisure as covariates. The ANCOVA analysis was non-significant, however, the MANCOVA analysis was significant for the YII Helping Activities subscale, $F(4, 342) = 2.458$, $p = .045$. (See table 8).

In order to help better explain the relationship between time spent on the Internet and scores on the YII helping activities subscale a plot of the means is provided below (see figure 2). A clear 'M' shaped pattern can be seen, with those who are at either extreme in terms of spending very little time online or a great deal of time online demonstrating the lowest levels of helping behaviour.

While the other analyses were non-significant they did demonstrate the same type of pattern as that found in the YII helping activities subscale analysis, suggesting that the same type of relationship may be present. For example, the plot for the YII total score analysis is provided below in figure 3; note the essentially identical pattern of results.

Table 7

Regression Results for Total Time Analyses

Independent Variables	YII Total			YII Political			YII Community			YII Responding			YII Helping		
	beta	SE	p	beta	SE	p	beta	SE	p	beta	SE	p	beta	SE	p
Intercept	85.789	10.967	***	1.548	0.364	***	2.279	0.385	***	3.923	0.492	***	3.784	0.512	***
Age in Years	-2.821	0.542	***	-0.066	0.018	***	-0.075	0.019	***	-0.112	0.024	***	-0.121	0.025	***
Male (0 = female; 1 = male)	-1.235	2.064		0.124	0.068	†	-0.029	0.073		0.082	0.092		-0.237	0.095	*
Internet Hrs per week	1.315	0.797	†	0.042	0.027		0.012	0.028		0.057	0.036		0.075	0.037	*
Internet Hrs per week Sq.	-0.098	0.053	†	-0.003	0.002	*	-0.001	0.002		-0.004	0.002	†	-0.005	0.002	*
Internet Hrs per week Cu.	0.002	0.001	†	6.4E-05	0.000	*	7.1E-06	0.000		7.9E-05	0.000	†	9.2E-05	0.000	*
Hours in School per week	0.365	0.096	***	0.008	0.003	**	0.010	0.003	**	0.013	0.004	**	0.015	0.004	***
Hours at Work per week	0.099	0.084		0.004	0.003		0.004	0.003		0.003	0.004		0.003	0.004	
Leisure Hours per week	-0.211	0.069	**	-0.005	0.002	*	-0.008	0.002	***	-0.004	0.003		-0.010	0.003	***
n	348			356			351			355			355		
R^2	0.164			0.087			0.114			0.115			0.166		
F	8.313			4.149			5.488			5.611			8.618		

Note. Overall ANOVA's were all significant at $p < .001$. † $p < .07$. * $p < .05$. ** $p < .01$. ***$p < .001$.

Table 8

Means of the Time Based Groupings on the Measures of Involvement

Involvement Measure	Time Based Groups					F
	1 (N≈68)	2 (N≈74)	3 (N≈90)	4 (N≈58)	5 (N≈61)	
YII Total	32.32 (18.17)	35.76 (19.29)	34.74 (20.09)	38.19 (15.84)	31.78 (16.89)	0.92
YII Political	0.39 (0.66)	0.41 (0.56)	0.46 (0.59)	0.39 (0.51)	0.38 (0.57)	0.56
YII Community	0.82 (0.66)	0.82 (0.68)	0.84 (0.68)	0.92 (0.55)	0.81 (0.58)	0.18
YII Responding	1.89 (0.77)	2.04 (0.82)	1.96 (0.85)	2.16 (0.80)	1.81 (0.77)	2.06
YII Helping	1.39$_a$ (0.79)	1.65$_b$ (0.94)	1.52$_{abc}$ (0.92)	1.75$_{cb}$ (0.85)	1.40$_{ab}$ (0.80)	2.46*

Note. Standard deviations are presented in parentheses. F values refer to between group ANCOVA and MANCOVA comparisons on each profile variable based on N ≈ 351, * significant at the .05 level. Means in the YII Helping row that do not share a common subscript differ significantly from one another based on a post hoc test with a critical value of $p < .05$.

Figure 2

Plot of Means on YII Helping Activities Subscale

Internet Time Groupings
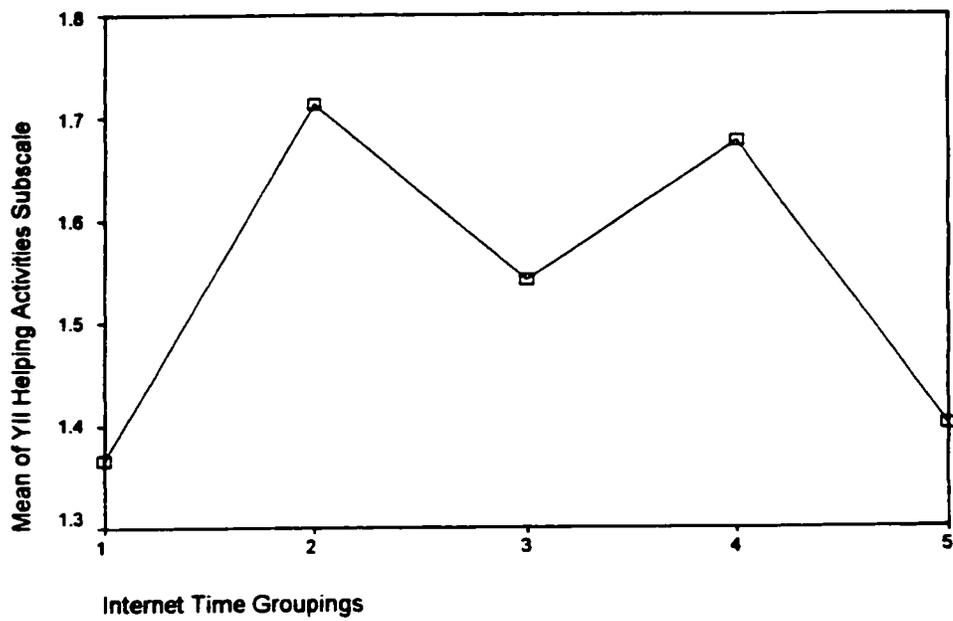
Figure 3

Plot of Means on YII Total Scale

Internet Time Groupings
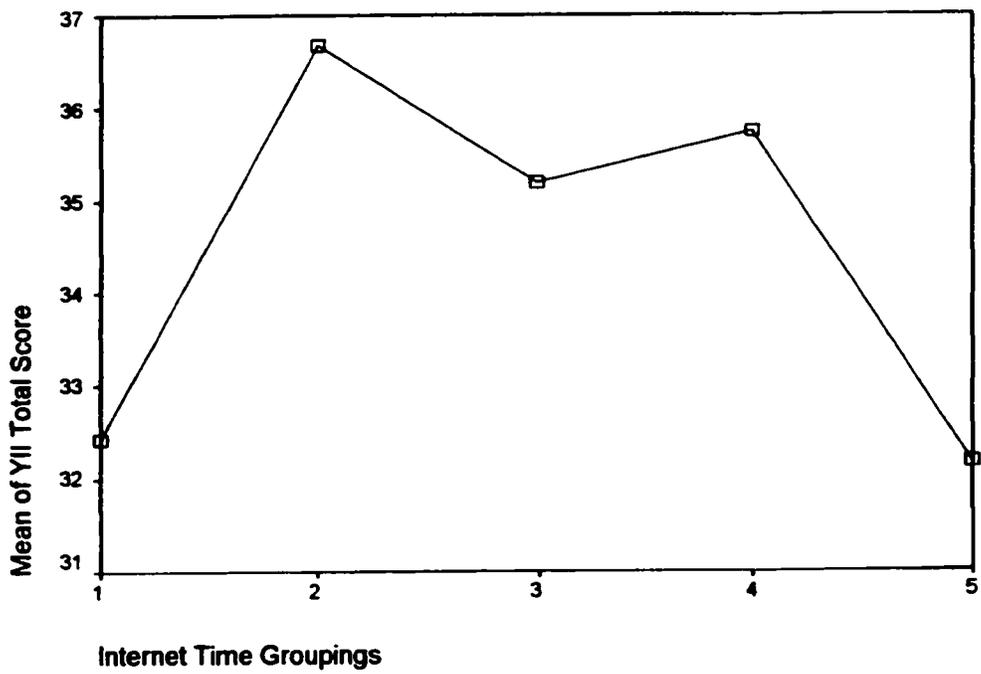
Patterns of Internet User

The next set of analyses was conducted in order to identify patterns of Internet use, and to further examine the link between Internet use and level of involvement (e.g., 'social' users would be more involved than 'passive' users). The first step was to group the different types of Internet activities based on a theoretical model. This grouping process resulted in the 15 different types of Internet activities being broken down into five equal groups. The five different groups break down as follows: Social Activities consists of friend/family email time, friend/family chat time, and stranger chat time; Work Activities consists of school/work email time, school research time, and work research time; Play Activities consists of game time, video/music time, and porn time; Life Management Activities consists of shopping time, banking time, and surfing time; and Information Activities consists of reading newspapers/magazines, communities time, and website updating time.

Next, I was interested in determining if the participants differed in their patterns of Internet use. A series of cluster analyses was run on the research participants, using the five Internet activity variables in order to examine the ways in which participants were systematically similar to and different from one another in patterns of Internet use.

The analyses were performed by clustering participants based on the amount of time per week that they spent engaged in each of the five groups of Internet use. Initially, the cluster analysis was performed using an agglomerative hierarchical algorithm with Ward's (1963) method of linkage, in order to identify the number of clusters of participants that best described the data. A tree plot indicated that five clusters best described the data. Thus, a second cluster analysis was subsequently computed using an

iterative algorithm specifying five clusters. This latter cluster analysis identified five distinct clusters of participants. Between-cluster differences were significant on all profile variables (see table 9 and figure 5).

The first cluster was distinguished by its high score on social Internet activities. This cluster was therefore labelled "social" and consisted of 19 cases, or 5% of participants. The second cluster did not stand out on any particular types of Internet activities; in fact it seemed to be quite average on all of the different uses. Therefore, the second cluster was labelled "moderate use" and consisted of 101 cases, or 27% of participants. The third cluster was distinguished by its high score on work Internet activities. Therefore, the third cluster was labelled "work" and consisted of 22 cases, or about 6% of participants. The fourth cluster scored the lowest on all Internet activities and was therefore labelled "low use"; this cluster consisted of 209 cases, or about 56% of participants. The fifth cluster was distinguished by its high score on play Internet activities and was therefore labelled "play". The fifth cluster consisted of 23 cases, or about 6% of participants. Figure 4 shows the proportion of participants belonging to each cluster and figure 5 presents the plot of means for each cluster.

Table 9

Means of Profile Variables for the Five Clusters

	Types of Internet Use Groups				
Cluster Label	Social Activities	Work Activities	Play Activities	Life Mgt. Activities	Information Activities
Social	23.53$_a$	5.47$_a$	5.61$_a$	1.71$_a$	2.76$_a$
	(7.96)	(3.15)	(5.67)	(2.00)	(6.87)
Moderate Use	8.30$_b$	3.08$_b$	4.34$_a$	1.61$_a$	0.84$_{bc}$
	(3.08)	(2.08)	(3.91)	(2.21)	(1.33)
Work	5.39$_c$	12.64$_c$	3.84$_a$	2.82$_{ac}$	3.18$_a$
	(3.49)	(4.65)	(4.02)	(5.11)	(4.47)
Low Use	2.31$_d$	2.38$_b$	0.91$_b$	0.79$_b$	0.59$_{cb}$
	(1.54)	(1.77)	(1.22)	(1.22)	(1.27)
Play	13.80$_c$	6.07$_a$	20.59$_c$	4.13$_c$	3.74$_a$
	(7.46)	(5.31)	(5.42)	(4.39)	(4.64)
F	241.13**	92.41**	224.43**	14.98**	15.08**

Note. Standard deviations are presented in parentheses. *F* values refer to between cluster ANOVA comparisons on each profile variable based on N = 374, ** significant at the .001 level. Means in each column that do not share a common subscript differ significantly from one another based on the Tukey test with a critical value of p < .05.

Figure 4

Pie Graph of Proportion of Participants in Each Cluster

Play (5)   Social (1)

                                                            Moderate Use (2)

Low Use (4)   Work (3)
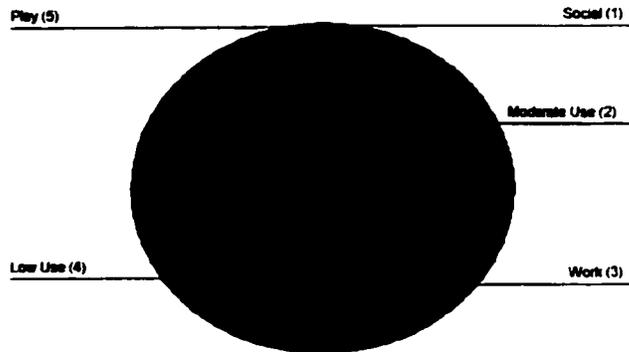
Figure 5

Plot of Means for Each Cluster

Plot of Means for Each Cluster
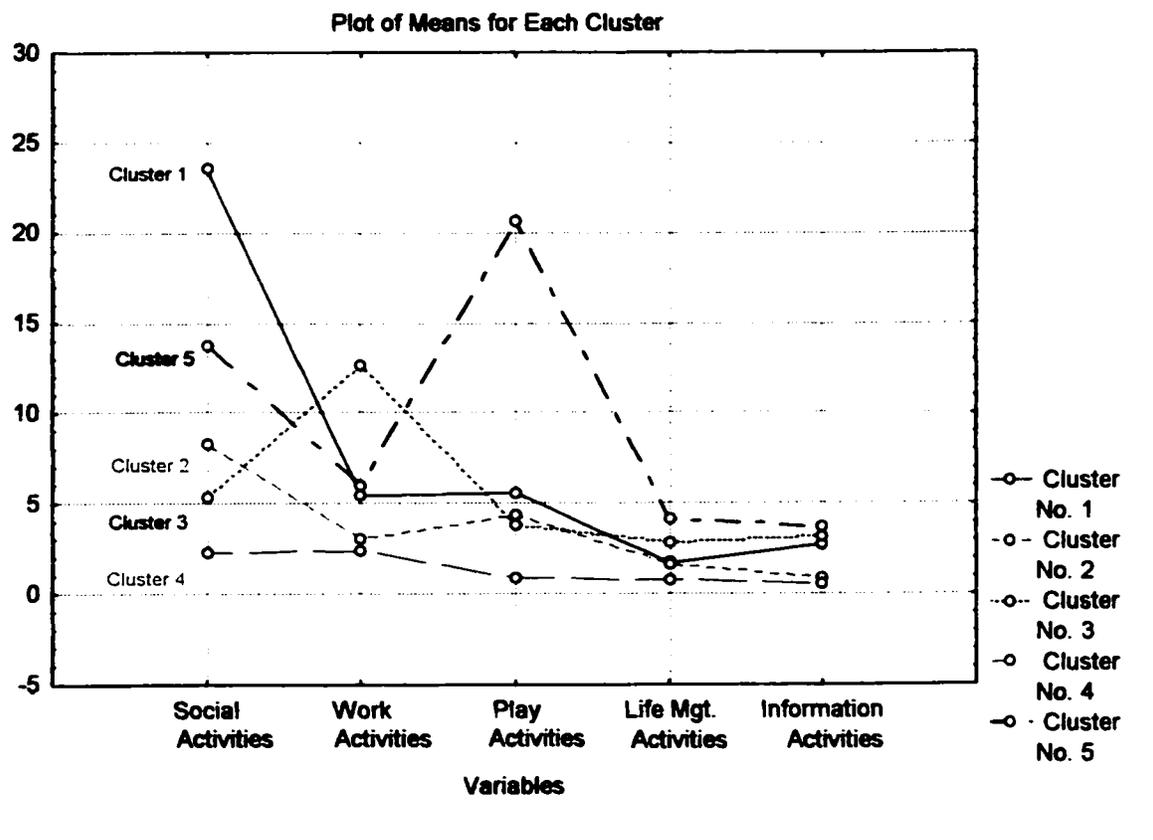
The clusters were then used in order to explore differences on the dependent measures of involvement and depression. Although ANCOVA analyses found no significant differences on the Youth Inventory of Involvement (all F's < 1.5 and all p's > 0.19), a significant difference was found on the amount of time spent volunteering per week. An analysis of covariance (ANCOVA) was run with hours per week spent volunteering as the dependent variable, cluster as the independent variable, and hours per week spent in school, work, and leisure as covariates in order to try to account for the amount of time individuals would have available for volunteer activities, F (4, 351) = 2.423, p = .048. Post hoc analyses revealed that the work cluster had a significantly higher level of reported volunteering than the rest of the clusters (see table 10 for means).

An identical ANCOVA, except with depression as the dependent variable, was also significant, F (4, 346) = 3.087, p = .016. Post hoc analyses revealed that the social and play clusters did not differ from one another; however they were both significantly higher in level of depression than the work and low use clusters (see table 10 for means).

A Deeper Look at Types of Online Activities

In order to further explore the relationship between the types of activities performed on the Internet and offline involvement another series of five regression analyses was performed. A model with the YII total and subscale scores as the criterion variables and age in years, gender, hours per week in school, hours per week at work, number of leisure hours per week, social Internet activities, work Internet activities, play Internet activities, life management Internet activities, and information Internet activities as the predictor variables was tested (see table 11).

Table 10

Cluster Means for ANCOVA Analyses

Cluster	ANCOVA	
	Volunteering	Depression
Social	1.33ᵦ (2.40)	40.83ₐ (9.57)
Work	4ₐ (6.66)	33.43ᵦ (9.37)
Play	1.43ᵦ (2.42)	39.76ₐ (9.67)
Moderate Use	2.16ᵦ (3.13)	36.98ₐᵦ (8.98)
Low Use	2.28ᵦ (3.10)	34.85ᵦ (10.12)

Note. Standard deviations are presented in parentheses. Means in each column that do not share a common subscript differ significantly from one another at the $p < .05$ level.

In terms of YII total scores it was found that age in years, leisure hours per week, and play Internet activities all contributed significantly to lower overall scores while hours per week in school contributed to higher scores. For YII political activities subscale scores it was found that age in years, leisure hours per week, and play Internet activities all contributed significantly to lower scores while hours per week in school, work Internet activities, and being a male all contributed to higher scores.[2] For YII community involvement subscale scores age in years and leisure hours per week contributed significantly to lower scores while hours in school per week contributed to higher scores. For YII responding behaviour subscale scores age in years contributed significantly to lower scores while hours in school per week and social Internet activities contributed to

---

[2] Note: The gender variable was marginally significant, $p = 0.09$.

higher scores.[3] Finally, for YII helping activities subscale scores age in years, being a male, leisure hours per week, and play Internet activities all contributed significantly to lower scores while hours in school per week contributed to higher scores.[4]

This model was further tested on time spent volunteering per week, depression level, and extraversion score as criterion variables (see table 12). In terms of time spent volunteering per week it was found that play Internet activities and being a male contributed to lower levels of volunteering while work Internet activities and life management Internet activities contributed to higher level of volunteering.[5] Looking at depression scores it was found that age in years contributed significantly to lower levels of depression while social Internet activities contributed to higher levels of depression. When it comes to extraversion scores social Internet activities and work Internet activities both contribute to higher levels of extraversion while information Internet activities contributes to lower levels of extraversion.[6]

---

[3] Note: The social Internet activities variable was marginally significant, $p = 0.08$.
[4] Note: The play Internet activities variable was marginally significant, $p = 0.06$.
[5] Note: The gender variable was marginally significant, $p = 0.07$.
[6] Note: The work Internet activities variable and the Info. Internet activities variable were both marginally significant, $p = 0.06$ and $p = 0.08$ respectively.

Table 11

Regression Results for Type of Activities Analyses

Independent Variables	YII Total			YII Political			YII Community			YII Responding			YII Helping		
	beta	SE	p	beta	SE	p	beta	SE	p	beta	SE	p	beta	SE	p
Intercept	88.157	11.29	***	1.741	0.371	***	2.430	0.395	***	3.780	0.506	***	3.831	0.528	***
Age in Years	-2.796	0.556	***	-0.070	0.018	***	-0.079	0.019	***	-0.102	0.025	***	-0.115	0.026	***
Male (0 = female; 1 = male)	-1.110	2.122		0.118	0.069	†	-0.041	0.075		0.105	0.095		-0.214	0.098	*
Hours in School per week	0.354	0.099	***	0.006	0.003	*	0.010	0.004	**	0.015	0.004	***	0.015	0.005	***
Hours at Work per week	0.073	0.083		0.002	0.003		0.003	0.003		0.003	0.004		0.001	0.004	
Leisure Hours per week	-0.208	0.069	**	-0.004	0.002	*	-0.008	0.002	***	-0.004	0.003		-0.010	0.003	**
Social Internet Activities	0.181	0.170		-7.2E-04	0.006		4.1E-04	0.006		0.013	0.008	†	0.012	0.008	
Work Internet Activities	0.372	0.306		0.022	0.010	*	0.005	0.010		0.005	0.013		0.010	0.014	
Play Internet Activities	-0.398	0.194	*	-0.013	0.006	*	-0.007	0.007		-0.012	0.009		-0.017	0.009	†
Life Mgt. Internet Activities	-0.043	0.423		-0.008	0.014		1.9E-04	0.015		0.005	0.019		0.001	0.020	
Info. Internet Activities	0.118	0.387		0.015	0.013		0.014	0.014		-0.015	0.018		-0.003	0.018	
n	348			356			351			355			355		
R^2	0.169			0.103			0.118			0.115			0.167		
F	6.843			3.945			4.559			4.458			6.882		

Note. Overall ANOVA's were all significant at $p < .001$. † $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 12

Regression Results for Type of Activities Analyses

Independent Variables	Volunteer Time			Depression Score			Extraversion Score		
	beta	SE	p	beta	SE	p	beta	SE	p
Intercept	4.134	2.127	*	55.427	6.274	***	59.210	5.214	***
Age in Years	-0.105	0.104		-0.949	0.308	**	-0.411	0.255	
Male (0 = female; 1 = male)	-0.712	0.398	†	0.361	1.182		0.440	0.976	
Hours in School per week	0.030	0.019		-0.028	0.056		0.005	0.047	
Hours at Work per week	-0.021	0.016		0.052	0.046		-0.013	0.038	
Leisure Hours per week	1.3E-06	0.013		-0.054	0.040		-0.039	0.032	
Social Internet Activities	-0.051	0.032		0.206	0.096	*	0.223	0.079	**
Work Internet Activities	0.158	0.055	**	-0.190	0.163		0.253	0.135	†
Play Internet Activities	-0.115	0.037	**	0.073	0.110		-0.068	0.091	
Life Mgt. Internet Activities	0.229	0.081	**	-0.199	0.239		-0.209	0.198	
Info. Internet Activities	-0.007	0.074		0.229	0.220		-0.319	0.181	†
n	357			352			355		
R^2	0.092			0.076			0.063		
F	3.488			2.787			2.301		

Note. Overall ANOVA's were all significant at $p < .01$. † $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

36

As a further check the five types of Internet use (social, work, play, life mgt., and information) were also correlated with all measures of involvement. A total of three significant relationships were found. Firstly, play Internet activities were found to be negatively correlated with time spent volunteering per week, $r(373) = -.112$, $p = .031$. Second, work Internet activities were found to be positively correlated with time spent volunteering per week, $r(373) = .139$, $p = .007$. Finally, work Internet activities were also found to be positively correlated with YII political activities subscale scores, $r(373) = .134$, $p = .01$.

Other Noteworthy Findings

In order to test Putnam's (2000) assertions about the relationship between television viewing and involvement a series of eight correlations was run. First, it was found that hours per week spent watching television increases with age, $r(374) = .196$, $p < .0001$ and also increases with the more leisure time available per week, $r(374) = .231$, $p < .0001$. Support was found for Putnam's assertions regarding the link between television viewing and involvement, as every measure of involvement was significantly negatively correlated with time spent watching television: YII total score, $r(365) = -.195$, $p < .0001$; YII political activities subscale, $r(373) = -.161$, $p = .002$; YII community activities subscale, $r(368) = -.137$, $p = .008$; YII responding activities subscale, $r(372) = -.128$, $p = .013$; YII helping activities subscale, $r(372) = -.191$, $p < .001$; and time spent volunteering per week, $r(373) = -.110$, $p = .034$.

Although previous research has found a negative correlation between time spent on the Internet and television viewing no such relationship was found in the present study, $r(374) = .011$, $p = .829$. However, significant relationships were found between television

viewing and specific Internet activities. Friend chat time was negatively correlated with TV viewing, $r(374) = -.144$, $p = .005$; reading online newspapers and magazines was positively correlated with TV viewing, $r(374) = .112$, $p = .030$; updating personal websites was negatively correlated with TV viewing, $r(374) = -.101$, $p = .050$; and surfing time was positively correlated with TV viewing, $r(374) = .215$, $p < .001$.

A total of 371 participants answered the question about regularly participating in an online community, with 335 or 89.6% saying they did not regularly participate in an online community and only 36 or 9.7% saying that they did. Virtual volunteering was even more rare with only 2 participants out of 370 (just 0.5%) saying that they have performed virtual volunteer work and the overwhelming majority, 368 participants or 99.5%, saying that no they have not. This demonstrates that in the present sample performing virtual volunteer work is almost non-existent, while participation in online communities occurs at a low level, with roughly 10% of participants reporting regular participation.

At the end of the questionnaire participants were asked to indicate their level of agreement (strongly disagree to strongly agree) with the following statement: When it comes to the types of things that you are involved in (e.g., volunteering, community activities, etc.), do you feel that these activities have an impact on your sense of who you are? In other words, do you think that the types of things you are involved in have contributed to you learning more about who you are and understanding yourself? Analyses indicated that participants who strongly agreed with the above statement also scored higher on the YII total and subscale scores and spent more hours per week volunteering. Means and F values are presented in table 13 below.

Participants were also asked to indicate their level of agreement with the following statement about their Internet use: How about when it comes to the types of things that you do on the Internet, or the experiences you have had via the Internet, do you feel that these activities have an impact on your sense of who you are? In other words, do you feel that these experiences have contributed to you learning more about who you are and understanding yourself? Analyses indicated that participants who strongly agreed with the above statement also spent a greater amount of total time online per week, and more specifically spent more time online devoted to leisure pursuits. Means and F values are presented below in table 14.

Table 13

Means on Measures of Involvement Grouped by Level of Agreement with Involvement Statement

	Level of Agreement					
Dependent Variable	S.D. (N≈13)	D. (N≈12)	N.A.D. (N≈103)	A. (N≈132)	S.A. (N≈108)	F
YII Total	31.00$_{ab}$ (11.87)	29.58$_{ab}$ (14.49)	27.58$_{a}$ (17.98)	33.49$_{a}$ (16.83)	43.01$_{b}$ (18.75)	10.57*
YII Political	0.30 (0.30)	0.36 (0.57)	0.38 (0.62)	0.36 (0.53)	0.54 (0.63)	1.82
YII Community	0.75$_{ab}$ (0.50)	0.76$_{ab}$ (0.65)	0.67$_{a}$ (0.63)	0.80$_{a}$ (0.58)	1.05$_{b}$ (0.66)	5.07*
YII Responding	1.98$_{ab}$ (0.73)	1.88$_{ab}$ (0.66)	1.75$_{a}$ (0.81)	1.95$_{a}$ (0.78)	2.29$_{b}$ (0.81)	6.30*
YII Helping	1.35$_{abc}$ (0.57)	1.19$_{ab}$ (0.77)	1.18$_{a}$ (0.79)	1.54$_{b}$ (0.78)	1.97$_{c}$ (0.93)	12.93*
Volunteer Hrs	1.23$_{ab}$ (1.42)	1.67$_{ab}$ (2.06)	1.61$_{a}$ (2.47)	1.83$_{a}$ (3.62)	3.48$_{b}$ (3.71)	5.75*

Note. Standard deviations are presented in parentheses. F values refer to between groups ANOVA comparisons on each profile variable based on N ≈ 368, * significant at the $p <$ .001 level. Means in the same row that do not share a common subscript differ significantly from one another based on the Tukey test with a critical value of $p < .05$. SD = Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, and SA = Strongly Agree.

Table 14

Means on Measures of Time Spent on the Internet Grouped by Level of Agreement with Internet Statement

	Level of Agreement					
Dependent Variable	S.D. (N=17)	D. (N=65)	N.A.D. (N=171)	A. (N=99)	S.A. (N=19)	F
Internet Time	5.59ₐ (4.11)	8.51ₐ (8.82)	9.52ₐᵦ (6.83)	12.14ᵦc (8.50)	16.79c (10.48)	7.50*
School/Work Internet Time	2.00 (2.00)	3.48 (0.57)	3.70 (3.35)	4.42 (4.41)	4.18 (2.65)	1.60
Leisure Internet Time	3.73ₐ (2.83)	4.93ₐ (6.03)	5.70ₐ (5.23)	7.35ₐ (6.39)	11.79ᵦ (10.28)	6.86*
Social Internet Activities	4.00ₐ (4.06)	4.71ₐ (5.74)	5.30ₐ (5.02)	7.12ₐᵦ (7.19)	11.02ᵦ (10.69)	5.72*
Work Internet Activities	2.15 (1.85)	3.34 (4.20)	3.63 (3.44)	3.67 (3.37)	4.13 (3.97)	0.90
Play Internet Activities	2.38ₐ (5.56)	3.33ₐ (6.42)	2.56ₐ (3.92)	4.37ₐ (6.08)	8.47ᵦ (9.30)	6.02*
Life Internet Activities	0.73ₐ (0.69)	0.93ₐ (1.31)	1.15ₐ (1.67)	1.86ₐᵦ (3.11)	3.18ᵦ (5.19)	5.14*
Info. Internet Activities	0.62ₐᵦ (1.05)	0.68ₐ (2.09)	0.99ₐ (2.45)	1.35ₐᵦ (1.87)	2.97ᵦ (6.95)	3.27*

Note. Standard deviations are presented in parentheses. F values refer to between groups ANOVA comparisons on each profile variable based on N = 371, * significant at the $p < .01$ level or better. Means in the same row that do not share a common subscript differ significantly from one another based on the Tukey test with a critical value of $p < .05$. SD = Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, and SA = Strongly Agree.

Discussion

With the Internet rapidly being adopted into the daily lives of citizens around the world it seems only appropriate that an attempt should be made to try and understand just what kind of a role it is playing in people's lives. A great deal of research has begun to explore the role of the Internet within society; however, this research has largely been focused on the adult population. Considering that young people are among the most frequent users of the Internet, as well as that people in their teens and early twenties are at a very important time when it comes to the development of identity and a sense of self, it seems particularly important to examine the role of Internet use in youth.

Exploring potential links between Internet use and offline activities has important implications for evaluating the potential benefits and downfalls of this new technology. Furthermore, it is important to begin to examine just how social interactions engaged in via the Internet may differ from real world interactions. Research has already shown that the kinds of activities that youth take part in and the peer group that they associate with can have a significant impact on the development of their self-concepts (e.g., Youniss, McLellan, & Mazer, 2001). Moreover, Pancer and Pratt (1999) postulate that youth volunteer activities can ultimately lead to the development of a "volunteer identity." Therefore, the present study is an important first step in beginning to explore what, if any, impact youths' Internet use may have on their development and how they behave in offline situations.

Some interesting trends in general Internet usage were found in the present study. For instance, participants reported spending twice as much time devoted to leisure Internet activities than school or work activities on average. The vast majority of participants

reported that they have been using the Internet for several years and 82% indicated that they access the Internet on a daily basis, with a further 16.1% reporting that they go online a few times a week. In line with previous research participants reported "home" as being the place that they spent the largest amount of time online.

The present study has demonstrated that links do in fact exist between Internet use and offline involvement, as well as between Internet use and depression. Contrary to the original hypothesis that increased amounts of time spent online would be correlated with reduced amounts of involvement, results from the present study indicate that there may be a non-linear relationship between the amount of time that youth spend online and their involvement in community activities. More specifically, the pattern seems to be that youth who are at the extremes in terms of Internet usage (i.e., spend very little time or a large amount of time online) are less involved in community activities than their peers who are more moderate in their Internet usage. A number of explanations for these relations are possible. For instance, when it comes to amount of time spent online and involvement two factors may be at work. It may very well be that youth who are low Internet users are simply uninvolved in practically everything and that the very high Internet users just do not have the time needed for other pursuits. Furthermore, it is possible that the types of things that people are involved with influence how much they use the Internet and what types of things they do online. A highly involved youth activist may have a limited amount of time available to use the Internet and when he or she gets the opportunity to he or she may focus his or her time on researching causes that are important to him or her. Another potential consideration is that individual personality differences may influence how much

and in what ways people use the Internet, as well as how much and in what they become involved.

Of even more interest are the findings around the different types of Internet users. In the present study the majority of participants fell into the low and moderate use categories; however, distinct groups of social, play, and work Internet users were also found. It was originally hypothesized that at least two groups of Internet users might be found and that they would fall under the categories of social and passive users. It was further hypothesized that social Internet users would demonstrate higher levels of involvement than passive Internet users. As it turned out the types of Internet users ended up breaking down into five groups instead of just two. While no significant differences were found between the five different types of Internet users on the Youth Inventory of Involvement measures in the initial analyses, further regression analyses revealed some interesting findings. For instance, play Internet activities were found to be related to reduced YII total and YII political involvement subscale scores, while work Internet activities were found to be related to increased YII political involvement subscale scores. In initial analyses a significant difference was found in the reported amount of time spent volunteering per week. Work Internet users reported spending more time volunteering per week on average than any of the other types of users. Subsequent regression analyses provided further evidence of a link between Internet activities and volunteering, with work Internet activities and life management Internet activities being related to higher amounts of volunteering and play Internet activities being related to reduced amounts of volunteering.

Even more intriguing is the finding that social and play Internet users demonstrated the highest levels of depression. Intuition would lead one to think that it makes sense for the play users to demonstrate higher levels of depression if they are withdrawn into a lonely online world of games and pornography, but why should the social users who are spending the majority of their time communicating with friends and family show an equivalent level of depression? Might it be because online communication is somehow less valuable than face-to-face interaction? Possibly. However, when one examines the groups of play and social Internet users more closely it becomes apparent that these two groups share another common characteristic: they both report the largest amounts of time spent online. Interestingly, when a median split is performed on participants based on the total number of hours that they report spending online per week and then these two groups are compared on the measure of depression a significant difference is found, $t(367)$ = -2.26, p = 0.02; with the group that spends more time online demonstrating higher levels of depression than the group that spends less time online, $M = 37.03$ ($SD = 9.39$) and $M =$ 34.73 ($SD = 10.18$) respectively. Further regression analyses indicated that increases in age relate to lower levels of depression, while social Internet activities relate to increased levels of depression. Therefore, contrary to some previous research, in the present study there does appear to be a link between some types of Internet use and depression.

A replication of previous findings that link television viewing with reduced involvement provided complete support for the past research; every measure of involvement was significantly negatively correlated with amount of time spent watching television, although the r values were relatively small. This finding is noteworthy because of the fact that it supports past research and also because it helps to demonstrate the

difference between Internet use and television viewing. In the present study there was no straightforward correlation between amount of time spent online and involvement; however, evidence of a curvilinear relationship was found. This helps to illustrate that Internet use is a far more complex and variable activity than television viewing and that it requires more detailed levels of study in order to help explain it.

Of course, the present study is not without its limitations. First, the correlational nature of the study makes it impossible to make any statements about cause and effect in the relations under study. It may very well be that people who are highly involved have less time available to use the Internet, instead of the other way around. It is also possible that people who demonstrate higher levels of depression spend more time online because they are not as willing or able to leave their homes and take part in outside activities due to their depression. So, while the present study has identified that relations do exist between Internet use, involvement, and psychological well-being, further work is needed in order to tease apart the directions of the relationships.

Secondly, another potential problem stems from the fact that the present study relies on participants' ability to accurately report the number of hours they spend on various activities in a typical week, a formidable task to say the least given people's tendency towards biased and imperfect memories of events. At worst this could result in a systematic bias in how much time people report spending on different activities (e.g., remember the active activities more than the passive activities) and at best this will just add to the error variance within the sample. Examination of the data does reveal that error variance increases as participants are asked to remember finer and finer details about how much time they spend on various activities and while there does not appear to be any

systematic bias in this reporting it is difficult to entirely rule out any potential bias due to the fact that some activities are more frequently engaged in than others.

Thirdly, because the study was carried out via the Internet it effectively excluded youth who do not use the Internet, making it impossible to examine any differences in involvement of non-users versus users. However, as noted in the introduction non-users have very quickly become the minority, with Statistics Canada reporting that nationwide 85% of youth between the ages of 15 and 24 use the Internet (Rotermann, 2001).

Fourth, web-based research has been challenged in terms of its validity and reliability. Critics have argued things such as that different results may be obtained through web-surveys due to the nature of the interface and that there are no guarantees that the person at the other end is who he or she claims to be. However, a growing body of literature on this topic indicates that web-based research gets at the same information as paper and pencil measures (McGraw, Tew, & Williams, 2000), allows for a much more robust and representative sample population compared to traditional university student populations (Schmidt, 1997), and can result in cost savings in terms of lab space, person-hours, etc. (Reips, 2000).

Finally, one very real methodological problem with a web-based survey is self-selection, in that youth who decide to complete the questionnaire may differ from youth who decide not to complete the questionnaire; a problem common to a great deal of both experimental and survey research. It may very well have been that I ended up with an abundance of people who are more helpful and involved actually filling out my survey. An attempt was made to try to reduce this possibility by offering incentives for completing the survey in the form of partial course credit for the psychology participation pool

participants and a draw for gift certificates for all participants. While I am not able to say with any certainty that these incentives were enough to entice those who normally wouldn't have taken the time to complete the survey into doing so, I am able to point out that the majority of participants fell into the low Internet use cluster and that just under half of the participants were at the bottom end of the scale on the Youth Inventory of Involvement as well. However, the generalizability of the results of this study could still be called into question due to the fact that the participants did not come from a random sample.

To summarize, the present study has made several important contributions to the body of knowledge about youth involvement and Internet use. First, a non-linear relationship between the amount of time spent online and involvement was identified, providing evidence that a link between Internet use and involvement in youth does in fact exist. Second, different types of Internet users were identified and were found to differ in other significant ways such as the amount of time they spent volunteering and their level of depression. Here specific types of online activities were found to be related to both involvement and psychological well-being. Third, the present study provides a great deal of information on what youth use the Internet for and how much time they spend online. Finally, a replication of previous research on the link between television viewing and involvement provided complete support for the assertion that television viewing is negatively correlated with involvement.

In conclusion, it is my sincere belief that this study has served as an excellent first step towards exploring the relationship between young people's use of the Internet and

their offline activities, a topic that I feel is of great relevance to a large number of Internet

users not only in Canada, but also to Internet using citizens around the globe.

Appendix A:

Internet Use Survey

If you are between the ages of 16-25 and live in Canada you are invited to participate in a research study. The purpose of this study is to explore the relationship between activities conducted on the Internet and activities conducted "offline" in the real world. Trevor Taylor, a graduate student at Wilfrid Laurier University, is conducting this study as part of a Master's thesis, under the supervisor of Dr. Mark Pancer.

INFORMATION

After you click the button below indicating that you agree to participate you will be given the option to enter your email address so that a session id can be sent to you in case you are interrupted or need to stop for some reason before you have finished the questionnaire. All email addresses collected will be stored in a separate database and a random draw will be conducted at the end of the study using the email addresses collected in order to award prizes as a thank-you for your participation.

The initial section of the questionnaire will ask you for some background information such as age, gender, highest level of education completed, province/territory of residence, etc. Next you will complete the Youth Inventory of Involvement, which contains a list of 30 school, community, and political activities that people can be involved in. You will be asked to indicate how often over the past year you have been involved with each of the 30 types of activities. This will be followed by a 15-item and a 26-item measure of how you generally behave in various situations and how you have felt recently. The final section of the questionnaire consists of 13 questions about your Internet usage habits such as the amount of time you spend online in the average week, etc.

It is expected that upwards of 300 youth from across Canada will take part in this study. The questionnaire should only take between 15 to 20 minutes to complete.

RISKS

At one point in the questionnaire you will be asked to evaluate your experiences and feelings from the past week, which may have a negative focus if it has been a bad week. Otherwise, there are no foreseeable risks or discomforts associated with participation in this study.

BENEFITS

Benefits from this study include helping to address a gap in knowledge surrounding the relationship between Internet usage and offline activities. You will also have the chance to win movie passes or music gift certificates as a thank-you for participating in this study.

CONFIDENTIALITY

At no point during this study will you be asked for any personally identifying information. Email addresses collected will be stored in a separate database from questionnaire responses and will be destroyed immediately after the draw has been conducted. Please

note that information submitted through the Internet may not be confidential while in transit. All information submitted will be stored on a secure server in a password-protected database. Once a sufficient number of people have completed the questionnaire the principal investigator will export all of the data into a statistical software package for analysis. All data collected will be reviewed and analysed by the principal investigator, Trevor Taylor, and his advisor, Dr. Mark Pancer. The data collected in this study will be used in the creation of a Master's thesis and may eventually be written up for publication in an academic journal as well. Only group statistics will be used in the publication of the research findings.

COMPENSATION

As mentioned previously, participants who choose to enter their email address at the beginning of the study will be eligible for a draw for movie passes and music gift certificates. The draw will take place approximately mid-to-late May, with a total of five prizes being awarded, the odds of winning will depend on the total number of eligible participants.

CONTACT

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study) you may contact the researcher, **Trevor Taylor**, at tayl7430@mach1.wlu.ca or (519) 884-0710 ext. 2983. You may also contact the researcher's advisor, **Dr. Pancer**, at mpancer@wlu.ca or (519) 884-0710 ext. 3149. This project has been reviewed and approved by the University Research Ethics Board. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Bill Marr, Chair, University Research Ethics Board, Wilfrid Laurier University, bmarr@wlu.ca or (519) 884-0710, extension 2468.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be destroyed. Should you choose to withdraw from the study prior to completion you will still be eligible for the draw so long as you submit the remainder of the blank questionnaire. You have the right to omit any question(s) you choose, although it is most helpful if you complete the questionnaire in its entirety.

CONSENT

I have read and understand the above information. I agree to participate in this study.

Background Information

Age: ____ (drop down menu ranging from 16-25)

Gender: Male   Female (radial button selection)

Province/Territory of Residence: ____(drop down menu of all Canadian provinces and territories)

Highest level of Education Completed: ____ (drop down menu of all options)

Present work/school status: ____(drop down menu of all options)

Number of hours spent in school per week: ___(drop down menus of all options)

Number of hours spent at work per week: ___(drop down menus of all options)

In an average week how much leisure time do you have available to you: ___ (drop down menu of hours)

How did you here about this survey: ___ (drop down of options as well as an 'other' slot)

Youth Inventory of Involvement

The following is a list of school, community, and political activities that people can get involved in. For each of these activities, please use the following scale to indicate whether, in the last year you,

0 – you never did this

1 – you did this once or twice

2 – you did this a few times

3 – you did this a fair bit

4 – you did this a lot

1. Visited or helped out people who were sick
2. Took care of other families' children (on an unpaid basis)
3. Participated in a church-connected group
4. Participated in or helped a charity organization

5. Participated in an ethnic club or organization

6. Participated in a political party, club or organization

7. Participated in a social or cultural group or organization (e.g., a choir)

8. Participated in a school academic club or team

9. Participated in a sports team or club

10. Led or helped out with a children's group or club

11. Helped with a fund-raising project

12. Helped organize neighbourhood or community events (e.g., carnivals, hot dog days, potluck dinners, etc.)

13. Helped prepare and make verbal and written presentations to organizations, agencies, conferences, or politicians

14. Did things to help improve your neighbourhood (e.g., helped clean neighbourhood)

15. Gave help (e.g., money, food, clothing, rides) to friends or classmates who needed it

16. Served as a member of an organizing committee or board for a school club or organization

17. Wrote a letter to a school or community newspaper or publication

18. Signed a petition

19. Attended a demonstration

20. Collected signatures for a petition drive

21. Contacted a public official by phone or mail to tell him/her how you felt about a particular issue

22. Joined in a protest march, meeting or demonstration

23. Got information about community activities from a local community information centre

24. Volunteered at a school event or function

25. Helped people who were new to your country

26. Gave money to a cause

27. Worked on a political campaign

28. Ran for a position in student government

29. Participated in a discussion about a social or political issue

30. Volunteered with a community service organization

In an average week how many hours do you spend volunteering or taking part in community service? (Drop down menu)

Are you required to take part in community service or volunteering (e.g., by your school, work, or parents)? (Yes or No radial buttons)

If you are required to take part in community service or volunteering, how many hours per week are you required to do? (Drop down menu)

Introversion/Extraversion Scale

Please indicate using the scale below, the extent to which you agree or disagree with the statements listed.

1 – Strongly disagree

2 – Disagree

3 – Neither Agree nor disagree

4 – Agree

5 – Strongly Agree

1. I don't usually like large parties. (R)

2. I often like to be alone. (R)

3. I would rather read a book than talk on the phone to a friend. (R)

4. I like to be in large groups of people.

5. I like to work where there is a lot of action and other people.

6. I prefer to do things by myself rather than in a group. (R)

7. I find it hard to talk to people that I have just met. (R)

8. I would much rather go to a party than stay home and watch a movie.

9. At parties I usually talk to as many people as I can.

10. In my spare time I like to go out and be around other people.

11. I don't like to be by myself for very long.

12. I'm not interested in meeting a lot of new people. (R)

13. I'm known as a friendly and outgoing person.

14. I would much rather go hiking in the woods than go to a busy beach. (R)

15. I really like to talk to most people that I meet.

CES-D

Below is a list of the ways you might have felt or behaved recently. Please indicate how often you have felt or behaved in these ways during the past week.

1 – Rarely or none of the time (less than 1 day)

2 – Some or a little of the time (1-2 days)

3 – Occasionally or a moderate amount of time (3-4 days)

4 – Most or all of the time (5-7 days)

1. I was bothered by things that usually don't bother me.

2. I did not feel like eating; my appetite was poor.

3. I felt that I couldn't shake off the blues even with help from my family or friends.

4. I felt that I was just as good as other people. (R)

5. I had trouble keeping my mind on what I was doing.

6. I felt depressed.

7. I felt that everything I did was an effort.

8. I felt hopeful about the future. (R)

9. I though my life had been a failure.

10. I felt fearful.

11. My sleep was restless.

12. I was happy. (R)

13. I talked less than usual.

14. I felt lonely.

15. People were unfriendly.

16. I enjoyed life. (R)

17. I had crying spells.

18. I felt sad.

19. I felt that people dislike me.

20. I could not get "going."

Additional positively framed items:

21. I felt as though I had accomplished a lot.

22. I was excited to wake up and start my day.

23. I enjoyed the company of friends.

24. I felt up to most any challenge.

25. I looked forward to interacting with other people.

26. I laughed a lot.

Internet Usage

How much time do you spend on the Internet in an average week: ____(drop down menu of hours)

Of the total amount of time that you spend on the Internet in an average week how much of that time would you say is work or school related: ___ (drop down menu)

Of the total amount of time that you spend on the Internet in an average week how much of that time would you say is just for fun or leisure: ___ (drop down menu)

How long have you been using the Internet: ___ (drop down menu of less than 1 year upwards)

How often do you go online: ____ (drop down menu of every day, a few times a week, once a week, a couple times a month, etc.)

Do you wish that you could spend more time on the Internet in an average week: (radial buttons for: Yes, No, Happy with current level of use)

How many hours of TV do you watch each week: ____ (drop down of hours)

Below is a list of places that you might access the Internet from, please select all that apply to you and indicate the number of hours you spend online at these locations in a typical week. (drop down menu for selection of hours)

1. At home.
2. At work.
3. At school.
4. At friend's or relative's house.
5. Via wireless devices (e.g., cell phone).
6. At public library.
7. Other.

Below is a list of things that you can do online, please select all that apply to you and indicate how many hours per week you spend on each of the relevant activities. (drop down menus for selection of hours)

1. Emailing friends and family
2. Sending/Receiving work or school related email
3. Chatting with friends and family
4. Chatting with strangers
5. Researching information for school
6. Researching information for work
7. Playing games
8. Watching videos or listening to music
9. Viewing pornographic material
10. Reading online newspapers or magazines
11. Updating personal website
12. Participating in online communities
13. Shopping
14. Banking
15. Just surfing
16. Other (please specify)

17. Other (please specify)

18. Other (please specify)

Online communities focus on a particular topic of interest (e.g., healthcare, tropical fishing, English literature, etc.), require users to have a login and password, and have an online chat feature or a message board.

Do you regularly participate in any online communities?

Yes   No

If yes, what type(s) of communities do you participate in: _____

Through the Internet people are able to volunteer their time from their own homes. This is called virtual volunteering, some examples are: conducting online research for an organization; electronically visiting someone who is homebound, in a hospital, in a rest home or in a remote location; making a website accessible for people with disabilities; and providing online mentoring and instruction.

Do you do any 'virtual volunteer' work?

Yes   No

If yes, what type(s) of virtual volunteer work do you do: _____

When it comes to the types of things that you are involved in (e.g., volunteering, community activities, etc.), do you feel that these activities have an impact on your sense of who you are? In other words, do you think that the types of things you are involved in have contributed to you learning more about who you are and understanding yourself?

Strongly Disagree   Disagree   Neither Agree nor Disagree   Agree   Strongly Agree

How about when it comes to the types of things that you do on the Internet, or the experiences you have had via the Internet, do you feel that these activities have an impact on your sense of who you are? In other words, do you feel that these experiences have contributed to you learning more about who you are and understanding yourself?

Strongly Disagree   Disagree   Neither Agree nor Disagree   Agree   Strongly Agree

Thanks for taking part in this survey!

Appendix B:

Part 2 of 5

2. Took care of other families' children (on an unpaid basis) 0 1 2 3 4

4. Participated in or helped a charity organization 0 1 2 3 4

6. Participated in a political party, club or organization 0 1 2 3 4

8. Participated in a school academic club or team 0 1 2 3 4

10. Led or helped out with a children's group or club 0 1 2 3 4

12. Helped organize neighbourhood or community events (e.g., carnivals, hot dog days, potluck dinners etc.) 0 1 2 3 4

14. Did things to help improve your neighbourhood (e.g. helped clean neighbourhood) 0 1 2 3 4

16. Served as a member of an organizing committee or board for a school, club or organization 0 1 2 3 4

18. Signed a petition 0 1 2 3 4

20. Collected signatures for a petition drive 0 1 2 3 4

22. Joined in a protest march, meeting or demonstration 0 1 2 3 4

24. Volunteered at a school event or function 0 1 2 3 4

26. Gave money to a cause 0 1 2 3 4

28. Ran for a position in student government 0 1 2 3 4

30. Volunteered with a community service organization 0 1 2 3 4

Save and Continue

Part 3 of 5

Please indicate using the scale below the extent to which you agree or disagree with the statements below.

Strongly Disagree
Disagree
Neither Agree
Agree
Strongly Agree

2	I often like to be alone	•	○	•	•	•
4	I like to be in large groups of people	•	•	•	○	•
6	I prefer to do things by myself rather than in a group	•	•	•	○	•
8	I would much rather go to a party than stay home and watch a movie	•	○	•	•	•
10	In my spare time I like to go out and be around other people	•	○	•	•	•
12	I'm not interested in meeting a lot of new people	•	•	•	○	•
14	I would much rather go hiking in the woods than go to a busy beach	•	•	•	○	•

Save and Continue

Part 5 of 5

	40 hours
	35 hours
	4 hours
	5 years
	every day
	6 hours

At home: 30 hours
At work: less than 1 hour
At school: less than 1 hour
At friends or other's house:
At public library:
Other:

Emailing friends and family: 2 hours
Sending/Receiving work-related email: 1 hours
Chatting with friends: 6 hours
Chatting with strangers: less than 1 hour
Researching information for school: 2 hours
Researching information for work: less than 1 hour
Playing games: less than 1 hour
Watching videos or listening to music: less than 1 hour
Reading online newspapers or magazines:
Updating personal website: 4 hours
Participating in discussion lists:
Shopping:
Banking:
Just surfing: 2 hours
Other (please specify):
Other (please specify):
Other (please specify):

Do you have a login and password to these online communities? ● Yes ● No
If yes, what type of community is it and is the patient: Taylor Family

Do you do any of this work outside of your home? ● Yes ● No
If yes, what type of work is it and where do you do it? Web design work

● Strongly Disagree ● Disagree ● Neither Agree nor Disagree ● Agree ● Strongly Agree

● Strongly Disagree ● Disagree ● Neither Agree nor Disagree ● Agree ● Strongly Agree

Save Survey

References

Cole, J. (2000). Surveying the digital future: The UCLA Internet report. Downloaded

from http://www.ccp.ucla.edu/pages/internet-report.asp. November 8,

2001.

Cole, J. (2001). Surveying the digital future: The UCLA Internet report 2001.

Downloaded from http://www.ccp.ucla.edu/pages/internet-report.asp.

November 29, 2001.

Conrad, D., & Hedin, D. (1982). The impact of experiential education on adolescent

development. *Child and Youth Services*, *4*, 57-76.

Cravens, J. (2000). Virtual volunteering: Online volunteers providing assistance to human

service agencies. *Journal of Technology in Human Services*, *17*, 119-136.

Eccles, J.S., & Barber, B.L. (1999). Student council, volunteering, basketball, or marching

band: What kind of extracurricular involvement matters? *Journal of Adolescent

Research*, *14*, 10-43.

Giles, D.E., & Eyler, J. (1994). The impact of a college community service laboratory on

students' personal, social, and cognitive outcomes. *Journal of Adolescence*, *17*,

327-339.

Hall, M., McKeown, L., & Roberts, K. (2001). *Caring Canadians involved Canadians:

Highlights from the 2000 national survey of giving, volunteering and

participating*. (Published by Statistics Canada). Ottawa, Canada: Minister of

Industry.

Katz, J. E., Rice, R. E., & Aspden, P. (2001). The Internet, 1995-2000: Access, civic

involvement, and social interaction. *American Behavioral Scientist, 45,* 405-419.

Kirkpatrick-Johnson, M., Beebe, T., Mortimer, J. T., & Snyder, M. (1998). Volunteerism in

adolescence: A process perspective. *Journal of Research on Adolescence, 8,* 309-332.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998).

Internet paradox: A social technology that reduces social involvement and

psychological well-being? *American Psychologist, 53,* 1017-1031.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002).

Internet paradox revisted. *Journal of Social Issues, 58,* 49-74.

McGraw, K. O., Tew, M. D., & Williams, J. E. (2000). The integrity of web-delivered

experiments: Can you trust the data? *Psychological Science, 11,* 502-506.

McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the

Internet for personality and social psychology. *Personality & Social Psychology

Review, 4,* 57-75.

Pancer, S. M., & Pratt, M. W. (1999). Social and family determinants of community service

involvement in Canadian youth. In M. Yates, & J. Youniss (Eds.), *Roots of civic

identity: International perspectives on community service and activism in youth* (pp.

32-55). New York, New York: Cambridge University Press.

Pancer, S. M., Pratt, M. & Hunsberger, B. (July 2000). The roots of community and political

involvement in Canadian youth. Paper presented at the Biennial Meeting of the

International Society for the Study of Behavioral Development, Beijing.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Touchstone.

Reips, U. D. (2000). The web experiment method: Advantages, disadvantages, and solutions. In M. H. Birnbaum (Ed), *Psychological experiments on the Internet* (pp. 89-117). San Diego, California: Academic Press.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385-401.

Rotermann, M. (2001). Wired young Canadians. (Published by Statistics Canada). Downloaded from http://www.statcan.ca/english/indepth/11-008/feature/star2001063000s4a01.pdf May 27, 2002.

Roth, J., Brooks-Gunn, J., Murray, L., and Foster, W. (1998). Promoting healthy adolescents: Synthesis of youth development program evaluations. *Journal of Research on Adolescence, 8,* 423-459.

Schmidt, W. C. (1997). World-wide web survey research: Benefits, potential problems, and solutions. *Behavior Research Methods, Instruments, & Computers, 29,* 274-279.

Teo, T. S. H., & Lim, V. K. G. (1998). Usage and perceptions of the Internet: What has age got to do with it? *Cyberpsychology & Behavior, 1,* 371-381.

The daily (July 26, 2001). Household internet use survey. (Published by Statistics Canada). Downloaded from http://www.statcan.ca/Daily/English/010726/d010726a.htm. October 10, 2001.

Ward, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association, 58,* 236-244.

Wastlund, E., Norlander, N., & Archer, T. (2001). Internet blues revisited: Replication and extension of an Internet paradox study. *CyberPsyhology & Behavior, 4,* 385-391.

Wellman, B., Haase, A. Q., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? *American Behavioral Scientist, 45,* 436-455.

Youniss, J., McLellan, J. A., & Mazer, B. (2001). Voluntary service, peer group orientation, and civic engagement. *Journal of Adolescent Research, 16,* 456-468.