CHAPTER 2

REVIEW OF LITERATURE

The Internet can be conceived as a rich, multi-layered, complex, ever-changing textual environment. It is a mechanism for information dissemination and a medium for collaborative interaction between individuals and their computers without regard for geographic limitation of space (Leiner et al., 2000; Singh, 2002). Content created on the Internet ranges from simple e-mail messages to sophisticated 'documents' (sites) incorporating sounds, images and words (Evans, 1996). The Internet is a 'live', constantly 'moving', theoretically borderless, potentially infinite space for the production and circulation of information.

During the past few decades, the Internet has become increasingly important in adolescents’ lives (Van der Aa, Overbeek, Engels, Scholte, Meerkerk, Regina & Van den Eijnden, 2009). Recent studies of Internet influence on behavioral disorders of its users, have created quite a polarized ambience. On the one hand, there are those who believe that the Internet is a new better medium for enabling various patterns of communication and social relations. On the other hand, others maintain that Internet use can lead to social isolation and other forms of psychological disorders, for an example depression (Mihajlovic et al., 2005).

This chapter reviews the topic pertaining to internet usage, internet dependency, internet addiction, loneliness and depression, social and psychological wellbeing. This chapter reviews the current literature pertaining to the present study under the following headings:

The present research can be broadly classified under the following categories,

2.1. New trends in communication
2.2. Internet usage
    2.2.1. Purpose of internet use
    2.2.2. Internet and adolescents
2.2.3. Statistics on Internet usage

2.2.4. Factors influencing internet usage

2.3 The Internet and Adolescent Social Development

2.4 Internet dependency and social factors

2.5. Internet dependency and psychological factors

2.6. High internet use and its consequences

2.7 Consequences of internet addiction

2.8. Interventions to reduce internet dependency

2.1. NEW TRENDS IN COMMUNICATION

Communication means the imparting or exchanging of information by speaking, writing, or using some other medium or sending or receiving information, such as telephone lines or computers.

Communication has changed a lot over time. In the beginning, cave paintings were used; they seem to be the oldest form of communication. After cave paintings it was sign language and then the most common way of communication, speech. As humans developed, our ways of communicating did too. We were able to communicate all around the world with postal services. The letters were written by hand and taken wherever they were addressed, although they did take some time to get there. Typewriters were then invented and many people began to use this tool for writing letters as well.

As more forms of communication came about, the postal service improved and even today, we use it frequently. Next, was the invention of the telephone. At first phones were large brick-like devices that were inconvenient and difficult to use. These then progressed into the cord phones in the 60s-80s. Finally, today, there are mobile phones and cordless home phones. There are also laptops and computers, internet and GPS navigation techniques which make communication a lot easier and faster. All of these inventions and developments have made communicating with loved ones very easy (The Development of Communication, 2012).
People in the 21st century cannot survive without technology. A handwritten letter sent in the mail paved the way for telephones, cellular phones, and even e-mail on the computer. From a mere pencil and paper came a typewriter, that has evolved into cordless personal computers that can fit on one's lap (Lewis, 2008).

As technologies advance, so do means of communicating. There is little face-to-face interaction with people because text messaging and calling others is much easier than going to see them. Instead of paying attention in school or taking notes during a class, students are texting each other, making plans for the weekend. Benefits such as low costs and convenience are not the only factors that influence our choice to use SMS, IM, Chat Rooms and E-Mail. Face-to-face communication also is being replaced by commenting and messaging on MySpace and Facebook, which are among the best-known social Web sites (The Development of Communication, 2012).

Over the last ten years, digital technologies have transformed our lives in ways that we now take for granted. In particular, information and communication technologies (ICTs) are seen to have had a profound effect on social relations, and many social theorists see them as a defining feature of modernity (Bauman 2004). Traditional communication boundaries of time and space, of producer and consumer have been crossed or blurred, as digital communication technologies, released from limits of physical space, demand a new way of visualizing communities, offer new possibilities for shaping identities and new ways of constructing community (Wyn, Cuervo, Woodman & Stokes, 2005).

Since the emergence of new technologies, conventional face-to-face interaction, while not yet obsolete, has been replaced by mobile technology and communication via the Internet as the most common form of communication in our global society.

**Communication through the use of the internet**

We sit in front of our computers at work, surf the net, send e-mails, play games on consoles, watch television that is both produced and, increasingly,
distributed digitally, read magazines and books all of which have been produced on computers, travel with our laptops, enter information into palmtops, talk on our digital mobile phones, listen to CDs or MP3s, watch films that have been post-processed digitally, drive cars embedded with micro-chips, wash our clothes in digitally programmable machines, pay for our shopping by debit cards connected to digital networks, and allow the supermarkets to know our shopping habits through loyalty cards using the same networks, withdraw cash from automatic telling machines, and so on. Digital technology’s ubiquity and its increasing invisibility have the effect of making it appear almost natural (Carrington & Marsh 2005).

Communication technology plays a vital role in the development of society. Vast amounts of data are transmitted in seconds, and Internet access offers unimaginably large amounts of information, data, and interpreted materials. As a powerful and dynamic tool for communication, it is the largest single source of information at the global level (Maheswarappa & Emmanuel, 2003).

There are a number of ways in which people can communicate using the internet. The most popular and the oldest is email. Other ways to communicate on the internet are by entering internet chat rooms, through social networking sites like Facebook and Tagged, and by MSN Messenger, which enables instant communication between people. People can also talk to each other with the aid of webcams, enabling the users to not only hear each other, but also to see each other while they are talking. Email is the oldest form of internet communication, having been launched in the 1960s. Initially the electronic mails could only be sent between users who were connected to the same computer and these were in the form of text files that were delivered to a mailbox.

Established only a few decades ago, the Internet is a system of enormous technical and social complexity. It comprises a gigantic but almost invisible universe that includes thousands of networks, millions of computers, and billions of users across the world (Greenfield & Yan, 2006).
Although little research has been conducted on the effects of the Internet on various aspects of human development, the role of computers and the Internet as a means for socialization, education, information access, entertainment, shopping, and communication is increasing dramatically. Many adolescents reportedly prefer being online to other media, including the telephone, TV, and radio. Given that so many adolescents are spending so much time on the Internet, it is essential to be aware of its impact on adolescent behavior, well-being, and development.

2.2 INTERNET USAGE AND ITS TREND

The Internet has become an indispensable part of contemporary work and social life (Wellman & Haythornthwaite, 2002).

Internet use is remarkably diverse, as it can involve various devices (such as computers and mobile phones), applications (such as web browsers and email clients) and activities. Yet until recently, studies of the Internet’s impact have been dominated by an aggregate approach that associates gross time spent online with various psychosocial outcomes, regardless of the specific online activities (Shklovski, Kiesler, & Kraut, 2006).

Peters and Lankshear (1996) asserted that while printed materials have a certain fixity and finitude, texts published via the Internet have a much more fluid character. With texts no longer housed between library or bookshop walls, it becomes impossible to 'pin down' all or even most of the available materials in given subject areas for archival and classification purposes. The Internet might thus be described as a 'sea of information', subject to the ebb and flow of various forces (political, corporate, institutional, etc.), creating an ever-shifting shoreline (Jagboro, 2003).

The World Wide Web (WWW) poses a distinct capability to offer interventions tailored to the individual's characteristics. To fine tune the tailoring process, studies are needed to explore how Internet accessibility and usage are related to demographic, psychosocial, behavioral, and other health related characteristics. Internet may be used as a forum for expanding social networks and consequently
enhancing the chance of meaningful relationships, self-confidence, social abilities, and social support (Campbell, Cumming & Hughes, 2006).

For a large proportion of Americans the Internet has become an integral part of everyday life (Hoffman, Novak & Venkatesh, 2004). According to a recent tracking survey by Pew Internet and American Life, nearly 70% of the US population reports using the Internet at least occasionally. The Internet is a plastic technology, amenable to many uses. Recent surveys of its daily uses indicate that services such as information seeking, consumption of news and media, shopping, entertainment and interpersonal communication are among the most popular of the myriad services available to users (Sproull & Kiesler, 1991).

Since it entered the popular culture in 1994, the World Wide Web has grown from approximately two million servers to more than 110 million in 2001, according to the Internet Software Consortium. Jupiter Media Metrix, an Internet research company, estimates that during this same period, the number of US home Web users has likewise increased from 3 million to more than 89 million (Montgomery, 2001).

In the decade since the Internet became available to both public and commercial interests and was made much more accessible through the Web and browsers, nearly two-thirds of the adult population in the US and over half the adult population in Britain has used the Internet to seek and receive information and communicate with others both known and unknown (Rice & Katz, 2003).

A study by Pokhrel, Sussman, Sun, Kniazer & Masagutov (2010) was based on a cross-sectional survey conducted on 2373, 7th grade students of various ethnic groups in Southern California. Measures of Internet use included Internet use at school or at home, Email use, chat-room use, and Internet favoring. The proportion of students who could access the Internet at school or home was 90% and 40%, separately. Nearly all (99%) of the respondents could access the Internet either at school or at home.
Teo (2001) demonstrated both intrinsic (i.e. perceived enjoyment) and extrinsic (i.e. perceived usefulness) motivation for the use of the Internet by the data collected from 1370 usable responses. An electronic Webpage survey was used to collect the data required for this study. The results of their study indicated that local Internet users used the Internet mainly because they perceived the Internet to be more useful to their job tasks and secondarily, because it is enjoyable and easy to use.

2.2.1 Purpose of internet use

Purpose of internet use for people 18 years and over using the internet anywhere include for school assignments, e-mail, chat rooms, playing games, take a course online, information on products or services, purchase products or services, news, weather, or sports information, viewing television or movies or listening to radio, telephone calls, information on health services or practices, information on government services or agencies, trade stocks, bonds, or mutual funds, bank online, search for a job etc (U.S. Census Bureau, Current Population Survey, 2001).

The Internet presents a challenge for Library and Information professionals in providing information services. The Internet has many resources that can be harnessed by academics for scholarly work. Use of the Internet is changing research, teaching, and learning. The expansion of available information brings increasing dependence on the source. Use of the Internet by research scholars is an important area of study in today's information environment. The Internet plays a pivotal role in meeting information and communication needs of academic institutions, since “it makes it possible to access a wide range of information, such as up-to-date research reports, from anywhere in the world. It also enables scholars and academic institutions to disseminate information to a wider audience around the globe through having web sites and a way to search them and organize the output” (Luambano & Nawe, 2004).

Internet users search the Web for important information, especially health or medical information, to make critical decisions, and the perception of how intimately
our lives are embedded in the Internet intersects with patterns of health information seeking online and the expected quality of health information websites.

People who often go to the Internet for health information and have high expectations of the value and quality of health information websites (especially in terms of reliability, relevance/context, and interaction) tend to be those who are more likely to perceive the Internet as playing an important role in life decisions or rate the Internet as more embedded in their lives (Leung, 2008).

2.2.2 Internet and adolescents

During the past few decades, the Internet has become increasingly important in adolescents’ lives. According to recent Dutch research, 99% of Dutch adolescents are actively using the Internet and 97% has Internet access at home (Van den Eijnden, Meerkerk, Vermulst, Sijkerman & Engels, 2008). The most popular Internet function among Dutch and American adolescents is online communication (Kraut et al., 2002; Valkenburg & Peter 2007; Subrahmanyam, Greenfield, Kraut, & Gross, 2001).

Easy and continuous access to the Internet provides tremendous opportunities for adolescent socialization, allowing them to connect with their peers as well as with complete strangers from across the world. Clearly, the Internet is transforming the social world of adolescents by influencing how they communicate, establish and maintain relationships, and find social support. Therefore, it is essential to gain awareness of both the potential benefits and risks of teen Internet use, and provide strategies to guide safe and positive practice.

As a complex medium of communication, the Internet provides the possibility of small, intimate social environments geared towards faster or “instant” communication. At the same time, the networks can be very large offering global access to its users. This global network allows for American teens to connect with those in Botswana or any “wired” area in the world. This propels the development of youth leadership, communication, socialization, information, and learning to an international scale. For example, teens in Accra, Ghana use the Internet as a source of
health information in order to gain the necessary information on both sexual and general health issues that they would probably not have access to in their own local environment (Cassell, Huffaker, Tversky, & Ferriman, 2006).

Research on American youth shows that the Internet serves as a powerful resource for information about socially sensitive topics such as sex and interpersonal relations (Suzuki & Calzo, 2004); it also serves as a community building tool providing information on civic engagement and political participation (Rainie & Horrigan, 2005).

Studies have shown that through Internet communication, youth are given the opportunity to exercise leadership skills and become stakeholders in communities that they themselves have created (Jackson et al., 2006). Some evidence suggests that Internet communication may be especially advantageous for shy, socially anxious, or marginalized youth, enabling them to practice social skills without the risks associated with face-to-face interactions (Heitner, 2002; McKenna, Green, & Gleason, 2002; Subrahmanyam, Greenfield and tynes, 2004).

In addition, free and sometimes anonymous communication through chat rooms, blogs, and IM pose risks to teens. Recent studies have shown that adolescents form virtual communities to support unhealthy behavior including self-injury and eating disorders (Whitlock, Powers & Eckenrode, 2006). Analysis of chat conversations suggests that chat participants often resort to the age/sex/location chat code to share identity information.

A nationwide poll showed that half of teens ages 13-18 often communicate through the Internet with someone they have not met in person; one-third have talked about potentially meeting someone face-to-face whom they have only met through the Internet (Polly Klaas Foundation, 2006). Further, almost 12.5% discovered that someone they were communicating with online was an adult pretending to be much younger. Fake identities are easy to produce and to sell on the Internet. Teens will often create personal pages where they can make up or post their real identities,
personal profiles, and pictures on websites such as Myspace and the Facebook. This poses a safety risk since it is difficult to discern someone’s “real” identity over the Internet.

In addition, a national poll revealed that 54% of girls reported they could be online without their parents’ knowledge and have been involved in some sort of cyber relationship (Girl Scout Research Institute, 2002). As long as this online culture grows in popularity and socializing continues to be a priority for teens, safety will be an issue. Moreover, creating fake identities deters from “real life” social situations as it allows for individuals to create any image of themselves with little or no social repercussions. Thus, although the Internet may serve as a catalyst for communication and may increase social competence of socially anxious teens, it may also encourage fake identities and a false image of real life situations. These socially anxious teens may have a tendency to resort to computer communication as a substitute for real life interactions (Subrahmanyam, Greenfield, Kraut, & Gross, 2001).

2.2.3 Statistics on Internet usage

Although the Internet has consistent positive impacts on modern society, it has also caused various societal concerns about privacy, security, pornography, Internet crime, and virtual community (Greenfield & Yan, 2006). Its easy accessibility poses greater risks and dangers for youth as compared to other forms of media. According to the National Altitudinal Poll, the number one media concern for parents has shifted from television to the Internet: 85% of parents reported that among all forms of media, the Internet posed the greatest risk to their children (Common Sense Media, 2006).

Parental concerns are valid, especially considering that teens are essentially free to view and post whatever they choose and communicate with whomever they want. Hand in hand with this, the Internet has become a highly effective and profitable means of distributing sexually explicit material, as well as a sophisticated channel for compulsive sexual behavior, sex trafficking, and sex crimes (Galbreath & Berlin, 2002).
According to a survey performed by the London School of Economics (2002), 90% of children between ages 8 and 16 have viewed pornography on the Internet. In most cases, the sex sites were accessed unintentionally when a child, often in the process of doing homework, used an innocuous word to search for information or pictures. Such free access and exposure to this information by adolescents who have not yet developed a full maturity could pose negative impacts on adolescent development and could potentially manifest in their social interactions with peers, their sexual activity, and their emotional development (Subrahmanyam, Smahel, and Greefield, 2006).

School and college going students contribute to more than 44% of all internet usage that happens in India. Overall 72% of young people access the internet on a regular basis of which 27% of them are college going students (A Report on Internet usage in India –2010).

According to the report released by market research firm IMRB and the Internet and Mobile Association of India (IAMAI), (2012), the total number of Internet users in India could reach the 150 million mark by December 2012, and the active Internet users during the same period would reach 111 million.
Internet usage globally has been on the rise with most of the growth has come from markets in Asia Pacific and Latin America. The chart below shows the growth in online population across regions from July 2011 to July 2012. The global online population as of July 2012 stands close to 1.5 billion users, growing at a rate of 7%. Among the Nations, Brazil Russia, China and India, India has been the fastest growing market adding over 18 million internet users and growing at an annual rate of 41%. India is also among the top 3 fastest growing markets worldwide in the last 12 months (State of E-commerce in India, 2012).
The 15+ age, home and work usage has been high in India with close to 50% user base accessing internet through shared devices and mobile. The time spent has increased by 33% with the user base spending 48 billion minutes online in a month. The consumption of content online has grown to 70 billion pages a month from 54.6 billion in July 2011.

With 75% of online audience between the age group of 15-34 years, India is one of the youngest online demographic globally. This is expected to be a continuing trend in coming years, given the age distribution in India. The age distribution has also contributed to consumption proportionally and its not surprising to see the growth
among categories focused on younger audiences in the last 12 months. Among the above age segments, 15-24 years of age group has been the fastest growing age segment online with user growth being contributed by both male and female segments. The top 5 popular categories accessed online are social networking, portals, search, entertainment and news sites (State of Ecommerce in India, 2012).

With the growth of 41% online users, India has seen a growth across demographic segments. 75% of total users between the age group of 15-34 years. In July 2012, the female population contributed to almost 40% of total users. The chart below shows a demographic segmentation based on age group and gender in India

![Demographic Segmentation](image)


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As it is clear with the statistics that the youth use the internet the most, especially college students. Therefore, it was necessary to study the internet usage levels among the college students and to identify the high internet users, for which a suitable education intervention could be designed to know the effect of psychosocial factors on the internet usage. Based on the above statistics, the investigator felt the need to study about internet usage among college going students.

2.2.4 Factors influencing internet usage

Adolescents’ Internet usage is simultaneously affected by variables such as demographics, personal characteristics and social interaction motives (Lee, 2005).

Many studies have tested to determine if certain demographic characteristics have an influence on adolescents’ Internet use (Calvert et al., 2005; Lenhart, Rainie & Lewis, 2001; Mesch, 2006; Subrahmanyam, Greenfield, Kraut, & Gross, 2000). Variables such as age, gender, socio-economic status, family functioning and communication are evaluated to see if they have an effect on levels of Internet use.

The Internet use is affected by users’ age. The Internet use is found to be higher among the youth. The Internet is diffusing from the young to the old, so the likelihood of using the Internet is negatively associated with age (Nie, 2001; Nie, Stepanikova, Pals, Zheng, & He, 2005; Zhixian, 2008).

The likelihood of any computer use increases with the child’s age (Calvert et al., 2005) meaning that children start using it at their early age, so adolescents represent a significant proportion of the Internet users in South Korea as elsewhere.

Gender has been shown to have a relationship with Internet use. According to Ono and Zavodny (2005)’s study, the US data from 2000 shows a slight gender gap in the Internet use although its gap has disappeared with time.
For the US adolescents, early studies reported that boys traditionally have been heavy users, so concerns about girls and their computer literacy skills have been raised (Subrahmanyam, Greenfield, Kraut & Gross et al., 2000). However, a gender divide between male and female in the US has been narrowing and the Internet use by adolescents particularly does not vary with gender (Lenhart et al., 2001; Subrahmanyam, et al., 2001).

Some researchers suggest that the gender difference in Internet use patterns are content dependent (Boneva & Kraut, 2002; Calvert et al., 2005). Boys are more likely to play games online and girls tend to prefer social communication (Lenhart et al., 2001; Subrahmanyam, et al., 2001). Thus, adolescents show no gender differences in their amount of time online but their choices of Internet activity differ for girls and boys (Gross, 2004).

Some studies have shown family socio-economic status (SES) to have relationships with the Internet use among children and adolescents. The relationship between household income and Internet use is significantly positive in the US (Zhixian, 2008), as is education (Calvert et al., 2005; Mesch, 2001; Nie, 2001).

Parental employment status and other SES indicators may also be related to children’s Internet use, but their effects are unclear. For adolescents’ development and well-being, family interpersonal relationships play an important role. Family structure and family support has been studied to understand its relationship with adolescents and the Internet use.

Calvert et al. (2005) found that living in a two-parent household is positively associated with the Internet access. Living in a two-parent household is negatively related to children’s heavy Internet use (Hur, 2006) or may not be a significant factor (Subrahmanyam, et al., 2001). Rhee and Kim (2004) found that the number of Internet users and social support among family members have significant effects on the adoption of the Internet.
Teo (2001) studied the demographic variables, motivation variables and activities associated with Internet usage (defined in terms of messaging, browsing, downloading and purchasing). A total of 1,370 usable responses were obtained using a Web page survey and the results showed that males are more likely to engage in downloading and purchasing activities while females are more likely to engage in messaging activities. Younger users engage in messaging and downloading activities to a greater extent than older users and perceived ease of use and perceived enjoyment are associated with messaging, browsing and downloading activities. The Internet is an important tool in assisting the older population to lead independent and social lives. However, the majority of Internet users are under 55 years of age.

A study by Adams (2001) investigated 23 subjects (aged 55–75 years) interviewed in the UK on the following psychological barriers to Internet use by older adults: perceived usefulness, perceived ease of use, Internet efficacy, perceived complexity of navigation and perceived complexity of terminology. The influences of age, computer and Internet experience, and training on these psychological barriers were explored. Their results showed that the majority of the older adults who had a positive perception of usefulness, ease of use, and efficacy of the Internet or e-mail, used the Internet or e-mail more often.

In addition, it was found that computer or Internet experience increased perceptions of ease of use and efficacy of the Internet and reduced perceived complexity of navigation. There was no difference between the two age groups (55–65 and 66–75 years) in these psychological barriers. It was concluded that increased marketing of the Internet (aimed at the older user), simpler and uniformly designed Internet pages, more user-friendly online help and error message terminology, and increased provision of training for the older user would assist uptake of the World Wide Web (Adams 2001).

Tao, Huang, Wang, Zhang, Zhang, & Li. (2010) explored the relationship between 294 undergraduates' psychological and behavioral characteristics of their Internet use and their characteristics of Internet dependence through interview and
questionnaire. The results show that there are gender and grade differences in undergraduates' psychological and behavioral characteristics of Internet use. Also a significant positive correlation between time spent on Internet use and Internet dependence was observed. The findings of this research can help undergraduates use Internet scientifically so that possible negative effects caused by Internet use can be avoided.

Porter and Donthu (2005) used an extended version of the technology acceptance model (TAM) to explain that despite the fact that most Americans use the Internet, those who are older, less educated, minority and lower income have lower usage rates than younger, highly educated, white and wealthier individuals.

There is a well-documented “digital divide” in internet connection. In a study by Goldfarb, Avi and Prince (2007), a survey of 18,439 Americans reported that high-income, educated people were more likely to have adopted the internet. However, conditional on adoption, low-income, less-educated people spend more time online.

The gap between Internet users and nonusers is associated with income and age, but no longer with gender and race, once other variables are controlled Rice & Katz (2003).

Past research on Internet dependence has suggested that those who are Internet dependent spend more time on-line, use chat rooms more frequently, play MUDs more often, and web surf more than nondependent Internet users, but few studies have examined how personality characteristics interact with Internet dependence Lavin, Marvin, McLarney, Nola & Scott, (1999).

Pokhrel, Sussman, Sun, Kniazer and Masagutov (2010) suggested that the Internet is already a potential venue for large scale health communication studies. Adolescents with more psychosocial risk factors or detrimental health behaviors were more likely to use the Internet. Therefore, if used properly, Internet interventions could effectively address the high risk populations.
Nachmias, Mioduser and Shemla (1999) examined the extent and characteristics of Internet usage among 384 junior-high and high school students in Israel. Its focus is on the purpose and patterns of Internet usage by twelve- to eighteen-year-old youngsters, and on the linkage between Internet usage and school activities. The findings show that the Internet is being used by about half of the research population, with the main use being for communication.

Stern (2008) explored the modes of communication rural individual’s use most often with their three closest friends and how these modes of communication vary by three factors: (1) social tie locality, (2) frequency of communication, and (3) degree of Internet usage. Using a 2005 random sample mail survey of 1,315 residents in an isolated region of the Western United States, the results show that people actively use email to maintain core social networks, particularly when alters live at a distance. However, contradictory to previous research, the results suggest that increases in Internet usage are associated with decreases in other modes of communication, with proficiency of Internet use serving as a mediating factor in this relationship.

Lavin, Marvin, McLarney, Nola and Scott (1999) investigated how Internet usage, preferences, attitudes toward the Internet, and Internet behaviors are correlated with sensation seeking. It was predicted that participants who were higher in Internet usage and Internet behaviors would be higher in sensation seeking. Results indicated that Internet dependents tended to spend more time online, use E-mail, surf the web, use chat rooms, use MUDs, and visit cybersex sites more often than nondependent Internet users. However, dependents scored significantly lower on sensation seeking, thrill and adventure seeking, and excitement seeking than nondependent Internet users. It was concluded that dependents interact with the internet using a motivation scheme dissimilar to the physical thrill and excitement that typically characterize sensation seeking archetypes.

Many researchers have studied to see if the personality and other personal characteristics are relevant factors in determining use of the Internet (Gross, Juvonen, & Gable, 2002; Hamburger & Ben-Artzi, 2003; Kraut et al., 1998; McKenna, Green,
& Gleason, 2002). They have found that Internet use does not affect every adolescent in the same way (McKenna & Bargh, 2000). With personality factors, differing needs may contribute to using the Internet for different reason (Amichai-Hamburger, 2002).

Accordingly, aspects of psychological well-being, including social anxiety, loneliness, depression, self-esteem, and life satisfaction have been tested to see if they have any relationship with Internet use. Swickert, Hittner, & Herring (2002) found that high computer use combined with high levels of neuroticism was associated with decreased perceptions of social support.

Kraut, Kiesler, Boneva, Cummings, Helgeson and Crawford (2002) reported that introverts who use the Internet more become lonelier. The reverse was found for extroverts, more Internet use was related to increased well-being. These results support significant correlations between personality characteristics and the Internet use. Also, studies of the impact of different personality traits on Internet use have shown contributions to the well-being in many ways.

Daily well-being has been tested by measurement of the personal characters of social isolation, loneliness and depression (Gross, Juvonen & Gable, 2002; Gross, 2004). The HomeNet study conducted by Kraut et al. (1998) is the most well-known study in which Internet use is related to declines in psychological and social well-being. Their study of 169 people in 73 US households in 1995 to 1996 found that the greater use of the Internet was associated with increases in depression and feelings of loneliness. This finding was consistent with the study by Amichai-Hamburger and Ben-Artzi (2003) that the Internet use increases loneliness among women.

Similarly, adolescents who reported feeling more loneliness and/or social anxiety in school are more likely to use the Internet, particularly communicating with strangers online (Gross et al., 2002). Those who feel more isolated and lonely use the Internet as a means of expressing their true selves and also develop close and meaningful relationships online (McKenna & Green, 2002). Thus, the Internet may be more beneficial for socially anxious and isolated people, suggesting that developing
intimate relationships online may be more comfortable for them than offline (Kraut et al., 2002).

In contrast, McKenna et al. (2002) found that Internet use reduces feelings of loneliness by increasing users’ social circles and helping them become less socially anxious. In the Kraut et al. (2002) follow-up to the HomeNet sample study, Internet use was not associated with loneliness but increased stress was related to greater Internet use. In their follow-up study from 1998-99, 406 individual computer and television purchasers from 216 households (above age 10) had shown positive effects on communication, social involvement, and psychological well-being with the more use of the Internet (Kraut et al., 2002).

Bessiere, Kiesler, Kraut and Boneva (2008) argued that people’s levels of depression was associated with the Internet but social effects of Internet use were quite different depending on ways of using the Internet and on their existing social resources like family and friends. The conflicting results from studies examining a relationship between people’s hours online and depression suggest that it remains unclear.

The possible consequences for self-esteem associated with Internet use have been tested in previous studies. Mesch (2006) suggests that self-esteem has negatively correlated to nonsocial use of the Internet, such as searching information and entertaining and higher Internet use was related to decreased levels of self-esteem (Kraut et al., 1998). But, some studies have found that higher Internet use contributes positively to self-esteem (Kraut et al., 2002; McKenna et al., 2002), if adolescents use the Internet for communicating with friends and/or peer interactions (Gross et al., 2002). In Ellison, Steinfield and Lampe (2007)’s study of 286 undergraduate students (mean age=20.1 years) who are social network site (e.g., Facebook) users, intensive use of Facebook was beneficial to gain social capital for those who reported low self-esteem by helping them to get more information and opportunities for connecting with existing offline contacts, so it did increase self-esteem.
Life satisfaction or quality of life measures can also indicate daily subjective wellbeing because they are self-judged reports which are highly consistent and reliable (Diener, Horwitz & Emmons, 1985). A higher score on the life satisfaction scale is shown to be related to greater well-being (Gross, 2004) and it correlates moderately or highly with other measures of subjective well-being (Diener, Horwitz & Emmons, 1985) such as loneliness and social anxiety. The Internet users who were less satisfied with their lives had greater likelihood of using the Internet (Papacharissi & Rubin, 2000). The study by Ellison, Steinfield and Lampe (2007) supported a “poor get richer” hypothesis that online social networks use is beneficial for those with low life satisfaction at their school by getting more out of their college experience.

Conversely, Internet activities are negatively associated with life quality in the study by Leung and Lee (2005) of 1192 respondents in Hong Kong of 2002. Weiser (2001) also found that increased social integration by the practical use of the may have a beneficial effect on psychological well-being, whereas social-oriented Internet use has a negative association with general well-being as measured by loneliness, depression and life satisfaction.

Some researchers did not agree with any link between Internet use and well-being. McKenna and Bargh (1999) found in their early survey that the Internet use was not related to increased levels of loneliness or depression. Several studies also found no associations between the Internet use and measures of adolescents’ well-being (Gross, 2004; Gross et al., 2002).

Scholars have also studied whether Internet use by adolescents has a relationship with academic achievement. Enhancing school performance and competitiveness encouraged Taiwanese adolescents to use the Internet (Yen & Yen, 2007). Children and adolescents frequently use the Internet for academic purposes, and parents in the US believe computers are important educational tools (Lenhart, Rainie & Lewi, 2001). Indeed, Internet use arouses intellectual curiosity and other relating motivations that lead children to use other media more (Lee & Kuo, 2002). Accordingly, levels of school performance can be related to the Internet use. Internet
use has been linked to mildly positive effects on academic performance in the US data (Subrahmanyan, et al., 2001).

2.3 THE INTERNET AND ADOLESCENTS SOCIAL DEVELOPMENT

Three central tasks are integral to healthy social development during adolescence: (a) to establish caring, meaningful relationships; (b) to find acceptance and belonging in social groups; and (c) to establish interpersonal intimacy (Baumeister & Leary, 1995; Reis & Shaver, 1988; Sullivan, 1953). Peers play a crucial role in this process, because a positive relationship with peers is important for psychological well-being and social adjustment (Bishop & Inderbitzen, 1995; Hartup, 1996), whereas peer rejection is linked to serious problems, including delinquency, drug abuse, and depression (Hartup, 1996; Merten, 1996).

Early studies of the influence of online interactions on adolescent development suggested that high levels of Internet use may inhibit healthy social development by linking frequent use to social isolation and depression, especially among teenagers (Kraut et al., 1998; Nie & Erbring, 2000). However, these findings have been disputed. A follow-up study conducted by Kraut et al. (2002) found that the effects documented in their earlier study had largely dissipated. They did find, however, that effects of Internet use on depression differed for introverts and extroverts: Extroverts were more likely to feel greater social connection as a result of Internet use, whereas introverts became more depressed and withdrawn.

Heitner (2002) found that adolescents who use the Internet to connect with others in real-time social exchanges tended to possess higher peer status, more social skills, and greater social integration than their more socially introverted and withdrawn peers, who spent most of their Internet time in solitary activities. Additionally, adolescents who used chat rooms exhibited lower peer status and had fewer social skills than those who did not. Similarly, Gross, Juvonen and Gable (2002) found that teenagers with strong social connections use e-mail and IM to reinforce preexisting bonds, whereas those with less developed social networks use
the anonymous features of the Internet to find new friends and social outlets, perhaps compensating for what they lack offline. This suggests that chat rooms and similar venues in which adolescents share experiences anonymously may provide a safe forum for less socially adept adolescents to practice social interaction.

Research finds that online exchange decreases social isolation among adolescents and helps them connect with people and explore their identity (Maczewski, 2002; Suzuki & Calzo, 2004). This helps to explain how the Internet may serve as a virtual peer support group where adolescents under stress can express feelings and exchange information about modes of coping. Adolescence is also a time of increased feelings of distress (e.g., depressed mood) and increased access to modes of coping with stress that are independent of parents (Arnett, 1999; Compas, 1987; Petersen, Kennedy & Sullivan, 1991).

To the extent that Internet use can reduce feelings of social isolation, help normalize feelings of distress through a process of self-disclosure and social comparison, and serve as a venue for giving and receiving social support, it may also provide a positive coping resource for distressed youth. Alternatively, Internet use may maintain or increase distress if the information exchanged reinforces negative views of self or suggests destructive or otherwise ineffective coping strategies (Whitlock, Powers & Eckenrode, 2006).

Increased e-mail and chat room/instant messaging (IM) hours are associated with decreased depressive symptoms, while increased Internet hours for shopping, playing games, or research is associated with increased depressive symptoms (Morgan & Cotton (2003).

2.4 INTERNET DEPENDENCY AND SOCIAL FACTORS

Besides a growth in media use, many changes occur in social circles in the life stage of adolescence, and time spent with friends exponentially increases for this age group. Therefore it is hardly surprising that the development of social relationships is one of the significant issues.
Because adolescents use the Internet for the purpose of connecting with others at higher rates than any other age group (Lenhart, Rainie & Lewis, 2001), a better understanding of how Internet use affects their social and emotional development is an important line of scientific inquiry.

Indeed, a small but growing body of research is beginning to examine the implications of various electronic forums for social interaction (e.g., chat rooms, news groups, message boards) on adolescent behavior (Gross, 2004).

A considerable body of literature has reported the effects of Internet use on social interaction (Shklovski et al., 2004). The Internet may have particular relevance for adolescents who feel marginalized, because it provides a low-risk venue for finding others who share their perceived or real differences and exchanging information that is difficult to convey in person or when using one’s real identity (McKenna & Green, 2002).

Because the Internet is a source of social control, social support, and benefits through social networks, its use by the youth is a public concern. It is important to have friends because adolescents begin to learn a social technique which evaluates a social support group and their own position within peer group at once, and they would become the primary source of social support (Newman & Newman, 2008). Children’s interpersonal skills, their self-evaluation and social competence are impacted by interactions in a bigger social circle (Dworetzky, 1996).

Once connected, adolescents engage in a wide variety of activities, including doing schoolwork, playing games, shopping, and downloading music. Research shows, however, that adolescents use the Internet primarily for social reasons (Gross, 2004; Roberts, Foehr, & Rideout, 2005). The Internet has become a virtual meeting place where teens hang out with their peers to pass time. The 2002 Gallup Survey found that many adolescents prefer being online to other media, including the telephone, TV, and radio (Heitner, 2002).
It is argued that "chat" users who are socially fearful may be using the Internet as a form of low-risk social approach and an opportunity to rehearse social behavior and communication skills, which, may help them improve interaction with offline, face-to-face, social environments (Andrew, 2006). Individuals who lack self-presentational skill are especially likely to prefer online social interaction over face-to-face communication (Caplan, 2002).

According to data from the Pew Internet and American Life Project (Lenhart et al., 2005), the vast majority (89%) of teens use e-mail and 75% use instant messaging (IM), which allows them to have multiple simultaneous conversations with a defined group of peers. More than 50% of teens possess more than one e-mail address or screen name, which they can use to send private messages to friends or to participate anonymously in online forums, such as chat rooms (Lenhart et al., 2001).

Making friends through the Internet has become a popular activity among adolescents, potentially leading to its excessive use (Lin, 2001). The Internet has the potential to empower or isolate. Shyness and anxiety may potentially influence the extent to which people avail themselves of Internet services such as email, chat rooms, information searches, entertainment, and commerce (Scealy, 2004).

In a study by Scealy (2004), to understand how personality moderates Internet usage, 177 participants completed an Internet Use Survey, the Social Reticence Scale, and a Trait Anxiety Inventory. The study proved that the use of email and chat-rooms was not related to shyness or anxiety, suggesting that shyness or anxiety does not pose an obstacle to these Internet applications. Males were more likely to use the Internet for downloading entertainment. Shy males were more likely to use the Internet for recreation/leisure searches. Highly educated males were more likely to use the Internet for banking and paying bills. Although shyness or anxiety does not seem to modify the communicative functions of the Internet, it may influence people's use of other recreational applications.
One important implication of the internet’s migration to homes and its predominant use for communication is that it could change people’s social interaction with their closest ties. Social interaction with family and friends is one of life’s most pleasant experiences (Robinson & Godbey, 1999).

It helps fulfill people’s need to belong and often leads to feelings of closeness (Baumeister & Leary, 1995). to perceptions of social support (Gottlieb & Green, 1984; Peirce, Frone, Russell, Cooper & Mudar, 2000), and to increase in the likelihood of receiving social support (Cohen & Wills, 1985; Wellman & Wortley, 1990).

Some studies suggest that Internet use may facilitate social interaction by making it easier for individuals to connect with others they know as well as with strangers. It serves also as a powerful resource for youth desiring information about socially sensitive topics such as sexuality and interpersonal relations (Suzuki & Calzo, 2004). This form of communication may be especially advantageous for shy, socially anxious, or marginalized youth, enabling them to practice their social skills without the risks associated with “on the ground” interactions (Heitner, 2002; McKenna, Green, & Gleason, 2002; Subrahmanyam, et al., 2004).

Additionally, online communication may encourage more truthful exchanges; many people report a greater willingness to share thoughts and feelings online than they would in face-to-face situations (Lenhart et al., 2001; McKenna & Bargh, 2000). Clearly, the Internet is transforming the social world of adolescents by influencing how they communicate, establish and maintain relationships, and find social support.

Previous studies indicate that people may develop a new lifestyle through internet activities, which may cause a worsening in their actual social relationships (Whang, Lee, & Chang, 2003). In other words, depressive feelings of people relying on the internet for social support might remain or even worsen toward their real-life interpersonal relationships, increasing their risk of becoming internet addicted (Yu-Chun, Huei-Chen, Jo Yung-Wei, & Chung-Ping, 2008).
Moody (2001) found that the Internet can decrease social well-being, even though it is often used as a communication tool. Anonymity and lack of face-to-face communication online may decrease self-consciousness and social anxiety, which could facilitate pro-social behavior and enhance online friendship formation.

Mihajlović (2008) reiterated that the potential consequences of excessive Internet use when it comes to psychological wellbeing is that the Internet is expected to become a basic form of social interaction in the near future, and consequently one of the major factors of socialization and constitution of one's psychological identity.

Based on the assumption that people have limited time, the Internet use would displace time associated with other activities, such as face-to-face interactions with others. Kraut et al.’s original HomeNet study (1998) found that declines in communication with family and in the size of the social circle was indeed caused by higher Internet use. Nie, Hillygus and Ebring (2002) also suggested that the greater use of the Internet may be harmful to an individual’s social development. In the study by Nie and Erbring (2000) of 4,113 individuals aged 10 and above, Internet users spent significantly less time with family and friends. This finding was consistent with Nie et al.’s study (2005) that the time spent using the Internet is negatively associated with time spent with family and friends.

In contrast, some studies have examined the positive relationship between peer interaction and online social activities. For some, peer relationships are a significant reason to access the Internet. Lee and Kuo (2002) found that time interacting with friends was increased by the amount of time spent on the Internet. For example, a study of Internet use, particularly online communication, among 1,312 adolescents aged 12 to 18 (in a 2002-2003 longitudinal panel study) in the US found that adolescents who are more cohesive to their friends and better connected to school were more likely to use online communication. This study points out that Internet use for adolescents who already had strong social relationships may be actually associated with increasing positive relationships with others (Lee, 2009).
While maintaining their existing social relationships may be the reason for Internet usage among socially-integrated adolescents, creating new social relationships and keeping connections with others online may be the motives for socially isolated persons to use the Internet and its communicating tools (Wellman, Haase, Witte & Hampton, 2001).

Another study of 130 aged 11 to 13 adolescents who reported few close friends in school found that they were significantly more likely to use the Internet for instant messaging to avoid being alone (Gross, Juvonen & Gable, 2002). Thus, friendship, which refers to the attachment to or relationship with friends, would be an important measurement to determine adolescents’ intensity of Internet use and their use of online social networks for communicating or other activities. The Internet, a form of technology-mediated communication, is especially useful to maintain ties with existing friends rather than to initiate ties to new ones (Wellman, Haase, Witte, & Hampton, 2001).

Adolescents are likely to find their close friends online. For adolescents, Internet use is partially based on the interactive medium for relating, hanging out in cyberspace and keeping in touch with friends. For example, youth are using the Internet for Social Interactive Technologies (SITs) to enhance communication among friends and family. Facebook users have shown that intensive use of Facebook was related to maintain existing offline relationships (Ellison et al., 2007).

Wellman, et al., (2001) argued that offline interactions can be supplemented and replaced by the Internet. Thus, uses of the Internet and online communication or social interactive technologies actually have a positive impact in that they enhance social interaction with other adolescents.

Williams and Merten (2008) found that social networks online is considered as a major method of interpersonal communication among adolescents - that is, serving the Internet as a means to interact with friends or others and to arrange for social gatherings. Looking for additional opportunities to interact with school-based peers in
order to feel connected and comfortable with them is another reason to use the Internet (Lenhart, Rainie & Lewis, 2001). Frequent use of the Internet keeps people to contact with friends and more frequent interactions with others online may enhance Internet use as a result (Wellman, et al., 2001).

Feeling close and connected to others on a daily basis is strong predictors of higher daily well-being, associated with sharing pleasant interactions (Gross et al., 2002). Adolescents’ self-esteem and well-being is certainly projected by close relationships with peer and parents, whereas problems resulted from poor peer relationships such as peer rejection and a lack of close friends are contribute negatively to depression and self-evaluation.

Thus, Internet use could undermine if it displaces opportunities for meaningful, daily contact with others; on the other hand, expanded opportunities for their connection to others may foster well-being. It is important to figure out how adolescent development, relationships with peers and parents, and indicators of emotional well-being are related to the Internet. Thus, studying the relationship between Internet use and those relationship factors helps to achieve a comprehensive understanding of how adolescents use the Internet and what role such media plays in teenagers’ personal and social development.

Relationships with parents are also known to be related to Internet use among adolescents. Parental attitude and parental involvement can be a psychological distress factor associated with adolescents’ demographic backgrounds. Orleans & Laney (2000) found that minimal parental involvement would result in the most socially positive effect on children’s computer use.

Parental rules such as time limits or checking up also affects children’s use of the Internet negatively (Lenhart, Rainie & Lewis, 2001). Some researchers found that the increase in family conflicts is associated with more frequent time and use in adolescents’ Internet use (Mesch, 2006). A study of 1,501 Internet users aged 10-17 found that adolescents who had high levels of conflict with parents and alienation
from parents were more likely to use the Internet so as to form close online relationships (Wolak, Mitchell & Finkelhor, 2003).

However, the follow-up to the HomeNet study by Kraut et al. (2002) also found that family communication and social support in particular has been increased by adolescents’ Internet usage.

Just as studying the Internet’s effects on social interaction, many also have studied the effects of Internet use on the larger categories of civic engagement (Dutta-Bergman, 2005; Jennings & Zeitner, 2003; Katz, Rice & Aspden, 2001; Shah, Kwak, & Holbert, 2001) such as volunteering activities, clubs or social circles which demand individual’s voluntary participation.

Many studies have found that the Internet use is negatively associated to the civic involvement. According to Putnam (2000), involvement in groups and social capital building activities, such as voting, political knowledge, political trust, and grassroots political activism, have negatively influenced by electronic entertainment, especially television. Likewise, more Internet use causes less civic participation and social involvement, decreasing social capital as much as other media.

In contrast, some studies have indicated that social interactions through the Internet actually have had positive effects on community interaction, involvement, and social capital (Hampton & Wellman, 2003) by increasing social interaction, the size of social networks, and closeness with others (Wolack, Mitchell & Finkelhor, 2003). Pasek, Kenski, Romer and Jamieson (2006)’s study of 1,501 American youth found that the adolescents’ media use helped to facilitate more civic and political engagement. Their study supports ideas that civic activities increased disproportionately in relation to Internet use and those who politically engaged are more likely to participate in civic activity. People who use the Internet primarily for organizational and political activity are engaged in off-line civic and political involvement (Wellman, et al., 2001).
Among adults who use social media such as Facebook, YouTube, Twitter, and blogs for political purposes, 42% are under the age of 30 (Liebert, 2012). The most influential group consists of a small group of users close to the centre of a network. This group, described by the researchers as the 'spreaders', plays a critical role in triggering chains of messages reaching huge numbers of people (Bailón, Holthoefer, Rivero & Moreno (2011).

Internet use is also positively associated with greater participation in community activities for voluntary organizations and more trust (Wellman, et al., 2001). Social participation is also correlated with social bonding gratifications in online communities, which was the needs for Internet use (Ishii & Ogasahara, 2007). Lee and Kuo (2002)'s study of 817 Singapore students in 2000 suggested that the Internet may not reduce the time devoted to social interaction in either real-life or physical activities, but it may instead displace television watching among children. In the study of teenagers by Gross et al. (2002), the many of Internet users also involved peer interaction, hanging out with friends, and spent most of their after-school time on traditional activities, participating in clubs or sports. Katz, rice and Aspden (2001) also reported those who spent more time with the Internet were more likely to belong to any leisure and religious organizations.

2.5 INTERNET DEPENDENCY AND PSYCHOLOGICAL FACTORS

As was the case for social outcomes, few studies have examined the relationship between Internet use and psychological outcomes. Kraut et al., (1998) found the adverse psychological effects of Internet use for teens (i.e., greater loneliness and depression with greater Internet use but a follow-up study suggested that these effects disappeared with Internet experience (Kraut et al., 2002).

The explosive growth of the internet in the last decade has had a huge impact on psychological research in understanding its role in communication and interpersonal behaviour. There has been increased interest in the addictive potential of
the internet and the effect this can have on psychological well being (Niemz, Griffiths, & Banyard, 2005).

Internet use may be beneficial or begin when kept to 'normal' levels, however high levels of internet use which interfere with daily life have been linked to a range of problems, including decreased psychosocial well-being, relationship breakdown and neglect of domestic, academic and work responsibilities (Beard 2002; Weiser 2001; Widyanto & McMurran 2004; Yao-Guo, Lin-Yan, & Feng-Lin 2006; Young 1998). Studies indicated that the potential for negative psychological and social consequences reduced as society became more accustomed to using the internet (Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford 2002).

Davis (2001) introduced a cognitive-behavioral model of Pathological Internet Use (PIU). While previous studies on Internet addiction have described behavioral factors, such as withdrawal and tolerance, the study focused on the maladaptive cognitions associated with PIU. The cognitive-behavioral model of PIU distinguishes between specific PIU and generalized PIU. Specific PIU refers to the condition in which an individual pathologically uses the Internet for a particular purpose, such as online sex or online gambling, whereas generalized PIU describes a more global set of behaviors. The model implies a more important role of cognitions in PIU, and describes the means by which PIU is both developed and maintained. The study also furthermore provided a framework for the development of cognitive-behavioral interventions for PIU.

Lin (2001) examined excessive Internet use of Taiwanese adolescents and a psychological aspect of users, sensation seeking, thus to differentiate motivation of Internet dependents and non-dependents. Seven hundred and fifty three Taiwanese high school students were selected using cluster sampling and 88 of them were categorized as Internet dependent users. Results indicated that Internet dependents spent more time on-line than non-dependents. While Internet dependents perceived significantly more negative Internet influences on daily routines, school performance,
and parental relation than non-dependents, both Internet dependents and non-dependents viewed Internet use as enhancing peer relations.

2.6 HIGH INTERNET USE AND ITS CONSEQUENCES

The use of the Internet has increased considerably during the last few years, and there are also some clinical observations that some people ‘get hooked’, and develop an Internet addiction (Johansson & Gotestam, 2004). Making friends through the Internet has become a popular activity among adolescents, potentially leading to its excessive use (Lin, 2001). There is growing concern about excessive Internet use and whether this can amount to an addiction (Widyanto, 2004). It is an undeniable fact that internet usage has not only positive effect on adolescents over all well being but its negative impact cannot be over looked.

As computer and Internet use become a staple of everyday life, the potential for overuse is introduced, which may lead to addiction. Research on Internet addiction has shown that users can become addicted to it. Addiction to the Internet shares some of the negative aspects of substance addiction and has been shown to lead to consequences such as failing school, family, and relationship problems (Brian & Hastings, 2005).

Excessive internet use is emerging as one of the more negative aspects of young people's online activities (Van den Eijnden, et al., 2008). In the literature, such extreme use is often synonymous with the terms 'compulsive internet use', 'problematic internet use', 'pathological internet use', 'internet dependence', 'computer addiction' and 'net addiction'. Internet addiction has been defined as the use of the internet to escape from negative feelings, continued use of the Internet despite the desire to stop, experience of unpleasant emotions when internet use is impossible, thinking about the internet constantly, and the experience of any other conflicts or self-conflicts due to internet use.

There is evidence that internet addiction has a negative effect on academics (a drop in grades), family relations (having to hide their excessive internet use from
parents), physical health (sleep deprivation due to long hours of internet use), mental health (depression), and finance (cost of accrued internet expenses). Interactive communication applications such as chat rooms, instant messaging, e-mail, and online games have most commonly been associated with internet addiction among youth says Van den Eijnden et al. (2008).

During the past few years, researchers have begun to study internet addiction (Chou, & Ting, 2003; Kaltiala-Heino et al., 2004), and the negative impact of internet use on social functioning (Kraut et al., 1998; Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay and Scherlis, 1998) and psychological well-being (Engelberg & SjBerg, 2004; Seepersad, 2004).

The concept of "Internet addiction" has been proposed as an explanation for uncontrollable, damaging use of this technology. Symptoms of excessive Internet use are compared to the criteria used to diagnose other addictions. In particular, pathological gambling is compared to problematic Internet use because of overlapping criteria. This article suggests some modifications to the diagnostic criteria that has been commonly proposed for Internet addiction (Beard et al., 2001).

Young (1999) categorised internet addiction into five types: cybersexual addiction; cyber relationship addiction; net compulsion (e.g. gambling or shopping on the internet); information overload (e.g. compulsive database searching); and computer addiction (excessive game-playing).

Use of the Internet on college campuses has increased dramatically in recent years, leading to pathological use, or Internet addiction, for some students. Internet addiction is defined as a psychological dependence on the Internet and is characterized by (a) an increasing investment of resources on Internet-related activities, (b) unpleasant feelings (e.g., anxiety, depression, emptiness) when offline, (c) an increasing tolerance to the effects of being online, and (d) denial of the problematic behaviors. Individuals exhibiting such symptoms often are dealing with underlying psychological issues (Kandell, 1998).
Internet addiction, also described as pathological internet use, is defined as an individual’s inability to control his or her use of the internet, which eventually causes psychological, social, school and/or work difficulties in a person’s life (Davis 2001; Young & Rogers, 1998). Addictive internet use is defined as “an impulse control disorder that does not involve an intoxicant” and is akin to pathological gambling (Young, 1998). Young further categorized five specific types of internet addiction: (1) cyber sexual addiction to adult chat rooms or cyber porn; (2) cyber relationship addiction to online friendships or affairs that replace real-life situations; (3) net compulsions to online gambling, auctions, or obsessive trading; (4) information overload to compulsive web surfing or databases searches; and (5) computer addiction to game playing or programming (Young, 1998). Like other addictions, furthermore, internet addiction has been linked to a variety of problems. Besides little sleep, failure to eat for long periods and limited physical activity, it also disrupts the studies and other aspects of the daily life of an individual (Cao & Su, 2006).

These people demonstrated two or more internet addiction symptoms, namely, spending more time on the internet than intended, feeling an urge to instantly connect to the internet once arriving home, receiving complaints from family members and friends about too much time on the internet, and unsuccessful attempts to cut back on internet use (Chak & Leung, 2004).

Despite its uses, the Internet is liable to be abused. “Internet Addiction” is a newly proposed construct, derived from DSM-IV criteria for substance abuse. As a very recent phenomenon, excess internet use probably arises through pre-existing mechanisms. The addictive element may be the search for stimulation through interactive services, or the Internet may serve the purpose of an escape from real-life difficulties (Chung, Martin, Armstrong, & Labouvie 2002).

College students are particularly vulnerable to pathological Internet use due to several factors. These factors include (a) the psychological and developmental characteristics of late adolescence/young adulthood, (b) ready access to the Internet, and (c) an expectation of computer/Internet use. The nature of the computer medium
and the sense of control experienced when engaged in computer activities can also contribute to the potential for problematic computer/Internet use. Research on Internet addiction is in its infancy. The need for greater understanding of Internet addiction and its treatment is noted (Kandell, 1998).

Chou (2001) explored Internet addiction among some of the Taiwan’s college students. The study used the Uses and Gratifications theory and the Play theory in mass communication. The sample consisted of 910 valid surveys from 12 universities and colleges around Taiwan. The results indicated that Internet addiction does exist among some of Taiwan’s college students. It was found that Internet addicts spent almost triple the number of hours connected to the Internet as compared to non-addicts. The addict group found the Internet entertaining, interesting, interactive, and satisfactory and they rated Internet impacts on their studies and daily life routines significantly more negatively than the non-addict group.

Yang & Tung (2007) investigated the difference between Internet addicts and non-addicts in Taiwanese high schools, and focused specifically on their Internet usage patterns, and gratification and communication pleasures. The analytical results revealed that Internet addicts spent almost twice as many hours online on average than the non-addicts. Notably, surfing with a social/entertainment motivation and gratification was positively correlated with Internet addiction. Furthermore, Internet addicts obtained markedly higher overall PIUST scores and scored higher than non-addicts on four subscales (tolerance; compulsive use and withdrawal; related problems, including family, school, health, and other problems; interpersonal and financial problems).

In a study by Li & Chung (2006) seventy-six college students were included in this study and had completed the Internet use function questionnaire (social function, informational function, leisure function and the virtual emotional function) and the Chinese Internet Addiction Scale (compulsive use, withdrawal, tolerance, time management problem and interpersonal and health problems). The study revealed not only the relationship between the social function and the index of the Internet
dependence (compulsive use, withdrawal, tolerance and the problems in the interpersonal relationship and health), but also the correlation between the information function and the index of the Internet abuse (the problems in the interpersonal relationship and health).

In an epidemiological study by Johansson & Gotestam (2004), a representative sample of the Norwegian youth population ($N= 3,237$; response rate 45.2%) was selected. The proportion not using Internet was only 4.9%, while 35.8% were non-frequent users, and 49.6% (1,591) were frequent (weekly) users. They used the Internet on the mean 4.3 hours a week. A mean of 1.98% (boys 2.42%, girls 1.51%) could be described as having an ‘Internet addiction’ according to the criteria in the Diagnostic Questionnaire of Young (1998), and an additional 8.68% (in sum 10.66) were considered to have an at-risk Internet use (boys 9.21%, girls 8.13%). Their results have important implications for further studies of prevalence, implementation of preventive measures, and the development of treatment approaches for Internet addiction.

Addiction is the result of shifts in subjective experience and that new technology and the Internet can provide relatively reliable and potent contemporary vehicles for changing emotional states (Shaffer, Hall & Bilt, 2000).

**Effect on Academic Performance**

Ko, Yen, Yen, Lin and Yang (2007) studied the incidence and remission rates for Internet addiction and the associated predictive factors in young adolescents over a 1-year follow-up. Of 517 students (267 male and 250 female) from three junior high schools in southern Taiwan. It was observed that high exploratory excitability, low reward dependence, low self-esteem, low family function, and online game playing predicted the emergency of the Internet addiction. Further, low hostility and low interpersonal sensitivity predicted remission of Internet addiction.

Greenfield and Yan, (2006) investigated the status of college students with internet addiction disorder (IAD) and the relationship with sensation seeking. The
IAD Test Questionnaire and Sensation Seeking Scale were administered to 1227 college students in three colleges in Changchun in 2007. It was concluded College students with IAD had high sensation seeking and the sensation seeking had certain influence on IAD.

In a study done by Ferraro, Caci, D'Amico and Di Blasi (2007) revealed that young users are more at-risk subjects for Internet addiction than adults, perceiving a compromised social and individual quality of their life that led them to make a compensatory usage of the Internet. They also reported that the incidence of internet addiction disorder (IAD) was significantly higher in males than in female college students.

Internet addiction can lead to poor academic performance in school and college (Murphey, 1996; Scherer, 1997) and impaired functioning at work (Robert Half International, 1996). Anecdotal reports indicated that some on-line users were becoming addicted to the Internet in much the same way that others became addicted to drugs or alcohol, which resulted in academic, social, and occupational impairment Young (1998).

Lin and Tsai (2002) examined excessive Internet use of Taiwanese adolescents and a psychological aspect of users, sensation seeking, thus to differentiate motivation of Internet dependents and non-dependents. Results indicated that Internet dependents spent more time on-line than non-dependents. While Internet dependents perceived significantly more negative Internet influences on daily routines, school performance, and parental relation than non-dependents, both Internet dependents and non-dependents viewed Internet use as enhancing peer relations. Internet dependents scored significantly higher on overall sensation seeking and disinhibition than Internet non-dependents.

*Effect on Communication and Social function*

Internet addicts perceived the Internet to have significantly more negative influences on daily routines, school performance, teacher and parental relation than
non-addicts, both Internet addicts and non-addicts viewed Internet use as enhancing peer relations. Moreover, students with personalities characterized by dependence, shyness, depression and low self-esteem had a high tendency to become addicted Yang and Tung, (2007).

Young (1998) showed that internet users become addicted to specific applications. Individuals who fear real face-to-face interaction may choose to engage in internet relay chat and multi-user domains.

Younger and more recent users reported more problems, mainly concerning the neglect of work and social life (Widyanto, 2004). Psychosocial consequences of note include loneliness (Kraut et al., 1998), frustration (Clark et al., 2004) and depression (Young & Rogers, 1998). Although not very common, some addicts who spend very long hours on the internet also experience physical problems such as fatigue related to sleep deprivation, backache, and carpal and radial tunnel syndromes.

Effect on Psychological function

As more people connect to the Internet, researchers are beginning to examine the effects of Internet use on users' psychological health. Due in part to a study released by Kraut (1998), which concluded that Internet use is positively correlated with depression, loneliness, and stress, public opinion about the Internet has been decidedly negative. Internet use was found to decrease loneliness and depression significantly, while perceived social support and self-esteem increased significantly (Shaw, 2002).

It has been alleged by some academics that excessive Internet use can be pathological and addictive. Widyanto (2004) reviewed what is known from the empirical literature on ‘Internet addiction’ and its derivatives (e.g., Internet Addiction Disorder, Pathological Internet Use, etc.) and assesses to what extent it exists. It is concluded that if ‘Internet addiction’ does indeed exist, it affects a relatively small percentage of the online population.
Those who primarily used the Internet for online chat believed that the Internet is psychologically beneficial to them, but also believed that frequent Internet users are lonely and that the Internet can be addictive. The Internet has often been argued to have adverse psychological consequences, such as depression or anxiety symptoms, among "over-users", (Campbell, Cumming & Hughes, 2006).

Morahan-Martin & Schumacher (2003) assessed loneliness and the difference between lonely and not-lonely individuals in patterns of Internet use of 277 undergraduate Internet users on the UCLA Loneliness scale. Their results showed that lonely individuals used the Internet and e-mail more and were more likely to use the Internet for emotional support than others.

In another study, Moody (2001) examined the association between loneliness and Internet use. They reported that low levels of social and emotional loneliness were both associated with high degrees of face-to-face networks of friends, while high levels of Internet use were associated with low levels of social loneliness and high levels of emotional loneliness.

Self-esteem in childhood is crucial to the development of a mature personality in adulthood. Low self-esteem may result from the absence of strong parental or peer support, which can culminate in feelings of inadequacy and worthlessness (Harter, 1993).

This might lead individuals to turn to the internet as a way of escaping reality and finding a safe world in which they are not threatened or challenged. According to Shotton (1991), introverted, educated, technologically sophisticated males are more prone to develop pathological internet use. Individuals who have low self-esteem have a greater propensity to internet addiction. Shy individuals use the internet to overcome their deficiencies in social skills, communication and social relationships.

Donchi et al., (2004) reported that females with more online friends were higher on self esteem and lower on loneliness than females with fewer online friends, but the opposite was true for males. A higher number of online regular friendships
seemed to militate against self-esteem and was related to greater loneliness for males. In addition, young men who rated their online friendship networks as very important were more likely to have lower self-esteem and to be lonely. This was suggested by Armstrong, (2000) that the extent to which sensation seeking or poor self-esteem predicts heavier Internet use.

Some researchers have noted that Internet use has negative impacts on well-being; however, Valkenburg and Peter (2007) show that this negative relationship disappears when controlling for closeness to friends and online interaction with strangers. They showed that the most adverse effects of Internet use on well-being occur for individuals who report being lonely.

2.7 CONSEQUENCES OF INTERNET ADDICTION

The advancement of internet technology not only brings benefits, but also negative results. Of these negative aspects, excessive internet use is increasing dramatically. Internet addiction is called addiction disorder, pathological internet use, excessive internet use, and compulsive internet use (Kim, 2008). With people’s increasing reliance on the internet as an essential part of their everyday lives, the problems associated with excessive and problematic use of the internet are also set to rise (Murali and George, 2007).

Internet use to the point of addiction, however, can have wide-ranging adverse consequences that affect many domains of the individual’s life: interpersonal, social, occupational, psychological and physical. Perhaps the greatest negative impact tends to be on family and social life, as excessive time spent online often results in neglect of family, social activities and interests.

The internet is a vast repository of knowledge and information, and it enables almost instantaneous transfer of information. Among the positive consequences of internet use, Clark, Frith & Demi, (2004) identified enhanced self-confidence, increased frequency of communication with family and friends, and feelings of empowerment. Others have studied the benefits of the internet in establishing
relationships and making friends through game-playing (McNamee, 1996; Parks & Floyd, 1996).

Researchers have shown that excessive use of the Internet may result in Internet addiction (Nalwa & Anand, 2003; Greenfield, 2000; Morahan-Martin & Schumacher, 2000). LaRose, Lin and Eastin (2003) note that what others have called Internet addiction can actually be redefined as deficient self-regulation; they say that individuals with deficient self-regulation (a failure to regulate their Internet use) use ICTs (Information and Communication Technology) to relieve boredom, decrease loneliness, whittle away time, and enhance their social identity.

Individuals who are premorbidly vulnerable, especially with a history of impulse control and addictive disorders, are especially at risk of using the Internet in a problematic way. Aside from the personal and social implications, this behavior has important implications for the workplace and may be resulting in substantial loss of productivity in companies who are not implementing Internet governance policies (Yellowlees & Marks, 2007).

The Internet is a new technology that has impacted the world and provided many benefits to its users. At the same time the Internet has had negative ramifications. Some people are becoming preoccupied with the Internet, are unable to control their use, and are jeopardizing employment and relationships (Beard et al., 2001).

The internet has specific features that increase the risk for vulnerable people to develop compulsive internet use (CIU). Van den Eijnden et al. (2008) evaluated factors associated with personality traits (i.e. the Big Five dimensions) and psychosocial states (i.e. loneliness, depressive symptoms and self-esteem) that may account for this vulnerability. Their results show that the main predictor of compulsive internet use among the personality traits is low emotional stability, and among the psychosocial states depressive symptoms.
Van den Eijnden et al., (2008) investigated the relationships between adolescents' online communication and compulsive Internet use, depression, and loneliness. The results showed that instant messenger use and chatting in chat rooms were positively related to compulsive Internet use.

Recent research at colleges and universities has suggested that some college students’ academic performance might be impaired by heavier use of the Internet. The study by Kubey and Csikszentmihalyi (1990) reviews the relevant literature and presents data from a survey of 572 students at a large public university. Heavier recreational Internet use was shown to be correlated highly with impaired academic performance. Loneliness, staying up late, tiredness, and missing class were also inter-correlated with self-reports of Internet-caused impairment. Self-reported Internet dependency and impaired academic performance were both associated with greater use of all Internet applications.

Nightly users are more at-risk subjects for developing an Internet addiction disorder, diminishing their individual quality of life and disabling their time control, (Ferraro, Caci, D’Amico & Di Blasi, 2007).

The use of new computer technology and the Internet for gambling can represent both the means and object of addiction. However, these technological factors do not represent the cause of addictive behavior. Given the widespread availability of computer technology and the remarkable expansion of the Internet, it is not surprising, however, that these technological advances have become associated with intemperate gambling activities (Shaffer 2007).

2.8 INTERVENTIONS TO REDUCE INTERNET DEPENDENCY

Technology is changing the nature of problems (Young, 1996). Symptoms often identified were a preoccupation with the internet, an inability to control use, hiding or lying about the behaviour, psychological withdrawal, and continued use despite consequences of the behaviour (Young, 2007).
The internet has positive aspects including informative, convenient, resourceful and fun, but for the excessive internet users, these benefits turn out to be useless. Most individuals use the internet without negative consequences and even benefit from it, but some individuals do suffer from negative impacts. Psychologists and educators are aware of the potential negative impact from excessive use and related physical and psychological problems (Griffiths & Greenfield, 2000).

The influence of internet usage on the psychosocial development of children is profound. Children and young people are already leading users of the Internet and mobile phones across the world. India is facing a transition in its culture with many families opting nuclear families and adapting western culture. During this period the youth may be at risk as the numerous problems they could face due to chatting, pornography site and other unlimited use of internet. Thus it is important to conduct an intervention program aiming to discuss and provide guidance to the adolescents/college students on the appropriate use of the internet and the effect it may have on their psychosocial development (Wyn & Cuervo, 2005).

Excessive Internet usage can be hard to assess due to the limitation of unstructured time available during day. However, students may spend lengthy amounts of time on the Internet such as during lunch, homeroom, or possibly at home (Kim, 2007). Teachers and counselors should be cognizant of behavior patterns of these students and intervene as soon as they believe Internet usage is becoming problematic.

It is important to ask questions about Internet use, communicate concerns with parents, and use appropriate assessment tools. Physical symptoms may be evident (e.g., students may look overly tired or sleep in class because of all-night Internet sessions). Other possible physical ailments include carpal tunnel syndrome, back strain, and eye strain from the long periods of sedentary computer use (Young, 1999). They may be depressed, withdrawn, irritable, or anxious as a result of both the physical and psychological toll of internet use.
Academic issues include decrease in study habits, missing classes, and a significant drop in grades. Students may also be less involved in extracurricular and social activities. Familial and relationship problems are also extremely common with people who are addicted to Internet and should be considered another warning sign (Young, 2006). School counselors’ vigilance, knowledge, and ability to assess problematic Internet use are key components of identifying students and getting them help.

An intervention program closes the gap between traditional substance and process addiction treatment with a new method for treatment of overuse, addiction, and compulsion to social media, video games, and other current technologies. Program techniques include: stress management; exceptions, compliments, and scaling found in solution focused brief therapy (Crews, Janet & Jiaqi, 2011). Specific programs targeted toward Internet and technological addictions are needed.

Counsellors who use a combination of solution focused group counselling techniques combined with existential theology, stress management techniques, and Adlerian social interest can curtail Internet addiction, improve relationships, and consequently, emotional health. The Solution Focused Social Interest Program offers positive social interactions through group sessions and community involvement for those overusing the Internet. Those addicted to the Internet learn healthy, productive ways to find meaning and connectedness in life as a result of this program.

Counselors could take the lead on gathering and distributing information about high internet use in their college and community through leadership activities such as workshops and faculty seminars. Teacher and school staff in-services and parental training could be provided periodically. These events should provide basic information about internet use, a discussion of warning signs, a simple assessment, and resources, both local and web based (Kaltiala-Heino, et al., 2004) suggested classroom guidance activities to inform students about internet use and to generate referrals from teachers and the student population.
From the above studies, it is very clearly understood the magnificent influence the internet has had on individuals irrespective of age, race, gender or any other section of the society. The usage, its dependency and addiction, depression and loneliness and the impact brought upon the social and psychological wellbeing gives support to the present research.