REVIEW OF RELATED LITERATURE

2.1 Purpose of Review of Related Literature
Review of related literature is an important pre-requisite to plan and implement any research project. It is very important that the researcher studies the journals, dissertations, theses and other sources of information related to the research. It helps the researcher to identify the studies related to the topic and also helps to avoid duplication. Review of literature allows the researcher to explore different sampling techniques, statistical procedures, research designs etc.

According to Taylor (2008), a review of the literature is a classification and evaluation of what accredited scholars and researchers have written on the topic. A literature review must do these things.

1. organized around and related directly to the theses or research question
2. synthesize results into a summary of what is not known
3. identify areas of controversy in the literature
4. formulate questions that need further research.

Review of related literature enables the researcher to create his own conceptual framework and is helpful to precisely state the problem as well as the rationale for carrying out the research.

2.2 Review of Related Literature
The review of related literature has been discussed under the following sections:

- Research studies related to Internet use
- Research studies related to perceived social support
- Research studies related to computer anxiety
- Research studies related to interpersonal relationships
- Research studies related to academic achievement
- Research studies related to internet self-efficacy

2.2.1 Research studies related to Internet use
Whang, Lee and Chang (2003) investigated in terms of Internet over-use and related psychological profiles by the level of internet use. They used a modified Young’s Internet Addiction Scale, and 13,588 users (7,878 males, 5,710 females), out of 20 million from a major portal site in South Korea, participated in this study. Among the sample, 3.5% had been diagnosed as Internet addicts (IA), while 18.4% of them were classified as possible internet addicts (PA). The Internet Addiction Scale showed a strong relationship with
dysfunctional social behaviors. More IA tried to escape from reality than PA and Non-addicts (NA). When they got stressed out by work or were just depressed, IA showed a high tendency to access the internet. The IA group also reported the highest degree of loneliness, depressed mood, and compulsivity compared to the other groups. The IA group seemed to be more vulnerable to interpersonal dangers than others, showing an unusually close feeling for strangers.

Niemz, Griffiths and Banvard (2005) conducted a study on the prevalence of pathological internet use and found that there has been increased interest in the addictive potential of the internet. A total of 371 British students responded to the questionnaire, which included the Pathological internet Use (PIU) scale, the General Health Questionnaire (GHQ-12), a self-esteem scale, and two measures of disinhibition. Results showed that 18.3% of the sample was considered to be pathological internet users, whose excessive use of the internet was causing academic, social, and interpersonal problems. Other results showed that pathological internet users had lower self-esteem and were more socially disinhibited. However, there was no significant difference in GHQ scores.

Valkenburg, Peter and Schouten (2006) investigated the consequences of friend networking sites (e.g., Friendster, MySpace) for adolescents’ self-esteem and well-being. Survey was conducted among 881 adolescents (10–19-year olds) who had an online profile on a Dutch friend-networking site. Using structural equation modeling, it was found that the frequency with which adolescents used the site had an indirect effect on their social self-esteem and well-being. The use of the friend-networking site stimulated the number of relationships formed on the site, the frequency with which adolescents received feedback on their profiles, and the tone (i.e., positive vs. negative) of this feedback. Positive feedback on the profiles enhanced adolescents’ social self-esteem and well-being, whereas negative feedback decreased their self-esteem and well-being.

Johnson (2007) conducted a study on 405 college students of Western Canada to assess pattern of Internet use and results describe college students, with rare exception, as internet users. The vast majority of college students frequently communicates online and access websites. While an Internet game experience is typical, relatively few college students are heavy online gamers. Overwhelmingly (i.e., 77.8%), college students conceptualized the Internet as a convenience, although 17.8% considered the Internet a source of amusement.
Approximately 5% of college students reported negative perceptions of the internet (frustrating or a waste of time).

Awoleye, Siyanbola and Oladipo (2008) conducted a study on the level of penetration of Internet usage among undergraduate students. Result showed that about 92% of undergraduate students of Nigeria have embraced the Internet and are using it consistently. The online mean time is 3.5hrs/week while on the average, undergraduate experience of Internet usage is about 4 years. It was also found that the students use the Internet mostly for email, information search and online chatting were found to have significant impact on their academics and social life.

Eijnden, Meerkerk, Vermulst, Spijkerman and Engels (2008) investigated the relationships between adolescents’ online communication and compulsive Internet use, depression, and loneliness. The study had a 2-wave longitudinal design with an interval of 6 months. The sample consisted of 663 students of America (318 male and 345 female) aged 12 to 15 years. Questionnaires were administered in a classroom setting. The results showed that instant messenger use and chatting in chat rooms were positively related to compulsive Internet use 6 months later. Instant messenger use was positively associated with depression 6 months later. Loneliness was negatively related to instant messenger use 6 months later.

Koovakkai and Muhammed (2010) found that the rural and urban communities differ in many respects including the accessibility and use of the Internet. The present study focused on the locale factor in the abuse of the Internet by the adolescents. The study was conducted on a sample of 150 adolescents in Kerala State in India using a structured questionnaire. The results showed that as compared to the urban adolescents, the Internet abuse is more among the rural adolescents. This might be because of their ignorance about the seriousness of the matter.

Hawi (2012) investigated Internet usage among adolescents, who are the most vulnerable to Internet addiction in the population. Permission to access schools to conduct this research was obtained from the Ministry of Education and Higher Education in Lebanon. A web-based questionnaire was completed by 833 intermediate and secondary students from public and private schools. The questionnaire included items on demographic information and Internet usage and an Arabic version of Young’s Internet Addiction Test (YIAT). The results showed
that 4.2% of the sample had significant problems. Furthermore, the more problematic Internet use (PIU) was, the less the Internet was used for information and research, and the more it was used for entertainment. PIU is driven by deficiency needs fuelled by the use of interactive applications. The more deficient the need, the greater the obsession with top-notch interactive applications, and the less frequent the usage of non-interactive applications.

Shek and Yu (2012) examined the prevalence of internet addition among Hong Kong adolescents and its psychosocial correlates in a large sample of early adolescents in Hong Kong. A total of 3328 students (age=12.59±0.74 years) were selected from 28 secondary schools in Hong Kong. Using Young’s 10-item Internet addiction test, 26.4% of the participants were classified as having Internet addiction. Age and having divorced parents were positively correlated with pathological use of the Internet, while higher academic competence, general positive youth development, and positive and clear identity predicted a lower probability of Internet addiction. These results demonstrated that Internet addiction has become an emergent youth problem in Hong Kong, which deserves more attention from researchers and professionals.

Subash, Kadian, Prasad and Asif (2012) conducted a study on the students of the National Dairy Research Institute, Karnal, Haryana to explore the students’ perceived importance and effect of internet use on their overall performance (i.e., both academic as well as non-academic activities in their college environment) The study revealed that, regarding the effect of internet use on academic performance, a majority of the respondents strongly agreed with the statement that the internet facilitates to retrieve latest information and facilitates improved systems of communication, whereas a majority of them agree with the statement that the internet facilitates saving of time and energy and cost–effective as well, and that it had a positive impact on academic experience. And, in case of their non-academic performance, a majority of the respondents agreed with the statement that the Internet facilitates to maintain a wide circle of friends.

Kittinger, Correia, and Irons (2012) assessed a range of variables related to Facebook use, and sought to determine how the use of Facebook relates to problematic Internet use. Undergraduate participants of North America (N=281, 72 percent women) completed a battery of self-report measures, including the Internet Addiction Test, via an online interface. The result of the current study suggested that a sizable minority of students experience
problems related to Internet use and that the use of Facebook may contribute to the severity of symptoms associated with Internet addiction.

Kadli, Kumbar and Kanamadi (2012) conducted a study to understand students’ views about Internet usage in Lala Lajpat Rai College of Commerce and Economics, Mumbai. A questionnaire survey was undertaken. The main findings were: (1) A high degree of awareness about the benefits of internet among students; (2) the library, computer lab, Cyber café and home were deemed the most convenient places to access internet; (3). The major purpose of students’ accessing internet was education and entertainment; (4) students strongly agreed that project work, quick and reliable communication, and the availability of updated information were motivating factors for using the internet; (5). The study confirmed that Google was the most used search engine, followed by Yahoo; however, students were not aware of the advanced search strategy provided by these search engines, thus failed to make informed searches on the internet.; (6) Internet use skills were acquired by majority of student by self-study and what they learnt through their friends; the study revealed that in the present internet influenced academic environment, information literacy skills to use internet effectively was a necessity. (7) Though students considered themselves smart enough to use the internet, there were several problems they face in accessing the Internet. While they knew that the needed information is available on the internet, they were not sure about its completeness and also, students felt that they lack the knowledge and skills needed to make informed searches to retrieve reliable and complete information.

Simuforosa (2013) conducted a study in Zimbabwe on 24 adolescents, 4 teachers and 4 parents to find the relationship between adolescent usage of computers and academic performance. Within the qualitative research the case study design was adopted. Interviews and focus group discussions were the primary tools used to gather data. The study found out that modern technology impacts learning both positively and negatively. Recommendations were made for parents, educationists, the media, and policy makers among others, for ways to increase the benefits and reduce the harm that technology can have for adolescents.

Batane (2013) investigated Internet use by young people in Botswana. The study intended to find out how much access do young people have to the Internet and what they mainly used it for. Sample comprised of total of 117 students from different colleges in the Botswana. Instrument used to collect data was a questionnaire containing both quantitative and qualitative questions. The findings of the study revealed that Internet access among young
people in Botswana was very low with majority of this access-taking place at college campuses. There were also disparities in Internet access between the institutions themselves. The study also showed that entertainment and communication comprised about 75% of young people’s Internet time. This presents a challenge to the government and other stakeholders to find ways to effectively utilize the Internet to improve different aspects of young people’s lives.

Chathoth, Kodavanji, Arunkumar and Pai (2013) aimed to determine the prevalence of Internet addiction in undergraduate medical students. Cross-sectional study was conducted which involved 90 subjects (18-20 years of age) of first year undergraduate medical student population at Kasturba Medical College Mangalore. Random sampling method was used. Young’s Internet addiction test questionnaire was administered. Based on the scoring, subjects were classified into normal users (score < 20), mild (score 20-49), moderate (score 50-79) and severe (score >79) internet addiction groups. The prevalence of internet addiction (moderate and severe) was determined to be 18.88%. Majority (57.77%) conformed to mild addiction. The most common purpose for internet use was found to be social networking (97.8%), followed closely by e-mailing (87.8%). The prevalence of moderate to severe internet addiction appeared to be low, a significant number of students conform to mild addiction.

Garcia, Ayala and Catalina (2013) aimed to study in depth the changes taking place in the habits of adolescents using online communication, particularly due to the dramatic arrival of social networks in their daily lives, and the sociocultural implications of these processes. The research methodology focused on a self-administered questionnaire applied nationally. Based on the results of a survey of a representative national sample of 2,077 adolescents (12 to 17-year-olds), this study has sought to update the information about online practices among Spanish adolescents, specifically with regard to the remarkable development of social networks. Similarly, the behavior of both regular users of social networks and of non-regular users has been compared, with the aim of detecting the influence of social network use on general online life, following variables were considered: gender, age, funding type of the educational establishment and social class. Results revealed more intensive use of the Internet as regards time and activities by those who are more frequent users of social networks, and especially the activities they carry out to keep in touch and share content with their equals.

Naffise, Mohammad, Ahmad, Omid, Ayatollahi, Reza and Fatemeh (2013) assessed the
prevalence of Internet addiction disorder in Rafsanjan University of Medical Sciences, Rafsanjan, Iran in 2012. Cross sectional study was conducted. Stratified random sample was used to select 224 students. Demographic data were recorded and Internet Addiction test Test (IAT) questionnaire was administrated. Out of 224 students participating in the study, 86 (38.4%) were males and 138 (61.6%) were female with a mean age of 21.05± 0.1 years. Most of the students (42.4%) were using the internet "under one hour" and the lowest (4%) "More than six hours". Mean test score of IAT was 24.81 ± 1.08 (mild addiction). In terms of internet addiction, 95 (42.4%) cases were normal users, 115 (51.3%) had mild addiction, 12 (5.4%) showed moderate addiction and 2 (0.9%) were cases of severe addiction which are lower compared to previous studies. The rate of internet addiction among students of Rafsanjan University of Medical Sciences in Iran was lower than the previous reports.

Muthuthandavan and Christadoss (2014) assessed the computer use pattern among adolescent school students in Chennai. This is a cross sectional study done among 1842 adolescent school students studying in secondary and higher secondary schools in Chennai. Data was collected by self-administered questionnaire. There were 895 boys and 947 girls included in this study. Nearly 18% of adolescents were using computer for more than 3 hours. Nearly 35% of adolescents were non-users of computer. In this study computer use duration was more among boys than girls. Significant difference was observed in pattern of computer use. High proportion of adolescents use computer for academic purpose.

Zaremohzzabieh, Samah, Omar, Bolong and Kamarudin (2014) explored the phenomenon of Facebook addiction among university students. Qualitative study using interview is used to gather data from nine International postgraduates of University Putra Malaysia and the data established three themes (Compulsion to check Facebook, High frequency use, and Using Facebook to avoid offline responsibility) relied on the participants interviews. The findings from these three themes showed that these users considered their Facebook dependency as salience, tolerance, and conflict. These results also lead to the conclusion that like most activities, moderation and controlled use is key. So, the best approach to preparing students for life in a knowledge-based society is to help them exercise self-control and achieve a level of balance when using Facebook.

Singh (2014) reviewed more than fifty online studies to identify the psychological, educational and social effect of internet use on students in India. It was found that for the last
few years, the use and access of Internet among students had been increasing with a pathetic pace but now have become an important daily activity in India. According to the Internet and Mobile Association of India (IAMAI), almost 213 million people use internet in India in which students account maximum and their number are increasing swiftly every hour. The review of various studies revealed that students use internet for various objectives. Most of the undergraduate students use the internet for entertainment, social and education objectives. They use it minimum for their academics and knowledge. Only M.Phil and Ph.D research students, if they were guided properly by their supervisors, utilize it for their research topics and other education and career information. The study also concluded that internet users still face many problems while surfing internet in which low speed, downloading problems, availability of reliable information, location and other handling problems are primary. It was also found that both faculty members and students are not updated about their internet knowledge.

Leodoro (2014) aimed to explore the effects of Facebook usage on adolescents’ emotional states of depression, anxiety, and stress. A cross-sectional design was utilized in this investigation. Sample comprised of 76 students enrolled in the Bachelor of Science in Nursing program from a government university in Samar, Philippines. Facebook Intensity Scale (FIS) and the Depression Anxiety and Stress Scale (DASS) were the primary instruments used for data collection. Findings indicated correlation coefficients of 0.11 (p=0.336), 0.07 (p=0.536), and 0.10 (p=0.377) between Facebook Intensity Scale (FIS) and Depression, Anxiety, and Stress scales in the DASS. Time spent on FB correlated significantly with depression (r=0.233, p=0.041) and anxiety (r=0.259, p=0.023). Similarly, the three emotional states (depression, anxiety, and stress) correlated significantly and Intensity of Facebook use is not directly related to negative emotions.

Shinde and Patel (2014) conducted a study to assess Correlation between “Problematic Internet Use” And Mental Health in Professional Education Students. The objectives of their study were: 1. To assess the use of internet and mental health among professional education students. 2.To find the co-relation between the Problematic Internet Use and Mental Health in professional education students. Descriptive cross sectional survey was conducted research design with 100 professional educational students. Results revealed that majority of students education is 74% in undergraduate, and 86% of females were in the age group of 20-25 years are of basic B.Sc. nursing. Majority 62% of them were using internet for 3 years and above,
where maximum 66% students were using internet for their personal use. Out of that 42% do login on face book and for web search is 35%, while majority 85% students were using internet 1-4 hours/day. Majority 65% of the students were moderate users of Internet and 34% minimal users follow this. Only 1% was classified excessive user. The level of Internet addiction among professional students was moderate and tends to be minimal. 84% of students were suffering average physical problems while 83% of students were suffering from anxiety where 94% of them were affected by social performance averagely. Majority 73% of them showed average depression. The Correlation was significant at the 0.05 level between excessive Internet use, neglect of work, neglect of social life and physical problems as a part of mental health among students.

Chauhan and Gupta (2015) conducted a study in India to find the impact of frequency of Internet use on cognitive processing among adolescents. The sample comprised of 240 adolescents (120 males and 120 females) within the age range of 13 to 17 years. The subjects completed the Internet use scale (Donchi & Moore, 2004) and four scales measuring cognitive processing each measuring one dimension of Cognitive processing (i.e., planning, attention, simultaneous and successive processing). The data was subjected to 2×2 analysis of variance. Results revealed that significant differences between frequent and infrequent Internet users particularly in terms of planning, attention and successive processing while no significant differences was found in terms of simultaneous processing. The frequent Internet users thus, displayed higher cognitive processing benefits than their counterparts. In order to see the significance of differences among means involved in interactions Duncan's multiple range test was applied, the results revealed that infrequent female Internet users lack significantly in attention span task as compared to counterparts. Internet thus may act as a tool that encourages certain kind of cognitive structures among adolescents.

Sampasa and Lewis (2015) investigated the association between time spent on SNSs and unmet need for mental health support, poor self-rated mental health, and reports of psychological distress and suicidal ideation in a representative sample of middle and high school children in Ottawa, Canada. Data for this study were based on 753 students (55% female; M_{age} = 14.1 years) in grades 7–12 derived from the 2013 Ontario Student Drug Use and Health Survey. Multinomial logistic regression was used to examine the associations between mental health variables and time spent using SNSs. Overall, 25.2% of students
reported using SNSs for more than 2 hours every day, 54.3% reported using SNSs for 2 hours or less every day, and 20.5% reported infrequent or no use of SNSs. Students who reported unmet need for mental health support were more likely to report using SNSs for more than 2 hours every day than those with no identified unmet need for mental health support. Daily SNS use of more than 2 hours was also independently associated with poor self-rating of mental health and experiences of high levels of psychological distress and suicidal ideation. The findings suggested that students with poor mental health might be greater users of SNSs. Limaye and Fotwengel (2015) investigated the use of Internet facility among undergraduate students from Mumbai University using a validated questionnaire. Cross sectional study was conducted on total of 150 students (75 male and 75 female). Self-made questionnaire was used to determine the number of hours they spend on the use of internet and also the purpose for which they use internet. The study showed that more than 90% of students spend 2 hours or more daily surfing on internet. For 40% of the students reason for surfing is non academic work. Thus it is essential to orient the students on using internet for their studies for better career and life.

Ganapthi (2015) determined the prevalence of Internet Addiction pattern and to analyze the associated factors among the college students from various education fields from South India. Cross-sectional study was conducted on 596 college students studying in Arts, Engineering and Medicine were assessed using a self-administered questionnaire. Information regarding demographic factors was collected and Internet Addiction pattern determined by Young’s Internet Addiction test scale. Results revealed that out of 596 students, 246(41.3%) were mild addicts, 91(15.2%) were moderate addicts and 259(43.5%) were not addicted to Internet use. There was no pattern of severe Internet addiction among the study group. Males, students of Arts and Engineering stream, those staying at home, no extracurricular activity involvement, time spent on internet per day, mode of accessing internet are some of the factors significantly associated with internet addiction pattern. It was also found that the prevalence of Internet Addiction is high among more than half of the study group.

Montalvo, Velez and Irazabal (2015) analyzed the characteristics and habits of Internet use in a sample of pre-adolescents between 10 and 13 years of age, enrolled in the 6th grade of primary school in Navarra (Spain). Likewise, the existence of differential patterns in Internet use by sex was analyzed, and risk behaviors were detected. The sample was composed of 364 students (206 boys and 158 girls) who were evaluated at their schools. Information about
socio-demographic characteristics, Internet use habits, and online behaviors was collected using a data-gathering tool specifically designed for the study. The results demonstrated high Internet use by the adolescents studied. Girls used the Internet more for social relationships, whereas boys tended to use it differently, including accessing online games. Moreover, some risky behaviors were found, including interactions with strangers, giving out personal information, and sending photos and videos. Likewise, behaviors associated with cyber-bullying were detected. These results indicated the necessity of establishing prevention programs for safe and responsible Internet use.

Acut, Carpo, Caparoso and Sombilon (2017) conducted a study to determine whether the students' academic performance is affected by their Internet usage. The study was conducted among three hundred eighty six (386) undergraduate students within Mindanao State University – Iligan Institute of Technology. The researchers framed a structured interview and a questionnaire yearning to gather all the information needed. The data collected from the respondents pointed out that there was no significant relationship between the respondents' academic performance and their Internet usage. Findings of the study also revealed that there was no significant relationship between the respondents' academic performance and the place where they have accessed the Internet. Another finding shows that there was no significant relationship between the respondents' academic performance and their purposes in using the Internet such as for Gaming, Social Networking, News, and Entertainment. There was, however, a significant relationship between the respondents' academic performance and their usage of Internet for academic purposes.

Majority of studies revealed that excessive internet usage cause academic, social and interpersonal problems (Niemz, Griffith and Banvard, 2005) and frequency with which adolescents used the internet had an indirect effect on their social self-esteem and well-being (Valkenburg and Schouten, 2006). It was also reported that adolescents conceptualized internet as a convenience and source of amusement (Johnson, 2007) and male adolescents reported a higher frequency of web surfing and online games than female adolescents (Erdogan, 2008). Findings also indicated that majority of students’ uses internet to retrieve latest information and to maintain wide circle of friends (Subash, Prasad and Asif, 2012). Google was found to be the most used searched engine (Jayadev, Kumbar and Kanamadi (2012). Likewise behavior associated with cyber bullying was also detected (Montalvo, Velez and Irazabal, 2015).
2.2.2 Research studies related to gender and internet


Luan, Fung and Atan (2007) conducted a study on the problems of gender disparity in the usage and attitude towards the internet. Sample comprised of 152 student teachers of Malaysian University (80 females and 72 males). Results revealed that there exists no gender disparity in internet usage, female student teachers spend as much time on internet as their male counterparts. Results also revealed that students exhibited positive attitudes toward the internet regardless of gender.

Jackson, Zhao, Kolenic, Fitzgerald, Harold and Von (2008) conducted a study on 515 children (172 African Americans and 343 Caucasian Americans) to find race and gender differences in the intensity of internet use. Findings indicated that African American males were the least intense users of computers and the Internet, and African American females were the most intense users of the Internet. Males, regardless of race, were the most intense videogame players, and females, regardless of race, were the most intense cell phone users.

Erdogan (2008) investigated the relationships among Internet usage, Internet attitudes and loneliness of Turkish adolescents. Sample comprised of 1049 adolescents. Survey method was used. Data were collected by an Internet usage questionnaire, Internet attitudes scale and UCLA loneliness scale. Findings revealed that Turkish adolescents’ loneliness was associated with both increased Internet usage and Internet attitudes. Adolescents who reported excessive uses of the Internet had a significantly higher mean score of loneliness than those who did not. Male adolescents reported higher frequency of web surfing than females and females reported higher frequency of e-mailing.

Watten, Kleiven, Fostervold, Fauske and Volden (2008) investigated gender differences in the use of Information and Communication Technology (ICT), primarily the Internet and mobile phones and the problem faced in the use of these technologies. Sample comprised of 4294 teenagers (2067 females and 2227 males) from Eastern Norway. Results revealed that girls used the internet mainly for the purpose of chatting and email while boys used internet
mainly for entertainment purposes such as gaming and viewing multimedia. There was no
gender gap found in everyday phone usage.

Munusamy and Ismail (2009) examined gender differences in internet usage pattern of
Malaysian adolescents. This qualitative study was based on interviews. Results revealed that
gender role to some extent does influence internet usage pattern at home. Women have more
limitations to access the internet as compared to male due to family commitments.

Mazman and Usluel (2011) conducted a study to found the difference between the purpose of
using internet between males and females. Online survey was designed by the researcher and
sample comprised of 870 Facebook users of Turkey. Researchers categorized internet usage
purpose into four parts i.e. namely maintaining existing relationships, making new
relationships, using for academic purposes and following specific agenda. Significant
differences were found between gender in all of the purposes mentioned. While the difference
on making new contacts was in favor of males, the differences on the other three user
purposes were in favor of females.

Tomar and Gulati (2011) conducted a study to assess the internet use among the adolescents.
Sample comprised of 120 adolescents in 14 to 16 years of age range from four private Senior
Secondary Schools of Ludhiana city. A self-structured questionnaire was used. Percentages,
means, t test, Z test, Chi square, and correlations were used to analyze the data. Results
revealed that, frequency and degree of internet use was significantly higher among male as
compared to females.

Johnson (2011) conducted a study in Sydney, Australia on Ninety Five students to found
gender differences in internet usage. Results revealed that there were no gender differences in
school based Internet use. But there exists one gender difference in home based use. Girls
were significantly more likely than boys to report using email at home. Results also revealed
that boys who used email were more popular and brighter than boys who did not use email.

Soh, Teh, Hong, Ong and Charlton (2013) explored gender differences in urban adolescent
Internet access, usage and motives. Sample comprised of 914 urban school students in
Malaysia. Factor analysis revealed that entertainment, social interaction, shopping and
information/surveillance are the key drivers for adolescence Internet usage. Results revealed
that boys and girls differed in their intensity of usage, place of access and their motivations to
use the Internet. Girls use internet mainly for shopping, social interaction and for surveillance/ information, while boys who used internet were more motivated by eroticism and higher tendency to be addicted to the internet. However, boys and girls did not exhibit any significant differences in online entertainment motivation.

Ha and Hwang (2014) investigated gender differences in Internet addiction associated with self-rated health, subjective happiness, and depressive symptoms among Korean adolescents. Data from 56,086 students (28,712 boys and 27,374 girls) from 400 middle schools and 400 high schools were analyzed. It was found that three psychological health indicators including poor self-rated health, subjective unhappiness, and depressive symptoms were significantly related with Internet addiction in boys and girls. Girls with emotional difficulties such as subjective unhappiness or depressive symptoms had much higher risks of Internet addiction than did boys with similar problems.

Vyjayanthi, Makharam, Afraz and Gajrekar (2014) investigated the gender difference in the rates of prevalence and salient features of internet addiction in India. Sample consisted of 810 students. The total number of men was 455 and women were 349. Statistical analysis was done using SPSS. Findings revealed that the number of males addicted is more than females. (10.33% of boys and 6.84% girls). Females use social networking sites more than males.

Heo, Oh, Subramanian, Kim and Kawachi (2014) conducted a study on 57,857 middle and high school students (13-18 year olds) from a Korean nationally representative survey. Gender differences of addictive Internet use were estimated with the regression model stratified by gender. It was found that female students in girls school use internet addictively than those in co-educational schools. Significant association was found between addictive internet use and school grade, parental education, alcohol use, tobacco use, and substance use.

Smritikana (2015) examined Internet addiction in adolescence in terms of gender. Sample consisted of 200 school students (100 boys and 100 girls) studying in class Xth of Ranchi town. Simple random sampling technique was used. The study revealed there were significant differences between the boys and girls group in their internet addiction. Result showed boys were more addicted to the internet than girls.
Wartberg, Kammerl, Broning, Hauenschild, Petersen and Thomasius (2015) conducted a study to find gender differences in adolescents internet use. Sample comprised of 1744 German adolescents aged between 14 and 17 years. Standardized questionnaire was given to their caregivers. Reports showed significant differences between male and female youth in 8 out of 10 problem areas. According to parents’ assessment, boys spent more time using internet, set wrong priorities in selecting online content, and rather ran into cost traps or legal consequences. More parents of boys than of girls observed adverse effects on adolescents’ physical and mental development.

Vijender and Bulbul (2015) conducted a study to find the motivation behind using social networking sites in adolescents male and females (14-18 years). Sample comprised of 200 school students (100 boys and 100 girls) of Chandigarh. Survey method was used. Results found that there exist insignificant difference between males and females adolescents on variable of social connectivity, entertainment, recognition and information dimension of motivation for use of social networking sites.

Teong and Ang (2016) presented some preliminary findings on internet use and addiction among Malaysian undergraduate students. A survey questionnaire was used to obtain data from 287 respondents who were business, information technology, and arts majors in four public universities in Sabah and Sarawak, East Malaysia. The findings revealed that facebooking / social networking was the most common internet activity among the respondents, whereas online shopping was the least common activity for them. The study also found that while the majority of the respondents spent a considerable amount of time on the internet, they did not qualify to be regarded as internet addicts. There was evidence of moderate gender effect in terms of internet addiction scores but not with regard to internet experience, frequency, and duration.

The above studies show that there exist gender differences in using internet and male uses internet more than females (Madell and Muncer, 2004; Jackson, Zhao, Kolenie, Fitzgerald, Horold and Von, 2008). It was also indicated from above studies that girls use the internet mainly for the purpose of chatting while boys used internet mainly for entertainment and gaming purpose (Watten, Kleiven, Fostervold, Fauske and Volden, 2008). Moreover, boys were found to be more addicted to the internet than girls (Smritikane, 2015).
2.2.3 Research studies related to perceived social support

Shaw and Gant (2002) conducted a study in the University of North Carolina to find the relationship between internet communication and depression, loneliness, self-esteem, and perceived social support. Study was designed to test the hypothesis that internet usage can affect users beneficially. Participants engaged in five chat sessions with an anonymous partner. At three different intervals they were administered scales measuring depression, loneliness, self-esteem, and social support. Changes in their scores were tracked over time. Internet use was found to decrease loneliness and depression significantly, while perceived social support and self-esteem increased significantly.

Inho (2002) found that Computer-mediated communication (CMC) has become a popular new medium for connecting people and establishing virtual relationships. Despite the growing interest in this area, however, few studies have been conducted concerning why people look to the Internet for social support. This study, therefore, seeks to further our current understanding of online social support by evaluating perceptions of online and perceived social support mechanisms based upon the uses and gratifications theoretical model. A Web survey was administered in the Michigan State on a general sample of Internet users and to participants in online discussion/social support groups, in order to assess the impact of online social support. The results indicated that there are indeed differences between the perceptions of online group users' and general Internet users' perceptions with respect to the level of social support provided by the Internet, as well as the general type of gratifications being sought. Furthermore, a negative relationship was found between the perceived level of social support or companionship, on the one hand, and the level of social relationship gratification seeking behavior on the other.

Vega (2003) assessed Internet users’ perceptions of social support and patterns of coping with daily hassles in America. An online survey was created with a pencil and paper version of the web-based experiment to examine potential correlates of Internet use, which included (daily hassles) stress, coping strategies, and perceived social support. Fifty-two participants were selected via the Internet and a local college. Analyses did not support hypotheses of the major variables daily hassles (stress), coping, and perceived social support) as unique predictors for Internet use. One potential explanation for these findings is that computer knowledge and skills may influence one's level of Internet use and support network. Thus, the
more computer and Internet literate the person, the more comfortable one is using the various distinct online activities.

Hardie and Tee (2007) conducted an online survey in Australia of 96 adults which revealed that, based on Young's (1998) criteria for the Internet Addiction Test, 40% of the sample could be classified as average internet users, 52% as problem over-users and 8% as pathologically addicted to the internet. The three groups differed on a range of factors, with over-users and addicts spending increasingly more time in online activities, being more neurotic and less extraverted, more socially anxious and emotionally lonely, and gaining greater support from internet social networks than average internet users. Further analysis revealed that only neuroticism and perceived support from online social networks were significant predictors of excessive internet use. In addition, over-users were found to be younger and less experienced in computer use than average or addicted users. Further research is needed to explicate the role of personality and track the possible pathways from novice over-use to eventual average use or pathological addiction.

Eldeleklioglu (2008) conducted a study on Gender, Romantic Relationships, Internet Use, Perceived Social Support and Social Skills as the Predictors of Loneliness and examined relations between outside school computer experiences, perceived social support for using computers, and self-efficacy and value beliefs about computer learning for 340 elementary school boys and girls of Turkey. Participants responded to a questionnaire about their access to computer use outside school (e.g. frequency of use and nature of activities), perceived parental and peer support, and computer self-efficacy and value beliefs. Although almost all students used computers outside school, there were significant gender differences in frequency and type of computer use. Also, boys reported more perceived support from their parents and peers to use computers and more positive computer self-efficacy and value beliefs than girls. Parental support and, to a lesser extent, peer support were the factors more strongly associated with boys’ and girls’ computer self-efficacy and value beliefs, while home computer access was not related to students’ motivation.

Vekiri and Chronaki (2008) examined relations between outside school computer experiences, perceived social support for using computers, and self-efficacy and value beliefs about computer learning for 340 elementary Greek school boys and girls. Participants
responded to a questionnaire about their access to computer use outside school (e.g. frequency of use and nature of activities), perceived parental and peer support, and computer self-efficacy and value beliefs. Although almost all students used computers outside school, there were significant gender differences in frequency and type of computer use. Also, boys reported more perceived support from their parents and peers to use computers and more positive computer self-efficacy and value beliefs than girls. Parental support and, to a lesser extent, peer support were the factors more strongly associated with boys’ and girls’ computer self-efficacy and value beliefs, while home computer access was not related to students’ motivation. Findings highlighted the role of socialization in the gender gap in computing and the need for research and educational interventions that focus on the social practices that communicate gendered expectations to young boys and girls.

Esen and Gundogdu (2010) conducted a study on the relationship between Internet Addiction, Peer Pressure and Perceived Social Support among Adolescents. The sample of the study consisted of 558 Turkish adolescents (290 female 268 male) selected from high school 9th and 10th grade at Mersin. Results showed that the lower the peer pressure, lesser the Internet addiction. Moreover, the more the parental and teachers’ support increase, Internet addiction scores of the adolescents decrease. Furthermore, it was observed that Internet addiction scores of the adolescents differed according to gender, and the Internet addiction scores of the girls were lower than that of boys. Otherwise, no relationship was observed between Internet addiction and peer support.

Mitchell, Lebow, Uribe, Grathouse and Shoger (2011) conducted a study on one hundred eighty-five undergraduate student of USA, who completed two detailed measures of internet use across various domains (for example: work/school, tasks/services, entertainment), as well as measures of happiness, perceived social support, and introversion. Specific types of internet use, including gaming and entertainment usage, were found to predict perceived social support, introversion and happiness. Use of the internet for mischief-related activities (for example: downloading without payment, fraud, snooping) was associated with lower levels of happiness and social support.

Sexton (2011) conducted a study in Washington to review the perceived impact social media plays in children’s personal relationships during adolescence. Surveys and interviews were
sent out to 50 subjects in an effort to gather and compile information for analysis. The Compulsive Internet Use Scale (Meerkerk et al.) was used in a survey format and administered to participants to access their perceptions in which their child(ren) and/or grandchild(ren)’s use the internet and social media. A 5-point Likert Scale was also implemented in order to provide measurable analysis. Adult anxiety in regards to social media was observed at different levels depending on the developmental stage of their children. Parental perceptions of social media, monitoring, and child behavior were the core variables studied. The findings of this study supported the Cues-Filtered-Out Theory and Social Presence Theory in that child behavior appears to take on a lack of consequence due to the absence of social cues and bodily presence in the medium known as social media. Additionally, the results challenge the Hyper personal Perspective, which argued that “computer-mediated relationships are more intimate than those existing at the physical state” (Griffin, 2009). To develop a better understanding on the existing perceptions of social media use and adolescents, this study reviewed the perceived impact social media plays on children during the 3 stages of adolescent development: 0 to 8 years, 9 to 13 years, and 14 to 18 years of age. Based on the findings, recommendations were made to monitor child internet use at a consistent level regardless of the child’s age.

Leung (2011) explored the practices of online social activities among children and adolescents in order to uncover the connections between preferences for online social interaction and loneliness, social support, and the mediating effect of identity experimentation online. Data were gathered from a random sample of 718 youngsters of Hongkong aged 9 to 19. Analyses revealed that individuals who are lonely and have a lower level of offline social support find opportunities for identity experimentation online more gratifying than those who are less lonely or not lonely. Both loneliness and social support offline were found significantly related to preference for online social interaction, but the relationships were mediated by identity experimentation online. Finally, it was found that age differences exist. In particular, individuals aged 9 to 14 who are lonely and those aged 15 to 19 with little social support show a significant preference for online social interaction.

Akbulut and Gunuc (2012) investigated adolescents Facebook use with regard to their perceived social support characteristics. The data were collected from 255 Turkish adolescents in two provincial state schools. A personal information form and 12-scaled items were used to collect data. A confirmatory factor analysis was conducted on scale items and
relationships between social support and Facebook use behaviors were investigated. Findings revealed that perceived social support from significant others were predicted by the time spent on Facebook. More support from actual face-to-face friends meant fewer online friends whereas more support from significant others meant more online friends. Profile and security settings varied with regard to perceived social support as well. Regardless of socioeconomic status, less family support was related with adding unknown people haphazardly, and using Internet cafés. Finally, less friend support was related with resorting to nicknames rather than real names.

Olson Liu and Shultz (2012) conducted a study to find 1) The impact of Facebook usage on perceptions of social support, and 2) the relationship between Facebook usage, social support, and efficacy in predicting life satisfaction. Results revealed that social support as perceived by Facebook users was significantly higher for face-to-face friends, for three types of social support (emotional, informational, and instrumental). Also, the greater the number of hours spent on Facebook, the more social support was perceived from both face-to-face and Facebook friends. Only goal efficacy and interpersonal control had a significant relationship with life satisfaction.

Lynch (2012) conducted a study in New England to explore the constructs of perceived social support and perceived stress and examined the impact of online social networking sites and computer-mediated communication upon a person’s experience of them. Results supported Cohen’s Stress-buffering hypothesis. A significant negative correlation was found for the association between reported levels of perceived social support and levels of perceived stress. Facebook use was not significantly related to perceived social support. This finding failed the second step for establishing mediation and disproved the hypothesis that perceived social support mediates a negative correlation between Facebook use and perceived stress. Further exploration revealed a significant relationship between respondent preferences for computer-mediated communication, perceived social support, and perceived stress, however. The more that respondents preferred online communication to face-to-face or telephone communication, the greater the level of stress they perceived. Also, respondents who reported a preference for computer-mediated communication reported lower levels of perceived social support. A regression analysis was performed on these two relationships and perceived social support was found to mediate the relationship between a preference for computer-mediated communication and higher levels of perceived stress.
Liu, Fang, Zhou, Zhang and Deng (2013) examined the associations between adolescents’ perceived relationships with their parents, perceived parental online behaviors, and Pathological Internet Use (PIU) among adolescents. Additional testing was carried out to determine the effect of different genders (parent and adolescent). Cross-sectional data was collected from 4,559 students aged 12 to 21 years in the cities of Beijing and Jinan, People’s Republic of China. Participants responded to an anonymous questionnaire concerning their Internet use behavior, perceived parental Internet use behaviors, and perceived parent-adolescent relationship. Hierarchical linear regressions controlling for adolescents’ age were conducted. Results showed different effects of parent and adolescent gender on perceived parent-adolescent relationship and parent Internet use behavior, as well as some other gender-specific associations. Perceived father-adolescent relationship was the most protective factor against adolescent PIU with perceived maternal Internet use positively predicting PIU for both male and female adolescents. However, perceived paternal Internet use behaviors positively predicted only female adolescent PIU. Results indicated a different effect pathway for fathers and mothers on boys and girls, leading to discussion of the implications for prevention and intervention.

Ruud (2013) examined the relationships between integration into popular social networking site Facebook and feelings of social support and university belonging among traditional college students. The research strategy involved the administration of an online survey to over 150 students of Midwestern Research University of USA. The instruments used in the study were the Facebook Intensity Scale (FIS), the Multidimensional Scale of Perceived Social Support (MSPSS), and the Psychological Sense of School Membership (PSSM) scales, along with items examining students’ demographic characteristics, Internet use history, and items intended to supplement the FIS by determining different interactive experiences of students with peers and friends from high school. Variables were analyzed using multiple linear regression, with demographics and Internet use history variables used as controls. The study found many notable relationships between the measured constructs and variables. In regards to the influence of Facebook on social support and university belonging, significant relationships were found. Several items in the FIS were found to be significantly related with MSPSS and PSSM scales and subscales. Other variables, such as the use of Facebook to stay connected with friends from high school, had similar relationships to the PSSM and portions of the MSPSS.
Gunuc and Dogan (2013) investigated the relationships between adolescents' Internet addiction, their perceived social support and the activities carried out with the mother, father and family. The study was designed with the survey model involving 166 Turkish adolescents who applied to Merkez Efendi Public Hospital Moris Sinasi Children's Clinic, Child Development Polyclinic between February 2012 and June 2012 for problems specific to the period of adolescence. The age range of the participants was between 12 and 18 with the average age of 15.5. The findings of the study revealed a medium level of negative relationship ($r= -0.37$) between perceived social support and Internet addiction. The adolescents spending time with their mothers had a higher level of perceived social support and a lower level of Internet addiction. Also, t-test was applied to see whether the adolescents' perceived social support and Internet addiction differed with respect to the activities they carried out with the mother, father and family. It was found out that a number of activities (watching TV, eating meals, chatting, shopping and spending time outside) the adolescents carried out with their mother increased their level of perceived social support although the levels of Internet addiction did not differ with respect to the types of activities carried out only with the mother, only with the father and with the family.

Narvaez (2014) investigated online relationships that are created through the Massively Multiplayer Online Role-Playing Games (MMORPG). The study focused on 116 players of San Francisco aged 18 to 28 who engage in online games. The purpose of this study was to better understand the social intimacy and perceived social support of friendships made in MMORPGs compared to in-person, face-to-face friendships. The questionnaires utilized include: the Miller Social Intimacy Scale (MSIS), the Measure of Perceived Social Support From Friends (PSS-Fr), and additional demographic and gaming questions to further clarify online relationships through the perspectives of the participants. It was hypothesized that no significant differences in social intimacy between online and face-to-face friendships would be found. This hypothesis was not supported as there was a statistically significant difference between levels of intimacy of online and face-to-face friendships. Participants reported that they experience more intimacy with in-person relationships. However, there was a finding that online social intimacy increased as time spent online increased. 82 participants who played more than 10 hours a week had no significant differences in social intimacy of online and face-to-face friendships. The second hypothesis stated that MMORPG players perceive online friendships to be as supportive as their face-to-face friendships, and that there are no significant differences in perceived social support between online and face-to-face
friendships. This hypothesis was supported and it was found that participants perceive online and face-to-face relationships in a similar manner.

Viviano (2014) examined the moderating effects of global self-esteem and perceived social support on the relationship between cyber bullying victimization and psychosocial adjustment among adolescents. The sample was comprised of 312 adolescents who ranged in age from 11 to 18, and who were from diverse locations within the United States. Using an anonymous online survey methodology, participants completed a demographic and Internet use questionnaire and the following self-report scales: the Cyber bullying Victimization Questionnaire, the Rosenberg Self-Esteem Scale, the Multidimensional Scale of Perceived Social Support, and the items associated with the internalizing and externalizing scales of the Achenbach System of Empirically Based Assessment–Youth Self-Report. Results indicated cyber bullying victimization, global self-esteem, and perceived social support significantly predicted internalizing problems. Cyber bullying victimization also predicted externalizing problems. Global self-esteem and perceived social support did not have a statistically significant relationship with externalizing problems. Hierarchical regression analyses revealed that global self-esteem and perceived social support did not moderate the relationship between cyber bullying victimization and internalizing problems. Furthermore, perceived social support did not moderate the relationship between cyber bullying victimization and externalizing problems. However, results did show that global self-esteem moderated the relationship between cyber bullying victimization and externalizing problems.

Petersen (2014) explored relationships between the frequency of public communication on the social networking website Facebook and the level of social support an individual perceives. Students of Denver University of USA in the Graduate School of Social Work and the Emergent Digital Practices program were surveyed. Correlation and regression analyses were used to examine the relationship between the variables. Findings from the analysis indicated that the frequency of posting statuses on Facebook and the frequency of responding to other's status updates on Facebook was significantly and negatively associated with a perception of tangible social support. The frequency of these types of communication were not significantly associated with the perception of appraisal, belonging, or self-esteem social support. The frequency of others responding to one's status posts was not significantly associated to the perception of any type of social support. The implications of these findings for theory, research, and social work practice are explored.
Nishi, Shivani and Sanaya (2015) conducted a study in Delhi with an aim to study the effect of social networking sites and perceived social support on the psychological well-being of the youth. The sample size was 100 which had 50 males and 50 females. All the participants were college going students or new entrants in the corporate sector. The participants were asked to fill the questionnaire which had four parts – 1. Social Networking Sites Survey, 2. Multidimensional Scale of Perceived Social Support Assessment, 3. Psychological General Well-Being Index. The results indicated a negative relationship between the usage of social networking sites and the psychological well-being while positive relationship existed between online perceived social support and psychological well-being. Certain gender differences were also found among the variables like perceived social support and attraction towards social networking sites.

Ozsaker, Muslu, Kahraman, Beytut, Yardimci and Basbakkal (2015) investigated the effects of loneliness, depression and perceived social support on problematic Internet use among university students. The participants were 459 students at two universities in Turkey. The study data were collected with a Questionnaire Form, Problematic Internet Use Scale (PIUS), University of California at Los Angeles (UCLA) Loneliness Scale (Version 3), Multidimensional Scale of Perceived Social Support (MSPSS) and Beck Depression Inventory (BDI). The Mann-Whitney U Test and Kruskal-Wallis one-way analysis of variance were conducted to examine the differences; and correlation and regression analyses were used to examine the relationships between variables. There was a positive significant correlation between the PIUS and MSPSS and the UCLA Loneliness Scale and a negative significant correlation between the PIUS and Beck Depression Scale (BDS). The female students had higher total PIUS scores. The results also illustrated that there was a statistically significant difference in total PIUS scores according to having a social network account.

Leung (2015) conducted a study in Hongkong to examine the effects of social media use and internet connectedness on academic performance and on perceived social support. Results showed that, after controlling demographics and overall grades at Time 1, individual level change in overall grades over the year that followed was attributable to Facebook, blogs, and online game use but not to internet connectedness. Results suggest that heavy Facebook use has a positive effect on overall grades, while heavy use of blogs and online games leads to grade impairment. In the case of academic competence and perceived social support, individual-level change over the year that followed was only attributable to Facebook use.
Cho and Yoo (2017) examined the relationship between cyberbullying and perceived social support, usage of the internet, and usage of social networking services (SNS). Whereas previous research has generally focused on adolescents, the current study attempted a comparative analysis among groups of adolescents, university students, and working adults of Republic of Korea. The analysis showed a positive relationship between usage of the internet for information and cyberbullying victimization, as well as a negative relationship between the usage of SNS for reading purposes and cyberbullying perpetration and victimization. Experiences with cyberbullying as perpetrator and victim were found to be more numerous with higher numbers of online friends, while a negative relationship was observed between offline perceived social support and acts of cyberbullying. For the adolescent group, acts of cyberbullying were more common with less reading of SNS. For university students, a positive relationship was found between perceived social support and acts of perpetration and victimization. For working individuals, acts of perpetration and victimization were found to be more common with larger numbers of online and offline friends. In all three groups, a negative relationship was found between acts of cyberbullying and offline perceived support. Majority of studies concluded that perceived social support and self-esteem increases significantly with the use of Internet (Shaw and Gant, 2002). Further it was also revealed that only neuroticism and perceived social support from online social networks were significant predictors of excessive internet use (Hardie and Tee, 2007). Boys were reported perceived more support from their parents and peers to use computers than girls (Eldeleklioglu, 2008). Studies also reported that use of Internet for mischief related activities were associated with lower levels of happiness and social support (Esen and Gundogdu, 2010). Studies also reported that social support as perceived by FB users were significantly higher for face-to-face friends (Olson, Liu and Shultz, 2012).

2.2.4 Research studies related to computer anxiety
Durndell and Haag (2002) conducted a study on 74 female and 76 male from Romanian university students, from a wide mixture of courses, completed a Computer Self-efficacy Scale, a Computer Anxiety Scale, an attitude to the Internet Scale and gave information about their use of the Internet. Significant zero order correlations were obtained with the relationships being between higher computer self-efficacy, lower computer anxiety, more positive attitudes towards the Internet and longer reported use of the Internet. Significant gender effects were found throughout, with males tending to report greater computer self-efficacy, lower computer anxiety, more positive attitudes towards the Internet and longer use
of the Internet than females. However, regression analysis indicated that reported Internet experience (use) was the only variable independently linked to gender.

Sam, Othman and Nordin (2005) conducted a study on eighty-one female and sixty-seven male undergraduates of Malaysia from seven faculties and a Center for Language Studies completed a Computer Self-Efficacy Scale, Computer Anxiety Scale, and an Attitudes toward the internet Scale and give information about their use of the internet. This survey research investigated undergraduates’ computer anxiety, computer self-efficacy, and reported use of and attitudes toward the internet. This study also examined differences in computer anxiety, computer self-efficacy, attitudes toward the internet and reported use of the internet for undergraduates with different demographic variables. The findings suggested that the undergraduates had moderate computer anxiousness, medium attitudes toward the internet, and high computer self-efficacy and used the internet extensively for educational purposes such as doing research, downloading electronic resources and e-mail communications. However, although internet usage levels may not have any impact on computer self-efficacy, higher usage of the internet does seem to decrease the levels of computer anxiety among the undergraduates. Undergraduates with lower computer anxiousness demonstrated more positive attitudes toward the internet in this study.

Ball (2008) predicted university instructors’ intention to use emerging educational technology in traditional classrooms based on the contribution of computer anxiety (CA), computer self-efficacy (CSE) and experience with the use of technology (EUT), as measured by their contribution to the prediction of behavioral intention (BI). Fifty-six instructors from a University in Florida were surveyed to determine their level of CA, CSE, and EUT, and their intention to use emerging educational technology in traditional classrooms. It was predicted that CA, CSE and EUT would have a significant impact on instructors’ intention to use emerging educational technology in the classroom. Results demonstrated that CSE was a significant predictor of the use of emerging educational technology in the classroom, while CA and EUT were not found to be significant predictors.

Aade and Kira (2009) investigated the role of computer self-efficacy in mediating computer anxieties on perceived ease of use. These two variables were believed to impact an individual’s use of computers and performance for computer-based tasks. Anxiety has been argued to impact computer-based learning by affecting levels of self-efficacy anchored in
social learning and outcome expectation theories. Self-efficacy was determined by levels of anxiety such that reduced anxiety and increased experience improves performance indirectly by increasing levels of self-efficacy. This study investigated the influence of computer anxiety on perceived ease of use and the mediating effect of computer self-efficacy on this relationship, within an e-learning context. A survey methodology approach was used in this study using 18 items for 3 constructs (perceived ease of use, anxiety, and self-efficacy). Survey data from 645 university students were analyzed. The psychometric properties of the items and constructs were validated followed by the assessment of mediation of computer self-efficacy. Results from the use of a learning management system indicated that computer self-efficacy plays a significant role in mediating the impact of anxiety on perceived ease of use. This role is observed by computer self-efficacy (1) reducing the strength and significance of the impact of anxiety on perceived ease of use and (2) having a strong and significant relationship with computer anxiety. The findings demonstrated the importance of self-efficacy as a mediator between computer anxiety and perceived ease of use of a learning management system (LMS). With the continuous development of richer and more integrated interfaces, anxieties about learning to use the new interface and executing tasks effectively becomes of primary importance.

Ekizoglua and Ozcinara (2010) conducted a study in North Cyprus to define how much computer anxiety, internet anxiety, computer perceived self-efficacy and internet perceived self-efficacy predicts each other was held by using 590 candidate teachers. In the research, computer anxiety scale (alpha= 0.84) computer perceived self-efficacy scale (Alpha=0.97) Internet anxiety scale (Alpha =0.90) and internet perceived safe efficacy scale (Alpha = 0.939) were used. As a result of the survey, it is found out that there is a positive and high level relationship between computer perceived self-efficacy and internet perceived self-efficacy, and thus analyzing the other variables, it is clear that the correlation between the variables is calculated as (r= 0.845) It has been concluded that computer anxiety, together with internet anxiety and computer perceived self-efficacy anxiety variables explain approximately 0.72 % of internet perceived self-efficacy variance. When analyzing the t-test results that are about the regression numbers, it has been seen that computer perceived self-efficacy and computer anxiety are important factors on computer perceived self-efficacy. It has also been found out that there is appositive and medium level relationship between computer anxiety and internet anxiety, and analyzing the other variables, it has been seen that the correlation between the two variables is calculated as (r=0.36). Also, it has been
concluded that computer anxiety, computer perceived self-efficacy, and internet perceived self-efficacy jointly explain approximately 0.21% of internet self-efficacy variance. When analyzing the test results on regression, it has been found out that only computer anxiety is an important predictor on internet anxiety.

Korobili, Togia and Malliari (2010) attempted to give an insight to the computer anxiety levels and attitudes toward computers of the Greece students. Both constructs were examined using explanatory factor analysis. Internal consistency of the factors of each construct was satisfactory. It was found that there was a strong negative relationship between the two concepts. Canonical correlation analysis demonstrated that anxiety explains more variance of the attitudes than vice versa. Another finding was that most of LIS students were not anxious toward computers and with positive attitudes. Factors correlated negatively with anxiety and positively with attitudes, and knowledge of English language, PC ownership, access of students to computers at younger ages, perceived advanced computer skills and computer experience as reflected by frequency of computer use.

Simsek (2011) examined the relationship between computer anxiety and computer self-efficacy of students and teachers in elementary and secondary schools. The sample included a total of 845 subjects from two private school systems in Turkey. The Oetting’s Computer Anxiety Scale was used to measure computer anxiety whereas the Murphy’s Computer Self-Efficacy Scale was used to measure computer self-efficacy of subjects. The results demonstrated that elementary students were less-anxious than secondary students; males had lower anxiety scores than females; and the difference between anxiety scores of students and teachers was not significant. However, students had higher self-efficacy scores than their teachers; elementary students were more self-efficient than secondary students; and males had higher computer self-efficacy scores than females. The correlation between the variables of computer anxiety and computer self-efficacy was moderate, negative, and significant.

Mehra and Omidian (2011) compared computer anxiety among Indian and Iranian university students in relation to country, faculty and gender. A total of 800 post-graduate students of different faculties and departments of Panjab University (India) and University of Tehran (Iran) were the subjects of the present study. The data were collected through computer anxiety rating scale (CARS). 2x2x2 ANOVA design was employed to study computer anxiety of Indian & Iranian male & female university students belonging to different faculties.
The results indicated that country type, faculty type and interaction between country and faculty had significant effect on university students’ computer anxiety scores. Results also revealed that no significant difference was found between the attitude towards e-learning of Indian and Iranian university students and university students of the two countries were significantly different in respect of their total mean score on computer anxiety. Both male and female university students in the two countries exhibited comparable internet use. It was also found that the Indian student’s attitude’s with regard to high computer anxiety were less than students’ attitude scores under moderate and low computer anxiety and Iranian student’s attitude scores with regard to high computer anxiety were more than the student’s attitude scores under moderate and low computer anxiety.

Rezaei and Ali (2011) investigated the relationship between Internet anxiety, Internet self-efficacy, Internet identification and Internet use by agricultural students. The statistical population was postgraduate agricultural students (M.Sc.) at Zanjan University who were selected using a simple random sampling technique. Sample size for students was 118 persons. The study was conducted during autumn 2010 using a descriptive, correlational design. Data was gathered via the use of questionnaire. The instrument validity and reliability was confirmed based on opinions of a panel of experts and Cronbach's alpha coefficient respectively. Results revealed that the postgraduates had medium level Internet anxiety and high level Internet self-efficacy and Internet identification. The t-test showed that female students had significantly higher Internet anxiety than did male students. Further, results indicated that there was a positive significant relationship between public and professional Internet use by students and their Internet identification and Internet self-efficacy. In addition, the relationship between Internet anxiety and professional Internet use was negative.

Yaseen (2013) aimed at investigating the relationship between computer achievement and computer anxiety and attitude toward computer for university students and investigating the relative importance for each of these variables in predicting students' computer achievement. The sample consisted of (162) males and (138) females of Jordan. The results indicated significant correlations between computer achievement and independent variables (computer anxiety and attitude toward computer). The results also indicated that the computer attitude explained most of the variance in all samples of the study and it worked differently for males and females, for Males this variable explained (36%) of the variance and explained only (25%) for females.
Azher, Behram, Salim, Bilal, Hussain and Haseeb (2014) investigated not only the prevalence of internet addiction among the male and female students in the University of Sargodha but also the relationship between internet addiction and anxiety level of students. There were 300 students, from Masters’ classes, as sample, selected through cluster sampling. Internet Addiction Scale (I.A.S) and Beck Anxiety Scale were used as assessment tools for data collection. Data was analyzed using mean, standard deviation, T-test and regression analysis. The results showed that prevalence of internet anxiety was more in male students than female students. Regression analysis showed a positive and significant relation between internet addiction and anxiety level among University students.

Yoon, Jang and Xie (2016) examined predictors of computer use and computer anxiety in older Korean Americans. Separate regression models were estimated for computer use and computer anxiety with the common sets of predictors: (a) demographic variables (age, gender, marital status, and education), (b) physical health indicators (chronic conditions, functional disability, and self-rated health), and (c) sociocultural factors (acculturation and attitudes toward aging). It was found that approximately 60% of the participants were computer-users, and they had significantly lower levels of computer anxiety than non-users. A higher likelihood of computer use and lower levels of computer anxiety were commonly observed among individuals with younger age, male gender, advanced education, more positive ratings of health, and higher levels of acculturation. In addition, positive attitudes toward aging were found to reduce computer anxiety.

Cazan, Cocorada and Maican (2016) examined the relationships between computer and internet anxiety, computer self-efficacy and other personal characteristics in a Romanian context. A full-mediated model was tested. Findings revealed that low computer self-efficacy predicts anxiety; the previous education in the field of computer science has direct negative effects on computer anxiety and on the negative attitudes towards the internet. It was also revealed that no significant difference was found between the male and the female participants concerning computer anxiety, self-efficacy and the negative attitudes towards the internet.

The above studies show that adolescents with lower computer anxiety demonstrated more positive attitudes towards the internet (Sam, Othman and Nordin, 2005). The studies also revealed that high level of computer anxiety is found in females than males (Durndell and
Study also reported that students especially, males with lower computer anxiousness demonstrated more positive attitudes towards the internet and computer anxiety is an important predictor of internet anxiety (Sam, Othman and Nordin, 2005).

### 2.2.5 Research studies related to interpersonal relationships

Nie (2001) conducted a study in USA to find whether Internet use can be a potentially isolating activity or one that leads to substantially greater communication among people and thus enhances human connectivity and sociability. Result showed that Internet users do not become more sociable; rather, they already display a higher degree of social connectivity and participation, due to the fact that they are better educated, better off financially and less likely to be among the elderly. And simply because of the inelasticity of time, Internet use may actually reduce interpersonal interaction and communication.

Caplan (2002) conducted a study in USA to find out whether lonely and depressed individuals develop a preference for online social interaction. Participants completed measures of preference for online social interaction, depression, loneliness, problematic Internet use, and negative outcomes resulting from their Internet use. Results indicated that psychosocial health predicted levels of preference for online social interaction, which, in turn, predicted negative outcomes associated with problematic Internet use. Results also revealed that the influence of psychosocial distress on negative outcomes due to Internet use is mediated by preference for online socialization and other symptoms of problematic Internet use. The results supported the current hypothesis that that individuals’ preference for online, rather than face-to-face, social interaction plays an important role in the development of negative consequences associated with problematic Internet use.

Wolak, Mitchell and Finkelhor (2003) used data from a US national sample of Internet users, aged 10–17 (N = 1501), to explore the characteristics of youth who had formed close relationships with people they met on the Internet (n = 210). Girls who had high levels of conflict with parents or were highly troubled were more likely than other girls to have close online relationships, as were boys who had low levels of communication with parents or were highly troubled, compared other boys. Age, race and aspects of Internet use were also related. Little was known about the nature or quality of the close online relationships, but youth with these sorts of problems may be more vulnerable to online exploitation and too there could be possible ill effects of online relationships. At the same time, these relationships may have helpful aspects.
Mesch and Talmud (2006) investigated differences between adolescents who created online friendships and those who did not, and how far the place where a friend was met (online or face to face) was related to the quality of social relationships, namely the perceived strength of social ties. Examining the dyadic friendship structure of a representative sample of Israeli adolescents, the study provides important contributions to the rapidly growing literature on online social relationships in general, and on youth networks in particular. The results supported the social compensation approach to the study of online social relationship formation. The motivation for online friendship formation proved to be related to adolescents’ attempts to compensate for a lack of social support by using the Internet for communication. Furthermore, while face-to-face relationships remained highly important, for those adolescents who found in the Internet others with whom they developed intimacy, online ties were strong and meaningful. Additionally, adolescents with strong virtual ties were found to be distinctive in their social background.

Sheldon (2008) conducted a survey with 172 students at a large southern research University of Alabama to examine how unwillingness to communicate in interpersonal communication influences gratifications sought and gratifications obtained from Facebook use. Results of multiple regression analysis revealed that respondents who felt anxiety and fears in their face-to-face communication used Facebook to pass time and feel less lonely more than other respondents, but they had fewer Facebook friends. Overall, this paper found evidence that people who were involved in online relationships were those who were willing to communicate in real life, rather than the opposite. Such results seem to justify the rich get richer hypothesis, which states that the Internet primarily benefits extraverted individuals.

Chen and Samuel (2008) examined the relationships between university students' internet use and students' academic performance, interpersonal relationships, psychosocial adjustment, and self-evaluation. The study was based on data drawn from a national survey of college students in Taiwan. A stratified sample of 49,609 students was randomly selected from 156 universities (174,277 students). Students completed a questionnaire online. Heavy internet users and non-heavy internet users differed significantly on a number of dimensions. Non heavy users had better relationships with administrative staff, academic grades, and learning satisfaction than heavy internet users. Heavy users were more likely than non-heavy internet users to be depressed, physically ill, lonely, and introverted.
Leffel (2009) conducted a study to find the possible links between the uses of various modern technologies and their effects on feelings of interpersonal isolation in a young adult sample with the hypothesis that higher levels of technology use would be correlated with higher feelings of isolation in certain areas. Surveys were administered to 126 adults of Chicago, both male and female, specifying their ages as between eighteen to thirty years old. Participants were only considered for research if they met the criteria of being a full-time student, and/or, a working professional, as these variables were deemed, by the researcher, as necessitating the use of various modern technologies of focus in many cases. Manual labor positions were not considered for research, as they were not assumed to necessarily meet these criteria. The researcher conducted a mixed-methods study and developed two separate questionnaires to assess quantitative data; one focusing on factors commonly associated with feelings of isolation, the other focusing on time estimates for various technologies of focus, including; television, internet, cellular phone, video game, and MP3 player use. Qualitative data was assessed through providing participants with an opportunity to write up to a one page response, discussing how they perceived technologies of focus as affecting their lives in a general sense. Quantitative results were analyzed using one way ANOVAs assessing individual feelings associated with isolation as related to specific technology usage, while qualitative data was assessed utilizing discourse analysis, focusing on most frequent themes and patterns of response, with codes developed for those most prevalent. The researcher found no significant differences in quantitative data between male and female respondents with regard to feelings of isolation as associated with various technology uses. One significant correlation of technology use as related to feelings of isolation was found-in lower levels of MP3 player use as correlated to higher levels of time in face-to-face interaction. Higher reported levels of technology use were often related to variables such as sense of belonging and support. Qualitative data showed tendencies of participants to view technologies in positive terms primarily, often discussing perceived negative characteristics in hypothetical or "externalized," beyond the self, wording. Qualitative data found participant tendencies to discuss dependence on technologies of focus, along with a pattern among female respondents to verbalize more specific feelings of how technology could affect feelings of isolation, as opposed to males. Results appeared to indicate generally positive feelings regarding technology, with few quantitative indications of technology as affecting feelings of isolation, though qualitative data seemed to indicate feelings of dependence on technology, subtle gender variables, and tendencies of participants to view technologies in primarily positive ways, with negative feelings toward technology often verbalized.
Milani, Osualdella, and Blasio (2009) examined the relationship among problematic Internet use (PIU), the quality of interpersonal relationships, and the cognitive strategies habitually used by adolescents to face daily problems. Sample comprised of 98 Italian adolescents aged 14 to 19 (M = 16.28 years). The following instruments were administered to the participants: the Internet Addiction Test (IAT), the Test of Interpersonal Relationships (TRI); and the Children's Coping Strategies Checklist (CCSC). Parents of the participants were administered the Child Behavior Checklist (CBCL). Of the participants, 36.7% showed signs of PIU. These adolescents used the internet for many hours per week; most utilize dysfunctional coping strategies and showed worse interpersonal relations than peers who do not show signs of PIU.

Gutkin and Mikhail (2010) compared the relationships formed by couples over the internet with those that originated in face-to-face interactions, using an international sample of 803 internet users from Winnipeg, Canada. The two groups were compared for relationship satisfaction, commitment, stability, and personality styles. Relationship satisfaction was measured using the Relationship Assessment Scale (RAS) and Relationship Satisfaction Scale (RSS). Four subscales of the Commitment Inventory (CI) were used to assess participants' commitment to their partners, and stability of the relationships was evaluated through its longevity. The personality styles were evaluated with the help of Big-Five Personality Factor Scales using International Personality Item Pool (IPIP). The relationships formed online were found to be more satisfying than the ones that originated in face-to-face interactions. Internet users who formed relationships online were found to be as committed to their partners as people who met their partners face-to-face. Furthermore, the face-to-face relationships were found to be lasting longer than internet relationships due to the fact that online dating is a relatively new phenomenon and these relationships are naturally shorter than the traditional ones. The personality styles did not vary between two groups. How secure and confident a person feels was the only personality factor consistently predicting relationship satisfaction and commitment across all groups and both genders, except for the relationship commitment in the internet group.

Witherspoon (2011) conducted a study in USA to find the differences in social connectedness and interpersonal relationship satisfaction as a function of face-to-face interactions versus use
of a social networking site were examined in the current study. Sample comprised of 87 undergraduate and 60 graduate students from two private universities. Facebook Intensity Scale (Ellison, Steinfield, & Lampe, 2007), Relationship Assessment Scale (Hendrick, 1988), and Social Connectedness Scale-Revised (Lee, Draper, & Lee, 2001) were used for collecting data. Multiple regressions analysis was used and it was found that participants who were more socially connected were more satisfied in their relationships with family members and friends. However, frequency of face-to-face and online social networking was not found to predict relationship satisfaction and social connectedness. Additionally, an independent samples t-test revealed that females accessed Facebook to feel more connected to family members and friends. Race was an important variable, indicating that Caucasian participants were more satisfied and socially connected with family members and friends than African-Americans.

Blau (2011) explored the relationships between internet abuse (IA) self-disclosure, online application usage, and relationship types traditional long-distance, purely virtual, and migratory mixed-mode. An online questionnaire was administered to 2884 children and youth in Israel. Participants reported the highest level of online communication in traditional long-distance relationships, lower level in purely virtual, and the lowest level in migratory mixed-mode relationships. Participant IA and self-disclosure positively influenced online communication, but not interactions with the relationship type.

Masin (2011) analyzed Facebook use intensity, sex, and the development of mature interpersonal relationships of students at Oklahoma State University. Correlation analysis yielded small but significant negative relationships between the development of mature interpersonal relationships and Facebook use intensity, with slightly more negative correlations found when only peer relationships were considered. When broken down into females and males, no significant correlations were found unless only peer relationships were considered, in which case both females and males showed negative relationships similar to the entire sample. Two way ANOVA analyses established that both sex and Facebook use intensity have a significant effect on the development of mature interpersonal relationships. Analysis of other results found that respondents are likely spending over an hour on Facebook per day and that the majority of users have "over 400" Facebook friends. The conclusions drawn from these results were that students might be going through an evolutionary process of integrating Facebook and other social media into their routines which
cannot be necessarily be accounted for by the somewhat dated (1999) MIR Task. Correlations were negative and small, but still significant, and Facebook use accounted for less than six percent of the development of mature interpersonal relationships. ANOVA analysis showed a significant difference between "heavy" and "light" users, which indicates that students who more intensely use Facebook have less developed mature interpersonal relationships than those who did not. This indicated that Facebook use might have a negative influence on mature interpersonal development.

Smahel, Brown and Blinka (2012) examined associations between online friendship and Internet addiction in a representative sample of 394 of Czech youths ages 12–26 years (\(M = 18.58\)). Three different approaches to friendship were identified: exclusively offline, face-to-face oriented, Internet oriented, on the basis of the relative percentages of online and offline associates in participants’ friendship networks. The rate of Internet addiction did not differ by age or gender but was associated with communication styles, hours spent online, and friendship approaches. The study revealed that effects between Internet addiction and approaches to friendship may be reciprocal: Being oriented towards having more online friends, preferring online communication, and spending more time online were related to increased risk of Internet addiction; on the other hand, there was an alternative causal explanation that Internet addiction and preference for online communication conditions young people’s tendency to seek friendship from people met online.

Drussell (2012) conducted a survey on 2,277 American adults found that 18-24 year olds sent or received an average of 109.5 text messages per day, which works out to be more than 3,200 text messages per month. Further, it was estimated that 713 million people ages 15 or older, which was 14% of the global population, used the Internet in June 2006, with 153 million being in the United States. The purpose of this study at social networking, specifically the activities of texting and use of the social network site (SNS) Facebook, and its impact on communication and conflict resolution skills. Twenty two college freshmen responded to an anonymous survey addressing their daily activities in social networking as well as general attitudes regarding communication and conflict resolution. The findings of this research suggested that individuals consider face-to-face interaction the most effective and preferred means to communicate and resolve conflict with others. However, the results also indicated that individuals participate in daily social networking activities at a higher rate than what has been found in previous studies. Further, participants reported using texting and
Lai, Lin, Chen and Gwung (2013) examined the association among internet addiction, various Internet usage, and interpersonal relationships. In total, 444 valid copies of questionnaires were collected from a university of Taiwan. The results indicated that the internet functions on social interaction, video watching, and information seeking can enhance interpersonal relationship while porn-website surfing and game playing cannot directly affect interpersonal relationship. On the other hand, the social interaction, porn-website surfing, and video watching led to poor interpersonal relationship mediated by internet addiction.

Liu, Yin and Huang (2013) investigated the adolescents’ interpersonal relationships with friends, parents, and teachers when using Facebook for interaction. Sample comprised of total of 740 junior high school students of Taiwan. One-way analysis of variance and paired-samples t-test was used for analyzing the data. Results revealed that adolescents with high frequency use of Facebook for interactions could expand their interpersonal relationships with friends than those who with low frequency use, regardless of real-life or virtual relationships. However, their real-life interpersonal relationships with parents may weaken if an adolescent uses Internet for interactions in excess. Another finding, eliminating the factor of the time on Facebook use, reveals that the adolescents’ real life inter-personal relationships are stronger than virtual interpersonal relationships, regardless of relationship with friends, parents, and teachers.

Mistry (2014) explored the impact of social networking on communication and conflict resolution skills among first MBBS students. A cross-sectional study was conducted on 122 first year MBBS students using semi-structured questionnaire after taking their consent. Purposive sampling method was used. Data entry and analysis was done using excel and SPSS v16. Mean age of participants was 17.7 All the participants 122 (100%) of Saint Paul, Minnesota, have their own cell phone & 112 (91.8%) were using internet. Majority of participants have their profile on Facebook 100 (81.9%) and Whatsapp 105 (86.1%). Twenty seven percent (33) participants strongly agreed that “people who rely on social networking are losing the ability to talk with others”, while 50 (41%) strongly disagreed to it. More than forty seven percent (58) of participants were of strong belief that “people cannot effectively solve problems using social networking”. More than half (52.4%) of participants said that “it’s easy to take things the wrong way during social networking”. Results revealed that participants have replaced traditional methods of communication with social networking on
which they spend a fair amount of time. Use of social networking sites helped half of the adolescents to open up to the world but these sites did not help much in conflict resolution as responded by nearly half of participants.

Yamakanith and Gurusamy (2014) conducted a study in India to examine the influence of SNS on interpersonal relationships of college students and also to construct a profile, which can capture the college students’ usage pattern of SNS. Six hundred college students were selected from both Chennai and Coimbatore cities for generating primary data; questionnaire methods were used for the said purpose. It was found that the usage of SNS has effect on interpersonal relationships of college students, particularly with their members of family, friends and teachers. It was also found that due to the availability of SNS the communication between college students and their members of family, between college students and their friends has increased.

Cudo, Dobosz, Cudo and Basaj (2016) conducted a study to look for connections between self-esteem, interpersonal relations, the world and life image and the intensification of problematic Internet use, taking into consideration differences resulting from gender. Another aim was to determine predictors connected with problematic Internet use in the group of female and male youth. 270 high-school students of Poland were initially examined; however, further analysis covered 260 of them, i.e. 142 females and 118 males. The Problematic Internet Use Test and the Questionnaire of Intrapersonal and Interpersonal Attitudes and Attitudes Towards the World was used. Results revealed significant differences in the scope of self-esteem, convictions about intrapersonal relations and the experience of the world and life in persons with various intensification of problematic Internet use. Furthermore, different predictors were found in terms of addictive use of the Internet in the groups of female and male students. Thus, for female students it was self-esteem in the field of character, and for male students it was the self-esteem in the social and moral sphere. There were no inter-gender differences in terms of problematic Internet use or the number of hours spent online weekly.

The key findings suggest that Girls who had conflict with parents were more likely to have more close relationship on internet (Wolak, Mitchell and Finkelhor , 2003). Face to face relationships were found to be more important for adolescents (Mesch and Talmud, 2006). It was also indicated from above studies that students who more intensly use internet for social
interaction, porn-website surfing and video watching led to poor interpersonal relationship mediated by internet addiction (Lai, Lin, Chen and Gwung, 2013). Majority of studies revealed that high frequency of use of internet for interactions could expand their interpersonal relationships (Lai, Lin, Chen and Gwung, 2013; Mistry, 2014).

2.2.6 Research studies related to academic achievement

Kubey, Lavin and Barrows (2001) conducted a study on Internet use and academic performance of college students of Rutgers University. Data of 572 students were collected. Heavier recreational Internet use was shown to be correlated highly with impaired academic performance. Loneliness, staying up late, tiredness, and missing class were also intercorrelated 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.

Grace and Gay (2001) conducted a study in USA on web browsing, mobile computing and academic performance. Students’ Web browsing was recorded 24 hours/day, 7 days/week in a log file by a proxy server during most of a semester (about 15 weeks). For each student, browsing behavior was quantified and then correlated with academic performance. The emergence of statistically significant results suggested that quantitative characteristics of browsing behavior even prior to examining browsing content can be useful predictors of meaningful behavioral outcomes. Variables such as Number of browsing sessions and Length of browsing sessions were found to correlate with students’ final grades; the valence and magnitude of these correlations were found to interact with Course (i.e., whether student was enrolled in the Communication or Computer Science course), Browsing Context (i.e., setting in which browsing took place: during class, on the wireless network between classes, or at home) and Gender.

Hunley, Evans, Hachey and Krise (2005) conducted a study to investigate the relationship between adolescent computer use and academic achievement. Sample comprised of 101 students of tenth grade from southwest Ohio. Results revealed that the correlation between computer use and grade point average was not found to be significant. However, gender differences were found across grade point average and time spent doing homework on and off the computer.
Young (2006) examined the condition of Internet use and social capital, as well as its effects on teenager’s academic performance. Sample comprised of 361 high school students from South Korea. The results revealed that the Internet expands its reach to teenagers’ school life. First, students are more reliant on the Internet to access to information that is involved in school life as well as entertainment. Second, teenagers tend to manage their social capital through the Internet. Third, the result of regression analysis indicated that Internet use time irrespective of purposes is less likely to influence academic performance, while in-degree centrality and ego-network efficiency are more likely to exert positive influence on academic performance.

Windham (2007) investigated the relationship between communication using socially interactive technologies (SITs) and psychosocial adjustment and academic performance among high school students. A sample of 614 ninth and eleventh grade students (mean age = 15.2 yrs.) of USA completed three self-report measures. More than two-thirds of participants reported using SITs at least once a day, and 55% said they communicated with friends online while doing homework. Girls in the study were more likely than boys to use SITs. Text messaging was tied with instant messaging as the preferred method of written communication with friends, followed by social networking sites. Five hypotheses were tested. Contrary to prediction, there was no significant positive relationship between SITs use overall and psychosocial adjustment, although there was a positive link between adjustment and instant messaging and a negative association between adjustment and use of social networking websites. In addition, gender did not moderate relationships between SITs use and psychosocial adjustment as expected, nor was SITs use by male students linked to better adjustment. The other predictions were generally supported by the results. Use of SITs, in particular text messaging and social networking sites, had a significant negative relationship to student grade point average. For ninth grade participants, potentially problematic attitudes and behaviors regarding time spent online had a significant negative association with both psychosocial adjustment and academic performance. Finally, Internet/SITs communication was found to involve significantly more interaction with members of the opposite sex than face-to-face or telephone conversations.

Pierce and Vaca (2008) examined the differences in academic performance between teen users and non-users of various communication technologies. Participants included 517 high school students of USA who completed a self-report survey. The results revealed that
approximately ¾ of the teens had a MySpace account and a cell phone and more than ½ had an IM account. Results also showed that those who had a MySpace account, cell phone and IM had significantly lower grades than those who did not. Results also revealed that teens who used their MySpace, cell phone and IM while doing their homework reported having lower grades than those who did not use the technology while doing their homework. In addition, those who put off doing their homework to spend time on MySpace also reported lower grades than those who did not put off doing their homework to spend time with MySpace. Finally, results showed that 28% text messaged during class from always to frequently, and 5% reported text messaging during an exam from always to frequently.

Huang and Leung (2009) proposed the concept of instant messaging (IM) addiction and examined whether IM addiction exists among teenagers and, if so, who the addicts were, what their symptoms were, and to what extent they were addicted, whether psychological variables such as shyness and alienation can predict IM use or addiction among teenagers; and Whether IM use or IM addiction can impair the academic performance of teenagers. Using Young’s classic definition of internet addiction, results of a stratified random sample of 330 teenagers in China in 2007 found 95.8% of participants use IM, and 9.8% of them can be classified as IM addicts. Factor analysis identified four major IM addiction symptoms among teenagers: preoccupation with IM, loss of relationships due to overuse, loss of control, and escape. Results also showed that shyness and alienation from family, peers, and school were significantly and positively associated with levels of IM addiction. As expected, both the level of IM use and level of IM addiction were significantly linked to teenagers' academic performance decrement.

Yen and Chih (2009) conducted a study in Taiwan to examine patterns of internet use in the 8th grade affect students' performance on their high school entrance exam a year later. The findings confirmed that online searching for information helps boost exam scores, while using the internet for socializing and gaming, as well as going to internet Cafes, contributes to poorer exam performance. Male and female students differ not only in their patterns of internet use, but in how these patterns affect their academic performance. While information searching helps both boys and girls, online socializing makes girls particularly vulnerable, and online gaming and internet Cafes hurt only boys' academic achievement.

Kabre and Brown (2011) examined the impact of facebook usage on the academic performance and the quality of life of college students in USA. With the advent of the
internet, more denizens are spending time on social networks as a way to expand both their personal and business relationships. Structural equation modeling to evaluate the hypotheses was used. Unexpected finding was that the number of hours per week spent on Facebook did not predict academic performance or quality of life in our model.

Rous, Limayem, Sangari. (2011) conducted a study to examine the effects of Facebook usage by undergraduate students. The proposed research model tested the perceived effect of personality traits, self-regulation, and trust on students' achievement. Based on flow theory, the model suggests negative mediating effects of the use and cognitive absorption on Facebook, concluding that a decrease occurs in students' academic performance but a positive effect on satisfaction with life that would limit this undesirable effect. Paper and pencil survey was run with undergraduate students and data from 239 Spanish students was used to test the model. SmartPLS software was employed to test the proposed structural equation model. Results indicated an extensive use of Facebook by students with extraverted personalities leading to poor academic performance. However, students who are more self-regulated more effectively control their presence on these platforms. Trust in people does not affect their presence and interaction on this platform.

Tham and Ahmed (2011) conducted a study on 445 college students to examine the usage and implications of social networking sites among college students. A survey was administered to find the SNS use, perceptions of SNS communications, and awareness of the impacts of SNS in academic performance and personal development of students. Data were collected from a St. Cloud State University in Minnesota. Results revealed that male college students spent less time on SNSs than female students. It was also found that the time spent on SNS decreased as the age of the respondent increased. A greater number of younger students reported negative perception of the effect of SNSs on their academic performance. Significant correlations were found between age and gender, and the influence of SNS on users' personal development. Results also revealed that there were significant relationships between users’ class rank and field of study, and the influence of SNS. Positive correlations were found in SNS usage rate and students’ networking with friends, family members, and professionals, while negative correlations were observed between SNS usage rate and students’ search for volunteer opportunities. Positive correlations were also found between age and students’ networking with friends, family, and professionals as well as between age and awareness of others' experience of cyberbullying. On the other hand, a negative
correlation was found between age and users’ awareness of others’ improved search for a date via SNS. Data also revealed that students’ perceptions of the influence of SNS were consistent with the actual effects as revealed by the findings.

Kim (2011) investigated the interrelationships among adolescent Internet use, parent-adolescent relationships, and academic/behavioral adjustment in South Korean families. Despite the significant numbers of Korean adolescents who use the Internet (98.7% of Korean children between the ages of 6 and 19 years use the Internet) for education, social, and recreational purposes, little is known about how adolescent Internet use impacts family interactions and youth outcomes, to examine the impact of adolescent Internet use on youth outcomes in Korea. Sample comprised of 609 adolescents and their parents. Compared to the general population in Korea, parents in this study were more educated and from higher socio-economic status backgrounds. Findings indicated that Korean boys and girls use Internet in different ways. It was found that girls use the Internet to watch online education classes and blog more frequently and longer than boys, whereas boys were more likely to use the Internet for playing Internet games than girls. Results also revealed that Internet use for educational purposes was associated with adolescent academic achievement. Social and recreational-Internet use of the Internet was associated with lower academic achievement for both boys and girls. Parent-child relationships (closeness and conflict) were found to be vital to youth adjustment and played a significant role in the association between adolescent Internet use and academic and behavioral outcomes.

Alexander (2012) examined Facebook usage and academic achievement. Sample comprised of 72 students of Dollarway High School, USA. All students completed two surveys--the Facebook Intensity Scale (FBI) and ENGAGE for grades 10 to 12. The FBI measured the amount of time a student spend on Facebook, the extent of a student’s participation on Facebook, a student’s emotional connection to Facebook, and a student’s integration of Facebook into his/her daily life. Engage measures 10 psychosocial behaviors that affect academic achievement of students including academic discipline, academic self-confidence, commitment to college, communication skills, general determination, goal striving, social activity, social connection, steadiness, and study skills. Students’ GPA information was also collected. Results of the study showed a negative relationship between intensity of Facebook use and GPA, a negative relationship between intensity of Facebook use and goal striving, and a negative relationship between intensity of Facebook use and steadiness. Negative
relationship does exist among Facebook use and academic achievement for some populations.

Kumar and Manjunath (2013) conducted a study on the Internet use and its impact on the academic performance of university teachers and researchers. Sample comprised of 200 teachers and researchers of Kuvempu university of Karnataka. Simple random sampling method was used for data collection. Self made questionnaire was used by the researcher. Results indicated the high use of the internet sources and services by teachers and researchers in university setup. Majority of respondents learnt to use the internet through self-instruction and trial and error, with the help of friends and by reading books or papers. Study results also indicated that internet has made an impact on their academic performance

Ehtesham (2014) examined the prevalence of Internet addiction among secondary school children and its relationship with their academic achievement. Sample comprised of total 300 students of class IX and X of different government and private schools of Lucknow city. The result revealed that internet usage pattern of male students is quite higher than the female students. It was found that average to high use of internet positively influenced the academic achievement while no use and extremely high usage had a negative impact on academic achievement of the students.

Kalra and Manani (2014) conducted a study to find the effect of use of Social Networking sites on academic achievement among Introverts and Extroverts. Sample comprised of 150 students of class XI of C.B.S.E. English medium schools of Agra City. Simple Random Sampling Method was used. The Introversion-Extroversion Inventory (2009) developed by Aziz & Gupta was used to identify the type of personality in terms of introversion and extroversion. Previous class grades served as the indicator of academic achievement of the students. Results revealed that there was no significant difference between academic achievement of users and non-users of Social Networking Sites (SNS). It was also found that even with personality differences among the students there was no significant difference among extroverts and introvert students using and not using SNS with reference to their academic achievement.
Shohrowardhy and Hassan (2014) attempted to determine the students’ perception of social networking on their academic purpose. Sample comprised of total 480 students of Bangladesh. Self-administrative questionnaires given to a sample of students from the business faculties of different public and private universities in Chittagong. The purpose was to aggregate respondent’s opinions on the uses of their favourite social networking site(s) and their impact on the students’ academic performance. Results revealed that most of the respondents report a positive impact of social networking on their academic purposes and there is a favourable perception of social networking taking different nuances.

Goel and Garg (2015) conducted a study to know the influence of access and use of internet on academic performance among adolescents and to examine the gender differences among adolescents on excess usage of internet. Sample comprised of 300 adolescents of Muzaffarnagar, UP. Descriptive statistics was used for analyzing the adolescents’ responses to the "Internet Usage Scale" and GPA for the previous year. The results suggested that excess use of Internet was significantly negatively correlated with academic performance of adolescents. Results also suggested that male adolescents had higher user of Internet than female ones.

Munkaila and Iddrisu (2015) examined the influence of social media usage on academic performance of students in tertiary institutions. Sample comprised of total 600 students from Tamale polytechnic college. The findings revealed that most of the students make use smartphones, followed by cell phones and laptops. For the use of social network sites, it was obvious that, most of the students use Facebook, followed by Google and Whatsapp. Findings indicated that 64.6% of students reported that social media enhances academic performance of students. The study also revealed that even though students generally use social media for academic purposes; they also use it for non-academic matters.

Mingle and Adams (2015) aimed at identifying social media network sites and their usage among students of Ghana, that how students networked and participated on social media networks, time invested by students on social networks, the effects of social media on students’ grammar and spelling as well as the effects of social network participation on the student’s academic performance within the context of the social learning and the use and gratification theories. Mixed method approach was used which involved the survey of students in four senior high schools and interviews of heads of the senior high schools.
Results revealed that majority of respondents used Whatsapp and Facebook for making friends and chatting. Results also revealed that majority of respondents’ experienced negative effects such as poor grammar and spelling, late submission of assignment, less study time and poor academic performance due to the heavy participation on social media networks. Furthermore, there was a high addiction rate among students in the usage of social media networks. Nevertheless, there were cases where others experienced improvement in their readings skills as a result of participation on social media networks. Also, respondents shared ideas, discussed and shared examination questions among themselves on social media networks.

Tamayo, Sacha and Cruz (2015) aimed to study the relationship of Social Media in relation to the Academic Performance of the students of Bachelor of Science in Information Technology at Centro Escolar University-Malolos. Random sampling method was used. Sample comprised of 138 students of Phillipines, which included 102 males and 36 females. Seventy one (71) or 51.4% of the respondents reached below satisfactory grade average while sixty seven (67) or 48.6% students successfully reached the satisfactory academic performance from an average grade. Sixty one (61) or 44.3% falls under the Occasional User of Social Media while seventy seven (77) or 55.7% falls under Frequent User of Social Media. This represents that there were more frequent users of Social Media among the respondents participated in this study. Students’ Prelim and Midterm Average and their Social Media usage were correlated using Pearson (r) correlation and it was found that there is moderate significant relationship between Social Media and the Academic Performance.

Joseph (2017) explored access and use of the internet by high school students in Australia as well as the relationship of internet use, use duration and nature of use share with academic achievement. Results showed that internet access and use were significantly positively related to academic achievement for both mathematics and reading; however, that relationship turns negative as use duration increases as well as when students use the internet for fun activities and social networking. There was also a significant positive relationship between internet use for learning and academic achievement. Finally, SES does seem to have a small but significant moderating effect on the relationship between technology use and academic achievement.

Majority of studies reported that internet usage and addiction were linked to teenagers academic performance (Hunley, Evans, Hachey and Krise ,2005; Yen and Chih, 2009).
Extensive use of Internet lead to poor academic performance (Rous, Limayem, Sangari, 2011). Majority of studies revealed that younger students reported negative perception of the effect of internet and social networking sites on academic performance (Tham and Ahmed, 2011; Kim, 2011; Shohrowardhy and Hassan, 2014; Goel and Garg, 2015). On the other hand there were few studies who reported that Academic achievement of students increases with the use of internet (Munkaila and Idrissu, 2015).

2.2.7 Research studies related to Internet Self-efficacy

Eastin and LaRose (2000) conducted a study on undergraduate students of USA enrolled in an introductory communication class to develop an operational measure of Internet self-efficacy. Results revealed that Internet experience, outcome expectancies and Internet use were significantly and positively correlated to Internet self-efficacy judgments, and Internet stress and self-disparagement were negatively related to Internet self-efficacy.

Joo, Bong and Chai (2002) examined the effects of student motivation on performance in Web-based instruction (WBI). A total of 152 junior high school students in Seoul, Korea, participated in WBI during regular science classes. Results revealed that students’ self-efficacy for self-regulated learning positively related to their academic self-efficacy, strategy use, and Internet self-efficacy. Students’ scores on the WBI search test were significantly and positively predicted by their self-efficacy in using the Internet. More interesting, students’ academic self-efficacy beliefs were not able to predict their search test performance, whereas students’ Internet self-efficacy beliefs were not able to predict their written test performance.

Wu and Tsai (2006) conducted a study to explore university students’ attitudes and self-efficacy toward the internet. Moreover, the relationships between their attitudes and self-efficacy toward the internet were also investigated. Sample comprised of 1,313 students of Taiwan. It was found that male students expressed significantly more positive attitudes than females on their “perceived control” of the Internet. Male students also revealed better internet self-efficacy than their female counterparts. Moreover, students having more on-line hours displayed more positive internet attitudes and internet self-efficacy. It was also found that students internet attitudes were highly correlated with their Internet self-efficacy. Results revealed that students’ attitudes toward the Internet could be viewed as one of the important indicators for predicting their internet self-efficacy.
Ceyhan and Ceyhan (2008) investigated whether university students' levels of loneliness, depression, and computer self-efficacy were significant predictors of their problematic internet use levels. The study was conducted on 559 Turkish university students. Multiple regression analysis were used. The findings indicated that loneliness, depression, and computer self-efficacy were significant predictors of problematic internet use. Loneliness was found as the most important predictive variable. Depression predicted problematic internet use on the second rank, and computer self-efficacy on the third rank.

Liang and Tsai (2008) conducted a study to explore the relationship between internet self-efficacy and preferences toward constructivist internet-based learning environments. Sample of 365 college students were selected from Taiwan through analyzing student questionnaire responses. Findings revealed that general internet self-efficacy might foster the preferences of constructivist internet-based learning environments. Structural equation model (SEM) was used which revealed that students with higher general internet self-efficacy clearly showed more preferences toward internet learning environments where they can use with ease, explore real-life problems, display multiple sources of information, conduct open-ended inquiry learning activities, and elaborate the nature of knowledge.

Masi (2008) explored the relationship between self-efficacy and use of the Internet. Sample comprised of 100 participants from USA. Results revealed that a majority of citizens have average to high levels of self-efficacy; (b) no relationship existed between self-efficacy and level of Internet use and (c) the demographics (gender age and race/ethnicities) do not moderate the relationship between self-efficacy and internet usage level.

Vinaitheerthan and Johnson (2009) attempted to study the use of computer and its possible relationship to Internet attitude, self-efficacy in computer and computer anxiety among higher secondary students. The present study aimed at finding the levels of use of computer, Internet attitude, Self-efficacy in computer and computer anxiety among higher secondary students. Sample comprised of 802 higher secondary students from Thrissur district of Kerala. From the study, it was evident that use of computer, computer anxiety, internet attitude and self-efficacy in computer is average in higher secondary students. Results revealed that there is a relationship between use of computer and internet attitude of higher Secondary students. The results revealed no relationship between Use of computer and
Computer anxiety & Use of computer and self-efficacy in computer of higher Secondary students.

Shi, Chen, and Tian (2011) conducted a study of the relationships between internet self-efficacy, sensation seeking, the need for cognition, and problematic use of the internet. The study was based on a randomly selected sample of 979 adult internet users of China. Hierarchical multiple regression analysis of these subjects' responses on a questionnaire consisting of relevant items indicated that internet self-efficacy and sensation seeking positively predicted problematic internet use. Contrastingly, the need for cognition was significantly negatively associated with problematic internet use.

Zamani and Dastjerdi (2012) investigated Students’ Self-efficacy and Attitudes toward Internet Usage in Higher Education of Iran and India. The population of the research was chosen from the students in the different Departments at the Aligarh Muslim University in India and Isfahan University in Iran. The research sample consisted of 400 students (200 in Iran and 200 in India). The structured questionnaire was developed by reviewing the literature from using computers both in developed and developing countries by researchers. The results indicated that the students in India had more access to internet and utilize it more than Iranian students. The self-efficacy of Indian students was better than Iranian students, however, it was revealed that most of students in both countries had moderate knowledge of the internet and were positive towards it.

Buchanan, Joban and Porter (2014) conducted two studies in UK to test the hypothesis that use of learning technologies among undergraduate psychology students was associated with higher Internet self-efficacy (ISE). In Study 1, the ISE scores of 86 students were found not to be associated with either attitudes towards, or measured use of, blogs and wikis as part of an IT skills course. ISE was associated with time spent online, and positive attitudes to wikis were associated with higher use. Study 2 measured 163 students’ ISE scores at the beginning and end of the same course. ISE was again not correlated with attitudes towards, or actual measured use of, learning technologies used in the course. However, ISE was shown to increase during the course. Positive attitudes towards wikis and discussion boards were associated with higher use of each. Overall, ISE scores did not influence measured use of a Virtual Learning Environment (VLE, including blogs, wikis and a discussion board), or attitudes towards those technologies. This implies that while ISE is linked to aspects of online
behaviour (time spent online) and can be modified by online activity or training, it does not predict student use of educational Internet technologies.

Zhang and Gearhart (2015) conducted a study to examine the effects of general Internet use, social network site use, and Internet. Sample comprised of 2303 students of USA. Results revealed that general Internet use and social network site use enhanced web and wireless participation. However, neither increases offline participation. Individual Internet efficacy enhances both online and offline participation, but group Internet efficacy decreases offline participation.

Ozkan (2016) examined the self-efficacy perceptions of social studies teacher candidates with respect to educational internet use. This research was conducted on a sample of 174 social studies teacher candidates enrolled in Gaziantep University Nizip Faculty of Education. The "Educational Internet Self-Efficacy Scale," developed by Sahin, was used as a data collection tool. The relational scanning method, which was a type of quantitative research techniques, was used in this research. The data obtained from teacher candidates were subjected to independent t-tests and one-way variance analyses (ANOVA) using the SPSS 18.00 program. The self-efficacy perceptions of the teachers were examined with respect to variables such as gender differences, the place of internet connection, class where education is given, and the Internet usage period. A positive influence was obtained in favour of male teachers with respect to the gender variable among the social studies teachers; however, no significant difference was found with respect to internet connection medium. Significant differences were observed with respect to the classroom, where they get education.

Majority of studies revealed that Internet use and internet self-efficacy are significantly correlated (Eastin and LaRose, 2002). Moreover it was also revealed from studies that students who spend more time on internet were highly correlated with their Internet self-efficacy (Wu and Tsai, 2006; Zhang and Gearhart, 2015). In some studies no significant relationship between self-efficacy and level of internet use was also found (Masi, 2008).