

MUHAMMAD SALEEM*
AHMED MUJTABA OWAISI**
MUHAMMAD WASEEM TUFAIL***

INTERNET ADDICTION: IT'S IMPACT ON PROCRASTINATION OF HIGHER LEARNING STUDENTS IN PAKISTAN

Abstract

The study aims to investigate the level of internet addiction and procrastination and their impact on students of four higher learning institutes of Pakistan, including, The Islamia University of Bahawalpur (IUB), Bahauddin Zakriya University of Multan (BZU), University of The Punjab, Lahore (PU) and University of Karachi (UOK). A sample of 400 students was taken, including 200 males and 200 females by using the convenient sampling technique. Two scales were employed to measure variables, first Internet Addiction Test and second Procrastination Assessment Scale for Students (PASS). The findings of the study, exhibit that internet addiction is higher in male students while the level of procrastination is high among female students. The moderate level of internet addiction is more prevalent among the students of PU while lowest among the students of UOK. Procrastination is found highest among the students of University of the Punjab and lowest among students of the Islamia University of Bahawalpur.

Keywords: Internet addiction, academic procrastination, higher learning students, Pakistan.

* Department of Applied Psychology, The Islamia University of Bahawalpur, Pakistan

** Department of Psychology, International Islamic University, Islamabad, Pakistan

*** Department of Psychology and Counseling-FPPM, Sultan Idris Education University (UPI), Malaysia.

Introduction

The internet has become a worldwide medium for research, information exchange, entertainment, business and communication (Byun et al., 2009; Elliott, Bartel, Simonson, & Roukis, 2015; Khatri et al., 2015). According to a report, there are more than 500 million users of the internet (NUA, 2002). Ani (2010) found that there is an excessive use of internet reported in undergraduate students.

Initially internet used for meaningful purposes, especially in early 1960s the US Department established internet primarily for military purposes (Schneider, Evans, & Pinard, 2006), after that there are many demerits of internet appeared, psychologists and educators are concerned with many emotional, social, physical and mental dysfunctions in daily activities which are caused by over or misuse of internet (Yung, Eickhoff, Davis, Klam, & Doan, 2015; Greenfield, 2000). Among these problems, internet addiction is an important one (Murali, & George, 2007) Shapira, Lessig, and Goldsmith et al, (2003) and Young, (1998) also endorsed the same view and identified internet addiction as significant problem.

Use of the internet became an internet addiction because researchers mostly use the term internet addiction for over usage of internet, furthermore its diagnostic criteria were established and first proposed as an addictive disorder (Young, 1998). Ivan Goldberg firstly used the term Internet addiction as an informal phrase to describe the excessive use of internet (Federwisch, 1997). Researchers have explored that excessive internet use is related with many emotional and social problems including decline in social circle, loneliness, social anxiety and depression (Kraut et al., 1998; Weinstein et al., 2015; Yang et al., 2014), lower level of self-confidence (Niemz, Griffiths, & Banyard, 2005; Wu & Cheng, 2007;

Yang & Tung, 2007), antisocial traits and difficulty of external control (Ceyhan & Ceyhan, 2007). According to Ko, et al (2005) internet addiction is characterized by withdrawal, functional impairment, preoccupation, loss of control and decreased decision making.

Kimberley Young (1996) conducted the first study focused on internet addiction. She presented over 600 cases of internet addiction to the American Psychological Association, which was measured by using the criteria of DSM-IV for pathological gambling (Young, 2011). Young (1999) found that about 5-10% of the general population of the world is suffering from internet addiction disorder. Therefore, most researches on internet addiction are conducted on university students because they are on greater risk of internet addiction (Kandell, 1998; Li, O'Brien, Snyder, & Howard, 2015) Nalwa, and Anand, (2003), Niemi et al., (2005) and Young and Rogers, (1998) also identified the significant tendency of internet addiction among university students. Young (2004) investigated behind reasons of internet addiction; she suggested the some possible reasons including (a) students have a lot of unstructured time. (b) Young students of age 18-22 years are first time free to do anything without being monitored by their parents, (c) they get free and unlimited access to the internet in their institutions, (d) when students enter in a university they face a problem of adopting, instead of finding friends, they use different applications on internet for time passing.

In case of Pakistan, Suhail and Bargees (2006) concluded the excessive use of internet effects different life domains of students such as education, physical health, psychological health, and social relationships. Another study conducted by Niaz (2008), he found that internet addiction and mobile use is causing many problems among the Pakistani people such as depression, loneliness, and suicidal obsessions. Similar study conducted in

India by Nalwa and Anand (2003), they identified the excessive use of internet lead to other problems in students like procrastination and loss of sleep.

Procrastination

Initially the concept of procrastination considered as favorable, such as procrastination is a kind of protest against the difficulties and duties that are externally imposed to other people. It was comprised of two factors, first it was a challenge to your talent or capability and secondly, it enforces an unwanted demand on your time, capabilities, emotional reserves, or resources (Solomon & Rothblum, 1984). Senecal et al., (1995) describe procrastination in an academic situation as “Knowing that one is supposed to and perhaps even wanting to complete an academic task, but failing to perform the activity within the expected or desired time frame”. Academic procrastination means to delay school tasks and responsibilities which are necessary to do at school they do them at the last minute (Haycock, McCarthy, & Skay, 1998).

According to Tice and Baumeister (1997) procrastination is closely related to lower academic performance, such as delay in assignments, lack of motivation for test preparation and lack of participation in academic activities (Beswick, Rothblum & Mann, 1988) Fritzsche, Rapp and Hickson, (2003), Kachgal, Hansen and Nutter, (2001) and McCown, Petzel and Rupert, (1987) showed the relationship of procrastination and poor academic achievement. Moreover, Onwuegbuzie, (1999/2000, 2004), Semb, Glick, and Spencer, (1979) also endorsed the lower level of academic performance and procrastination. Academic procrastination and lower academic performance lead individual to feel guilt and inferiority (Fee & Tangney, 2000) and (Carden, Bryant & Moss, 2004) and Haycock, McCarthy and Skay, (1998) showed the relationship of anxiety with academic procrastination. Onwuegbuzie and Jiao, (2000) and Wang and Englander, (2010)

also identified the significant effect of anxiety on procrastination. Saddler and Sacks, (1993) considered depression as the influencing factor in relation with procrastination. Different researchers identified the factors that influence procrastination such as unpleasant tasks; Solomon and Rothblum, (1984) Moneta, Spada and Rost, (2007) and Thompson and Dinnel, (2001) identified the link between low self-esteem and perfectionism. Various Researches such as (Beswick, Rothblum, and Mann, (1988) and Flett, Hewitt, Blankstein, and Koledin, (1991) suggested that perfectionism and procrastination are significantly related and the students who set their achievement goals of excessively high standards are found to use more procrastination.

Academic procrastination results in lower grades in exams, poor class presentations and delaying study tasks (Semb et al., 1979; Solomon & Rothblum, 1984). Different psychological factors are also related to procrastination such as lack of motivation, lower levels of eagerness for learning (Chu & Choi 2005; Steel, 2007). The inner motivation and eagerness enhance the individual's goal directed activities and prepare individuals to utilize their efforts to fulfill their academic tasks and increase their skills and sense of self confidence (Zimmerman et al. 1992). Individuals who have an excessive fear of failing to fulfill a task and consider the task unpleasant use procrastination due to the unpleasant nature of the task and irrational fear of failing (Clark & Hill 1994; Lay 1994; Solomon & Rothblum 1984). Pintrich and De Groot (1990) identified that students with higher level of anxiety may put more efforts for task accomplishment, but they have poor academic performance as compared to students having lower levels of anxiety.

Thatcher and Goolam, (2005a, b) viewed internet addiction as a factor that influences the academic behavior of university students. Hur, (2006) and Kim et al., (2006), also identified the

effect of internet addiction on academic performance. (Ko et al., 2006, Chou & Hsiao, 2000) and (Lin & Tsai, 2002) evaluated the effect of internet addiction on university students; Tsai and Lin, (2001; 2003) also endorsed the more significant effect of internet problematic use among the students of higher education. Johansson & Göttestam, 2004, Griffiths, 1995; 1996a, b; 1997; 2000; Griffiths et al., 1999), (Ferraro et al., 2007) and (Byun et al., 2009, Bayraktar & Gün, 2007) showed the effect of internet addiction among university students. Internet addiction also increases the chances of student's procrastination to a significant level due to spending a plenty of time on the internet without any constructive reason and avoid academic tasks due to internet use (Davis, 2001). Various studies conducted by (Lavoie & Pychyl, 2001; Davis, 2001; Thatcher, Wretschko & Fridjhon, 2008) showed a significant association between procrastination and internet addiction.

Hypotheses

1. Internet addiction and procrastination are closely associated among students of the four higher education institutes of Pakistan.
2. The students of different (four) universities of Pakistan are remarkably different in their level of internet addiction and procrastination.
3. There are significant differences prevail between both genders in terms of internet addiction and procrastination.

Method

Participant Characteristics

The aim of the study was to check the intensity of internet addiction and procrastination among the students of higher education institutes. Participants for the study were selected from

four higher learning institutions of Pakistan, including The Islamia University of Bahawalpur, University of the Punjab, University of Karachi and Bahauddin Zakrya University of Multan. 400 students were recruited in the study, including 200 male and 200 female, 50 students from each university. All Participants were undergraduate students that were internet users. The demographic variables also measures, such as name, gender, age, faculty, department, program, semester, CGPA.

Procedure

A sample of 400 undergraduate students was selected from four higher learning institutes of Pakistan, including The Islamia University of Bahawalpur, University of the Punjab, University of Karachi and Bahauddin Zakrya University of Multan. A convenient sampling technique was used to collect the data. Participants were equally divided into 200 males and 200 females. Participants were instructed to fill two questionnaires that measure level of internet addiction and procrastinated behavior.

Sample size, power, and precision

A-priori sample size was calculated online by using anticipated effect size (r^2) = 0.15, desired statistical power level = .95, number of variables = 02, and probability level = 0.02. The minimum sample size was calculated 127. To minimize the risk of attrition bias, 34 respondents of male and female were taken additionally from each university.

Measure and co-variates

The two instruments were employed to measure variables.

1. Internet Addiction Test (IAT) developed by © Kimberly Young (1998).
2. Procrastination Assessment Scale for Students (PASS) by © Solomon and Rothblum (1984).

Internet Addiction Test (IAT) consists of 20 items and the scoring can be done by simply adding the options. Procrastination Assessment Scale-Student includes total 52 items which measure level of procrastination, fear of failure, aversiveness of task, difficulty making decisions, dependency, lack of assertion, risk taking, and rebellion against control. To get the total score to measure self-reported procrastination by participants, the first two items of each of the six procrastination areas are added (1+2+4+5+7+8+10+11+13+14+16+17). The possible score was 12 to 60. The higher score indicated more self-reported procrastination.

Both of the scales had good reliabilities. The reliability of IAT on Cronbach's Alpha was found at 0.894 and the reliability of PASS was 0.686 on Cronbach's Alpha which indicates good reliability of both of the scales.

Research Design

The nature of the study is quantitative so, the quantitative cross-sectional research design was employed. The data were analyzed through SPSS, construct graphs and tables.

Statistical Analysis

The results were furnished by using SPSS (Statistical Package for the Social Sciences, 21.0). Cronbach's Alpha was tested as a coefficient of reliability of sales and for internal consistency. t-Test was employed to compare mean differences of both genders. The correlation and regression were also used to predict the

relationship between variables and impact of one variable to another variable.

Ethical considerations

Informed consent was taken from the participants and their participation was solely on volunteer basis. The confidentiality and anonymity of the participants were also taken care.

Operational definitions of variables

Internet addiction

Internet addiction is defined as “poorly controlled urges or behavior regarding use of internet that causes an individual to procrastinate important tasks of daily life causing low performance of the addicted person in academic and job settings” (Shaw & Black, 2008; Wretschko, 2006).

Procrastination

Procrastination can be defined as “tendency to delay activities or putting off doing something especially out of habitual carelessness or laziness to postpone needlessly” (Knaus, 2000; Niermann & Scheres, 2014).

Results

Table 1 *Relationship between Internet Addiction and Procrastination among students*

R Square	Correlation Co.	Regression Co.	T-Score	P-value
0.073	0.271	0.271	5.618	0.000

$P < 0.05$

Note. The table shows the regression analysis of the internet addiction and procrastination among the overall population. The value of R-square is 0.073 which shows that the variation of both variables is affected by each other. The value of correlation coefficient is 0.271 which shows the positive relationship between both of the variables. The value of the regression coefficient is 0.271 with P-value 0.000 shows the significance of regression at 5% level of significance.

Table 2 *Institute wise Effect of Internet Addiction on Procrastination among students*

Institute	R Square	Correlation Co.	Regression Co.	T-Score	P-value
IUB	0.088	0.297*	0.297*	3.075	0.003
UOK	0.183	0.427*	0.427*	4.680	0.000
BZU	0.045	0.212*	0.212*	2.144	0.034
PU	0.028	0.167	0.167	1.679	0.096

$P < 0.05$

Note. The table shows the university wise comparison of effect of internet addiction on the procrastination of the students. For IUB the value of the regression coefficient is 0.297 which shows the positive relationship and significant at the 5% level of significance. For UOK the value of the regression coefficient is 0.427 which shows the positive relationship and significant at the 5% level of significance. For BZU the value of the regression coefficient is 0.212 which shows the positive relationship and significant at the 5% level of significance. For PU the value of the regression coefficient is 0.167 which shows the positive relationship and significant at the 5% level of significance. By the comparison, the researcher concludes that the procrastination of students of UOK is greatly affected by the internet addiction as compared to all other institutes.

Table 3 *Gender wise comparison of Internet Addiction and Procrastination among Students*

Variables	Gender	N	Mean	Std. Devi	Comparison		
Internet Addiction	Male	200	45.84	15.202	T-score	D.F	P-value
	Female	200	43.49	18.771			
Procrastination	Male	200	34.49	5.765	T-score	D.F	P-value
	Female	200	35.03	6.417			

$P < 0.05$

Note. The table shows the comparison of the male and female in case of internet addiction and procrastination. The average internet addiction of male is 45.84 and the average internet addiction in females is 43.49. By comparison, it is inferred that male students are more addicted of internet as compared to female. The p-value is 0.169 shows the test is not significant at the 5% level of significance. The average procrastination of male is 34.49 and the average procrastination in females is 35.03. To compare, it is concluded that female students have a greater level of procrastination as compared to males. The p-value is 0.377 that shows the test is not significant at the 5% level of significance.

Discussion

The study was conducted at four universities of Pakistan, including The Islamia University of Bahawalpur, Bahauddin Zakariya University Multan, University of Karachi, and University of the Punjab Lahore. The purpose of this study was to find the ratio of internet addiction and procrastination and the impact of internet addiction on Procrastination of students of four different higher learning institutions of Pakistan.

According to the hypothesis a positive correlation exists between internet addiction and procrastination. According to Table 1 the value of correlation and regression coefficient is found at 0.271 with P-value of 0.0000 which shows that there is a strong positive correlation between procrastination and internet addiction. In an old study by Scherer (1997) found that internet addiction affected the academic work and professional performance of 13% of his research participants, which show that there is a correlation between internet addiction and academic performance and procrastination level of participants.

According to the second hypothesis, there is a significant impact of internet addiction on Procrastination of students of higher learning institutions of Pakistan. Table 1 shows that internet addiction has impacted on Procrastination of students. The study found that internet addiction has greatest impacts on students of the University of Karachi as compared to the remaining three other universities of Pakistan. Nalwa and Anand (2003) found that internet addicted people use the internet for a long time, which results in personal behavior problems and procrastination related behaviors in them. It is proved that the hypothesis of present research is consistent with the literature.

Procrastination is significantly affected by internet addiction by the difference of area of higher learning institutions of Pakistan. Table 2 shows that a positive association between internet addiction and procrastination. In strongest effect of internet addiction on the Procrastination of the students is found in the students of the University of Karachi (UOK) with the regression coefficient of 0.427. After UOK it comes the number of IUB, BZU and PU with the regression coefficients as 0.297, 0.212 and 0.167 respectively, which also shows that there is a weak relationship between internet addiction and procrastination among the students of PU. Thatcher et al., (2008) said that "If a person is in a

state of flow while avoiding work related tasks, this is more likely to result in Problematic Internet Use". According to the previous researches non-addicted internet users have higher grades in studies as compared to those who are addicted to the internet. A significant positive correlation was found between total time spent on studying and test scores reflecting that procrastination can ultimately lead to lower academic performance (Chen, & Peng, 2008; Beck, Koons, & Milgrim, 2000).

In hypothesis number three it was assumed that males are more addicted to the internet and show more procrastination as compared to females. According to Table 3 the results show that the average internet addiction of males is 45.84 while the average internet addiction of females is 43.49. While in the case of procrastination the average procrastination in males is found at 34.49 and in females it is 35.03. It shows that the level of internet addiction is higher in males as compared to females, though in the case of procrastination females show more procrastination as compared to males. Siomoset al., (2008) conducted a research on Greek adolescents of age 12-18 years. They found that 8.2% of the adults were addicted to the internet, including 6.2% of males and 2% of females. According Lee, Ko, & Chou, (2015), Internet exhibit large impact on boys as compare to girls. These studies supports the hypothesis and results that Internet addiction was more in males as compared to females.

Limitations

1. In the current study, the four higher education institutions, including three from Punjab and one from Sindh are taken. But, universities from Baluchistan and KPK are not included.
2. All recruited students belonged to undergraduate level. Master and M.Phil students are not included in this study.

3. All students were taken from public sector universities, private sector universities are excluded from this study.

Suggestions

1. The study can be elaborated by taking a large sample of all levels of students from higher learning institutions of Pakistan.
2. For more generalizable results, the data should be taken from both public and private sector universities from all over the Pakistan.
3. For further research, many other aspects/contexts of internet addiction should be included.

References

- Ani, O. E. (2010). Internet access and use: A study of undergraduate students in three Nigerian universities. *The Electronic Library*, 28(4), 555-567.
- Badri Gargari, R., Sabouri, H., & Norzad, F. (2011). Academic procrastination: the relationship between causal attribution styles and behavioral postponement. *Iran J Psychiatry Behav Sci*, 5(2), 76-72.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bayraktar, F., Gün, Z., (2007), 'Incidence and Correlates of Internet Usage among Adolescents in North Cyprus', *CyberPsychology & Behavior*, 10, pp. 191-197.
- Beck, B. L., Koons, S. R., & Milgrim, D. L. (2000). Correlates and consequences of behavioral Procrastination: The effects of academic procrastination, self-consciousness, self-esteem and self-handicapping. *Journal of Social Behavior & Personality*, 15(5), 3-13.

- Beswick, G., Rothblum, E.D., & Mann, L. (1988). Psychological antecedents of student procrastination. *Australian Psychologist*, 23, 207-217.
- Burka, J. B., & Yuen, L. M. (1983). *Procrastination: Why you do it, what to do about it*. Reading, MA: Addison-Wesley.
- Busko, D.A. (1998). *Causes and consequences of perfectionism and procrastination. A structural equation model*. Tesis de maestria no publicada. Guelph, Ontario: University of Guelph.
- Byun, S., Ruffini, C., Mills, J.E., Douglas, A.C., Niang, M., Stepchenkova, S., Lee, S.K., Loutfi, J., Lee, J-K., Atallah, M., Blanton, M., (2009), 'Internet Addiction: Metasynthesis of 1996-2006. Quantitative Research. *CyberPsychology & Behavior*, 12, pp. 203-207.
- Cakici, D.C. (2003). *An examination of the general procrastination behavior and academic procrastination behavior in high-school and university students*. Unpublished MA Thesis. Ankara University Institute of Education Sciences, Ankara.
- Carden, R., Bryant, C., and Moss, R. (2004). Locus of control, test anxiety, academic procrastination, and achievement among college students. *Psychological Reports*, 95, 581-582.
- Chen, Y. F., & Peng, S. (2008). University students' Internet use and its relationships with academic performance, interpersonal relationships, psychosocial adjustment, and self-evaluation. *Cyber Psychology & Behavior*, 11(4), 467-469.
- Chou, C., Hsiao, M., (2000), 'Internet addiction, usage, gratifications, and pleasure experience: the Taiwan College Student's case', *Computers & Education*, 35, pp. 65-80.

- Chu, A. H. C., & Choi, J. N. (2005). Rethinking procrastination: Positive effects of "active" procrastination behavior on attitudes and performance. *The Journal of Social Psychology, 145*, 245-264
- Clark, J., & Hill, O. (1994). Academic procrastination among African American college students. *Psychological Reports, 75*, 931-936.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior, 17*(2), 187-195.
- Day, V., Mensink, D., & O'Sullivan, M. (2000). Patterns of academic procrastination. *Journal of College Reading and Learning, 30*(2), 120-134.
- Deci, E. L., & Ryan, R. M. (1991). Amotivational approach to self: Integration personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation, 38*, 261-279.
- Dewitt, S., & Schouwenburg, H. (2002). Procrastination, temptations, and incentives: the struggle between the present and the future in procrastinators and the punctual. *European Journal of Personality, 16*(6), 469-489.
- Eerde, V.W. (2003). Procrastination at Work and Time Management Training. *The Journal of Psychology, 137*(5), 421-434
- Elliott, A. D., Bartel, A. F., Simonson, D., & Roukis, T. S. (2015). Is the Internet a Reliable Source of Information for Patients Seeking Total Ankle Replacement? *J Foot Ankle Surg.* doi: 10.1053/j.jfas.2014.08.012
- Ellis, A., & Knaus, W. J. (1977). *Overcoming procrastination*. New York: Signet Books.

- Federwisch, A., (1997), 'Internet Addiction?' available at: <http://www.nurseweek.com/features/97-8/iadct.html>. Accessed: 24 March 2010.
- Fee, R., and Tangney, J. (2000). Procrastination: A means of avoiding shame or guilt? *Journal of Social Behavior & Personality*, 15(5), 167-184.
- Ferrari, J. R. (2001). Procrastination as self-regulation failure of performance Effects of cognitive load, self-awareness, and time limits on 'working best under pressure'. *European Journal of Personality*, 15, 391-406.
- Ferrari, J. R., & Emmons, R. A. (1994). Procrastination as revenge: Do people report using delays as a strategy for vengeance? *Personality and Individual Differences* 17, 539-544.
- Ferraro, G., Caci, B., D'amico, A., Di Blasi, M., (2007). Internet Addiction Disorder: An Internet Addiction among Greek University Students: Demographic Associations with the Phenomenon, using the Greek version of Young's Internet Addiction Test Italian Study. *CyberPsychology & Behavior*, 10, pp. 170-175.
- Flett, G. L., Blankstein, K. R., Hewitt, P.L., & Koledin, S. (1992). Components of perfectionism and procrastination in college students. *Social Behavior and Personality: An International Journal*, 20, 85-94.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Koledin, S. (1991). Dimensions of perfectionism and irrational thinking. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, 9,
- Fritzsche, B., Rapp, B. Y., and Hickson, K. C. (2003). Individual differences in academic procrastination tendency and writing success. *Personality and Individual Differences*, 35, 1549-

- Glick, D. M., & Orsillo, S. M. (2015). An Investigation of the Efficacy of Acceptance-Based Behavioral Therapy for Academic Procrastination. *J Exp Psychol Gen.* doi: 10.1037/xge0000050
- Goode, C. (2008). *Effects of Academic Procrastination: Students Procrastination Affects More Than Grades.* Retrieved from <http://homeworktree.com/media/newsreleases/academic-procrastination>
- Greenfield, D. N. (2000). Psychological characteristics of compulsive internet use: A preliminary analysis. *CyberPsychology & Behavior*, 5, 403-412.
- Griffiths, M., (1996a), 'Gambling on the Internet: A brief note', *Journal of Gambling Studies*,
- Griffiths, M., (1997), 'Friendship and social development in children and adolescents: the impact of electronic technology', *Educational and Child Psychology*, 14, pp. 25-37.
- Griffiths, M., (2000), 'Does internet and computer "addiction" exist? Some case study evidence', *CyberPsychology & Behavior*, 3, pp. 211-218.
- Griffiths, M., Miller, H., Gillespie, T., Sparrow, P., (1999), 'Internet usage and 'Internet addiction' in students and its implications for student learning', *Journal of Computer Assisted Learning*, 15, pp. 85-90
- Griffiths, M.D., (1995), 'Technological addictions', *Clinical Psychology Forum*, issue 76, pp. 14-19.
- Griffiths, M.D., (1996b), 'Internet addiction: an issue for clinical psychology? *Clinical Psychology Forum*, issue 97, pp. 32-36.

- Hajloo, N. (2014). Relationships between self-efficacy, self-esteem and procrastination in undergraduate psychology students. *Iran J Psychiatry Behav Sci*, 8(3), 42-49.
- Haycock, L. A., McCarthy, P. & Skay, C. L. (1998) Procrastination in college students: the role of self-efficacy and anxiety. *Journal of Counseling & Development*, 76, 317-324
- Haycock, L., McCarthy, P., and Skay, C. (1998). Procrastination in college students: The role of self-efficacy and anxiety. *Journal of Counseling & Development*, 76, 317-324.
- Johansson, A., Götestam, K.G., (2004), 'Internet addiction: characteristics of a questionnaire and prevalence in Norwegian youth (12-18 years)', *Scandinavian Journal of Psychology*, 45, pp. 223-229.
- Kachgal, M. M., Hansen, L. S., Nutter, K. J. (2001). Academic procrastination prevention/intervention: Strategies and recommendations. *Journal of Developmental Education*, 25, 14-20.
- Kandell, J. J. (1998). Internet addiction on campus: the vulnerability of college students. *CyberPsychology & Behavior*, 1, 11-17.
- Khatri, C., Chapman, S. J., Glasbey, J., Kelly, M., Nepogodiev, D., Bhangu, A., . . . Committee, S. T. (2015). Social media and internet driven study recruitment: evaluating a new model for promoting collaborator engagement and participation. *PLoS One*, 10(3), e0118899. doi: 10.1371/journal.pone.0118899
- Kim, K., Ryu, E., Chon, M.Y., Yeun, E.J., Choi, S.Y., Seo, J.S., Nam, B.W., (2006), 'Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey', *International Journal of Nursing Studies*, 43, pp. 185-192.

- Knaus, W. J. (2000), Procrastination, blame, and change, *Journal of social Behavior and Personality*, 15,153-166.
- Ko, C.H., Yen, J.Y., Chen, C.C., Chen, S.H., Wu, K., Yen, C.F., (2006), 'Tridimensional personality of adolescents with Internet addiction and substance use experience', *Canadian Journal of Psychiatry*, 51, pp. 887-894.
- Lavoie, J. A. A., & Pychyl, T. A. (2001). Cyberslacking and the procrastination superhighway: A web-based survey of online procrastination, attitudes, and emotion. *Social Science Computer Review*, 19(4), 431-444.
- Lay, C. (1986) At last, my research article on procrastination. *Journal of Research in Psychology*, 20, 474-495.
- Lay, C. (1994). Trait procrastination and affective experiences: Describing past study behavior and its relation to agitation and dejection. *Motivation and Emotion*, 18, 269-284.
- Lee, Y. H., Ko, C. H., & Chou, C. (2015). Re-visiting Internet Addiction among Taiwanese Students: A Cross-Sectional Comparison of Students' Expectations, Online Gaming, and Online Social Interaction. *J Abnorm Child Psychol*, 43(3), 589-599. doi: 10.1007/s10802-014-9915-4
- Levesque, R. (2007). *SPSS Programming and Data Management: A Guide for SPSS and SAS Users*. SPSS Inc. Chicago Ill.
- Li, W., O'Brien, J. E., Snyder, S. M., & Howard, M. O. (2015). Characteristics of internet addiction/pathological internet use in u.s. University students: a qualitative-method investigation. *PLoS One*, 10(2), e0117372. doi: 10.1371/journal.pone.0117372
- Lin, S.S.J., Tsai, C-C., (2002), 'Sensation seeking and internet dependence of Taiwanese high school adolescents. *Computers in Human Behavior*, 18, pp. 411-426.

- Martin. T. R., Flett, G. L., & Hewin P. L. (1993). *Perfectionism, self-leadership, and procrastination*. Unpublished manuscript.
- McCown, W., Petzel, T., and Rupert, P. (1987). An experimental study of some hypothesized behaviors and personality variables of college student procrastinators. *Personality and Individual Differences*, 8, 781-786.
- Milgram, A., Batin, B. & Mower, D. (1993). Correlates of academic procrastination. *Journal of School Psychology*, 31, 487-500.
- Milgram, N. (1991). *Encyclopedia of human biology* Procrastination. (n.d) In R. Dulbecco. 6, 149-155. New York: Academic Press.
- Milgram, N. (1998). *Procrastination*, *Personality Differences*, 21, 30-4. *Theory, research, and treatment*, New York, Plenum Press
- Moneta, G., Spada, M., and Rost, F. (2007). Approaches to studying when preparing for final exams as a function of coping strategies. *Personality & Individual Differences*, 43, 191-202.
- Murali, V., & George, S. (2007). Lost online: An overview of internet addiction. *Advanced Psychiatry Treatment*, 13, 24-30.
- Nalwa, K., & Anand, A. P. (2003). Internet Addiction in Students: A Cause of Concern. *Cyberpsychology and Behavior*, 6(6), 653-656.
- Niermann, H. C., & Scheres, A. (2014). The relation between procrastination and symptoms of attention-deficit hyperactivity disorder (ADHD) in undergraduate students. *Int J Methods Psychiatr Res*, 23(4), 411-421. doi: 10.1002/mpr.1440
- NUA. (2002). NielsenNetRatings: Worldwide Internet population grows slightly [on-line]. Available: www.nua.ie/surveys/index.cgi?f=VS&art_id=905358274&rel=true

- Onwuegbuzie, A. J. (1999/2000). The relationship between academic procrastination and statistics achievement. *Louisiana Education Research Journal, 25*, 67-77
- Onwuegbuzie, A. J. (2000). Academic procrastinators and perfectionistic tendencies among graduate students. *Journal of Social Behavior and Personality, 15* (5), 103-110.
- Onwuegbuzie, A. J. (2004). Academic procrastination and statistics anxiety. *Assessment & Evaluation in Higher Education, 29*(1), 3-18.
- Onwuegbuzie, A. J., and Jiao, Q. G. (2000). I'll go to the library tomorrow: The role of procrastination in library anxiety. *College and Research Libraries, 61*(1), 45-54.
- Pintrich, P. R., & De Groot, E. V. (1990). Motivation and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*, 33-40.
- Pychyl, T. A., Lee, J. M., Thibodeau, R., & Blunt, A. (2000). Five days of emotion: *Psychology & Behavior, 1*, 237-244.
- Roig, M., & DeTommaso, L. (1995). Are college cheating and plagiarism related to academic procrastination? *Psychological Reports, 77*, 691-698.
- Rothblum, E. D., Solomon, L. J., & Murakami, J. (1986). Affective, cognitive and behavioral differences between high and low procrastinators. *Journal of Counseling Psychology, 33*, 387-394.
- Saddler, C. D., & Sacks, L.A. (1993). Multidimensional perfectionism and academic procrastination: Relationship with depression in university students. *Psychological Reports, 73*, 861-871.

- Saddler, C., and Sacks, L. (1993). Multidimensional perfectionism and academic procrastination: Relationships with depression in university students. *Psychological Reports, 73*(3), 863-871.
- Saleem, M., & Rafique, R. (2011). Procrastination and Self-Esteem among University Students. *Pakistan Journal of Social and Clinical Psychology, 9*(3), 50-53.
- Scherer, K. (1997). College life on-line: healthy and unhealthy Internet use. *Journal of College Student Development, 38*(6), 655-665.
- Schneider, G. P., Evans, J., & Pinard, K. T. (2006). *The Internet Fourth Edition An Illustrated Introductory* (4th ed.). United States of America: Thomson Course Technology.
- Schouwenburg, H., Lay, C., Pychyl, T., & Ferrari, J. (2004). *Counseling The Procrastinator In Academic Settings*, Washington D.C: American Psychological Association.
- Schraw, G., Olafson, L., & Wadkins, T. (2007). Doing the things we do: A grounded theory of academic procrastination. *Journal of Educational Psychology, 99*, 12-25.
- Semb, G., Glick, D. M., and Spencer, R. E. (1979). Student withdrawals and delayed work patterns in self-paced psychology courses. *Teaching of Psychology, 6*, 23-25.
- Senecal, C., Koestner, R., & Vallerand, R. (1995). Self-regulation and academic procrastination. *The Journal of Social Psychology, 133*(5), 607-619.
- Shapira, N. A., Lessig, M. C., Goldsmith, T. D. et al. (2003). Problematic internet use: Proposed classification and diagnostic criteria. *Depression & Anxiety, 17*, 207-216.
- Shaw, M., & Black, D. W. (2008). Internet addiction: definition, assessment, epidemiology and clinical management. *CNS Drugs, 22*(5), 353-365.

- Siomos, K. E., Dafouli, E. D., Braimiotis, D. A., Mouzas, O.D., & Angelopoulos, N. V. (2008), Internet Addiction among Greek adolescent Students, *Cyber Psychology & Behavior*, 11, 653-657.
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive behavioral correlates. *Journal of Counseling Psychology*, 31, 503-509.
- Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133, 65-94.
- Thatcher A., Wretschko G., & Fridjhon, P. (2008). Online flow experiences, problematic Internet use and Internet procrastination. *Computer in Human Behavior*, 24(5), 2236-2254.
- Thatcher, A., Goolam, S., (2005a), 'Defining the South African Internet 'addict': Prevalence and biographical profiling of problematic Internet users in South Africa. *South African Journal of Psychology*, 35, pp. 766-792.
- Thatcher, A., Goolam, S., (2005b), 'Development and psychometric properties of the Problematic Internet Use Questionnaire. *South African Journal of Psychology*, 35, pp. 793-809.
- Thatcher, A., Wretschko, G., & Fridjhon, P. (2008). Online flow experiences, problematic Internet use and Internet procrastination. *Including the Special Issue: Internet Empowerment*, 24(5), 2236-2254.
- Thompson, T., and Dinnel, D. L. (2001). *An initial validation and reliability study of the Evaluation Anxiety Scale*. Unpublished manuscript, University of Tasmania, Hobart, Australia.

- Tice, D., and Baumeister, R. (1997). Longitudinal study of procrastination, performance, stress, and health: The costs and benefits of dawdling. *Psychological Science*, 8, 454-458.
- Tsai, C-C., Lin, S.S.J., (2001), 'Analysis of attitudes toward computer networks and Internet addiction of Taiwanese adolescents', *CyberPsychology & Behavior*, 4, pp. 373-376.
- Tsai, C-C., Lin, S.S.J., (2003), 'Internet addiction of adolescents in Taiwan: An interview study', *CyberPsychology & Behavior*, 6, pp. 649-652.
- Tucker-Ladd, C. (2006). *Psychological self-help, (Chapter 4: Behaviour motivation and self-control)* viewed 2 March 2009, Retrieved from <http://www.psychologicalselfhelp.org>.
- Van Eerde, W. (2003). Procrastination at work and time management training. *Journal of Psychology*, 137,421-434.
- Wang, Z., and Englander, F. (2010). A cross-disciplinary perspective on explaining student performance in introductory statistics: What is the relative impact of procrastination? *College Student Journal*, 44(2), 458-471.
- Watson, D. C. (2001). Procrastination and the five-factor model: a facet level analysis. *Personality and Individual Differences*, 30(1), 149-158.
- Weinstein, A., Dorani, D., Elhadif, R., Bukovza, Y., Yarmulnik, A., & Dannon, P. (2015). Internet addiction is associated with social anxiety in young adults. *Ann Clin Psychiatry*, 27(1), 4-9.
- Wernicke, R. A. (1999). *Mediational Test of the Relationships Between Perfectionism and Protractionism*. Unpublished master's thesis, American University, USA.
- Wesley, J. (1994). Effects of ability, high school achievement and procrastinatory behaviour on college performance. *Educational and Psychological Measurement* 54, 404-408.

- Wretschko, G. (2006). *Problematic internet use, flow and procrastination in the workplace*. Unpublished MA Thesis. The University of Witwatersrand, Johannesburg.
- Yang, L., Sun, L., Zhang, Z., Sun, Y., Wu, H., & Ye, D. (2014). Internet addiction, adolescent depression, and the mediating role of life events: finding from a sample of Chinese adolescents. *Int J Psychol*, 49(5), 342-347. doi: 10.1002/ijop.12063
- Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyber experience sampling study of undergraduate student procrastination. Journal of Social Behavior and Personality*, 15, 3-13.
- Young, K. S., & Rogers, R. C. (1998). The relationship between depression and internet addiction. *Cyber Psychology & Behavior*, 1, 25-28.
- Young, K.S., (1996). Internet addiction: The emergence of a new clinical disorder. *Paper presented at the 104th annual meeting of the American Psychological Association, August 15, 1996, Toronto, Canada.*
- Yung, K., Eickhoff, E., Davis, D. L., Klam, W. P., & Doan, A. P. (2015). Internet addiction disorder and problematic use of Google Glass in patient treated at a residential substance abuse treatment program. *Addict Behav*, 41, 58-60. doi: 10.1016/j.addbeh.2014.09.024
- Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal-setting. *American Educational Research Journal*, 29, 663-676.