Research Article

How Does Socio-Educational and Family Factors Predict Internet Usage in Higher Education?

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Abstract

This study aims to identify the socio-educational and family factors that predict internet usage by analyzing a sample of 910 college students selected from four districts of Himachal Pradesh using a self-prepared internet usage scale. This scale has 33 items in total which are classified into four dimensions namely educational, social, and online as well as entertainment purposes using factor analysis. High and low internet users are classified based on the Mean +_ SD criteria. Multinomial logistic regression is performed both for the direction of variable association as well as magnitude among variables. A multinomial logistic regression model was performed to evaluate the impact of gender, residential background, type of family, parental education and employment and family income on the likelihood of students using the internet in which a low internet usage group is entered as a reference group. From the regression analysis, it is found that type of family, stream of study, parental educational level along parental employment significantly predict usage of the internet among college students.

Keywords: Internet usage, college students, multinomial logistic regression

Introduction

According to the 'Digital India' report by the Internet and Mobile Association of India (2019) India has 504 million internet active users, and the internet penetration rate will stand at around 50 percent in 2020 (34 percent in 2017). Hence, India has become the second-largest online market in the world ranked only behind China. It depicts that the internet has become an essential part of the lives of Indians and its usage is shaping the habits and attitudes of the masses. Everyone in society uses it for a multitude of purposes, such as information, connectivity, entertainment and online transactions. The Digital India Campaign is also launched to transform the entire nation into a digitally empowered society and knowledge economy. While education plays a critical role in this transformation, technology itself plays an important role in the improvement of educational processes and outcomes. Thus, the relationship between technology and education (at all levels) is bi-directional (Government of India, 2020). In the field of higher education, the internet is serving dual purposes from information sharing to as a learning aid. Higher education of India is also undergoing such technological and mass media revolutions, therefore higher educational institutions have been shaping their educational system according to the needs of learners as they try to integrate technology in the teaching-learning process. The Internet is making it easier for students to learn when, how, and where they

want. It is not only an assistive device now, but also in the current COVID-19 period, physical classes at schools and colleges have been replaced by online teaching. Classroom teaching has been converted fully into digital format in the current scenario. College students are now over- surrounded by the digital world, and they appear to be more vulnerable to developing internet dependency than any other group in society (Kandell, 1998). Owing to this reason, this generation is named as 'net generation' or 'digital natives' as their personality is being shaped under the influence of the internet. Naturally, their habit of internet usage is affected by several factors. Thus, through this study, an attempt has been made to locate different factors affecting the internet usage of students who are getting higher education. Findings of this study would be helpful to make a judicious blend of human resources and technology which will facilitate all-round development of the learner and ultimately will result in a sea change in the field of higher education.

Review of Related Literature

Internet usage has been explored under the name of different variables, such as excessive usage, dependency, addiction, problematic internet usage as well as social networking sites usage and all these variables studies on different samples along with a stream of study (Chandran, 2010; Loan, 2011; Amutha & Kennedy, 2015; Prabhu, 2016; Kaur, 2017), gender (Beranuy et al. 2009; Flad, 2010; Varaghese et al., 2013; Sharma et al., 2014; Thakur, 2014; Amutha & Kennedy, 2015; Krishnamurthy & Chetlapalli, 2015; Yosi et al., 2015; Arjunan & Edward, 2016; Sattari et al.,2016; Kaur,2017, Sharma & Shrama,2017), residential background (Loan,2011), socio-economic status (Prezza et al., 2004; Singh,2018; Ghosh et al,2019), family functionality (Satan,2013), parenting approaches (Wu et al,2016), parental education and employment (Praveen & Krishnaleela,2018). Most of these studies have explored intensity/ prevalence estimates of the internet in different groups and reported varying results depending on the criteria used and sample studied. From the review of related literature, it is also clear that even though there are certain studies that have explored the impact of a stream of study, gender on internet usage patterns still these studies do not give a clear picture of prediction of which group among demographic and socio-economic factors has higher tendency to use the internet in Indian population more specifically college students. The age of a particular group plays a substantial role in influencing internet usage (Eitel et al, 1998; Teo et al., 1999; Taylor et al.,2003; Yi, 2008; Berner et al., 2014; Rahman et al. 2020) therefore, age-wise majority of college students are in the age group of 20 to 21 years and this particular group has its factors that would be explored through this study. No studies available in the literature have explored factors of essential internet usage among Indian populations as most studies focus on internet addiction, problematic internet usage and social networking sites. These studies have reported huge variations in prevalence rates due to difficulty in the conceptualization of internet addiction, heterogeneity of population, lack of standard diagnostic criteria and difficulty in differentiating essential and non-essential internet use. Therefore, this study is unique which tries to investigate factors exploring essential usages of the internet through a self-developed research tool among college students because most research studies in literature have analysed internet usage patterns and determinants of internet usage of the general population like the internet banking, e-shopping, e-government

services. Hence, the nature of this study is not a prevalence study of internet usage both due to sample as well as measurement criteria. The researchers have viewed internet usage from different theoretical perspectives, such as the internet as an assistive tool that is used for a multitude of essential purposes like getting knowledge (education), watching movies/listening to music (entertainment), making new relationships through various social media platforms (social) and usage of internet for digital payments (online). In all these manners, this study is a novel initiative which focuses on undergraduate students who are getting an education in one of the States of India and to identify predictors of both levels of internet usage (high and low) and analysis includes socio-educational aspects, such as gender, stream of study, residential background along with home-related variables, such as type of family, parental education and employment and annual income.

Material and Methods

Research Methodology: Descriptive method of research that includes a correlational study is followed to examine the predictive efficacy of socio-educational and family factors in the internet usage of college students.

Research Tool: Data of this paper is obtained through a self-constructed internet usage scale that consists of 33 items which are classified into four dimensions namely educational, social, and online as well as entertainment purposes using factor analysis. The scoring for Statements is made by giving weightage of "1, 2, 3, 4 and 5" for endorsement in terms of being "Never, Rarely, Sometimes, Often and Always". The score range of the scale is 33 to 165 and a higher score indicates the high level of internet usage. The reliability of this scale was calculated by test-retest method (0.95) and internal consistency reliability was tested by calculating Cronbach Alpha (0.83). Content validation of the scale is achieved by showing the preliminary draft to experts in the field of psychology, education and language and construct validity established by confirmatory factor analysis.

Sample of the Study: The target population of this study is undergraduate students who are studying in 118 colleges of 12 districts of Himachal Pradesh which were affiliated to Himachal Pradesh University, Shimla during the academic session of 2019-20. From a total of twelve districts of the State, only ten districts are included in the sample as two districts namely Kinnaur and Lahaul-Spiti are excluded due to their Schedule Tribe population representation. Firstly, for the selection of districts due weightage is given to their parliament constituencies and districts are classified into four clusters and from each cluster one district namely Una, Kangra, Shimla, Mandi are selected randomly. Secondly, two colleges from each district are selected based on the geographical location of the colleges. Lastly, 910 students from total of eight colleges by giving due weightage to the stream of study (Arts, Commerce, Science) who are studying in the final year of their bachelor classes are taken as a sample of the study.

Classification of sample based on predictor/explanatory variables: Out of the total 910 respondents 34.06 percent (310) respondents are male as compared to 65.93 percent (600) respondents are female. Most students have rural background (72.19 percent) and only 27.80 percent of respondents are from urban areas. Talking about the stream of study, 37.91 percent of respondents have a science stream followed by humanities (31.86 percent) and commerce (30.21 percent). The sample is almost equally distributed across types of families. Seventy

percent of parents have studied up to secondary level. A large majority of mothers are housewives (92.96 percent) and fathers of 57.80 percent of respondents are working in agriculture and allied sectors. Data related to the annual income of the family show that more than fifty percent of respondents belong to the low-income group.

Statistical Analysis: Data analysis was performed using SPSS version 20. For inferential statistics, the chi-square test was applied to examine significant associations between internet usage and various explanatory variables. Then, the multinomial Logistic Regression (MLR) was applied to investigate how a set of socio-demographic variables predict the possibility of internet usage among college students. The dimensional aspects of internet usage (educational, social, online and entertainment) are not considered for the analysis, therefore only summated scores are used in the analysis of data Categorization of the students based on internet usage: The sample of 910 college students is classified into two dichotomous variables, such as high and low internet usage based on the Mean +_ SD criteria. The mean internet usage score of the total sample turned out to be 111.34 along with SD 14.43. Accordingly, out of a total sample of 910 college students, 141 students had a score of 96 and below in internet usage were designated as low internet usage group and 174 college students had a score of 125 and above were classified as high internet usage group. Thus '1' value is assigned to the low internet usage group and '2' is given to the high internet usage group. For this case, one set of MLR for high internet usage group and low internet usage is obtained in which low internet usage group is entered as the reference group.

Categorization of the students based on explanatory variables: Further, all other predictor variables or explanatory variables are categorical, and these variables are grouped into dummy variables and coding is given accordingly.

Results: The results of the chi-square analysis testing show there is a significant association of stream of study, parental education with internet usage among college students which can be exhibited in table 1.

Table-1: Association between Socio-educational and family factors and Internet Usage

Socio-educational and family factors	Categories	Low internet usage (141)	High internet usage (174)	Total	Df	Chi-square
Gender	Male	48	58	106	1	0.01
	Female	93	116	209		
Residential background	Rural	109	127	236	1	.77
	Urban	32	47	79		
Stream of Study	Humanities	52	50	102	2	13.27**
	Science	60	55	115		
	Commerce	29	69	98		

Type of Family	Nuclear	74	84	158	1	.55
	Joint	67	90	157		
Maternal Education	Up to Elementary	42	27	69	2	9.85**
	Up to Secondary	90	129	219		
	Graduation and above	9	18	27		
Paternal Education	Up to Elementary	23	13	36	2	6.11**
	Up to Secondary	95	132	227		
	Graduation and above	23	29	52		
Maternal Employment	Non-working	132	162	294	1	.033
	Employed	9	12	21		
Paternal Employment	Agricultural and allied	91	95	186	2	4.00
	Private Job	15	30	45		
	Government job	35	49	84		
Annual Income (Rupees)	Low (2 lakh)	72	94	166	2	.37
	Average (2 to 4 lakh)	44	49	93		
	High (More than 2 lakh)	25	31	56		

**p, <.01

Table 2 shows the most significant estimated predictive effects of socio-educational and family factors in internet usage by multinomial logistic regression model where low internet usage group is considered as a reference group.

Table-2: Multinomial Logistic Regression Model Coefficients

Predictors	Categories	Co-efficients	SE	Walid	Df	Sig.	Exp(B) (Odd Ratio)	Probability (%)
Gender	Male	-.12	.26	.21	1	.64	.883	0.46
	Female*	0[b]	.	.	0	.	.	
Residential background	Rural	-.092	.29	.09	1	.75	.912	0.47
	Urban*	0[b]						

Stream of Study	Humanities	.17	.29	.34	1	.56	1.18	0.54
	Science	.96	.30	10.04	1	.00	2.61	0.72
	Commerce *	0[b]	.	.	0	.	.	
Type of family	Nuclear	.12	.24	.25	1	.61	1.12	0.53
	Joint*	0[b]	.	.	0	.	.	
Maternal education	Elementary	-1.15	.61	3.50	1	.06	.31	0.23
	Secondary	-.55	.53	1.06	1	.30	1.57	0.61
	Graduation and above *	0[b]	.	.	0	.	.	
Paternal education	Elementary	-.05	.57	.01	1	.91	.94	0.48
	Secondary	.51	.40	1.66	1	.19	1.67	0.62
	Graduation and above *	0[b]	.	.	0	.	.	
Maternal Employment	Non-working	.09	.49	.03	1	.84	1.10	0.52
	Employed*	0[b]	.	.	0	.	.	
Paternal Employment	Agriculture and allied	-.15	.29	.28	1	.59	.855	0.46
	Private job	.26	.40	.42	1	.51	1.30	0.56
	Government job*	0[b]	.	.	0	.	.	
Annual Income (In Rs.)	low (2 lakh)	-.07	.33	.04	1	.82	.93	0.48
	Average (2 to 4 lakh)	-.26	.36	.54	1	.46	.76	0.43
	High (4 lakh and above)*	0[b]	.	.	0	.	.	

*Reference category

Gender: Gender of students and internet usage is not significantly associated with each other (chi-square=.018) and value of the odd ratio (.883) of male college students is although close to 1.00 still it is less than 1.00 represents that male college students have to remain in 46 percent probability (.883/(1+.883) x100) low internet usage in comparison of female college students.

Residential background: In addition to this, the residential background is not significantly associated with internet usage as chi-square values are reported to be non-significant (0.772, 0.551). Rural college students have a 47 percent probability of low internet usage (odd ratio=.912) as compared to students having urban backgrounds.

Stream of study: Regarding stream of study the value of chi-square is connoted to be significant (13.27:

p<.01) and depicts that stream of study and internet usage are significantly associated with each other students. The results of the logistic analysis reveal that it is seen that more than 1.00 odd ratio (1.18) of students having humanities stream revealed that there is a 54 percent probability of high internet usage in the humanities group about the reference group which is commerce group. In the same way, a more than 1.00 odd ratio (2.61; p<.01) of science stream depicts that student having the science stream are found to be almost more than two times to use the internet regarding commerce groups. This means college students studying in science stream have 72 percent probability of being part of a high usage group in comparison to the commerce stream.

Type of family: On the other hand, students having nuclear families have 53 percent probability of high internet usage as the odd ratio is greater than one (1.12).

Maternal education: Chi-square values for maternal education in terms of internet users reported to be 9.85 which is significant at .01 levels and reveals that there is a significant association between maternal education and internet usage. In maternal education, the odds ratio of college students whose mothers are educated up to elementary level is .31 and the odds of college students whose mothers are educated up to secondary level is 1.57 and this value is greater than one. Therefore, college students whose mothers are low in their education level have a 23 percent probability of being in a low internet usage group and college students whose mothers are average in their education level have a 61 percent probability of being in a high internet usage group as compared to students having a high level of maternal education.

Paternal education: When considering paternal education, odds ratio of college students whose fathers are educated up to elementary level and secondary level in the logistic analysis showed that those college students having paternal education level up to secondary level are found to be almost two times more likely to use the internet (odd ratio:1.67) and have 62 percent probability of being remained in high internet usage and less than 1.00 odd ratio for students having an elementary level of paternal education (.94) exhibits 48 percent probability of being remained in low internet usage group with reference to students having high a level of paternal education. Similarly, the chi-square values for paternal education are 6.11 among college students which are significant. This shows that paternal education and internet usage are significantly associated with each other.

Parental employment: Parental employment does not significantly show an association between internet usage in college students as chi-square values turned out to be not significant both for maternal employment and paternal employment. Still, college students whose mothers are non-working have a disposition of internet usage and have a 52 percent probability of remaining in the high internet usage group (Odd value=1.10) as compared to students having employed mothers. College students whose paternal employment in agriculture and allied services have 45 percent probability (odd ratio=.855) of being in the low internet usage group and college students whose fathers are in the private jobs have 46 percent probability (odd ratio=1.30) of being in high internet usage group with respect to college students who fathers are working as government employees.

Annual income: Lastly, chi-square values depicting non–significant association between internet usage and annual income (.374), still college students whose family income is low,

and average have 48 and 43 percent chances (Odd values=0.93;0.96) of less usage internet as compared to college students having high levels of family income.

Conclusion

Empirical findings reveal that students having nuclear families, having science and arts stream with an average level of parental education (up to secondary) and whose fathers are in private jobs and mothers are non-working have a significant possibility of being in high internet usage and they are at high risk of internet addiction because there is a thin line between inappropriate and productive uses of the internet.

Discussion

These results are corroborated with the studies conducted in the field of psychology, education and organizational behaviour which have shown that demographic factors influence significantly internet usage (Taylor et al., 2003; Aghajani and Zamini, 2012; Ajuwon and Popoola, 2014; Wu et al, 2016; Rahman et al. 2020). There are significant stream-wise differences in usage patterns of internet usage favouring arts stream (Chandran, 2010; Prabhu, 2016; Kaur 2017), science stream (Amutha & Kennedy, 2015).

Gender is an essential demographic factor affecting usage of the internet and gender difference is also visible both in the frequency of usage of internet as well as purposes of internet usage. Males use the internet for longer hours, while women are moderate users (Bimber, 2000; Winker, 2005; Hamissi et al., 2013; Bahrainain, 2014; Hasan et al., 2014; Kaur, 2014; Sharma et al., 2014; Singh, 2015; Yosi & David, 2015; Arjunan & Edward, 2016; Prabhu, 2016; Sattari et al., 2016; Gedam et al., 2017; Kaur, 2017; CRY, 2020; Kumar, 2020). Male students use the internet for making new friends through social networking sites (Varghese et al., 2013; Thakur,2014; Krishnamurthy & Chetlapalli, 2015), seeking information (Thanuskodi, 2013) and for online gaming (Kilic & Guzeller ,2020) whereas girls use for educational assistance (Thanuskodi,2013; Varghese et al., 2013; Thakur,2014). However, in the present study gender does not emerge as a significant predictor of internet usage. These results are consistent with the literature (Chew, 2004; Masters, 2008; Mohammed, 2013; Khan and Awan, 2017; Singh, 2018; Rahman et al. 2020). The reason may be that the involvement of women in digital technology has been increasing day by day and the digital divide among male and female users has been narrowed.

Furthermore, the residential background of the students does not significantly predict internet usage and these findings are contradicted by Loan (2011), whereas supported by Arjunan & Edward, 2016 who concluded no significant variation in the internet usage in relation to the residential background. Annual income does not come as a significant predictor in the present study, whereas socio-economic status and family income lead to internet addiction as reported by Taylor,2003; Prezza et al., 2004; Debell and Chapman 2006.

Additionally, results of the study show that the nuclear family system contributes to internet usage. The reason may be that nowadays in workaholic society both parents are busy round the clock in their jobs and pay insufficient attention to their wards, therefore children are free to use the internet without monitoring their parents. It is seen that family plays a protective role in reducing pathological internet usage (Zhen et al., 2011) and family functionality affects internet addiction (Yen et al., 2007 and Yen et al., 2009; Wu et al. 2016). The parental educational level more particularly

average level of education along with the type of parental employment significantly predicts internet usage among college students. Therefore, it can be said that levels of parental education and employment significantly contribute to the usage of the internet. These results are compatible with the findings of Debell & Chapman, 2006; Ozgur, 2016 who concluded that the educational level of parents is positively related to internet usage among the students.

Recommendations

Finally, after knowing the socio-educational and family predictive factors through this study, educators may categorize students in particular groups according to their usage level and can provide them guidance according to their needs and can design the best educational environment for the students. The findings will be helpful to understand students' behaviours and use the internet for essential purposes and may assist higher education, libraries, information centres, and other agencies when making policies regarding future information technology; distance education programs; and digital resources. The Internet itself is a value-neutral thing and it is only a medium. What makes it good or bad is the content of internet usage, the way the internet is used and how much it is used; all these decide the balance between opportunities on one side and harms on the other side. The Indian society, with its socio-economic and cultural diversity, may often find itself unable to grapple with the multiple nuances of internet usage (Prakash, 2020). Therefore, for the judicious use of the internet, there is a need to recognize various factors associated with internet usage in shaping the behaviour of the youngsters in this digital world, so that students will have to be educated in safe and healthy practices for internet use. Appropriate preventive and interventional strategies need to be developed to encourage rational use of the internet to protect the physical and mental health of the users. Comprehensive prevention programs for students should be carried out to increase awareness regarding excessive use of the internet. The colleges/ universities curriculum must have customized programs to elicit a response from students and bring about the best in them and to channelize their energies in a way, where there is a positive impact of technology. An age that is ruled by the internet should be monitored and constant guidance sessions should be given by teachers and counsellors for shaping the future of the Indian digital ecosystem as well as safeguarding the well-being of youngsters.

Lastly, with reference to limitations of this study, it is worthwhile to mention that only summative score of internet usage scale has been considered in the analysis, therefore in future predictive effects of socio-demographic variables for various patterns of internet usage such educational, social, entertainment as online can be studied to get overall picture of technology. Furthermore, in the present research, only a set of socio-demographic variables is selected to study correlates of internet usage. Other combinations of socio-psychological predictors can be chosen for future study. Internet usage varies over time; it would be significant to replicate these findings across time (during and after the Corona pandemic). Future studies should be focused on essential and non-essential internet usage at different levels of education, such as school, college and university to enhance understanding the concepts of internet usage and internet addiction.

References

Aghajani, H., & Zamani, B. E. (2012). *An investigation of the factors influencing the Internet usage by Engineering faculty members for doing scientific and research activities interdisciplinary. Journal of Contemporary Research in Business, 3*(11), 742–752.

Ajuwon, G. A., & Popoola, S. O. (2014). *Influence of internet accessibility and demographic factors on utilization of web-based health information resources by resident doctors in Nigeria. African Journal of Medicine and Medical Sciences, 43*(Suppl. 1), 61-71.

Amutha, S., & Kennedy, S. J. (2015). *Awareness and utilization of social networking among teacher trainees. International Journal of Innovation Research and development*, *4*(10), 327-329.

Arjunan, N. K., & Edward, M. (2016). *Internet dependency among university entrants: A pilot study. International Journal of Indian Psychology, 3*(2), 125-133.

Bahrainian, A., & Khazaee, A. (2014). *Internet addiction among students: The relation of self-esteem and depression. Bulletin of Environment, Pharmacology and Live Sciences*, *3*(3), 1-6.

Beranuy, M., Obert, U., & Carbonell, X. (2009). *Problematic internet use and mobile use and Clinical symptoms in college students: The role of emotional intelligence. Computers in Human Behaviour, 25*(5), 1182-1187.

Berner, J., Rennerark, M., Anderberg, C. J. P., Elmstahl, S., & Berglund, J. (2014). *Factors influencing internet usage in older adults (65 years and above) living in rural and urban Sweden. Health Informatics Journal*, *21*(3), 237-249.

Bimber, B. (2000). *Measuring the gender gap on the internet. Social Science Quarterly, 81*(3), 868-876.

Chandran, R. K. P. (2010). *Social networking site among students: A study about the popularity and uses of social networking sites among professional and non-professional graduates* (Master's dissertation). Farook College, Calicut, India.

Chew, F., Grant, W., Tote. R. (2004). *Doctors on-line: Using diffusion of innovations theory to understand internet usage. Family Medicine*, *36*(8), 645–650.

Child Rights and You (2020). *Online safety and internet addiction: A study conducted amongst adolescents in Delhi-NCR*, New Delhi, India: CRY

Debell, M., & Chapman, C. (2006) *Computer and internet use by students in 2003* (NCES 2006-065). Washington, DC: National Center for Education Statistics.

Eitel, D. R., Yankowitz J., & Ely, J. W. (1999). *Use of internet technology by obstetricians and family physicians, The Journal of the American Medical Association,* 280(3), 1306-1307.

Flad, K. (2010). *The influence of social networking participating student's academic performers across gender lines* (Master's Thesis). The College at Brockport: State University of New York, Brockport, New York.

Gedam, S., Ghosh, S., Modi, L., Goyal, A., & Mansharamani, H. (2017). *Study of internet addiction: prevalence, pattern, and psychopathology among health professional undergraduates*. *Indian Journal of Social Psychiatry*, *33*(4), 305-311. doi: 10.4103/ijsp_70_16

Ghosh, S., & Pramanick, S. (2019). *Habits of internet use in urban India and social background: A case study of adolescents of Kolkata municipal corporation, West Bengal. Wesleyan Journal of Research, 12*, 76-85.

Government of India. (2020). *National education policy.* New Delhi: Ministry of Human Resource Development.

Hamissi, J., Babaie, M., Hosseini, M., & Babaie, F. (2013). *The relationship between emotional intelligence and technology addiction among university students*. *International Journal of Collaborative Research on Internal Medicine and Public Health, 5*(5), 310-319.

Hasan, O., Demiralay, T., & Demirally, I. (2014). *Exploration of problematic internet use and loneliness among distance education students*. *Turkish Online Journal of Distance Education*, *15*(2), 75-90.

Internet and Mobile Association of India. (2019). *Digital In India, 2019-Round 2 Report*. Retrieved from http://cms.iami.in

Kandell, J. J. (1998). *Internet addiction on campus: the vulnerability of college students. Cyber Psychology & Behavior*, *1*, 11–17.

Kaur, B. (2017). *Self-disclosure, alienation and mental health of users of social networking sites: A correlation study. (*Doctoral thesis), Punjabi University, Patiala, India.

Khan, U. H., & Awan, M. A. (2017). *Possible factors affecting internet addiction: a case study of higher education students of Qata*r. *International Journal of Business Information System, 26*(2), 261-276.

Kilic, F. A., & Guzeller, O. C. (2017). *Demographic factors affecting internet using purposes of high school students. Malaysian Online Journal of Educational Technology, 5*(1), 34-45.

Krishnamurthy, S., & Chetlapalli, S. K. (2015). *Internet addiction: Prevalence and risk factors: c ross-sectional study among college students in Bengluru, The Silicon Valley of India*. *Indian Journal of Public Health, 59*(2), 115-121.

Loan, F. A. (2011). *Internet use by rural and urban college students: A comparative study. Journal of Library and Information Technology,* 31(6), 431-436.

Loan, F. A. (2011). *Internet use by the college students across disciplines: A study. Analysis of Library and Information Studies*, *58*(2), 118-127.

Masters, K. (2008*). Access and use of the internet by South African general practitioners*. *International Journal of Medical Informatics*, *77*(11), 778–786.

Mohammed, S. (2013). *Factors affecting internet banking usage in India: An empirical analysis. Business Administration and Business Economics*, *9*(5), 5-15.

Ozgur, H. (2016*). The relationship between internet parenting styles and internet usage of children and adolescents. Computers in Human Behaviour, 60*, 411-424. doi:10.1016/j.chb.2016.02.081

Park, S. K., Kim, J. Y., & Cho, C. B. (2008). *Prevalence of internet addiction and correlations with family factors among South Korean adolescents. Adolescence, 43*(172), 895-909.

Prabhu, P. S. (2016). *Internet addiction among arts and science college students. IOSR Journal of Humanities and Social Science*, *21*(9), 76-81.

Prakash, P. (2020, June 17). *Parenting in times of trolls, cyber bullies*. *The Tribune*, p. 7.

Praveena, D. A., & Krishnaleela, G. (2018). *Prevalence of addictive internet use and its correlates among urban school students in Tamilnadu, South India: A cross-sectional study*. *International Journal of Public Health Research, 5*(2), 60-64.

Prezza, M., Pacilli, M. G., & Dinelli, S. (2004). *Loneliness and new technologies in a group of Roman adolescents. Computers in Human Behaviour, 20*(5), 691-709.

Rahman, M. M., Arif, M. T., Luke, F., Nabila, F., Ling, C. W. Z., Yui, E. S. C., & Baharin, N. (2020). *Factors affecting internet use among university students in Sarawak, Malaysia: An empirical study. International Journal of Community Medicine and Public Health, 7*(3), 848-854.

Satan, A. A. (2013). *The factors influencing the internet addiction of secondary education*. *Egitim Arastirmalari-Eurasian Journal of Educational Research,* 53/A, 131-148.

Sattari, K., Shirinkam, S. M., Shahsavarani, M. A., Toroghi, M. L., & Mohammadi, A. (2016). *Internet addiction antecedents: Self-Control as a predictor. International Journal of Medical Research & Health Science,* 5, 5(s), 143-151.

Sharma, A., Sahu R., Kesar, P. K., & Sharma, R. (2014*). Internet addiction among professional college students: A study from centred India. International Journal of Medical Science and Public Health.* 3(9), 1069-1073.

Sharma, I. & Sharma, N. (2017). *Relationship of emotional intelligence and level of internet addiction among the adolescents of Jammu*. *International Conference on Recent Innovation in Science, Agriculture, Engineering and Management*, 978-93-86171-801, 1511-1520.

Singh, P. (2018). *Academic performance in relation to internet usage, peer victimization and self concept* (Doctoral thesis). Panjab University, Chandigarh, India.

Taylor,W. J., Zhu,G. X., Dekkers, J., & Marshall, S.(2003) *Socio-economic factors affecting home internet usage patterns in Central Queensland. Informing Science Journal,* 6. doi: http://2003.insite.nu

Teo, T., Lim,V., & Lai, R. (1999). *Intrinsic and extrinsic motivation in internet usage Omega*. *International Journal of Management Sciences*, *27*(1), 25-37.

Thakur, D. (2014). *A study of internet usage among post graduate students of Himachal Pradesh University* (Master's thesis). Himachal Pradesh University, Shimla, India.

Thanuskodi, S. (2013). *Gender differences in internet usage among college students: A comparative study. Library Philosophy and Practice* (e-journal).1052. https://digitalcommons.unl.edu?libphilprac/1052.

Tsitsika, A., Critselis, E., Kormas, G., Filippopoulou, A., Tounissidou, D., & Freskou, A. (2009). *Internet use and misuse: A multivariate regression analysis of the predictive factors of internet use among Greek adolescents. European Journal of Pediatrics*, *168*(5), 655-665.

Tsitska, A., Critselies, E., Louizou, A., & Janikian, M., (2011). *Determinates of internet addiction among adolescents: A case-control study. Scientific World Journal, 11*, 866-874. doi: 10.1100/tsw.2011.85.

Varghese, T., Nivedhitha, D., & Krishnatray, P. (2013). *Teenagers' use of social networking media in South Indian State*. *International Journal of Scientific and Engineering*, *4*(12). 622-636.

Winker, G. (2005). *Internet research from a gender perspective: searching for differential use patterns. Journal of International Communications and Ethics in Society*, *3*(4), 199-207.

Wu, C., S. T., Wong, T. H., Fok, W. K., Yeung, M. S., & Liu, M. K. (2016). *Parenting approaches, family functionality, and internet addiction among Hong Kong adolescents. Bio Medical Care Pediatrics.* doi: 10.1186/s12887-016-0666-y

Yen, C. F., Ko, C. H., Yen, J. Y., & Cheng, C. P. (2009*). Multi-dimensional discriminative factors for internet addiction among adolescents regarding gender and age*. *Psychiatry Clinical Neurosci, 63*(3), 357-64.

Yen, J.Y., Yen, C. F., Chen, C. C., Chen, S. H., & Ko, C. H. (2007). *Family factors of internet addiction and substance use experience in Taiwanese adolescents*. *Cyber Psychological Behavioral, 10*(3), 323-329.

Yi, Zhixian. (2008). *Internet use patterns in the United States. Chinese Librarianship: An International Electronic Journal*, 25. doi: http://www.iclc.us/cliej/cl25yi.pdf

Yosi, Y. & David, B. (2015). *Problematic internet use and academic achievement among teacher trainees in Israeli colleges*. *International Journal of Research Studies in Psychology, 4*(1), 25-35.

Zhen, X. & Xin, Z. (2011). *Relationship between adolescents' alienation and pathological internet use: testing the moderating effect of family functioning and peer acceptance*. *Acta Psychological Sinica.* Retrieved from http:/www.cnki.com.cn