Problematic internet use among information technology students: Prevalence and repercussion

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ABSTRACT

The problematic internet use among adults is a growing problem and expected to continue growing. Numerous preoccupations have emerged as a result and counterproductive work behaviour becomes one of the most common. Students from information technology discipline are more prone to the internet. Hence, this study aims to investigate the type of internet users, the level of internet addiction, counterproductive behaviour, junk computing motives and correlation between daily internet use and associated risk factors among information technology university students in Pakistan. Internet Addiction Scale and Blanchard and Henle (2008) scales were adapted for data collection. Instrument was distributed on-line, responses from 691 Information Technology University students in Pakistan were collected, with 5% margin of error, 99% confidence level, 20000 population size, and 50% distribution’s responses and 32 responses were excluded due to non-conformance with criteria. The study group comprised men (n = 431) and women (n = 228). The results showed that almost 32.8% students are problematic internet users or obsessed and spend 10 h or more on the internet. Almost 17.7% students suffer from high level of internet addiction. Junk computing 52% was the most prevalent counterproductive behaviour, while most influential junk computing motive was socialization (female μ=3.2, male μ=2.8) across gender and visiting social networking site (μ=3.3) was the exceptionally exercised activity. Daily internet usage was positively associated with academic tasks avoidance and negatively associated with cumulative grade point average.

Keywords: Junk programming, problematic internet use, counterproductive behaviour (CPB), soldiering, impulsiveness.

INTRODUCTION

Technology has gained importance in every aspect of our lives. Internet is widely used for recreational and academic purpose. The Internet has emerged as an important mode of communication, business, information sharing, education and entertainment (Jessica et al., 2011). Internet penetration rate is almost 52% worldwide and almost 23% in Pakistan (Internet World Stats Usage And Population Statistic, 2017). In educational environment, internet provides a medium for teaching and learning if used in appropriate way (Akak, 2015). At present, education institutions integrated some implication to take advantage from information and communication technologies. On direction to the Higher Education Commission, Pakistan and Ministry of Education, Pakistan, universities and affiliated institutions are integrated through the wired and wireless networks to facilitate the students to take advantage from the information on the internet. Internet utilization for forty hours or more per week indicates excessive use of internet, more than 40 h per week is consider as internet addiction disorder (Akak, 2015).

Problematic internet use

The Internet has the potential to become addictive and impact people’s well being. The virtual world fantasy allows
Internet users to use it for an extended time period. Loose of control is the prime cause among students for excessive internet use (Mazhari, 2012). Excessive internet use is considered as irrepressible, unrestrained, unwarranted and problematical behaviour impelled by the use of digital technologies. Internet usage for an extended period is not only the sign for excessive internet usage, inability to control on-line activities is also a prominent indicator (Akar, 2015). Impulse control behaviour disorders are associated with brain's structure change and functioning. Impulse control behaviour can be categorized into impulsive or compulsive. Impulsiveness is related to those actions that are inadequately planed, hastily expressed, extremely risky, or incompatible to the situation in response to some external or internal impulse, resulting into undesirable outcomes. Impulsiveness means acting without thinking, often related to pleasure. Compulsiveness is related to persistently repetitive actions that are carried out according to traditional patterns. Compulsivity is the tendency of an individual to repeat similar, often aimless actions, occasionally linked with adverse consequences (Sharondawe, 2004; Robbins et al., 2011). Impulsiveness and excessive internet usage have similarity as both have a number of common attributes for instance obsession, withdrawal, mood swings, tolerance, and disability to concentrate (Lee et al., 2012; Burnay, 2015). Due to impulsive internet usage, university students become unable to devote sufficient time to their academic assignments and studies, so they might constantly postpone the tasks they are required to do and exhibit poor academic performance (He, 2017; Meier et al., 2016; Baturay, 2015).

Internet and counterproductive behaviour

Internet to a considerable extent facilitate students’ life by providing a medium for easy access of information and material for academic purposes. It also provide an environment for counterproductive behaviour, which results into lower academic grades and lower academic performance (Weatherbee, 2010; Akar, 2015). Counterproductive behaviours are categorized into two fundamental groups: (i) Soldering/theft and (ii) junk computing. The first group is associated with “non-productive practices or the work avoidance for more than 1 h a day without any intention to shift loads or harm colleagues, such as daydreaming, gossiping and long coffee breaks.” Identity-grounded or low ethical relationship with the profession and inappropriate task division overlooking capability of that particular person are the factors that catch the attention for soldering (Paulsen, 2013). Soldering is unprofessional behaviour which might influence well being and productivity (Baran, 2016).

The second group is linked with the excessive technology utilization apart from compulsory tasks labelled as junk programming (Jessica et al., 2011; Baran, 2016; Sevil, 2013). Junk computing concerns in educational settings have grown with the advancement in technology and easy and fast internet access. In educational setting, junk computing can be defined as” students' behaviour or ability to misuse internet and technology for the activities not related to course during study hours” (Arabaci, 2017). One may give an expression of working on computer or other electronic devices for study but actually using it for on-line gaming, shopping, business, communication, social networking, downloading or watching media, slaying time and trim productive etc (Baran, 2016; Joseph, 2008).

In spite of numerous benefits that the internet provide to learning processes, problematic and uncontrolled use of the internet by learners gives rise to numerous problems such as counterproductive behaviours, academic task’s delay, reduced work quality, productivity decrease and bad grades (Akar, 2015; Esmaeili, 2016; Weatherbee, 2010; Saleem, 2015; Odaci, 2011; Mohammadi et al., 2015). Loose of motivation to do other things due to excessive internet use, escapism from routine tasks, avoidance of academic tasks academic and impulsiveness risk are also associated with excessive internet use (Caplan et al., 2007; Akar, 2015; Lee et al., 2012).

Students from information technology discipline are more expose to internet, and develop a habit to be on-line all the time. Students spend most of their time on line due to lose of control (Mazhari, 2012; Dalbudak et al., 2013). In particular information technology discipline, students often exhibits junk computing, taking advantage of time and resources for non academic tasks such as entertainment, information seeking (looking for news, visit sports related websites, job hunting etc), interaction or socialisation, business, gaming, on-line watching and downloading films, music and real time updates (Akar, 2015; Weatherbee, 2010; Baturay, 2015; Arabaci, 2017).

As a result of impulsive internet usage and junk computing, university students become unable to devote sufficient time to their academic tasks and studies. Despite the growing prevalence of the internet abuse and numerous related researches in counterproductive behaviour specifically junk computing and internet addiction level, there are no studies focusing on the internet addiction level, motives for junk computing, correlation between daily internet use and risk factors related to junk computing among university students from information technology department in Pakistan, as information technology discipline’s students are more vulnerable to excessive internet usage and counterproductive behaviour. Therefore, the study intended to investigate the type of internet users, indulgence in counterproductive behaviour, level of internet addiction, junk computing motives across gender, counterproductive activities prevalence and correlation between daily internet use and cumulative grade point average, reduced academic task productivity, reduced academic performance, academic procrastination, demoralization or discouragement to do other things,
general procrastination, academic tasks avoidance and impulsiveness among information technology university students in Pakistan. To the best of my knowledge, it is the first study of its kind in Pakistan.

**METHODOLOGY**

In this section, the research approach, study population, sample size, data collection tools and techniques are presented.

**Research approach**

To investigate problematic internet use and counterproductive behaviour among information technology students from Pakistani universities, quantitative data sampling and analysis approach were used. The rationale for quantitative approach was to access a large population, which was achievable through a qualitative approach.

**Target populations**

The study was conducted with volunteers from public and private sector universities between September 2017 and January 2018, in Pakistan. The population of this study consisted of 659 volunteer from information technology discipline of public and private universities from seven provinces of Pakistan, selected via screening of 691 persons. To determine the study group, four inclusion criteria were considered. First, participants were public or private universities students in Pakistan utilizing internet on a regular basis for communication purposes and willing to take part in the study. Second, participants must be enrolled as information technology student in a university. Third, student’s participation from all provinces was ensured. Fourth, volunteer participants were recruited for data collection.

**Instrument design**

Instrument design was the most important part in this research because it was the only way to get answer from respondent. The instrument was created online by means of Google document feature, at docs.google.com.

The first part was related to demographic information of students and internet use. These questions enquired respondent’s personal information including the gender and CGPA (Saleem, 2015; Baturay, 2015). Question related to daily internet use was adapted from Onur et al. (2017). The second section consists of twenty four recurring sub-factor performed, while exhibiting counter productive work behaviour was adapted from Weatherbee (2010), Akar (2015) and Onur et al. (2017). These activities are related to counter productive work behaviour and cover both junk computing and soldering activities.

A cumulative scale of junk computing consists of eighteen online activities, and soldering cumulative scale consists of six offline activities that participants reported to engage in for counterproductive behaviour while performing academic tasks. These variables were measured on a 4 point likert type scale of significance ranging between 1="Never" and 4="Always". The respondents were asked to select the options that fit best to their opinion, and to what degree both on-line and off-line activities.

The third part comprised two sections. First section was related to excessive internet use. This section consists of nine variables, adapted from the Internet Addiction Test (IAT) (Byun et al., 2009), and measures individual’s levels of Internet Addiction. Each variable was requested to rate on six point’s likert type items. The variables ranged from 0-5, as 0="Does not Apply" and 5="Always". Second section consisted of eight risk factor associated with junk computing (Caplan et al., 2007; Akar, 2015; Chia-Yi et al., 2015). The respondents were requested to select one option for each variable which they think best interpret their experience and feeling considering their internet usage over the six months.

**Sample size**

The population selected for this study to collect empirical data about information technology students in Pakistan were public and private sector universities students from seven providences. Online sample size method was used to determine an appropriate target population sample size.

The non probability quota sampling method also known as convenience sampling technique was used, since by virtue, it is available to the researchers and to reduce social and produce reliable results.

**Data collection**

To collect pragmatic data from information technology university students in Pakistan, structured Instrument was distributed using snow ball sampling technique due to lack of participants because it was hard to find volunteers among university students from all the provinces of Pakistan especially from information technology discipline and it also helped to determine characteristics about the population. To ensure data validation via cross verification, different methods of data gathering were used.

The Internet resources, to distribute a link of the online version of the Instrument, were sending electronic mails to the email addresses of the students, social networking sites (facebook, instagram) and class rooms sessions in COMSATS
Data analysis

Here, the data analysis tool, test and findings are presented. Parametric tests were carried out through IBM SPSS Statistics 20. Descriptive statistics and independent t-tests were used to carry out relevant comparison. Data normality was checked through skewness and kurtosis tests, prior to the comparison analyses. The Pearson bivariate correlation was adopted to measure the correlations amongst continuous variables.

Table 1: Daily internet use.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Variable</th>
<th>Hours</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Average users</td>
<td>1-6</td>
<td>217</td>
<td>50.3</td>
<td>50.3</td>
<td>50.3</td>
</tr>
<tr>
<td></td>
<td>Excessive internet users</td>
<td>7-9</td>
<td>96</td>
<td>22.3</td>
<td>22.3</td>
<td>72.6</td>
</tr>
<tr>
<td></td>
<td>Problematic/Addicts internet users</td>
<td>10-12+</td>
<td>118</td>
<td>27.4</td>
<td>27.4</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>431</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Average users</td>
<td>1-6</td>
<td>96</td>
<td>42.1</td>
<td>42.1</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td>Excessive internet users</td>
<td>7-9</td>
<td>45</td>
<td>19.7</td>
<td>19.7</td>
<td>61.8</td>
</tr>
<tr>
<td></td>
<td>Problematic/Addicts internet users</td>
<td>10-12+</td>
<td>87</td>
<td>38.2</td>
<td>38.2</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>228</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Institute of Information Technology, Islamabad campus.

FINDINGS

Descriptive analysis results showed that information technology students in Pakistan showed more indulgence toward digital or technology oriented activities. Figure 1 shows that majority of the students use internet for their personal work and junk computing (52%) was the most prevalent counterproductive work behaviour among information technology students.

Table 1 shows that women are more tend to junk computing as compared with men. The amount of time spend online by students across gender was significantly different. Findings showed that almost 46.2% studeretswee average users and spend six hours or less daily, while 21% used internet excessively and spend nine hours or less daily in it. An interesting and alarming result was also observed as almost 32.8% students wereproblematic internet users or obsessed and spend 10 h or more on internet. It was also observed that 38.20% female students spend 10 or more hours daily on internet. The respondents were also enquired whether they want to cut down amount of time on internet for personal use but failed. About 67% female and 51.4% male students reported that they want to control the
The results indicated that there was a significant difference in the scores for female students and male students, with female students showing a higher mean (M = 3.51, SD = 1.223) than male students (M = 2.89, SD = 1.485); t (657) = 4.597, p = .169. To better elucidate the student's response, Error! Reference source not found., the scores distribution of internet addiction level across gender is shown in Table 3.

Internet addiction level

To analyse the internet addiction level among students, Young's standard scale was applied. Table 2 shows the Internet addiction scores of the respondents. The result established that majority of the students (46.1%) showed medium level internet addiction and lies in troublesome addicts' group and they are at risk zone, whereas 36.2% showed low level internet addiction and lies in normal internet users. An interesting and disturbing result showed that almost 17.7% students developed high level internet addiction, lies at danger zone and needs serious consideration.

In addition, an independent t-test was performed in order to compare the Internet addiction scores for gender. The results showed that there was a significant difference in the scores for female students (M = 3.51, SD = 1.223) and male (M = 2.89, SD = 1.485); t (657) = 4.597, p = .169. To better elucidate the student's response, Error! Reference source not found., the scores distribution of internet addiction level across gender is shown in Table 3.

Junk computing motives across gender

The motives for junk computing among information technology university students in Pakistan were investigated. Motives were categorized into six (socialization, education, entertainment, virtual emotions, business, information sharing).

### Table 2: Internet addiction level.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low level*</td>
<td>241</td>
<td>36.2</td>
<td>36.2</td>
<td>36.2</td>
</tr>
<tr>
<td>Medium level addiction**</td>
<td>305</td>
<td>46.1</td>
<td>46.1</td>
<td>82.3</td>
</tr>
<tr>
<td>High level addiction***</td>
<td>113</td>
<td>17.7</td>
<td>17.7</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>659</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*=(Normal use) **=(troublesome addicts' group)***=(danger zone addicts' group).

### Table 3: Internet addiction level across gender (Internet addiction level).

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>t-Test for equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Female</td>
<td>228</td>
<td>3.51</td>
</tr>
<tr>
<td>Male</td>
<td>431</td>
<td>2.89</td>
</tr>
</tbody>
</table>

The Pearson bivariate Correlation was performed to measure the direction and strength of the linear relationship between internet use and cumulative grade point average, reduced academic task productivity, reduced academic performance, academic task delay, demoralization or discouragement to do other things, avoidance of routine responsibilities, academic tasks avoidance and impulsivity. The results shows that there was a strong positive relations between daily internet use and academic task avoidance (r = 0.842, p <0.001), academic task delay (r =
reduced academic performance ($r = 0.702, p = 0.003$), impulsivity ($r = .734, p < 0.001$), while there was a moderate positive linear relation between daily internet use and avoidance of routine responsibilities ($r = 0.604, p$)

Figure 2: Junk computing motives across gender.

Figure 3: Counterproductive activities.
INDULGENCE IN COUNTERPRODUCTIVE BEHAVIOUR, LEVEL OF INTERNET ADDICTION, JUNK COMPUTING MOTIVES ACROSS GENDER, COUNTERPRODUCTIVE ACTIVITIES PREVALENCE AND RELATIONSHIP BETWEEN DAILY INTERNET USE, CUMULATIVE GRADE POINT AVERAGE, REDUCED ACADEMIC TASK PRODUCTIVITY, REDUCED ACADEMIC PERFORMANCE, ACADEMIC PROCRASTINATION, DEMORALIZATION OR DISCOURAGEMENT TO DO OTHER THINGS, GENERAL PROCRASTINATION, ACADEMIC TASKS AVOIDANCE AND IMPULSIVITY AMONG INFORMATION TECHNOLOGY UNIVERSITY STUDENTS IN PAKISTAN.

The findings from this study showed that majority of the students use internet for personal work, and junk computing (52%) was the most prevalent counterproductive behaviour among information technology students. It was also observed that almost 46.2% students were average users and spend six hours or less daily, while 21% use internet excessively and spend nine hours or less daily. An interesting and alarming result was also observed as almost 32.8% students were problematic internet users or obsessed and spend 10 h or more on internet. Almost 67% female and 51.4% male students failed to control the amount of time spent on internet. Female students (38.2%) were the most internet obsessed users.

Based on the results obtained, almost 46.1% students showed medium level internet addiction and lies in troublesome addicts’ group and they are at risk zone, whereas 36.2% showed low level internet addiction and lies in normal internet users. A notable and disturbing result was observed as almost 17.7% students developed high level internet addiction, lies in danger zone and needs serious consideration.

In this study, it was also found that visiting social networking sites was the most widespread counterproductive activity among students. Using internet for socialization (female μ=3.2, male μ=2.8) was the most dominant junk computing motive among male and female students.

It also shown that the amount of time spent daily on internet was negatively associated with cumulative grade point average and positively associated with academic procrastination, academic task delay, reduced academic performance, and impulsivity. Whereas there was a moderate positive linear relationship between daily internet use and avoidance of general procrastination. Also, there was a weak positive linear relationship between daily internet use and demoralization or discouragement/loose motivation to do other things.

In the present study, certain junk computing activities were examined. Some serious junk computing consideration such as hacking, bulling and identity theft need to be considered.

REFERENCES


Problematic Internet Use. Cyberpsychol. Behav.


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