Patterns of Internet Use and Information Overload Management in University Students

Tasaddaq Hussain¹ Muhammad Anwar² Shahid Minhas³
¹School of Mass Communication, Minhaj University Lahore, Punjab, Pakistan
²Department of Media Studies, Khushal Khan Khattak University, Karak, KPK, Pakistan
³Media Studies Department Gift, University Gujranwala, Punjab, Pakistan

Corresponding Author: easeemvu4@gmail.com

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This study is an attempt to explore the patterns of internet use in university students and the ratio of information overload. Four hundred students are our sample, including one hundred each from Quaid-e-Azam University, International Islamic University, National University of Modern Languages, and Federal Urdu University Islamabad. The survey research design is applied. The findings show that the majority of students are suffering from Information Overload and the main reason is an extra-large amount of available data. It has been found that skilled patterns of internet use have a positive correlation while facilitated patterns of internet users have no correlation with information overload. It refers that more analytical studies are required. This problem will increase with the passage of time due to the day-to-day rapid increase in information.
Literature Review

Internet is on use among students in many different ways and they gratify different needs as a result of the time they spent on it. Some studies suggest that students of net can be categorized into classes including frequency of use, need of use and satisfaction on the use of net. Jadmoon et al. (2011), continuing on this, cited that mostly the internet is accessed by the students for both academic and personal reasons; however, it was observed that there is underutilization of the internet resources to enhance education. It was recommended that awareness should be augmented. Training in computing skills and availability of requisite facilities are essential to enable better utilization of digital resources. Information overload is not studied directly; however, some of its symptoms are observable like: inadequate number of computers, lack of time, non-cooperative staff, lack of the training of internet use etc. Fordjour, et al. (2011) added a different aspect into the discussion and his study revealed that relevance of information retrieved using information retrieval tools depend strongly on the faculty of the students but did not depend on the Level of Students. It was also observed that majority of students from the Science Faculty ‘always’ get the information they need but majority of Arts students ‘never’ got the information they needed. Majority of M.Sc. students ‘sometimes’ get the information they need more than Students from M. A, M. PHIL and Ph.D. It was concluded that the students of the Faculties of Science, Arts and Social Studies, were fully aware of information retrieval system, however, the use of the information retrieval systems to obtain relevant information was a problem with all the faculties. Frequent disruption of Internet, inadequate time by students on campus and non-availability of training programs to educate students on how to use the relevant tools, to obtain appropriate information were the main reasons for the difficulties in retrieval of information. The positive uses of the search strategies to retrieve relevant information were found by all the faculties.

It is clear from the above cited literature that the way in which the students use internet depends upon three main aspects; (a) target/aim/purpose of using the internet, (b) location/environment in which a student uses the internet and (c) the facilities which are available to him physically and mentally. The students’ characteristics such as motivation, prior online learning experiences, cognitive abilities, and learning styles have also a significant impact on their success in their studies (Simonson, et al., 2000). Keeping this background in mind, this study aims to determine personal factors that lead the individuals to distinguish that they are overloaded with information or not. Different causes of information overload, discussed here by the research scholars can be accommodated by the heading of the patterns of internet use with three main dimensions; (1) target-wise, (2) skill-wise and (3) facility-wise.

Skill-wise Patterns of Internet Use

Computer operating skills (documentation, editing and maintaining), Internet operating skills (browsing, downloading, mailing, Conferencing, contacting and resolving the everyday
problems), English language skills (reading, understanding and writing efficiency), Subject dealing skills i.e., command on the subject under process in CMC (Chen, 2003), How long and how much internet using experience one has?

**Facility-wise Patterns of Internet Use**

Mechanical facilities (computer, internet and related appliances having smooth run). Environmental facilities (physical: place of work, body fitness/good health, weather/surroundings, and psychological facilities: stress less mood, no time pressure and having full support of the teachers). Operational assistance /administration’s favor, who guide the user in case of a hardware/software/textural /retrieval problem, informational facilities (quality, quantity and construction of information).

**Information overload**

While going through the literature, it seems that the term information overload (IO) has been discussed in different times by the constructs and terms like: Information revolution (Veneris, 1984); sensory overload (Lindsey, 1959); (Meier, 1963). information input overload (Miller, 1960); information pollution (Bray, 2008); information explosion (Alvarado et al.,2003); Informatization (Rogers & Everett, 2000); information fatigue syndrome (McCune, 1998); cognitive overload (Herrod, 2000; Chen, 2003) Knowledge overload (Hunt & Newmann, 1997), content overload (Himma, 2007) and an overabundance of information (Mundell, 2008).

Information overload in students have been studied wastly, the work of Holton and Chyi (2011), regarding the Information Overload and Factor of Time, explored the novel areas of information overload, especially with regard of news and information, and empirically observed the factors associated with the degree of information overload as well as how people perceive the amount of time required to consume information. Its findings revealed that majority of today’s news and information consumers feel overloaded with the amount of news they are confronted with. The news interest, Gender and use of specific news platforms and outlets predict the degree of the overload. This study addressed the research question; a: To what degree do people feel overloaded with the amount of news available these days? b: What factors (i.e., demographics, news interest, and multiplatform news consumption) have an influence on the perceived degree of information overload? c: Do people perceive certain news platforms as more time-consuming than others.

A questionnaire was structured, adopting the question from the Pew Research Center’s 2008 Media Consumption Survey. Majority of the respondents indicated that the most time is needed to read an article in the print newspaper, followed by Web sites, blogs, Face book, and Twitter. It was concluded that more than 70% of Internet users were at least somewhat overloaded with the news and information available. It was also concluded that more traditional platforms are perceived as more time-consuming than newer delivery mechanisms. It was also concluded that those who enjoyed the news more were less likely to feel overloaded by the amount of it
available. It meant that information overload, despite being a consequence of information surplus, is also mediated by personal traits such as interest in following the news. Besides the problem of information overload there are many other problems which ultimately result in information overload. From this angel, a study was conducted by Coi et al. (2011), who believes that in Chinese adolescents, problematic internet use (PIU) is a growing problem. In the study, the prevalence of PIU and the relationships between PIU and psychosomatic symptoms and life satisfaction among adolescents in high schools and college schools was observed. To obtain information on psychosomatic symptoms and life satisfaction, the Multidimensional Sub-health Questionnaire of Adolescents and the Multidimensional Students’ Life Satisfaction Scale were administered. A questionnaire containing information on socio-demographic indicators, Internet usage, psychosomatic symptoms and quality of life was filled in within a 20-30 min session in the classroom in the presence of the teachers, in order to minimize any potential information bias. The socio-demographic characteristics: age, gender, grade, residential background (urban or rural areas), area and self-reported family economy were gained; Internet usage pattern was assessed by examining the frequency of Internet use per week and the purpose of Internet use. To assess the effects of PIU on psychosomatic symptoms and life satisfaction, logistic regression was used. According to its results, approximately 8.1% of subjects showed PIU; adolescents with PIU were associated with males, high school students, urban, eastern and western areas, upper self-report family economy, service type mostly used for entertainment and relieving loneliness and more frequency of Internet use. Compared with normal Internet users, adolescents with PIU were more likely to suffer from psychosomatic symptoms, including lack of physical energy, physiological dysfunction, weakened immunity, emotional symptoms, behavioral symptoms and social adaptation problems. Positive significant relationship between PIU and psychosomatic symptoms was found, but negatively related to life satisfaction. This research shows that problematic internet use is a serious problem especially in young people. It proves that patterns of internet use are correlated with problems faced by the internet users. Symptoms of information overload, which are helpful in this study, can easily be arranged in a list.

An important research study on ‘digital divide’ was conducted by Munoz (2010). It was observed that ‘digital divide’ must be studied more than just the differences between those who have or have not the Internet access. There are other dimensions like: (1) Internet skills, (2) time spent on the Internet and, (3) the purpose of internet use, which are also important to discuss. He observed that, (a) the effects of the Internet on academic performance are not direct, but mediated by variables and, (b) the positive effects of the Internet are more prominent in those students whose background is already more favorable for achieving better academic results without using the Internet, in agreement with the knowledge gap hypothesis. The ‘knowledge gap’ hypothesis postulates that the students most advantaged in the knowledge of the Internet are those who take most advantage of it, in academic performance. Beneficial uses of internet that increase the resources of the students in study, is its use as a social medium to extend, share and discuss the information obtained in formal education. This use of internet is not randomly
distributed within the population, it is found more in students who have more Internet skills and come from families with a high socioeconomic status. It confirms the hypothesis of the appearance of a ‘usage gap’ which separates those who use the Internet for spare time purposes and those who use it for work and education (Van, 2006). It is a fine development in computer mediated communication (CMC) research. In majority of the cases, it is a major factor of creating trouble in internet users. Similarly, Prasitratanaporn (2010) conducted a cross-sectional field study to observe the theoretical model of the effects of personal factors (personality traits and socio-demographic variables) on an individual’s perception of information overload. The data were collected by a questionnaire based on existing measuring instruments and data were analyzed using descriptive statistics and SEM techniques. Questionnaire was prepared in the English and Thai languages, both versions were reviewed by a focus group of five individuals from the target population. Finally, Thai language version was used in the full study. Sample size of four hundred respondents was determined for the study and questionnaires were distributed. It was identified that four personality traits (reserve, complexity, emotionality, and imagination) have important effects on an individual’s perception of being overloaded with work related information. Respondents having strong reserve or emotionality traits were likely to experience overload mainly because of their lack of skills in dealing with the content of information rather than the amount of information. Those who exhibited high levels of complexity were likely to experience overload as a result of their strong desire to use information rather than any lack of ability in dealing with the content of information. The respondents who were highly imaginative were the least likely to experience overload and if they do then it was likely to be because of the amount of information they seek and use rather than any lack of skills in dealing with the content of the information. It was concluded that information overload often causes other personal problems and, in such cases, it is important to identify and treat the basic causes and not just the symptoms which often present in the form of stress related problems. It was the first study of this nature, conducted in Thailand. It provides a line of action for more advanced study of the Information overload in university students, because of a new dimension of the personality traits. According to Weis (2009), with the advent of the Internet, there is not only a greater capability for one to find needed information; there is also a greater demand to stay informed about current events in the world. This situation is enough to cause information fatigue syndrome, analysis paralysis, or information overload. The information overload is the sense of being besieged by one’s information demands. According to Ellington (2005), e-mail, personal web browsing, instant messaging, and seven other sources of information overload exist in an undergraduate student’s lifestyle. The research questions of the study are: (1) to what extent are students experiencing information overload, and what are the primary sources of this overload? (2) How do students cope with information overload? (3) What is the relationship between social networking site usage and reported feelings of information overload? In this study an online survey was administered during the spring 2009 semester of a public university. It was a quantitative extension of Ellington’s (2005) research. Out of total (343) respondents, 92 were
male and 249 females, with two respondents unreported. It was concluded that social networking site usage behaviors are not linked with the frequency of experiencing information overload in undergraduate students. It was also observed that the number of coping strategies used by respondents had no significant correlation with the frequency of experiencing information overload. Female respondents showed a slight correlation in viewing SNSs as a source of information overload, whereas males did not exhibit this perception. There was a small but statistically significant positive correlation between GPA and frequency of experiencing information overload. It was suggested that information overload is still a remarkably fertile field for researchers; qualitative research can shed light into what factors contribute to information overload, eventually yielding a way to measure information overload as a latent variable. It was recommended that investigations in future will be more helpful to know whether computer mediated communication is more a blessing or a curse when considered in the context of information overload.

A study aiming at the answer of nine questions was conducted by Reeves, et al. (2009). The questions were: (1) how do users of research content discover the existence of research content which may be useful in teaching and learning? (2) How do they assess whether particular content will be relevant to their needs? (3) How do they access the content they feel to be useful? (4) What problems do they face in using research content in learning or teaching situation? (5) What could be done to make their use of research content easier? (6) How do they use the research content they discover? (7) Do they differentiate between formal, peer-reviewed content and other content they discover through the internet? (8) Do they use content from undergraduate or masters’ dissertations as well as doctoral theses? (9) Do they use student-generated ‘research’ content on wikis or web-sites? A general online-survey, discipline and institution-themed Focus Groups recordings of student searches and case studies based on semi-structured interviews were employed in the research method. It was concluded that Universities are currently failing to bridge the gap between academic practice and the skills-shortage of students. Yet higher educational institutions are unable to achieve a rational policy of leading change in educational practice because of a marked digital divide within their own academic staff. It was also mentioned that students in all universities are frustrated that they cannot access research content online and immediately. They also feel difficulties with the complexity of academic discourse. It was noted that most of the students were facing serious obstacles in accessing research contents and were all eager to talk (sometimes at length!) about their frustrations. Main obstacles were mentioned as: (1) lack of skills in using search engines effectively, (2) lack of relevance of research training to the actual research behaviors of students, (3) difficulty in accessing research content once it has been identified, usually because the local library does not subscribe to certain online journals, (4) lack of adequate ICT skills and (5) research content is too difficult to read. This is also supporting the idea that due to the lack of facilities students are facing different problems, but it was not recognized as information overload, which is a well defined problem of internet world.
Another study about the technological confidence of youths by investigating their computer and Internet problem solving behaviors in their daily lives is very interesting, in which these research questions were dressed: A: In what ways and to what extent do youths experience computer and Internet problems? B: In what ways and what resources do youths use to solve their computer and Internet problems? C: To what extent and how do demographics, Internet skills, Internet problem solving behaviors, affect Internet use? (Council, 2006). Data was collected for this paper, as a part of a larger research project on the Internet among youths in Singapore, sponsored by and in collaboration with the National Youth Council of Singapore. In this study following variables were utilized to measure Internet use, Internet skills, Internet related problem-solving behaviors and demographical information. Data from both the quantitative survey and qualitative interviews were triangulated to allow comparison of information sources and the verification of the validity of information received (Gordon, 1987). It was concluded that relationships between Internet skills, problem solving behaviors and Internet use were moderately positive; respondents who indicated that they had good computing and Internet skills were more likely to be males, older, of a higher education and be more confident of solving computing problems by themselves. It was also concluded that respondents who rated themselves as being confident in independently solving computer problems, were more likely to be males, older and have attained a higher education. It was suggested that since adoption and penetrations are already extremely high among Singaporean adolescents, future efforts should focus on how to build knowledge sharing networks among youths to contribute to a virtual cycle of Internet help to enhance the quality of youths’ Internet connections.

Information overload that leads to a reduction in an individual’s performance was discussed very acutely, by Koots (2006) in a research article. He pointed out the main causes of information overload along with five (5) dimensions that influence one’s information capacity and the information load were also discussed. Proposed solutions for information overload and further identified managerial and technical solutions are also evaluated. Three dimensions of information overload are discussed in literature as (1) Personal (individual) information overload; (2) Organizational information overload and (3) Customer information overload (Edmund & Morris, 2000). It was concluded that all the reviewed literature agree that information overload has a negative effect on the performance of an individual. It is observed that information overload leads to ignorance, omission of information, difficulties in identifying relevant information and abstraction of information; all these effects lead to reduced decision accuracy. The information overload increases the time to search through all information. Consequently it causes delay in seeking information and decision making, which results in loss of time. It was mentioned that this research article concentrates only on personal information overload; the results cannot be used for other overload dimensions like organizational overload. Six common response to the constant exposure to information overload were identified by Eppler and Mengis (2004) as: (1) the allocation of less time to each input, (2) the disregard of low-priority inputs, (3) the re-drawing of boundaries in certain social transactions to shift the burden
of overload to the other party in the exchange, (4) the reduction of inputs by filtering devices, (5) the refusal of communication reception (via unlisted telephone numbers, unfriendly facial expressions, etc.) and (6) creation of specialized institutions to absorb inputs that would otherwise swamp the individual. Chen (2003) conducted a study to observe: (a) the difficulties that link up the perceptions of IO in CMC, to the students, (b) the impact of the difficulties on students’ learning in online discussions, and (c) the students’ strategies for avoiding or managing those difficulties. Four research questions were developed to conduct the study; (1) while learning through the medium of CMC, what difficulties do students experience, that contribute to their perceptions of information overload? (2) Do those difficulties affect students’ levels of information processing (surface or deep processing) as observed in their discussion messages? 3. Do those difficulties affect students’ interaction with others in online discussions? 4. What strategies do students employ to avoid or manage those difficulties in order to engage in quality learning (defined as learning that is achievable by deep reflective thinking and interaction with others)? A mixed-method design was employed in the study, combining both qualitative and quantitative approaches to collect, analyze, and report findings. For this study a two-stage purposive sample was used, one for selecting sample classes and another for selecting interviewees from sample classes. The respondents were student volunteers from the selected classes. Questionnaire was consisting of these items: (1) prior subject knowledge, (2) English reading and writing proficiency, (3) online course experience and (4) technology use experience.

It was concluded that IO is a complex phenomenon that is usually not the result of just one variable, but a mixture of several variables. It was suggested that students’ cognitive awareness and the structure of the course tended to influence the effects of IO on their learning. It was also observed that interviews with ten graduate students near the beginning of the semester revealed that different individuals have experienced different degrees of IO while, near the end of the semester the results indicated that students used a variety of strategies to deal with those difficulties. It was also suggested that in order to promote quality interaction in computer conferencing, not only the medium, instructional methods, and moderating strategies, but also students’ personal characteristics, amount of invested mental effort, meta cognitive awareness, and the course structure should be considered.

Hypotheses

H1: More the ‘skillful patterns of internet use’ less the information overload in university students.
H2: More the ‘facilitated patterns of internet use’ less the information overload in university students.

Research methodology

This is a quantitative research study; the content analysis approach is applied. To collect data analytical survey technique is used, which describes why the situation exists at the moment. It
allows an overview about the nature of the whole population being studied (Wimmer & Dominick, 2009). All the boys and girls enrolled in universities (Government / Private) of the Islamabad, in the academic session of 2011-12, are the population of this research study. Today, information overload in university students is a genuine problem around the Globe, so the student community in access, is selected as a population (Bawden & Robinson, 2008). Sample size is four hundred (400) students, selected from four universities of the Islamabad (IIUI, QAU, NUML and FUU). The students of these four universities are representatives of the students of all the universities; so, the result will be applicable to all the universities of the Islamabad (Chaudhry & Kamal, 1996). It is a clear phenomenon that mostly content analysis in mass media, multistage sampling technique is applied (Wimmer & Dominick, 2009). In first step, through stratified sampling, entire population is divided into eleven different strata (HEC recognized Universities). In second step, four universities are selected by simple random sampling. In third step four faculties (Natural Science, Social Sciences, Computer Sciences and Languages) are selected by purposive sampling. In fourth stage, one hundred students are picked up from these four faculties of each university, equally, through convenient sampling. ‘University Student’ is a unit of analysis; a boy/girl who is enrolled as a student in BS, MSc, MS or PhD class, in academic session 2011-2012.

**Conceptual definitions of the key variables**

Five key variables are used here in this study, which are as following:

1. Information overload (IO)
2. Skillful patterns of internet use (SPOIU),
3. Facilitated patterns of internet use (FPOIU) and

**Information overloads (IO)**

Eppler and Mengis (2004) defined that with little information; individuals have little to process and consequently make poor decisions. The processing capabilities and quality of decision making, increases with the increase in amount of information, but, after a certain point, when the information exceeds its limits, the processing capabilities start decreasing. Beyond that point, any received information will not be processed properly. It may lead to confusion and could have a negative impact on the individual’s ability to set priorities as well as to remember previous information. It is not difficult to see the effects on both, the individuals and the organizations. The point, from where information processing capabilities start decreasing, the information overload initiates increasing. According to Abdel-Khalik (1973) information overload occurs when the decision maker estimates to have to handle more information than he/she can efficiently use.
Skillful patterns of internet use (SPOIU): While using the internet, if a student is having sufficient skills to operate it, this pattern of internet use will be referred as skillful pattern of internet use.

Facilitated patterns of internet use (FPOIU): While using the internet, if a student is having sufficient facilities to operate it (e.g., pleasant environment, teachers’ guidance and proper training etc.), this pattern of internet use will be referred as skillful pattern.

Instrument for data collection

A well-structured questionnaire, consisting of 33 items with multiple choice options, is used for data collection.

| No. | Variables                                      | Symbols | Operational form of the variables.                                                                 |
|-----|------------------------------------------------|---------|---------------------------------------------------------------------------------------------------|
| 1   | Information overload (Dependent Variable)      | IO      | 2.1: Relevant information is always extra large,  
|     |                                                |         | 2.2: Irrelevant information is extra large, 
|     |                                                |         | 2.3: Disappointment becomes a temperament,  
|     |                                                |         | 2.4: Feeling of the loss of time Increases 
|     |                                                |         | 2.5: Information is ambiguous and confusing, 
|     |                                                |         | 2.6: Accurate decision becomes difficult, 
|     |                                                |         | 2.7: Remembering facts, recalling detail becomes difficult, 
|     |                                                |         | 2.8: Misinterpretation occurs frequently. |
| 2   | Skillful patterns of internet use (Independent Variable) | SPOIU   | 3.1: Experience of Internet Use in years.  
|     |                                                |         | 3.2: English Language Skills (Reading, writing and understanding).  
|     |                                                |         | 3.3: Prior Subject Knowledge (Marks in GAT or last examination). 
|     |                                                |         | 3.4: Internet information utilization skills (searching, editing, transferring and downloading). |
| 3   | Facilitated patterns of internet use (Independent Variable) | FPOIU   | Internet facilities provided in the University.  
|     |                                                |         | 4.1: Teachers’ guidance of internet use,  
|     |                                                |         | 4.2: Updated Digital Library,  
|     |                                                |         | 4.3: Supporting Courses  
|     |                                                |         | 4.4: Comfortable environment. 
|     |                                                |         | 4.5: Satisfactory schedule of library timings. |

Results and findings

Data collected through questionnaire is analyzed in three steps. In first step, all variables are computed; their frequencies and percentage are obtained through the statistical package for social sciences (SPSS-16.0). In the second step, data was derived through the calculation of symptoms
of information overload (IO), skilled patterns of internet use (SPOIU) and facilitated patterns of internet use (FPOIU).

In this step, data is simplified and grouped into two categories of low and high. In third step information overload is analyzed along with all other relevant variables of the research study minutely. In fourth step, hypotheses are tested using SPSS. Linear Correlation of IO is calculated with SPOIU and FPOIU respectively.

Analyses of Derived Data

The values of three variables, Information overload, skilled pattern of internet use and facilitated patterns of internet use, taken indirectly through their indicators and symptoms which are directly observed in different responses, in the questionnaire.

| Table 2: Information Overload (IO) |
|-----------------------------------|
| Frequency | Percent |
| Low       | 127      | 31.8    |
| High      | 273      | 68.2    |
| Total     | 400      | 100.0   |

Out of 400 students 273 (68.2%) are found high victim of information overload, while 127 (31.8%) are low victim of information overload. This data is derived through observation of eight questions (16, 17, 18, 19, 20, 21, 22 and 23) of the questionnaire. In final stage, V16, V17 and V20 are taken in account and response categories are converted into two; high information overload and low information overload categories.

| Table3: Skilled patterns of internet use (SPOIU) |
|-----------------------------------------------|
| Frequency | Percent |
| Low       | 39      | 9.8     |
| High      | 361     | 90.2    |
| Total     | 400     | 100.0   |

Out of 400 students 361 (90.2%) are found high level adopters of the SPOIU, 39 (9.8%) are low level adopters. This data is derived through observation of seven items (7, 23, 24, 25, 26, 27 and 28) of the questionnaire. In final stage, V4, V7 and V26 are taken in account and responses are converted into high and low categories.

| Table 4: Facilitated patterns of internet use (FPOIU) |
|---------------------------------------------|
| Frequency | Percent |
| Low       | 211      | 52.8    |
| High      | 189      | 47.2    |
|       | Frequency | Percent |
|-------|-----------|---------|
| Low   | 211       | 52.8    |
| High  | 189       | 47.2    |
| Total | 400       | 100.0   |

Out of 400 students 189 (47.2%) are found high level adopters of the FPOIU, 211 (52.8%) are low level adopters. This data is derived through observation of five questions (29, 30, 31, 32, and 33) of the questionnaire. In final stage, only V33 is taken in account and response categories are converted into two; high and low.

**Hypotheses Testing**

**H1:** More the ‘skillful patterns of internet use less the information overload on university students.

It is found through the calculation that association between information overload and skilled patterns of internet use is positive and it is also a very weak correlation ($r = 0.102$, $n = 400$, $p < 0.05$). It means more the skilled patterns of internet use result in a higher level of information overload, in the university students at 5% significance level; so the hypothesis is rejected.

The data analyzed here in this chapter shows that the students having different skills of internet use are differently affected by the information overload. Those who are capable of installing ‘Widows’ and other ‘software’ (V28) are the least (64.2%) affected of the IO.

Those who can download their targeted information easily (V27) and can read the English fluently (V23) are also near to the low level of information overload (68.2% and 69.7%). The students who can understand the English promptly (V24), have a good searching capability (V25) and can utilize all the internet information easily (V26) are nearly equal prey (72.1%, 71% and 70.1%) of the information overload.

**Table 5: Cross Tabulation between SPOIU and IO**

| V23 I can read the English fluently | IO (Low) | IO (High) |
|-----------------------------------|----------|-----------|
| Low                               | 38.6     | 61.4      |
| High                              | 30.3     | 69.7      |

| V24 I can understand English promptly | IO (Low) | IO (High) |
|--------------------------------------|----------|-----------|
| Low                                  | 54.2     | 45.8      |
| High                                 | 27.9     | 72.1      |

| V25 My Searching capability is good | IO (Low) | IO (High) |
|------------------------------------|----------|-----------|
| Low                                | 49.1     | 50.9      |
| High                               | 29.0     | 71.0      |
H2: More the ‘facilitated patterns of internet use less the information overload in the university students.

It is found through the calculation that association between information overload and facilitated patterns of internet use is negative and it is also a very weak correlation ($r = -0.054$, $n=400$, $p < 0.05$) It is not significant at 5% level of significance. It means facilitated patterns of internet use have no significant correlation with information overload, in the university students.

Data analysis has proved that students who are high level users of digital library of the University (V30) are at the lowest level of information overload (67.9%), among all the observed students at high level of IO.

Those who use internet in very pleasant environment (V31), their ‘Digital Library timing schedule’ is satisfactory (V32) seek the help of teachers in case of internet related problems (V29), and avail the opportunity of the proper training of internet use offered by the university (V33) are also at a low level (68.1%, 69.1%, 68.9% and 68.9%) of IO.

Table 6: Cross Tabulation between FPOIU and IO

|   | IO (Low) | IO (High) |
|---|---------|-----------|
| V29 Teachers help me in case of internet related problems. | Low | % within Teacher helps me in case of internet related problems. | 32.4% | 67.6% |
|   | High | % within Teacher helps me in case of internet related problems. | 31.1% | 68.9% |
| V30 I use digital library of university. | Low | % within I use digital library of the University. | 31.5% | 68.5% |
|   | High | % within I use digital library of the University. | 32.1% | 67.9% |
| V31 I use internet in very pleasant environment. | Low | % within I use internet in very pleasant environment. | 30.8% | 69.2% |
|   | High | % within I use internet in very pleasant environment. | 31.9% | 68.1% |
Discussion and Conclusion

In this case information overload (IO) is observed through its various indicators. Skilled Patterns of Internet Use (SPOIU) are calculated through the V4, V7 and V26. Facilitated Pattern of Internet Use (FPOIU) is indicated by V33. It is observed that 68.2% students are victim of high Information Overload while 31.8% are suffering from low Information Overload. This problem is due to the extra large relevant information, extra large irrelevant information and shortage of time to process the information.

Skill wise patterns of internet use were observed through different independent variables like marks obtained in last examination/GAT (V4), experience of internet use (V7) and expertise to utilize all the relevant information (V26). Facility wise patterns of internet use are measured through the independent variable V33. It indicates the availability of proper training of internet use to the students and the university administration. Finally it is concluded that:

Majority of the university students (68.2%) is suffering from information overload while using the internet. Different factors are possibly responsible of this problem, but the variables under study have shown that extra-large relevant and irrelevant information offered in response of a searching activity is main cause of information overload in university students. These results are comparable to the study of Kumar and Kaur (2006).

Skilled pattern of internet use is also positively correlated (weak) with information overload. It refers that the students having more experience of internet use, having good proficiency of the subject and comprehension of the English language along with the best capabilities of utilizing the internet offered information, feel more information overload. This load is because of extra-large relevant information, not due to any deficiency of skills. Internet is a unique source of knowledge, its data is increasing very promptly, so this is a global problem as Ruff (2002), Chen (2003) and Koots (2006) have also admitted.

Facilitated pattern of internet use is negatively correlated, but this correlation is as weak as it tends to reach zero. It implies that the students more facilitated with proper digital libraries and having more guidance of internet use are facing the same issue of information overload as the students less facilitated with proper digital libraries and having less guidance of internet use. It shows that to minimize the information overload facilitated and skilled patterns of internet use
are not very much effective to minimize the information overload. Results of this research study show that more analytical studies are required.

Information overload is a multidimensional subject. It is a symbol of pride as it is the availability of huge data whereas at the same time when it puzzles the reader it becomes a severe problem. Yet we have to find a moderate line which could be satisfactory for all the concerned quarters.

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