THE INFLUENCE OF INFORMATION OVERLOAD AND PROBLEMATIC INTERNET USE ON ADULTS WELLBEING

HASAH H. ALHENEIDI

Thesis submitted to Cardiff University in partial fulfilment for the award of the requirements for the award of the Degree of Doctor of Philosophy (PhD)

Centre for Occupational and Health Psychology

School of Psychology, Cardiff University, UK

2019

Words count: 49,350

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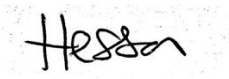
Signed  (candidate) Date 23rd September 2018

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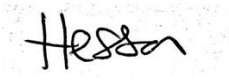
Signed  . (candidate) Date 23rd September 2018

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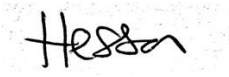
Signed  (candidate) Date 23rd September 2018

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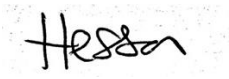
Signed  (candidate) Date 23rd September 2018

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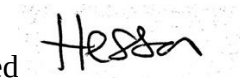
Signed  (candidate) Date 23rd September 2018

ACKNOWLEDGEMENTS

I am sincerely grateful to my supervisor, Professor Andrew Smith, for the opportunity to work with him, and to gain from his knowledge, and for his continuous support, wisdom, help and patience he provided me throughout the project.

I would also love to thank, my mother Ghanima Al Jarallah who I am genuinely and completely grateful for her full love and support, and for taking the best care of my son Khaled the time I needed to spend away from him in Cardiff. My father Hassan AlHunaidi for his ultimate support in believing in me, and funding me, encouraging me and giving me this great opportunity. My husband Osama AlZaabi who enlightened this journey with unending love, patience and support. My sister Latifa for being Khaled's second mother and best supporter, my brothers Ali, Omar, and Abdullah for their time, love and endless support. My dear cousins, and the rest of my lovely supportive family for their unconditional encouragement. My precious family this journey won't be done without you.

Thanks to all my colleagues and the members of the Occupational and Health Psychology Centre, specially Kenisha Nelson, Eman AlHarbi and Jilian Fan; and to my friends in Kuwait and Cardiff, who I have thoroughly enjoyed their company the past four years, where they have been great friends over the years and provided boundless kindness and support.

At last special thanks to all volunteers and participants of the research.

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SUMMARY

We are living in an information age, where the overabundance of information can result in stressful conditions for information users, such as information overload. This might lead to internet addiction or problematic internet use, because the internet is the most used information source and can be addictive or misused due to its evolving and endless content and activities. An individual can face difficulties in understanding an issue or making a decision because of the presence of too much information, like the flow of instant messages, text messages, phone calls, emails, social network notifications, advertisements, as well as non-cyber based information sources. This flood of information we are being exposed to can result in negative consequences for individual wellbeing.

This mixed methods study investigated the impact of information overload and internet addiction on adults' psychological wellbeing, work performance and academic attainment. Five empirical studies were used to measure the influence of information overload and internet addiction on wellbeing through a holistic approach. These studies also controlled possible factors that could influence or interfere with the wellbeing process.

The results revealed interesting findings: The influence of information overload and internet addiction on university students' predicted negative wellbeing, and the cultural differences between Kuwait and UK sample were not significant. However, the influence of information overload and internet addiction was significantly different between students and workers. The impact of different internet uses on workers were also significantly different than students. The diary study revealed significant differences between problematic internet users and non-problematic internet users' wellbeing scores, although hours spent on the internet and internet activities were similar. The thesis provides a comprehensive approach to understanding the influence of information overload and internet addiction on adults' wellbeing, which can provide intervention plans and solutions in universities and workplaces.

CHAPTER 1

INTRODUCTION

We live in an age where information is the strongest commodity to be traded, communicated and educated. Governments and companies, as well as individuals, rely on information to foster a stronger economy and facilitate better living conditions. The development of information technology, constant internet reliability, easy access to information and the ability to develop, communicate, duplicate (Evaristo, Adams, & Curley, 1995; Hiltz & Turoff, 1985) and share information has led to information overload and connection control problems for many users, especially those who lack information literacy skills. Technology is not the only cause of information overload and internet addiction as Allen and Shoard (2005) suggest it is also the use or misuse of technology. Filters and search strategies can help to limit information streams (Wellmon, 2012). However, without information literacy skills to filter and control the information flow, information technology and internet use can be a "two-edged sword" (Bawden, Devon, & Sinclair, 2000, p. 154).

The aim of this research is to investigate the effects of information overload and internet use on the wellbeing and performance of people from two cultures, the United Kingdom and Kuwait. This chapter provides the rationale for the research and shows how it aims to develop theory and methods, as well as provide a practical impact for adult information users.

1.1 Factors in the Research

1.1.1 Information overload.

Information overload (IO) is the state of stress experienced when the amount of information given exceeds the limit of information user processing capacity (Eppler & Mengis, 2003). This results in an impaired decision-making process, which can confuse the user and affect their overall work quality (Chewning & Harrell, 1990). Several concepts, synonyms and related terms of information overload have been provided to include: cognitive overload, information fatigue syndrome, communication overload, sensory overload, knowledge overload (Eppler & Mengis, 2003), information anxiety,

infobesity, information avoidance (Bawden & Robinson, 2009) and social overload due to social networks services.

Numerous psychological and economic consequences of information overload result in severe implications at an individual and organisational level. Information overload is a form of cognitive barrier, whereby it blocks, limits or hampers the information-seeking process and causes frustration to the information user (Savolanien, Kaakinen, Sirola, & Oksanen, 2018). Research conducted by Basex revealed that information overload costs the US economy US$900 billion annually (Spira & Burke, 2009), with work stress triggering depression, anxiety, heart disease and high blood pressure (Guarinoni et al., 2013). However, more recent information overload implications are attributed to the evolving use of, and emerging reliability on, different internet activities, resulting in more distraction and excessive information flow.

Information overload in the workplace has been widely investigated and its negative consequences on employees and companies have been documented. However, there is a lack of research about information overload on students and its association with wellbeing. There is also insufficient research on whether the large amount of information students receive from academic/scholarly as well as non-scholarly/academic sources influence their wellbeing and academic performance.

1.1.2 Internet addiction.

In addressing the information age and information overload, it is necessary and useful to have a clear image of what is seen as internet addiction (IA) or problematic internet use (PIU). Since the 1990s, the internet has become the most used and relayed information source in our everyday lives. Excessive internet use by some users has resulted in neglected social activities, work responsibilities and health issues. Psychologists and researchers identified those problematic behaviours as internet addiction (Young, 1998), PIU (Davis, 2001), and compulsive internet use (Meerkerk, van den Eijnden, Vermulst, & Garretsen, 2009). Although multiple terms and measures have evolved to assess internet addiction, it is generally described in terms of symptoms related to addiction such as: obsessive and compulsive use, withdrawal signs, and impairment of life activities. Young (1998), for example, developed the Internet

Addiction Test (IAT) measure using gambling addiction criteria from DSM-5 to measure internet addiction.

Recent studies found that individuals with internet addiction and PIU are associated with conditions such as emotional instability, loneliness, social withdrawal, depression, low self-esteem, anxiety, and other addictive behaviours (Armstrong et al., 2000, Ko et al., 2007, Leary & MacDonald, 2003, Young & Rogers, 1998). The consequences of internet addiction can be severe; excessive internet use has the potential to cause career failure, marriage breakdown, as well as financial crisis, with negative psychosocial effects. However, it is uncertain whether problematic internet use is a result of social and psychological impairments or the social and psychological issues associated with PIU (Griffiths, 2000). Understanding this causality is important to solve the root cause of the behaviour. Although internet addiction is largely recognised by psychologists and researchers as a problematic behaviour pattern, it is still not documented in the DSM-5. Many psychologists view PIU as a set of behaviours that may reflect an underlying psychiatric disorder such as depression or social withdrawal. More research is being conducted in the area aimed at determining whether internet addiction should be defined as a separate disorder with a distinctive treatment programme (Caplan, 2002, 2003).

1.1.3 Wellbeing.

Wellbeing (WB) is a result of multifaceted psychological and social outcomes that reflect a flourishing mental health and the absence of mental disorders (Keyes, 2007). WB reflects happiness and life satisfaction, and measuring WB requires a multifaceted approach to acknowledge the impact of each factor that affects it. While previous studies have focused mostly on a specific psychosocial association, like depression and loneliness, certain statistical analyses such as correlations only measure the association. The present approach has investigated the effects of information overload and internet addiction/PIU on WB using a holistic approach developed from the Demands-Resources-Individual Effects (DRIVE) Model (Mark & Smith, 2008; Williams, Thomas, & Smith, 2017). The flexibility of this model allows the inclusion of many predictors that contribute to the sum of WB outcomes. The predictors used in the current research were stressors, social support, positive personality and negative

coping. Outcomes that give a holistic view of WB are positive and negative WB, and positive and negative appraisal.

1.2 The Samples

A lot of the recent research on internet addiction has focused on adolescents. The present research focused on university students and employees from Kuwait and the UK and examined the influence of important factors such as culture, demographics, and daily life routine. Internet use has grown rapidly; there has also been an increase in small electronic gadgets like tablets and smartphones, as well as the growth in social media and other internet applications. As a result, studies quickly become outdated due to evolving internet activities, requiring a constant need for updated and reliable studies.

Culture is the sum of norms and characteristics that reflects a group's way of life to include shared values, behaviours and attitudes. Cross-cultural psychology has demonstrated that culture has an influence on the individual's behaviour and attitudes. Cross-cultural studies aim to understand both universal and unique behaviours to recognise the cultural impact on psychological and social experiences. They also aim to provide a clear vision and practical solutions to any phenomena through understanding the impact of culture, without being biased to a certain group of people.

Students' social contexts differ from employees' social contexts: students' circumstances, and the challenges they face from their peer group to university demands, all affect their wellbeing. Conversely, employees' work stress, work-life balance, and different circumstances also affect their wellbeing. Comparing the two samples, and knowing each groups' characteristics, will provide us with a clear vision of the influence of information overload and internet addiction on wellbeing. This will result in extending psychology through the development of research methodologies to approach different groups and cultures.

1.3 Research Objectives

The aims and objectives of the research are as follows:

1. To review the literature on the associations between information overload, internet addiction, wellbeing and academic performance.
2. To investigate the association between information overload and internet addiction and wellbeing, academic performance, work life balance, and health outcomes between students and workers.
3. To provide reliable and validated versions translated to Arabic for the internet addiction test, information overload scale and Wellbeing Process Questionnaire (WPQ).
4. To investigate the influence of culture on the association between information overload and internet addiction with wellbeing.
5. To investigate the difference between students and employees in information overload and internet addiction, and the different internet uses influence on wellbeing.
6. To understand the causality between information overload, internet addiction and wellbeing on a daily basis.

1.4 Methodology

This research used mixed methods, comprised of quantitative and qualitative data collection methods to ensure presentation of comprehensive results. Questionnaires, and daily diaries were the main data collection techniques.

The internet addiction test (Young, 1998), information overload scale (Misra & Stokols, 2011), WPQ (Williams & Smith, 2017) and demographics were used in four studies. A work and life balance questionnaire (Shiels, Gabbay, & Hillage, 2014) was also used. In order to explore the association between information overload and internet addiction with wellbeing and understand cultural influence and demographics, collected data were statistically analysed using correlation, regression, stepwise regression and ANOVA.

Diaries were used to supplement the data gathered as part of a longitudinal study, in order to understand the casualty of information overload, internet addiction/PIU and wellbeing. A daily diary helped in identifying patterns of behaviours, and to understand

the daily routine of problematic and non-problematic internet users (Alaszewski, 2006). This was done by allowing internet users to record their behaviours and feelings towards the number of hours spent online, most used online activities, and feelings about information overload and internet addiction on a daily basis for a week.

1.5 Significance of the Research

The research aimed to understand the association between two major information age problems that affect individuals and societies: internet addiction/problematic internet use and information overload. By exploring the nature of these associations with holistic wellbeing, while controlling for influences like culture, demographics and health, the findings from these studies can then be used to develop strategies and approaches to improve the quality of life of individuals and societies. Secondly, the study of cultural influences on information overload and internet addiction, and the effect on wellbeing differences between the UK, as a developed first world country, and Kuwait, as a wealthy albeit third world country, allows persons to determine whether effects are generic or specific to certain cultural groups. The studies also allow assessment of the use of the present theoretical and methodological approaches to wellbeing as a topic of current concern.

1.6 Thesis structure

Chapter 1

This chapter provides a brief background on the main variables, a short discussion of the research strategy, the primary objectives of the thesis, and an overview of the methodology and structure of the research.

Chapter 2

This chapter provides a conceptualisation of information overload, internet addiction, problematic internet use, wellbeing, and related theories. The role of demographics, coping, culture and work-life balance is also presented. Literature review is extended by a narrative review of information overload and a systematic review of internet addiction, covering links between internet addiction/problematic internet use with wellbeing outcomes, leading to a discussion of this literature.

Chapter 3

Chapter 3 provides a discussion of the methodology and the analysis structure of the research, and background to the used measures.

Chapters 4 and 5

These chapters address the second, third and fourth objectives, i.e., translating the three questionnaires into Arabic, testing them through an initial study, and collecting data from cross-cultural studies. The chapters address the association between information overload and internet addiction, and the impact of information overload and internet addiction on wellbeing. The differences between culture and other demographics are explored, as they distinguish and highlight the influence of affective factors of information overload and internet addiction on wellbeing.

Chapters 6 and 7

These chapters address the fifth objective which compares the difference between UK-based employees and students in internet use. These range from online gaming, social media, shopping, or pornography, and how each internet activity influences information overload, internet addiction and wellbeing. The prevalence of information overload and internet addiction in students and employees is also measured. Work-life balance is analysed, as is its association with information overload and internet addiction.

Chapter 8

This chapter presents a longitudinal study to understand possible causal relationships between information overload, internet addiction and wellbeing. A diary study was conducted; problematic internet users and non-problematic internet users recorded their daily internet activities for a week, broken down into hours spent online, information overload and overall wellbeing feelings. Analyses were conducted to measure the difference between the two groups, and the influence of the hours spent online on next day wellbeing.

Chapter 9

In this final chapter, the thesis objectives were reviewed, and the research findings were integrated with the previous literature. Practical implications of the research were discussed, as were limitations of the current research, and future research paths.

The next chapter will discuss previous literature review of information overload, internet addiction and wellbeing.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview of Chapter

This chapter begins with a discussion of information overload and internet addiction, their history and measurement, along with the latest studies which address their association with wellbeing. The literature is extended with a narrative review of studies that cite Misra and Stokols' (2011) measure of information overload. This approach was adopted because searches based on the keywords "information overload" and "wellbeing" failed to produce clear, meaningful literature. This is because many of the studies on information overload overlap with studies on internet addiction. The chapter continues with a systematic literature review of the influence of internet addiction on wellbeing. The chapter ends with a discussion to highlight the gaps in the literature and the thesis contribution.

2.2. Information Overload

Individuals receive a large number of instant messages, text messages, phone calls, emails, news articles, as well as social network updates and notifications. This is in addition to the main media streams, such as newspapers, radio and television channels. This flood of exposure to information on a daily basis may cause information overload especially since the world is now more information intensive than decades ago. The world economy is now based on information (Spira & Goldes, 2007). Everyone is able to create and publish information easily through the internet, which makes the flood of information harder to control and authorise (Bawden & Robinson, 2009). Consequently, information overload has the potential to affect workers, resulting in low productivity rates and lower ratings of happiness (Hurst, 2007).

For centuries, scholars have discussed information overload as they warned about the overabundance of information and created strategies to cope with it. The term "information overload" was first mentioned by Alvin Toffler (1970) in his book *Future Shock.* Toffler described information overload as the difficulty a person may have in understanding an issue and making decisions because of the high presence of information (Spira & Goldes, 2007). Even earlier, in 1540, the invention of the printing

press had generated a countless number of books and information (Hemp, 2009). In an attempt to avoid the confusion and harmful abundance of these times, a Swiss scholar, Konard Gessner, created the first comprehensive list of books in 1545. Meier (1962) warned about the concept of excessive information and its effect on work efficiency.

2.2.1 The concept of information overload.

The coming of the World Wide Web enabled information overload to be studied predominantly in disciplines such as information science, business and management. Within the research community, this everyday use of the term has led to various constructs, synonyms and related terms, such as cognitive overload (Vollmann, 1991), sensory overload (Libowski, 1975), communication overload (Meier, 1962), knowledge overload (Hunt & Newman, 1997), or information fatigue syndrome (Wurman, Leifer, Sume, & Whitehouse, 2001). Wilson (2001) best defined information overload by covering the different main elements:

> ...a perception on the part of the individual that the flow of information associated with work tasks is greater than can be managed effectively and a perception that overload in this sense creates a degree of stress for which his or her coping strategies are ineffective. (p.113)

Information overload is defined as receiving too much information for the user to handle. This results in information becoming a hindrance instead of a benefit (Bawden et al., 2000).

The concept of information overload is related to a variety of disciplines whose main focus is on the quality of the user's performance. Researchers in various disciplines found that the user performance in a task increased positively when the amount of information the user received stopped at the threshold. If further information was provided beyond this point, the performance of the individual declined (Chewning & Harrell, 1990). A heavy load of information confused the user, affected their ability to set priorities, or made prior information harder to recall (Schick, Gorden, & Haka, 1990). Although the user can select where to focus their attention, paying attention is a cognitive limited resource that can be defective in overload situations (McLeod, 2008). The more information processed in this era of distraction in which we live, the more work quality might be affected.

Information overload is experienced when the amount of information supply exceeds the limit of human information processing capacity. The usual effects are stress or confusion, which occur when the supply exceeds the capacity (Eppler & Mengis, 2003). Information overload impairs the decision-making process thus confusing the user, and affecting overall work quality (Chewning & Harrell, 1990). This leaves the person feeling confused and overwhelmed (Rudd & McKenry, 1986).

As Eppler and Mengis (2003) observed, information overload is approached in two different ways: conceptualise and measure, and as a subjective concept. The conceptualisation and measurement approach define information overload as "when the information processing requirements are bigger than the information processing capacities" (p.). The term "capacities" refers to the available time and ability. The term "requirement" in the preceding definition refers to the amount of processed information in a specific period of time. If the user capacity allows smaller amounts of information to be processed in the available time, the result will be information overload. In contrast, the subjective view of information overload states that the user's feelings of stress, doubt, low motivation or anxiety are the most important factors that indicate the occurrence of information overload.

The everyday use of the term "information overload" by the research community has led to various constructs, synonyms and related terms. Examples include: cognitive overload, sensory overload, communication overload, knowledge overload, or information fatigue syndrome (Eppler & Mengis, 2003), infobesity, information avoidance, and information anxiety (Bawden & Robinson, 2009).

2.2.2 History of information overload.

Once writing became possible, people never stopped writing. It signified the beginning of information overload as experienced in Western Europe in part because of Johannes Gutenberg's invention of printing in the 15th century. Thousands of books began flooding the market. The availability of low-cost printing meant an average person was able to own printed materials like manuscripts and books. Scholars started complaining about the unexpected flow of information for a variety of reasons, such as the diminishing quality of text, and the lack of ability to manage the supply of new

information (Blair, 2010). In 1948, information overload was a problem addressed at the Royal Society's Information Conference (Bawden, 2001).

In the 16th century people were flooded with a wide range of information and started complaining about the information flood. This led to an intellectual revolution. As Houghton-Jan (2008) mentioned, at the time books and written information were flowing everywhere. Scholars started moving to new ways of processing information, for example, browsing, skimming, cutting and pasting. Navigational tools were invented at the time to help individuals surf the information flood.

Blair (2010) explained that several innovative methods were generated in the 16th century to deal with the huge mass of information. These included: early plans for public libraries, first universal bibliographies that listed all books ever written, books on how to take notes, alphabetical indexes and detailed outlines. All of these techniques were established to help people cope with the flood of information. Many of our current ways of thinking to cope with the information age are patterns of thought and practices that emerged from earlier centuries (Blair, 2011).

Miller (1956) hypothesised that processing performance of information is positively correlated with the received amount of information. When the information flow rises to the threshold, it leads to a cognitive decline in the ability to process the information. This phenomenon is confirmed by empirical results in different studies (Sicilia, Ruiz, & Munuera, 2005). Eppler and Mengis (2004) called it the inverted u-curve of processing information, where the lack and overabundance of information negatively affects the work quality. Information overload results in a disability in recalling information, confusion, and failure in setting priorities (Schick et al., 1990). On a psychological level it results in low motivation, stress and anxiety (Eppler & Mengis, 2004).

2.2.3 Information processing theory and information overload.

Information processing is a cognitive approach and the theory provides a model of three stages in information processing, from the sensory inputs to sensory memory (SM), and then to short-term memory (STM), based on the receiver's selected attention. Additional processing is applied to the short-term memory, where the information is

categorised, compared, or combined to understand and develop a response to the situation. In the STM, information can be recalled if a similar situation has reoccurred. However, if the information or the situation is not repeated or rehearsed, it leads to the information being forgotten, and effort or combination of information is needed to transfer the information to long term-memory (LTM). When the information is transferred to LTM, it is organised and can be recalled after a year (Atkinson & Shiffrin, 1971; Simon, 1978).

According to Miller (1956), a human STM can usually process seven bits of information at once. If the amount of incoming information exceeds the processing capacity, then the person may experience information overload. In the case of information overload, the information receiver attempts to process the information, but the work quality will drop due to the limited processing capabilities and response rate ability in each person (Grisé & Gallupe, 1999). If the person is knowledgeable about a subject or situation, the information processing capacity is not that stressed, which will result in a reduction of risk for information overload.

2.2.4 Information overload model.

Eppler and Mengis (2003) developed an information overload model to deliver a clear image of the conducted research on information overload. The framework explained the main factors that can cause information overload, dialogue and their interactions. The countermeasures help to avoid the effects of information overload. The model shows information overload in a circular system, as well as the dependent relationships. However, research on the causes of information overload is limited, with few studies available on its psychological effects and implications.

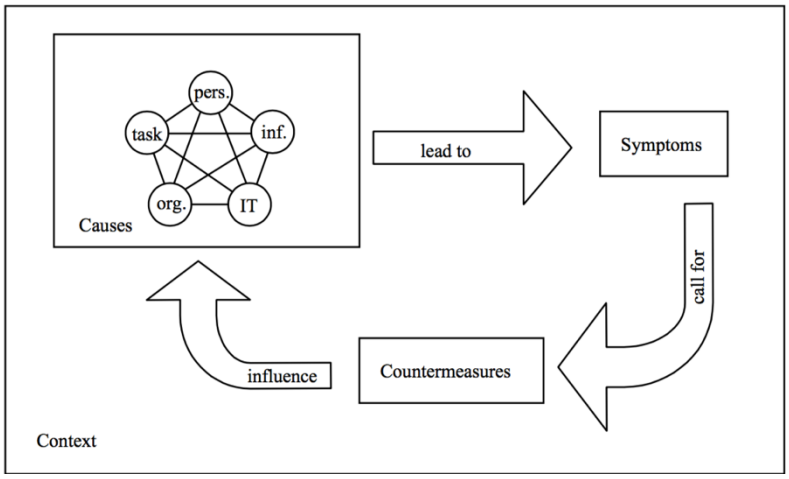

Figure 2.1: A conceptual framework to structure research on information overload.

2.2.5 Conceptual model of information overload on social network stress.

The information overload conceptual model was developed by Koroleva, Krasnova, and Günther (2010) (see Figure 2.2) and explores the difference between the conditions of the information user, the information characteristics and the network characteristics as the first causal factors of information overload. The circumstances or conditions, actions and strategies, as well as consequences or implications of information overload are also explored. The model was created after a qualitative study was conducted to investigate information overload in Facebook users. The model clearly differentiated and explored the relationship between the information users' attitudes, used strategies and the outcomes of information overload. Individual differences and circumstances develop different scenarios of information overload.

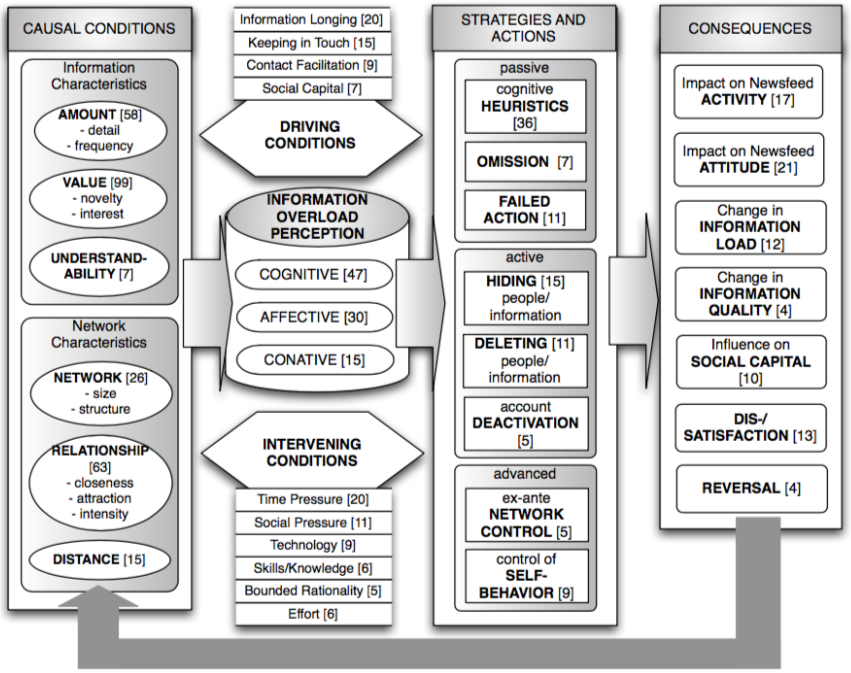

Figure 2.2: Conceptual model of information overload on SNSS.

2.2.6. Causes of information overload.

Information flow from a multitude of devices, technologies, and organisations results in distraction and stress, yet we continue to receive and produce information for ourselves and for others, to live in this information age (Houghton-Jan, 2008). Digitised content of libraries, newspapers, magazines, and more, caused the easy flow of information and the ability to publish and share in seconds. Web 2.0 applications, social media, instant messages, electronic gadgets, and more, contributed to increasing information overload through rapid sharing and creating. Davis (2011) noted a modern age where information can be controlled without the input of a human being, and where information can be duplicated and shared through computers and machines.

Not only are technological inventions blamed for the information overload problems, but the lack of awareness of the problem and poor literacy skills to sift through the information flood is one of the main causes as well (Badke, 2010).

The information processing capacity (IPC) depends on the information receiver's cognitive abilities and understanding to processand sort information(Gua et al., 2007). The information processing requirements (IPR), which depend on the task environment and characteristics, are the main two factors that cause information overload. Moreover,

Eppler and Mengis (2003) categorised the main causes of information overload into four categories: (1) the information: quantity, quality, intensity, frequency and information general characteristics; (2) the individual receiving information characteristics and familiarity with information and the process; (3) the used information technology; and (4) the organisational structure. These different factors influence information overload when combined or mixed.

A working environment can also increase information overload through interruptions, both when they are randomly occurring and as external discrete events that break attention on a primary mission (Coraggio, 1990). Interruptions require instant reaction and immediate response which can intensify information overload. An interruption distracts the individual's attention, which results in capacity and structural interference (Kahneman, 1973). Capacity interference occurs when the number of incoming tasks becomes too much for a person to process. Structural interference happens when an individual must react to two inputs that require the same physical reaction (e.g., answering a formal phone call and responding to a colleague's question). A recovery period is needed after completing an interrupted task and before returning to the primary task. The recovery period results in decreased quality of the decision or task, and increased time consumed (Kahneman, 1973).

2.2.7 Negative effects on business and organisations.

The organisational view of the information overload effect frequently describes symptoms at the individual level as representing a general lack of perspective, cognitive strain and stress (Schick et al., 1990). This also includesa greater tolerance of error, lower job satisfaction, or inability to use information in decision-making (Bawden, 2001). When information supply exceeds the information processing capacity, most users admit that their quality of work decline, making them feel demoralised and in need of guidance from other employers. Bawden (2001) stated that when a user has difficulties identifying the relevant information, he or she becomes highly selective and ignores a large amount of information. They can also face difficulties in identifying the relationship between details and the overall perspective or require more time to reach a decision.

On the other hand, Spira and Goldes (2007) report that in the Basex 2005 survey, 28%

(2.1 hours) of a knowledge worker's day is consumed by interruptions from different sources, which in the United States alone, translates to 28 billion lost working hours and US$588 million lost profits yearly. Other negative consequences caused by information overload include ignoring anything after the first few options, making mistakes, difficulty in relating details to the overall issue, time wasting, and spending more time reaching a decision (Tjaden, 2007).

2.2.8 Psychological impact of information overload.

Information quality is on the decline with the ability to establish, duplicate and share information without any restrictions. Bawden and Robinson (2009) explain the consequences include loss of identity and authority, micro-chunking, shallow novelty, and the impermanence of information. The accumulation of information has reached a point where it is affecting our state of mind and the way we are thinking. An experimental study by Wilson (2005) showed the effect of information overload on IQ, where two groups were set to take an IQ test. One group was interrupted by phone calls and emails and were 10 points lower on the IQ test than the control group. Spira and Goldes (2007) performed a similar experiment on a control group and a group of marijuana smokers. After smoking marijuana they performed 4 IQ points lower than the average control group. The results suggest that the effect of information overload might be more detrimental to the brain than the smoking of marijuana.

Information overload keeps the user stressed, anxious, overwhelmed and uncertain about the given information. Numerous psychological conditions have been identified, such as continuous partial attention, which is a focus on being connected and in-touch with the latest updates. This causes attention deficit traits, stress, easy distraction and impatience due to huge mental stimulus (Bawden & Robinson, 2009). Hallowell (2005) explained that a negative neurological effect of information overload can cause Attention deficit trait (ADT), which he defines as a stress state in which the information user is impaired, has difficulty with staying organised and managing time, and experiences high stress and anxiety (Hallowell, 2005).

2.2.9 Solutions.

When trying to provide solutions for information overload, self and time management are the first steps to take. If the user is able to manage themselves and their time, it will help to have a clear mind, with goals in mind to deal with an abundance of information. Setting a clear list of tasks to be conducted in a certain time and ignoring all other unnecessary calls will help the user to reduce the stress they could face when dealing with a huge rate of information (Tjaden, 2007).

In order to have a generation educated on information overload and to be able to distinguish the right information, information literacy skills must be taught to students at an early age. In 2010, Blake asked a group of students about information overload, and received no response, which shows that perhaps students were not aware of it. Students tend to get the easiest possible information rather than the best. Education will help in solving part of the problem by building an aware generation to fight information overload skilfully, with the ability to identify the right information in the best resource. Ignoring the problem will never solve the problem, it will only magnify it (Blake, 2010).

Filtering and weeding are logical steps taken when in an overwhelming situation, and there is a need to determine what is currently required to weed out useless materials (Houghton-Jan, 2008). Establishing software that will enable the user to apply filtering as a strategy is important. Savolainen (2007) clarified the strategy by ensuring its importance in a network information environment. The weeding strategy is more effectively oriented however, as it focuses on the need to protect the user from uncontrolled information supply, by minimising the number of information sources.

Some possible solutions to lower the rate of information overload in networks were presented by information architects. Davis (2011) explained:

> To mitigate information overload and its effects, we can attempt to directly quantify it through two co-dependent poles – of macro and micro conditional states – and by recognizing signatures that are precursors to an overload condition. (p. 45)

If system architects can manage the trending load on the system platforms to predict when enhancements are necessary, they can prevent macro information overload

conditions. This will make it possible to benchmark and follow the trend of information and avoid micro information overload conditions.

On the other hand, an information specialist must play a main role since it is all about information. Houghton-Jan (2008) noted that processing information in an appropriate way was the key to success in this profession. Information specialists are trained to pick the right information and discard the irrelevant, by evaluating and choosing the best. Therefore, information specialists are the most qualified professionals in dealing with the problem of information overload. They have the necessary skills for organising, evaluating, and collecting information to easily save and retrieve information. Solving the problem of information overload requires a combination of solutions and efforts by different disciplines. Edmunds and Morris (2000) summed up possible solutions quite nicely:

> Some solutions put forward to reduce information overload are: a reduction in the duplication of information found in the professional literature; the adoption of personal information management strategies, together with the integration of software solutions such as push technology and intelligent agents; and the provision of value-added information (filtered by software or information specialists). An emphasis is placed on technology as a tool and not the driver, while increased information literacy may provide the key to reducing information overload. (p.17)

2.2.10 Information overload and wellbeing.

There is a need for further investigation on the health and psychological implications of information overload and the impact of information overload on wellbeing as a whole (Davis & Ganeshan, 2009). The available literature confirms the serious psychophysical symptoms of information overload, such as high blood pressure, digestive disorders, headache, lack of concentration, memory problems, stomach pain, and cardiovascular stress. Apart from recorded mental symptoms such as stress, anosmia, and anger, there is also an incapability of making decisions, known as "analysis paralysis" (White, 2000).

Despite the increasing use of social media, internet dependency, and information technology for major life tasks, information overload and social media impact have not been well explored (Jones, Ravid, & Rafaeli, 2004). The influence of new and evolving

information technology applications on the deep psychological context have also not been well explored, as most of the available literature are survey-based and purely theoretical.

The next section considers another risk factor for wellbeing, namely, internet addiction.

2.3. Internet Addiction

Research on internet use started in the mid-1990s. With the evolving research on internet and information technology, there has been no single approved term that defines problematic internet use. Researchers have, however, used many different terms to describe the topic including "Pathological Internet Use" (Davis, 2001; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Young, 1998), "Problematic Internet Use" (Caplan, 2002; Davis, Flett, & Besser, 2002), "Maladaptive Internet Use" (Davis et al., 2002; Kubey, Lavin, & Barrows, 2001), "Excessive Internet Use" (Beard, 2002), "Internet Dependence" (Scherer, 1997; Young, 1996), "Internet Behavior Dependence" (Hall & Parsons, 2001), "Internet Over-use" (Whang, Lee, & Chang, 2003), "Internet related disorder" (Pratarelli & Browne, 2002) and "Misuse of the Internet" (Greenfield & Davis, 2002). The different terms reflect the uncontrolled use of the internet and the neglect of other things because of this. Two major models were established to conceptualise problematic internet use symptoms and are described in the following headings.

2.3.1 Impulse control disorder model.

Young (1996) proposed the impulse control disorder model. This corresponds with the classification of pathological gambling in DSM-IV as one of the impulse control disorders. She defined internet addiction as the excessive use and dependence on the internet which causes life impairment. She also stated that individuals with problematic internet use showed similar symptoms to pathological gamblers, as well as individuals who are dependent on drugs and alcohol. As a type of impulse-control disorder, Young (1996) conceptualised and developed the Diagnostic Questionnaire for Internet addiction, based on pathological gambling measures in the DSM-IV. Common symptoms of the disorder include: unsuccessful attempts to stop or cut down,

preoccupation with internet activity, strong need to connect online, feelings of loss of control, tolerance and withdrawal symptoms, and neglect of social and academic obligations.

Other researchers supported Young's model and hypothesised that problematic internet use is a form of obsessive-compulsive disorder (OCD). Young presented this as repetitive pathological behaviours of online activities which closely resemble some of the common symptoms of OCD. It also included behaviours that are time consuming and uncontrollable, and occupational and social difficulties (Shapira et al., 2000). However, Shapira et al.'s (2003) results on college students suggest that problematic internet use should only be classified as an impulse control disorder. Clinical cases and reports have supported the model based on the listed diagnostic criteria in the DSM-IV. The adoption and application of the model is easy.

2.3.2 Cognitive-behavioural model.

Davis (2001, 2002) proposed the Cognitive-Behavioral model for problematic internet use, highlighting the motivating psychological characteristics and personal cognitions behind pathological internet use. He stated that each abnormal and intensive behaviour was caused by the individual's cognitions and PIU was due to pre-existing psychological problems such as social anxiety, depression, low self-esteem or maladaptive cognitions. Davis classified problematic internet users into two groups. The first, Generalized Problematic Internet Users (GPIU), are dependent on the internet itself, without being addicted to a specific internet activity. They also show more internet addiction symptoms if these are associated with other problems such as low work performance. Davis explained pathological internet use as being due to the "individual social context" including a lack of social support, social shyness, and isolation.

The second group is the Specified Problematic Internet Users (SPIU). These are attracted to a particular internet activity such as gambling or viewing social media content, and who may stop their internet dependency if they find an alternative provider for the same content. Holden (2001) supported the idea that most internet addictive activities were similar to the offline addictive activities such as shopping, gambling and pornography. He added that the internet combined all things that people can get

addicted to. Holmes' (1997) findings supported Davis' model which suggested that internet dependency reflected psychological issues. Davis' model was also supported by the earlier results of Petrie and Gunn (1998), who found that internet addiction was negatively correlated to positivity and extroversion but positively correlated with depression. They concluded that internet addicts were probably introverted and depressed.

A more detailed discussion on internet addiction literature and wellbeing is provided in the systematic literature review in the next chapter.

2.4. Social Networks Addiction

The use of Social Network Services (SNS) has increased rapidly in past years and has become a part of millions of users' daily lives to share and communicate with others. The development of rapid connection technology, the use of smartphones and permanent online connection has enabled individuals to communicate constantly with others all of the time (Choi & Lim, 2016). The use of smartphone-based SNS is preferable for many individuals (Kwon, Kim, Cho, & Yang, 2013). The advantages of smartphone-based SNS lie in the ability to connect with no time or place limit, feeling related, and increased life satisfaction if the connection is controlled (Ellison, Steinfield, & Lampe, 2007; Valenzuela, Park, & Kee, 2009). However, ubiquitous SNS connectivity can have negative consequences psychologically and from an information perspective. SNS can result in increasing information overload, communication overload and social fatigue (Eppler & Mengis, 2004; Jones et al., 2004; Lee, Son, & Kim, 2016; Soto-Acosta, Molina-Castillo, Lopez-Nicolas, & Colomo-Palacios, 2014).

2.5. Wellbeing

Research on wellbeing covers a wide area which has resulted in an extensive number of studies on the topic. This demonstrates its importance and the attention it has received since its strong bond with life satisfaction. Although defining wellbeing is a challenge, since scientists vary in explaining it, a stable wellbeing is achieved when the psychological, social, and physical resources meet the psychological, social, and physical challenges the individual faces (Dodge, Daly, Huyton, & Sanders, 2012). Recent studies have focused on wellbeing as a result of different psychological and

social components that reflect a flourishing in mental health (Keyes, 2007). Earlier studies however, explained wellbeing as a subjective pleasure or happiness.

In this section different types of wellbeing: Hedonic wellbeing, Eudemonic wellbeing, and Social wellbeing, will be covered. Factors that contribute to wellbeing, individual differences in wellbeing, wellbeing outcomes, and measuring wellbeing will also be addressed.

2.5.1 Hedonic wellbeing.

Hedonic wellbeing is considered to be a type of subjective wellbeing which refers to happiness or pleasure. Diener (cited in Kahneman, Diener, & Schwarz, 1999) defined Hedonic wellbeing as "the individual experience of high levels of pleasant emotions and moods, low levels of negative emotions and moods, and high life satisfaction". Subjective wellbeing can be defined in terms of the presence of three main parts: 1) Life satisfaction, 2) The absence of negative feelings, and 3) The presence of positive feelings.

2.5.2 Eudemonic wellbeing.

The Eudemonic approach suggests that wellbeing consists of the realisation of personal potential and functioning through it (Ryan & Deci, 2001). Ryff (1995) identified six main concepts that lead to wellbeing: autonomy, environmental mastery, positive relations with others, purpose in life, personal growth, and self-acceptance. Ryff's model is built on the view that an individual seeks to fully function in the aim of self-actualisations. Ryff (1995) cited Aristotle as describing wellbeing as "the striving for perfection that represents the realization of one's true potential" (p.100).

2.5.3 Social wellbeing.

Social wellbeing has received less attention by researchers when compared to Hedonic and Eudemonic wellbeing. Yet it is an important factor in pursuing mental flourishing since it focuses on life's social dimensions. Social wellbeing focuses on the individual's outer interactions and the social role the individual plays. Keyes' model of social wellbeing contains five main aspects: social integration, social contribution, social coherence, social actualisation and social acceptance (Keyes, 1998).

Psychological wellbeing differs from one individual to another depending on individual characteristics, personal resources and demands. Each component and how it contributes to wellbeing is explained further under the following headings.

2.5.4 Individual characteristics.

The influence of individual characteristics on subjective wellbeing (SWB) has been intensively studied. One of the strongest influences is personality which some regard as the major factor influencing psychological wellbeing (DeNeve & Cooper, 1998). Heady and Wearing (1989) proposed that each person has a normal balanced level of wellbeing that is predicted by personality characteristics, especially neuroticism, extraversion and openness. As DeNeve and Cooper (1998) suggested, personality traits lead people to experience life in positive or negative ways. They influence the way people perceive life events and return people's SWB to typical levels after facing major life events. According to DeNeve and Cooper (1998), the traits that deal with emotional characteristics like emotional stability, positive affectivity and tension, are strongly related to SWB.

2.5.5 Personal resources.

Research has investigated the influence of wealth, relationships, social class, education and social support on wellbeing. Diener and Diener (1995) examined the impact of family, friends, finance and life satisfaction. They concluded that avoiding poverty, living in a wealthier country, and pursuing non-material goals is associated with attaining happiness. Several studies supported this conclusion which showed that focusing on financial and materialistic goals is often associated with lower wellbeing.

2.5.6 Predictors of wellbeing.

Multiple indicators contribute to wellbeing, and the combination of factors offer the best prediction of outcomes. Wellbeing dimensions are different, with a wide range of theories and models including wellbeing appraisal, which involve several measures and reflect its diverse components (Hart, Wearing, & Headey, 1995). The Demands Resources Individual Effects (DRIVE) model developed by Mark and Smith (2008; see Figure 2.3) suggest an enhanced flexible and simple approach to wellbeing that consists of subjective perceptions, resources, and individual differences. The suggested model covers previous models such as the Demand Control Support (DCS) model, the Effort

Reward Imbalance (ERI) model, coping behaviour, attributional explanatory styles and outcomes such as job satisfaction, depression, and anxiety (Mark & Smith, 2008). These variables were categorised as individual differences, work demands, work resources (e.g., support and control) and outcomes. The DRIVE model provides a suitable balance between the complexity of a model that covers multiple factors, individual differences and circumstances, and the need to be easily adapted by adding or removing factors relevant to the circumstances to which they are applied (such as variables related to students' wellbeing). Both positive and negative wellbeing outcomes are considered in the DRIVE model which relates to the independence of these dimensions.

Mark and Smith (2008) developed the foundation of the DRIVE model conceptual framework in a study of approximately 1,200 nurses and university employees. The model predicted effects of individual differences and work characteristics (i.e., coping style) on the outcomes of depression, anxiety and job satisfaction (Mark & Smith, 2008, 2012a, 2012b) and confirmed them. However, there were less certain conclusions concerning the moderating relationships (Mark & Smith, 2008, 2012a). The DRIVE model has been adopted and supported in different contexts, such as studies of the psychosocial effects on migrant workers in Italy (Capasso et al., 2016a, 2016b, 2016c), UK postgraduate psychology students and nurses (Galvin & Smith, 2015), as well as university staff in the UK (Williams & Smith, 2016). The evidence for moderation effects has been slight (Galvin & Smith, 2015; Williams & Smith, 2016) with few interactions between predictor variables.

In the early conceptualisation of the DRIVE model, job satisfaction was defined as a dependent variable, but more recent studies suggest that job satisfaction plays a mediating role between job characteristics and outcomes (Capasso et al., 2016a, 2016b). Similarly, there has been support for the mediation effect of perceived job stress (Galvin & Smith, 2015).

The strength of the DRIVE model lies in its simplicity in approaching and testing the cognitive assessment link, which is challenging in other models. There is also the flexibility and the ability to add variables that are reliable and contingent on the context

it is being applied to. This makes the DRIVE model a practical and multi-dimensional tool for appraising wellbeing and has been chosen as the conceptual framework that can direct the research described in this thesis.

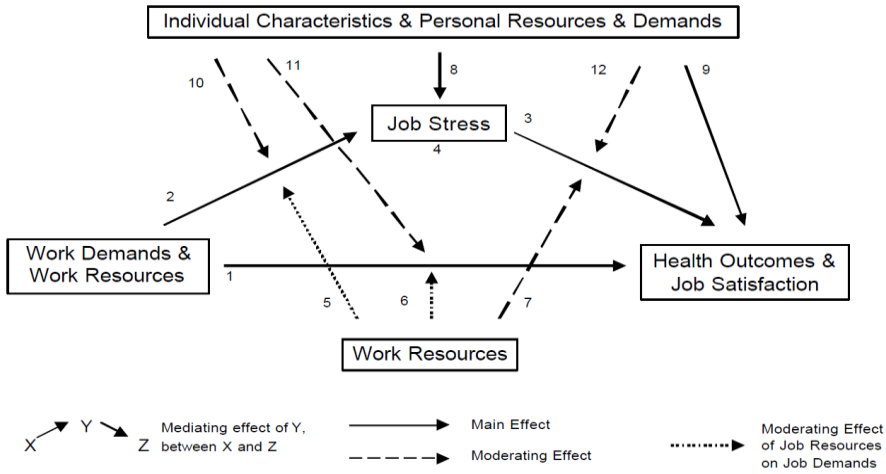

Figure 2.3: DRIVE model.

2.6 Cross-Cultural Psychology

Another aim of the present research was to examine whether effects varied across cultures. Culture is the shared way of living between a group of people, which identifies the group beliefs, values and social structure. Cultural psychology is the scientific study of how psychological processes of members are influenced by culture (Heine, 2012) and how human behaviours are transformed and shaped by socio-cultural forces (Berry & Poortinga, 2011). Cross-cultural psychology is based on the principle that the culture is shaped by its people, and the people are shaped by their culture (Fiske, Kitayama, Markus, & Nisbett, 1998). Cross-cultural psychology is the scientific study of different cultural groups with various experiences that result in significant behavioural differences (e.g., Berry et al., 1992). Cross-cultural psychologists use culture as a means of exploring the universality of psychological outcomes or processes rather than defining how certain cultural practices influence a psychological outcome (Heine, 2012).

2.6.1 Hofstede's theory.

Hofstede developed the cultural dimensions theory, which defines the society's cultural influence on its members' values, and how values are translated into behaviour.

Hofstede's model was developed using a factor analysis of IBM employees' values world-wide survey conducted between 1967 and 1973. The first version of the theory covered four dimensions: Individualism-collectivism, power distance, uncertainty avoidance, and masculinity-femininity. A later study in Hong Kong added the fifth dimension, i.e., long-term orientation. DeMooij and Hofstede (2010) later added the sixth dimension, i.e., indulgence versus self-restraint (Adeoye, 2014).

Hofstede's theory has been widely used in cross-cultural psychology, cross-cultural communication, and international management. Hofstede (1991, 2005) explained each of the dimensions of National Culture Theory:

- **Power distance index** (**PDI**): The index identifies to what extent the less powerful members of the society, organisation, or family are accepting and expecting that power is not distributed equally.

- **Individualism vs. collectivism** (**IDV**): The index investigates the two types of societies. Individualistic societies have loose ties in which an individual only relates to his close family, but on the other hand, collectivism societies have tightly joined extended families and groups with high levels of support and loyalty.

- **Uncertainty avoidance index** (**UAI**): This index measures the extent to which a society is threatened by unknown situations and ambiguity is associated with anxiety. Societies that score high in uncertainty are rigid; they value security and might resist innovations. Low scores on the uncertainty avoidance index reflect a society with high levels of innovation and creativity, and openness to what is different.

- **Masculinity vs. femininity** (**MAS**): This index identifies societies within two views: masculinity and femininity. In masculine societies men are preferred in the society for achievements, assertiveness and heroism. In feminine societies, women and men share views equally with men.

- **Long-term orientation vs. short-term orientation** (**LTO**): This dimension reflects the society's association with the past and the current, and upcoming challenges through two categories: short-term and long-term orientation. The short-

term or lower degree orientation indicates that society's traditions are kept and honoured and steadfastness is respected. Long-term orientation societies adapt, develop and solve in-coming problems.

- **Indulgence vs. restraint** (**IND**): This dimension measures the happiness and openness of expressing emotions, socialising and fulfilling joy. Indulgent societies show fulfilment of basic life events, enjoying life and fun activities. However, restrained societies control their desires and emotions.

2.6.2. Cultural differences.

It is important to investigate how cultural differences influence different behaviours in order to understand the reasons why people from different cultures react differently (Makrakis, 1992), and how a group share a way of thinking and behaving (Hofstede, 1980). To uncover the differences between the Kuwait and UK cultures, a comparison between the two will be explained based on Hofstede's six-dimension culture model. The differences between the Kuwait and UK cultures lie in the six dimensions as categorised by Hofstede: power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence.

Kuwait's culture was analysed using the De Mooij and Hofstede six-dimension model (2010). In power distance, Kuwait scored high (90) which reflects how people accept the hierarchal disorder and less powerful people in any institution or family members accept that power is distributed unequally. In terms of individualism, the main addressed issue was the degree of interdependence among society members. Kuwait scored 25 which is a low score in individualism. Kuwait culture is considered a collectivistic society as the family is extended and tighter. A Masculinity dimension indicates that society is driven by accomplishment and achievement while a low score is feminine indicating that a society's main values are caring for others and quality of life. Kuwait scored 40, indicating a relatively feminine society which values quality of life, flexibility, solidarity and equality. Based on the dimension Uncertainty Avoidance, Kuwait scored 80. The high score reflects a rigid core of beliefs and behaviours; security is an important element in behavioural motivation while innovation might be resisted. There were no scores for Kuwait in the last two dimensions: long-term orientation and indulgence.

UK culture scores were different from Kuwait's which explains the huge difference between the two cultures. For example, the UK culture scored 35 on the Power Distance dimension, which indicated the sense and belief that people should be treated equally, and that where an individual is born should not limit their ambition in life. In the Individualism dimension the UK scored 89, one of the highest individualist scores, which indicates that a person is looking only after himself and his direct family. British culture is highly individualist and private. British culture scored 66 in Masculinity which is oriented and driven by success and ambition. In the Uncertainty Avoidance dimension the UK scored a low 35, which indicates that the nation is comfortable with ambiguous situations. The combination of high Individualism and Masculinity, and low Uncertainty Avoidance results in high creative levels and a strong need for innovation. The Long-term orientation dimension reflects how each culture prepares for the future while holding some links of their past. Cultures with low scores are normative societies who honour their traditions and norms and are suspicious of social change. On the other hand, cultures with high scores encourage modern education and changes. The UK scored 51 which indicates being in the middle of the two extremes. The last dimension, Indulgence, reflects the ability of the individuals in society to control their desires and wishes. British culture scored 69 which indicates that it is an indulgent society (De Mooij & Hofstede, 2010). The different scores of the two cultures on Hofstede's model show that the UK and Kuwait are very different societies and are, therefore, two good cultures for a comparison of the effects of information overload and internet addiction on wellbeing.

2.7. Work-life Balance

Work-life balance is a term used to describe the balance an individual needs to divide time, effort, and cognitive attention between work and different aspects of life outside of work (Delecta, 2011). The reality of communication technology and the ability to be permanently connected through smartphones make work-life balance boundaries even less clear cut (Kossek, Pichler, Bodner, & Hammer, 2011). An individual's mentalpreoccupation by work or life activities, the ability to continue working remotely, and continuous email communication leads to work-life imbalance which result in negative consequences. Work–life imbalance is positively associated with distress and work demands, and negatively associated with job and life satisfaction (Brough et al., 2014), lateness and impaired performance (Brough & O'Driscoll, 2005).

This will result in negative psychological consequences for the individual, family and colleagues (Major, Klein, & Ehrhart, 2002; Stephens, Smith, & Donnelly, 2001). In Chapter 7 the work-life balance of employees was measured to investigate how it can be influenced by information overload and internet addiction, and the negative consequences it would then have on wellbeing.

2.8 Information Overload and Wellbeing Narrative Review

PubMed and PsycINFO databases were searched for peer-reviewed English articles that addressed the association between information overload and wellbeing between the years 2000-2017. The keywords used were "information overload," "infobesity," "information glut," "wellbeing," and "mental health". However, the results revealed only 10 studies related to internet addiction. Most of the published articles on information overload are in the disciplines of business, management and information science. A gap in psychological studies was identified. As an alternative approach, a narrative review was conducted on the studies that cited Misra and Stokols' (2011) information overload measure. Eighty-five studies were found in different languages although most were written in English. Only the studies that addressed information overload and wellbeing and which were written in English were selected. These resulted in 28 relevant studies, mostly focused on communication overload and the use of smart phones, which is a cyber-based information overload, based on Misra and Stokols's information source classification. The articles were categorised based on the DRIVE model structure and covered four themes: the association between information overload and positive and negative outcomes; information overload and predictors of wellbeing; information overload and individual effects; and information overload and appraisals. Some articles were included in more than one theme.

2.8.1 Information overload and wellbeing.

Information overload and wellbeing have been investigated in five studies. All the findings confirm the negative effect of information overload on wellbeing, although two studies demonstrated a positive effect if the internet connection is controlled.

LaRose, Connolly, Lee, Li, and Hales (2014) investigated the impact of social media channels and internet overload across three cultures, namely Ireland, the United States

and Korea. The findings indicated that communication overload had both positive and negative effects. If the user has difficulties controlling internet habits, then this will result in negative consequences like stress and other negative effects. However, appropriate connection demands and habits can reduce negative effects. A survey of 202 Irish college students confirmed that social media channels had both positive and negative effects with internet use. Usage that matched demand led to positive effects while failure to control internet use induced stress and negatively influenced important life activities (Lee, Connolly, Li, Hales, & LaRose, 2013).

Saunders, Wiener, Klett, and Sprenger (2017) surveyed more than 1,000 mobile users to measure the impact of information and communication technology. Their findings indicated memories of past emotional and cognitive overloads increased the present overload. Sonnentag (2017) found that being permanently online led to information overload, stress and negative wellbeing symptoms. Around the same period, Swar, Hameed, and Reychav (2017) investigated how searching for online health information predicted psychological wellbeing. The results showed that perceived information overload positively predicted psychological ill-being and influenced the intention to stop seeking information.

2.8.2 Wellbeing predictors.

2.8.2.1 Social support.

Four studies that explored the association of information overload and social factors are now described. Misra, Cheng, Genevie, and Yuan (2016) investigated the difference in social interaction in the presence of mobile phones by observing 100 randomly assigned participants. The findings indicated that conversation without the presence of mobile phones led to higher levels of empathy even with strangers. However, participants who were in close relationships showed lower levels of empathy and friendliness in the presence of mobile phones. Hall (2017) found that extensive texting and lack of face-to-face communication had a negative influence on subjective wellbeing by stressing individual's capacity to maintain close relationships due to communication overload. Interestingly, Kardos, Unoka, Pléh, and Soltész (2018) found that people who constantly used mobile phones reported a lower need for belonging.

Varga (2016) investigated the psychological effects of using Facebook on 86 users. The results indicated no significant association between feelings of loneliness, envy and Facebook use. The results also showed a positive association between fear of missing out (FoMO) and intensity of Facebook use. However, the study sample was small and only univariate correlations were used to test the associations.

2.8.2.2 Coping strategies.

Three studies explored users' coping strategies with information overload. An exploratory study was conducted by Lee et al. (2016) using a sample of 1,001 participants, who were exposed to information overload and used selective and avoidance strategies to manage it. Kacprzak and Pawlowska (2017) confirmed that individuals who were able to control the overflow of information in work and shopping reported lower levels of information overload. Laumer, Maier, Weitzel, and Wirth (2015) found that participants tried coping with information overload by stopping their use of social networks. Failure to do this successfully led to frustration resulting from information overload, social overload and envy because of excessive Facebook use.

2.8.2.3 Individual characteristics.

2.8.2.3.1 Personality.

Ghiron (2017) conducted a study to compare the influence of information overload on two generations of therapists by testing their empathy levels. The results indicated that the online communication-based generation group had reduced empathy and an increased trend towards narcissism.

2.8.2.3.2 Demographics.

Eight studies investigated the association of age, salary, and gender on the influence of information overload. Every study confirmed the role of age in moderating the effects of information overload. Zhang, Zhao, Lu, and Yang (2016) showed that age and gender moderated the effects of information overload and social network fatigue. Other studies demonstrated age and salary as the demographic variables that influenced work-related information overload and age influenced shopping-related information overload (Ji, Ha, & Sypher, 2014; Kacprzak & Pawlowska, 2017). Job role also had an influence on information overload (Benselin & Ragsdell, 2016). Reinecke et al. (2017)

confirmed the influence of age in moderating the effects of digital stress, including information overload. Zhang et al. (2016) suggested that both age and gender had moderating effects on the influence of three types of perceived overload: social overload, information overload, and system feature overload. Schmitt, Debbelt, and Schneider (2018) found that young information users with low information seeking efficiency were more likely to experience information overload.

2.8.2.4 Life satisfaction and appraisal.

2.8.2.4.1 Stress.

Stress is the most common result of information overload and this has been investigated by five studies that confirmed the association. While being permanently online has many advantages, it can lead to information overload, stress and symptoms of negative wellbeing (Sonnentag, 2017). A survey of Irish college students confirmed that the inability to control being connected online resulted in negative effects and stress (Lee et al., 2013). Chen and Lee (2013) investigated the mental health implication of Facebook with a sample of 513 college students who were Facebook users. The results showed that frequent use of Facebook lowers wellbeing either directly or indirectly through increased communication overload and lowered self-esteem. A diary study and qualitative interview by Kneidinger-Müller (2017) demonstrated the role of smartphones in increasing communication overload which resulted in stress. Olund (2016) conducted a qualitative interview with 14 full-time working women.The results confirmed the negative effects of perceived stress due to emails and the influence this had on work-life balance.

2.8.2.4.2 Fatigue.

Zhang et al. (2016) found that online social networks can influence three types of perceived overload: information overload, social overload, and system feature overload. These three types of perceived overload can result in social network fatigue which result in the intention to discontinue using social networks. Lee et al. (2016) confirmed that the stress due to perceived overload resulted in social network fatigue. Luqman, Cao, Ali, Masood, and Yu (2017) investigated the cause of discontinued Facebook use with a sample of 360 Facebook users. The findings suggested that technostress and exhaustion resulted from the excessive use of social network sites and

this stress and fatigue had behavioural and psychological consequences, which resulted in their intention to quit Facebook use. Laumer et al. (2015) described the frustration drivers reported while using Facebook, which resulted in dissatisfaction because of information overload and social overload. Li (2016) explored online consumers' behaviour and how information overload and information ambiguity can have a negative influence on consumers' intention to buy or change their behaviour. Gao, Liu, Guo, and Li (2018) explored the negative consequences from an information perspective of being permanently connected using smartphone based social networks. In this study, information leakage and information overload were cited as the main negative consequences.

Overall, this narrative review shows evidence of previous research conducted on information overload and wellbeing. Most of the research however only examined sections of the wellbeing process, and there have been no studies that assessed the effect of information overload while controlling for established predictors of wellbeing. Similarly, research is still required that examines positive and negative outcomes and appraisals. The next section examines whether a similar profile is observed in the literature on internet addiction and wellbeing.

2.9 Internet Addiction Systematic Review Method

PubMed and PsycINFO databases were searched for peer-reviewed articles published in English that addressed the association between internet addiction and wellbeing in adults. Selected studies were published in a time range that spanned the years 2000-2017. Studies were selected based on their relation to the association of wellbeing, mental health and internet addiction. Studies on adolescents were excluded, as were studies on online gaming addiction disorder studies which were classified as a separate disorder.

Qualitative, quantitative and case studies were considered. The following search terms were used: "compulsive internet use," "internet addiction," "problematic internet use*," "wellbeing," "mental health," and "wellbeing". After duplicates were excluded there were 146 results for internet addiction and wellbeing. The author read all abstracts and full text of relevant articles. In the conducted review a total of 35 empirical studies

were identified. The majority of studies were cross-sectional (n= 29), four were longitudinal studies, one was qualitative, and one was an experimental study. Studies were classified into four main themes and sub-themes. The main themes were the association between internet addiction and positive and negative outcomes, internet addiction and predictors of wellbeing, internet addiction and individual effects, and internet addiction and appraisals. In the reviewed studies, the sample sizes varied from 101 to 23,533 adults. The authors, variables of interest, design, measures, sample size, and findings are summarised for each study in the following tables:

2.9.1 PubMed.

- Search ((((("internet addiction"[Title/Abstract]) OR "compulsive internet us*"[Title/Abstract]) OR "problematic internet us*"[Title/Abstract]) AND "mental health"[Title/Abstract]) Filters: English language, Publication date from 2000/01/01 to 2017/12/31 **results 61**
- ((((("internet addiction"[Title/Abstract]) OR "compulsive internet us*"[Title/Abstract]) OR "problematic internet us*"[Title/Abstract]) AND "wellbeing"[Title/Abstract]) Filters: English language, Publication date from 2000/01/01 to 2017/12/31 **results 16**

2.9.2 PsychINFO.

- Compulsive internet us* or problematic internet us* or internet addiction **AND** Wellbeing or wellbeing or mental health (peer reviewed) publication date 2000-2017 **results 94**
- Compulsive internet us* or problematic internet us* or internet addiction **AND** Academic performance (peer reviewed) publication date 2000-2017 **results 30**

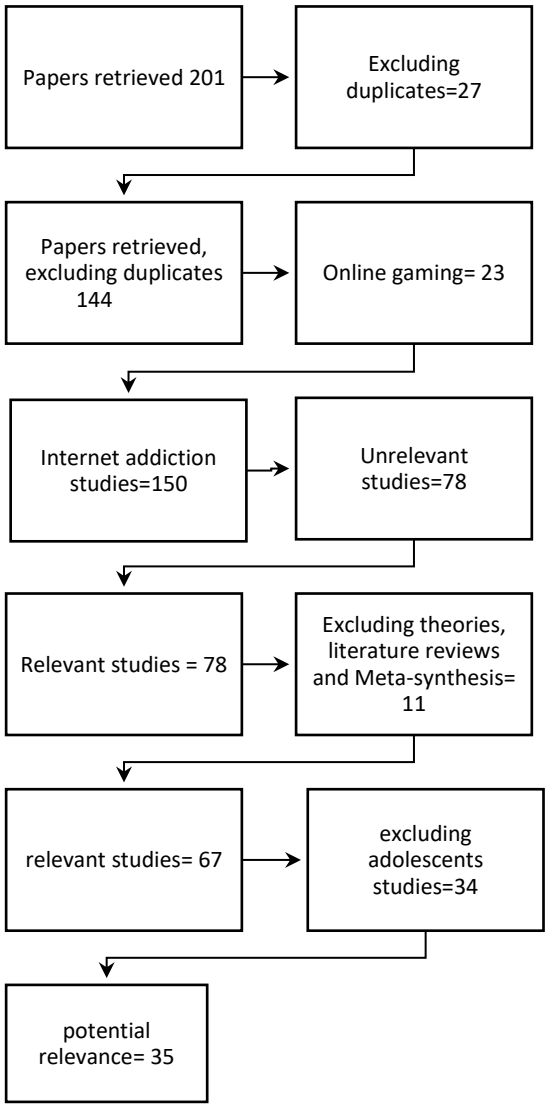

Figure 2.4: Flowchart showing the inclusion/exclusion criteria of the studies used in the systematic review of internet addiction and wellbeing.

2.10 Results.

The conducted literature searches for this review revealed 33 articles that assessed the association between problematic internet and wellbeing. Two studies were added by identifying them from the reference lists of other studies.

Studies were divided into four themes and subthemes, based on the DRIVE model structure: internet addiction association with positive and negative outcomes, internet addiction and risk factors, internet addiction and individual effects, and internet addiction and appraisal. Some studies were categorised in more than one theme.

2.10.1 The association between internet addiction and positive and negative outcomes.

In this theme, all studies that investigated the association of the negative and positive outcomes of wellbeing were discussed, starting with studies that measured wellbeing as a whole. Studies then investigated internet addiction and depression.

2.10.1.1 Internet addiction and wellbeing.

In a cross–sectional online survey of 330 young adults in Malaysia conducted by Kutty and Sreeramareddy (2014), the compulsive internet use scale (CIUS) and 12 item general health questionnaire (GHQ-12, high scores representing more mental health problems) were used. The results suggest that compulsive internet use is correlated with the GHQ score and negatively associated with age and marital status.

In a study aimed to investigate the association between PIU of communicative services and wellbeing of 495 Italian undergraduate students, Casale, Lecchi, and Fioravanti (2015) used an Italian adaptation of the Psychological Wellbeing Scale and the Generalized Problematic Internet Use Scale 2 (GPIUS2), to assess the association between wellbeing and PIU. The findings present significant evidence that PIU of communicative services is associated with low psychological wellbeing.

Cardak (2013) examined the relationship between internet addiction and wellbeing in a sample of 479 Turkish university students, who completed online versions of the Turkish cognition scale (OCS) and Psychological Wellbeing scale (SPWB). The results

indicated that internet addiction had a negative effect on wellbeing, with high levels of pathological internet use being associated with a lower level of wellbeing. Similar results were reported by Alavi, Maracy, Jannatifard, and Eslami (2011) with a sample of 259 Iranian university students. Participants answered the Young (1998) diagnostic questionnaire and the Symptom Checklist-90-Revision (SCL-90-R). They found a high association between psychiatric symptoms such as sensitivity, depression, anxiety, aggression, phobias and internet addiction after controlling for age, marital status, gender, type of universities, and education level. Akin (2012) examined the relationships between internet addiction, subjective vitality, and subjective happiness in a sample of 328 Turkish university students. Participants completed the Subjective Vitality Scale, Online Cognition Scale and the Subjective Happiness Scale. The results revealed that internet addiction negatively predicted subjective vitality and subjective happiness.

Satici and Uysal (2015) explored the possible relation between problematic Facebook use and wellbeing in a sample of 311 university students, where participants completed a battery of questionnaires. These were the Bergen Facebook addiction scale, satisfaction with life scale, the subjective happiness scale and the subjective vitality scale. Life satisfaction, subjective happiness, flourishing and subjective vitality, were negatively correlated with problematic Facebook use.

Chen (2012) used a longitudinal study to distinguish the effect of online entertainment, social use, problematic internet use (PIU), and gender on psychological wellbeing. The sample consisted of 757 Taiwanese college freshmen. Participants answered questions about demographics and four questionnaires: Self-Esteem Scale, Loneliness Scale, Beck's Depression Inventory II, and short PIU form. The questionnaires were distributed twice during the second and third year of college. Results revealed that increased PIU was associated with lower psychological wellbeing. Increased use of social networks was associated with positive wellbeing yet not associated with less psychological wellbeing problems. A four-year longitudinal study was carried out by Muusses, Finkenauer, Kerkhof, and Billedo (2014) using a sample of 398 married couples. The aim of the study was to explore the direction of the association of compulsive internet use with positive and negative wellbeing. The results suggested that PIU lowers wellbeing, through increases in depression, stress and loneliness over

time, which resulted in decreased happiness. However, there was no effect of PIU on changes of self-esteem over time.

Senol-Durak and Durak's (2011) study explored life satisfaction and self-esteem roles as effective components of subjective wellbeing and problematic internet use cognitions. The theoretical frameworks of Davis (2001), Caplan (2002), and Lent, Taveira, Sheu, and Singley (2009) were used as a model for this study which was tested on a sample of 480 Turkish university students, using structural equation modelling (SEM). The results revealed that self-esteem was a mediator and had a positive/negative effect on life satisfaction, by indirectly influencing problematic internet use.

Senol-Durak and Durak's (2011) study explored the predictors of Facebook addiction using behavioural, psychological, health and demographic information from 447 Turkish college students. They used the Facebook Addiction Scale (FAS) which was constructed and validated through factor analysis. Participants also completed the General Health Questionnaire (GHQ-28). The results revealed that insomnia, anxiety and severe depression were associated with Facebook addiction. Gender and other demographics were not significant predictors.

Most wellbeing and internet addiction studies have used university student as samples and produced results which show that problematic internet use influences negative psychological wellbeing (Alavi et al., 2011; Cardak, 2013; Casale et al., 2015). Akin (2012) confirmed that internet addiction negatively predicted subjective vitality and happiness. Chen (2012) and Muusses et al.'s (2014) longitudinal studies revealed that increased PIU lowers wellbeing, through an increase in stress, depression and loneliness. Low life satisfaction influenced PIU (Senol-Durak & Durak, 2011), however Kutty and Sreeramareddy's (2014) findings conflicted with those previous results which suggest that compulsive internet use influenced general health. Senol-Durak and Durak (2011) carried out a similar cross-sectional study using the same GHQ and Facebook Addiction Scale measures and confirmed the association between insomnia, anxiety and severe depression with Facebook addiction. The main problems with the literature were the failure to use appropriate models of wellbeing and to control for other predictors. The next section considers a specific outcome, namely, depression.

2.10.1.2 The association between internet addiction and depression.

Gedam, Shivji, Goyal, Modi, and Ghosh (2011) compared medical and dental students, who were internet addicts, in a study that estimated prevalence of internet addiction and examined the association between internet use and psychopathology. A sample of 597 students from medical and dental colleges was recruited, and participants completed the internet addiction test and mental health inventory questionnaires. The results revealed significant differences in the two samples in terms of internet use, depression and emotional ties.

Min-Pei, Huei-Chen, and Yung-Wei (2011) investigated the prevalence and psychosocial factors that were associated with internet addiction in a large sample of 3,616 Taiwanese university students. The prevalence of internet addiction was estimated as 15.3%. The results suggested that internet addicts have more depressive symptoms, lower self-efficacy and lower academic performance satisfaction. Also, males were more likely to be internet addicts, and an insecure attachment style was associated with internet addiction. A Japanese study of 165 healthy undergraduate participants conducted by Hirao (2015) through a cross-sectional survey assessed mental state of internet addicts and non-internet addicts. The results revealed the prevalence of internet addiction to be present in 15% of the small sample, and the frequencies of depressive symptoms and flow experience were significantly higher in the internet addicts.

Yao, Han, Zeng, and Guo (2013) conducted a longitudinal study that explored whether university freshmen's mental health status and adaptation level were predictors of internet addiction. A sample of 977 Chinese college students answered the Chinese College Student Mental Health Scale (CCSMHS) and the Chinese College Student Adjustment Scale (CCSAS). In a 1-3 year follow-up study, 62 internet addicted participants were recognised using IAT-8. The results revealed that freshmen students with characteristics of depression, anxiety, and self-contempt were found to be casual symptoms of internet addicts.

In Korea, a sample of 13,588 users was recruited for a study by Whang et al. (2003) to investigate the psychological profile of internet overuse. The researchers used a "Survey on Internet Use," which consisted of four sections: demographic information, the pattern of internet use, the degree of internet dependence, and psychological wellbeing, adopted from *The Diagnostic Scale of Excessive Internet Use*. The results revealed the prevalence of internet addicts in this Korean sample was 3.5%, while 18.4% were classified as possible internet addicts or problematic internet users. Internet addiction showed a strong association with dysfunctional social behaviour, with internet addicts trying to escape from reality when they were depressed or stressed through excessive internet use. Internet addicts reported high levels of depressed mood and loneliness. Further investigation was needed to explore the direction of causality.

An experimental study was conducted by Iacovelli and Valenti (2009) on a sample of 74 undergraduate female students to examine internet addicts' social skills. Telephone communications compared the average internet users' likeability and rapport. The study consisted of two phases: the first phase was data collection to identify participants with high internet use, and the second phase was the experiment in which a telephone conversation was held between the two participants who rated the conversation in terms of rapport and likeability. The results found that excessive internet users were rated with less likeability and had less ability to build rapport compared to average internet users. However, when participants were asked to rate themselves there was no difference. The results also revealed that excessive internet users rated themselves as more depressed and socially reserved compared to average users.

A cross-sectional study of 3,267 undergraduate students from China, Singapore and the United States compared internet addiction, online gaming addiction, and social network addiction and the related depressive symptoms in the three countries. Tang, Chen, Yang, Chung, and Lee (2016) used the IAT, Bergan Social Networking Addiction Scale, Problematic Online Gaming Questionnaire and the 9-item Depression Scale adopted from DSM-5. The results indicated that females were more addicted to online social networks, whilst males were more addicted to online gaming. In comparison to students from Singapore and the United States, Chinese students had the highest level of depressive symptoms, although Chinese and Singapore students had a higher internet addiction rate compared to Americans.

When the results of the association between internet addiction and depression were summarised, findings from Gedam et al. (2011), Hirao (2015), and Iacovelli and Valenti (2009) supported the idea that internet addicts have more depressive symptoms compared to non-addicts. Internet addicts reported higher scores of depressive moods and used the internet to escape from their depression (Whang et al., 2003). A cross-cultural study also found that Chinese internet addicts scored the highest on depressive symptoms (Tang et al., 2016).

2.10.1.3 The association between internet addiction and lack of sleep.

The one study that investigated the association of internet addiction and sleeping found that high internet use is associated with low sleep quality. A sample of 1,788 young American adults participated in a diary study that investigated the association between sleep disturbance and social media use. The participants' social media volume and frequency were self-reported daily by writing the time spent online using items adopted from the Pew internet research questionnaire. Sleep was assessed using the sleep disturbance measure. The results reported that the median time spent online on social networks was 61 minutes a day. Fifty-seven percent (57%) of the sample experienced moderate to high levels of sleep disturbance, which had been associated with high internet use (Levenson, Shensa, Sidani, Colditz, & Primack, 2016).

2.10.1.4 The association between internet addiction and academic performance.

Although most of the internet addiction studies recruited university student samples, only two studies explored the negative influence of internet addiction on academic performance. Skues, Williams, Oldmeadow, and Wise (2016) examined the effects of loneliness, boredom and distress tolerance on PIU, in a sample of 169 undergraduate university students. The association between academic performance and PIU was also measured. The results indicated that boredom was significantly associated with PIU and played a moderator role in a model that included distress tolerance and loneliness. Low academic performance was correlated with problematic internet use. Min-Pei et al. (2011) conducted a study on a sample of 3,616 Taiwanese university students and the results indicated that internet addicts have lower academic performance satisfaction.

Table 2.1: Studies that have examined the Association between Internet Addiction and Wellbeing Outcome

No.	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Kutty and Sreeramareddy	Compulsive internet use Mental health	Cross sectional	-GHQ mental health instrument -CIUS to assess compulsive internet use	330 university students	Compulsive internet use was weakly correlated with mental health.
2.	Casale et al.	Problematic use of internet communicative services	Cross sectional	-GPIUS2 generalized problematic internet use -Psychological wellbeing Psychological wellbeing scales	508 undergraduate students	Wellbeing is associated with problematic internet use of internet communicative services.
3.	Cardak	Psychological wellbeing	Cross sectional	Online cognition scale Scales of psychological wellbeing	479 freshmen university students	Internet addiction affected psychological wellbeing negatively

No.	Study	Variables of interest	Design	Measure	Sample	Effects
4.	Alavi et al.	University students Mental health Education satisfaction	Cross sectional	Young Diagnostic Questionnaire Internet Addiction Test Symptom Checklist-90-Revision (SCL-90-R).	250 students	mental problems due to internet addiction, such as anxiety, depression, aggression, and job and educational dissatisfaction
5.	Akin	Internet addiction subjective vitality Subjective happiness	Cross sectional	Online cognition scale The subjective vitality scale Subjective happiness scale	328 university students	Internet addiction negatively predicted subjective happiness and subjective vitality.
6.	Satici and Uysal	Problematic Facebook use and wellbeing	Cross sectional	Bergen Facebook addiction scale satisfaction with life scale Subjective happiness scale Subjective vitality scale	311 university students	Life satisfaction, subjective happiness, flourishing and subjective vitality, were negatively correlated with problematic Facebook use

No.	Study	Variables of interest	Design	Measure	Sample	Effects
7.	Chen	Internet use psychological wellbeing	Longitudinal	Self-esteem scale Loneliness scale Beck depression inventory PIU scale	757 college freshmen	Gender and online entertainment are not associated with wellbeing. Greater use of social resources online is probability related to positive wellbeing.
8.	Muusses et al.	Compulsive internet use and wellbeing	longitudinal	compulsive internet use scale-short subjective happiness scale CEDS-D scale PSS self-esteem scale Loneliness scale Commitment scale	398 adults	CIU predicted increase in depression, loneliness, and stress overtime and decrease in happiness.
9.	Senol-Durak and Durak	Cognitive symptoms of PIU	Cross sectional	Online cognition scale Positive and negative affect scale Satisfaction with life scale	480 university students	Positive affect, negative affect, life satisfaction, and self- esteem, were found to play a significant role on the cognitions that relate to problematic Internet use.

No.	Study	Variables of interest	Design	Measure	Sample	Effects
				Rosenberg self-esteem scale		
10.	Tsai et al.	Risk factors of internet addiction	Cross sectional	CIAS-R CHQ-12 MSF Neuroticism MPI	1360 freshmen	Male are higher internet addicts. Internet addiction is correlated with neuroticism and CHQ score. Skipping breakfast and mental health morbidity and deficient social support are associated with internet addiction.

Table 2.2: Studies that have examined the Association of Internet Addiction and Depression

	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Gedam et al.	Health professional students Psychopathology Internet addiction	Cross sectional	IAT Mental health inventory questionnaire	597 students from medical and dental colleges	- Internet addiction is associated with depression and low emotional ties.
2.	Min-Pei et al.	Depression Internet addiction Academic performance	Cross sectional	Access to abstract only	3616 college students	Depressive symptoms associated with internet addiction Low academic performance
3.	Hirao	Depression Internet addiction	Cross sectional	IAT Flow experience check list (FEC) Depressive symptoms using patient health questionnaire PHQ Beck depression Inventory BDI-II Zung self-rating depression scale	165 participants	Depressive symptoms are high in internet addiction group

	Study	Variables of interest	Design	Measure	Sample	Effects
4.	Yao et al.	Freshmen Mental health Internet addiction	Longitudinal	Chinese College Student Mental Health Scale (CCSMHS) and the Chinese College Student Adjustment Scale (CCSAS) Short IAT scale	977 male college freshmen	The stress freshmen face, could trigger internet addiction.
5.	Whang et al.	PIU psychological profile	Cross sectional	Diagnostic scale of excessive internet use IAT	13, 558 users	Internet addiction reported highest degrees of loneliness and depressed mood
6.	Iacovelli & Valenti	Internet addiction, likeability and rapport	Experiment	Internet addiction test Type-D scale-14 Beck depression Inventory	74 female university students	Excessive internet users are more likely to be depressed and socially inhibited.
7.	Tang et al.	Internet addiction, Online gaming Social networks addiction depression	Cross sectional		3267 undergraduates	Difference between males and females in addiction, Chinese addiction is more severe comparing to Singapore and the states.

	Study	Variables of interest	Design	Measure	Sample	Effects
8.	Andreassen et al.	ADHD Anxiety Depression	Cross sectional	- Bergen social media addiction scale (BSMAS) -Game addiction scale (GAS) - adult ADHD self-report scale (ASRS-version 1.1) -Obsession-compulsive inventory-revised (OCI-R) -Hospital Anxiety and Depression scale	23,533 adults from the age of 16-88	-There were gender and status difference in the use of internet. - Internet addiction is associated with mental disorder symptoms, ADHD, OCD

Table 2.3: Studies that have examined the Association of Internet Addiction and Sleep

	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Levenson et al.	Sleep disturbance	Cross sectional	Pew internet research questionnaire PROMIS	1788 young adults	Strong association between social media use and sleep disturbance.

Table 2.4: Studies that have examined the association of Internet Addiction and Academic Attainment

	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Skues et al.	Academic performance Internet addiction Wellbeing	Cross sectional	Access to abstract only	169 undergraduate students	Boredom, loneliness, and distress tolerance are associated with PIU
2.	Min-Pei et al.	Depression Internet addiction Academic performance	Cross sectional	Access to abstract only	3616 college students	Depressive symptoms associated with internet addiction Low academic performance

2.10.2 The association between internet addiction and wellbeing risk factors.

Most of the current internet activities are linked to communicating, being addicted to socialising and other virtual activities, which might be a sign of an absence of, or difficulties with, real life social experiences. The need for social support or the feeling of loneliness in internet addicts will be discussed below.

2.10.2.1 The association between internet addiction, social support, family, loneliness.

Loneliness may be a result of a lack of social skills or low self-esteem and poor adjustment. Studies have explored the association of poor social support and loneliness with internet addiction. For example, a study in Iran (Naseri, Mohamadi, Sayehmiri, & Azizpoor, 2015) recruited a random sample of 101 female university students and had the participants complete the Multidimensional Scale of Perceived Social Support, Rosenberg's Self-esteem Scale, and the Yang Internet Addiction Test. Results revealed that individuals with low self-esteem were more likely to be internet addicts. Significant negative correlations were found between internet addiction and perceived social support, as well as family support. The main limitation of the study was its small sample. There is need for further investigation to demonstrate the relationship between internet addiction and social support using a larger sample.

Odaci and Cikrikci (2014) investigated the association between problematic internet use, attachment styles and the subjective wellbeing of 380 Turkish university students. The participants answered questions about demographics, as well as questions from the problematic internet use scale, the relationship scale, and the subjective wellbeing scale. The results suggested a significant correlation between problematic internet use and subjective wellbeing and dismissive and preoccupied attachment styles. Individuals who have negative self-perception and positive perceptions of others, and who need to be in relationships with others can be described as having a preoccupied attachment style (Permuy, Merino, & Fernandez-Rey, 2010). At the other extreme, individuals who had a high positive self-perception and negative perception of others, had a dismissive attachment style. Those individuals avoid establishing close relationships with others

and tend to underestimate their self-worth by rejecting the value of forming proximity to others out of a fear of disapproval (Bartholomew & Shaver, 1998). The results confirmed that problematic internet use differed significantly according to gender and attachment styles. The results possibly explain the reason for problematic internet use. For participants with a preoccupied attachment, the internet is used in order to fulfil their attachment needs either by stalking or being connected to those they care about for long periods of time. For individuals with a dismissive attachment, problematic internet use may keep them busy or be a source of fulfilment to avoid needing others.

Quinones and Kakabadse (2015) investigated the association between self-concept clarity, social support and compulsive internet use of two adult samples from the US (n=268) and UAE (N=270). The participants were assessed through their answers to the Self-Concept Clarity Scale, Compulsive Internet Scale (2010), three items from Caplan, Williams, and Yee's (2009) preference for online interaction scale, four-item subscale of neuroticism from the Mini-IPIP and Ren et al.'s (1999) social support Likert scale. The results revealed that CIU is strongly related to low social support and self-concept clarity in the US sample. Due to cultural differences between the two samples in defining self-clarity, the results of self-concept clarity and CIU were weakly associated. Moreover, using core CIU dimensions lowered the prevalence of CIU 20-40% in US and UAE.

Kerkhof, Finkenauer, and Muusses (2011) examined compulsive internet use consequences in a sample of 190 newlywed couples. Participants self-reported on how many hours they spent online and were assessed using the compulsive internet use scale, the Dyadic Adjustment Scale for general relationship satisfaction to assess relationship adjustment, the Intimacy and Passion subscales of the Perceived Relationship Quality Components Questionnaire, the Relationship Maintenance Strategy Measure relationship-specific disclosure scale, and the partner-specific concealment scale. The study took place at three time points; demographics were first collected, and then data was collected in spring 2007 and 2008. At both data collection points, each member of a couple answered separately. The results revealed that compulsive internet use predicts marital wellbeing and not vice versa. The occurrence of internet use was positively associated to marital wellbeing. The findings conflict with all previous studies on the impact of compulsive internet use on low levels of

likability and rapport (Iacovelli & Valenti, 2009), which is important for intimacy in a close relationship.

Yan, Li, and Sui's (2014) study investigated personality traits, perceived family functioning, recent stressful life events, and internet addiction in a sample of 892 Chinese college students. Participants' internet addiction was assessed by the Chen Internet Addiction Scale, the Adolescent Self-Rating Life Events Checklist, the Eysenck Personality Questionnaire, and the Family Adaptability and Cohesion Scale. Participants were classified into categories based on their scores (non-addict, mild internet addiction, severe internet addiction). Participants (9.98%) were classified as severe internet addiction, and 11.12% with mild internet addiction. Those with severe internet addiction had lower family functioning, high neuroticism and psychoticism, more stressful life events, and were introverts. Those with mild internet addiction had more health and adaptation problems and higher neuroticism scores. Neuroticism, adaptation problems and health problems predicted internet addiction.

Caplan (2003) introduced and tested this model, which explained the reason for online social problematic use as a gateway for lonely and depressed individuals, which led to negative outcomes associated with excessive online use. Three hundred and eighty-six (386) undergraduate students participated in the study by answering the Generalized Problematic Internet Use Scale (GPIUS), Beck Depression Inventory-II, and UCLA Loneliness scale. Results suggested that psychosocial health predicted different preference levels for online social interaction with expected negative outcomes related to problematic internet use.

An experimental study, designed by Iacovelli and Valenti (2009), used a sample of 74 undergraduate female students as they aimed to examine internet addicts' social skills. The results found that excessive internet users were rated as less likeable and were less able to build a rapport compared to average internet users. However, when participants were asked to rate themselves no differences were reported.

Another study (Lee-Won, Herzog, & Park, 2015) was conducted with 243 U.S. college students. The study investigated the role of social anxiety and the need for social assurance in problematic Facebook use. The variables measured were the social anxiety

scale, the need for social assurance scale and the problematic Facebook use scale, developed and validated by Koc and Gulyagci (2013). The results revealed that social anxiety and the need for social assurance were significantly associated with problematic Facebook use. Most notably, the need for social assurance was a significant moderator of the association between social anxiety and problematic Facebook use.

Kim, LaRose, and Peng's (2009) study was built on the assumption that the main major motive of internet use was loneliness and depression, or generally relieving psychosocial problems. Loneliness was measured by 10 items from Russell's UCLA Loneliness Scale. Two items were used from the Self-Monitoring Scale to measure deficient social skills, and online social interaction preference was measured by three items from the Caplan Scale. The results showed that lonely individuals, or individuals with low social skills, were more likely to develop severe compulsive internet use behaviours, and experience negative life outcomes. A study designed by Tsai et al. (2009) explored the risk factors of internet addiction using a sample of 1,360 Taiwanese freshmen. The results revealed that internet addicts have poor social support while Yan et al.'s (2014) study found that severe internet addicts had lower family functioning.

A qualitative study on online social networking resulted in five main themes that reflected an in-depth understanding of the compulsive use of social networks from the users' point of view. Eight university students participated in the interviews conducted by Powell et al. (2013). Individuals' responses varied from using social networks when feeling isolated in order to stay connected, to problematic internet users justifying their problematic use of social networks through its equivalence to real life interactions.

The previous studies utilised a range of different methodologies: cross-sectional, qualitative and experimental. They all studied the association between internet addiction and social support and loneliness, using samples from different cultures, and confirmed the association of PIU and problematic Facebook use with loneliness, social anxiety, lower family functioning, low social skills and low self-esteem. An exception to this was Kerkhof et al.'s (2011) self-reported longitudinal study, which concluded that compulsive internet use was related to positive marital wellbeing.

Table 2.5: Studies that have examined the Association between Internet Addiction and Risk Factors

	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Caplan	PIU, online social interaction	Cross sectional	PIUS Beck depression inventory UCLA loneliness scale	386 undergraduate students	-Psychosocial distress causes the preference of online socialization and other symptoms of PIU.
2.	Yi et al.	Internet addiction Depression Social support	Cross sectional	IAT Beck depression inventory Multidimensional scale of perceived social support	587 undergraduate students	Depression, family support, are significantly correlated to internet addiction.
3.	Kerhof et al.	Newlyweds marital wellbeing	Longitudinal study	Compulsive internet use scale Dyadic adjustment scale Intimacy and passion subscale of perceived Relationship quality components questionnaire Maintenance behaviours	190 newlywed couples	Internet addiction use predicts marital wellbeing, and not the opposite way. The frequency of internet use may be positively related to marital wellbeing.

	Study	Variables of interest	Design	Measure	Sample	Effects
4.	Whang et al.	PIU psychological profile	Cross-sectional	Diagnostic scale of excessive internet use IAT	13558 users	Internet addiction reported highest degrees of loneliness and depressed mood
5.	Lee-won et al.	Social anxiety Social assurance Problematic Facebook use	Cross-sectional		243 college students	Need for social assurance served as significant moderator of the relationship between social anxiety and problematic Facebook use
6.	Quinones & Kakabadse	Self-concept Social support Compulsive internet use	Cross-sectional	Self-concept clarity scale Compulsive internet use Caplan online interaction scale Rena's social support scale Mini-IPIP	286 US students 270 UAE students	

	Study	Variables of interest	Design	Measure	Sample	Effects
7.	Muusses et al.	Compulsive internet use and wellbeing	longitudinal	Compulsive internet use scale-short subjective happiness scale CEDS-D scale PSS self-esteem scale Loneliness scale Commitment scale	398 adults	CIU predicted increase in depression, loneliness, and stress overtime and decrease in happiness.
8.	Yan et al.	Perceived family functioning Personality traits internet addiction	Cross-sectional	Chen Internet addiction scale Adolescents self-rating life style checklist Eysenck personality questionnaire Family adaptability and Cohesion scale	892 college students	severe internet addiction had lower family functioning, lower extraversion, higher Neuroticism and psychoticism, and more stressful life events. Subjects with mild internet addiction (11.21%) had higher neuroticism and more health and adaptation problems.

	Study	Variables of interest	Design	Measure	Sample	Effects
9.	Koc & Gulyagci	Facebook addiction	Cross-sectional	Facebook addiction scale General health questionnaire (GH-28)	447 college students	Social motives, severe depression, and anxiety and insomnia positively predicted Facebook addiction.
10.	Kim et al.	Loneliness Psychological wellbeing Internet use	Cross sectional	Russell's UCLA loneliness scale Self-monitoring scale	635 students	
11.	Iacovelli & Valenti	Internet addiction, likeability and rapport	experiment	Internet addiction test Type-D scale-14 Beck depression Inventory	74 female university students	Excessive internet users are more likely to be depressed and socially inhibited.

2.10.3 Associations between internet addiction and individual effects.

Individual differences such as personality, academic performance and demographics influence the association of internet addiction and wellbeing. Previous studies of social support indicated the association between internet addiction and lack of social support. Studies of individual differences and internet addiction are divided into four sub themes which address sleep, gender differences, academic performance, and personality associations with internet addiction.

2.10.3.1 The association between internet addiction and gender.

A large sample of 4,852 participants was examined using the IAT and six items of the German socioeconomic panel. Lachmann, Sariyska, Kannen, Cooper, and Montag (2016) results suggested there was a negative association between PIU and life satisfaction, with men reporting higher levels of PIU, whereas females were more sensitive to negative impacts. This confirms the results from Min-Pei et al. (2011), indicating that males are more likely to be internet addicts. A study by Tang et al. (2016) indicated that females were more addicted to online social networks, whilst males were more addicted to online gaming.

All of the prior studies confirmed that men are more likely to be internet addicts, and only Tang et al. (2016) distinguished which internet activity each gender was more addicted to.

2.10.3.2 The association between internet addiction and personality.

A French study by Laconi et al. (2018) explored the associations between PIU and personality variables in a sample of 786 participants. The findings revealed that 20% of the sample reported PIU. When PIU was compared to non-PIU participants, those with PIU scored significantly higher in all personality disorders, depressive symptoms, and non-adaptive coping.

A study designed by Tsai et al. (2009) explored the risk factors for internet addiction in a sample of 1,360 Taiwanese freshmen. The participants answered a battery of questionnaires including the Chinese Internet Addiction Scale-Revision (CIAS-R), the

Measurement of Support Functions (MSF), the neuroticism subscale of the Maudsley Personality Inventory (MPI), and the 12-item Chinese Health Questionnaire (CHQ-12). The results revealed that 17.9% of the participants were internet addicts. Being male, having a habit of skipping breakfast, low mental health, poor social support and obsessive personality characteristics were found to be risk factors for internet addiction in Taiwan.

Marino et al.'s (2016) study aimed to examine a model that assessed the contribution of personality traits, motives, and metacognition to problematic Facebook use, among a sample of 815 Italian university students. Metacognitions are what an information user hold about their personal internal states, cognition, and coping strategies (Wells & Matthews, 1994, 1996; Wells, 2000). Participants answered the Generalized Problematic Internet Use scale, the Big Five Questionnaire, the Internet Motives Questionnaire, and the MCQ- 30. The results revealed that coping, conformity and enhancement, which are three of the four motives, as well as cognitive confidence and negative beliefs about thoughts from metacognitions, predicted problematic Facebook use. Additionally, only extraversion as a personality trait was weakly associated with PIU.

Yan et al. (2014) found that severe internet addiction resulted in lower family functioning, high neuroticism and psychoticism, more stressful life events, and introversion, while mild internet addiction had more health and adaptation problems and higher neuroticism. Neuroticism, adaptation and health problems were found to predict internet addiction.

A cross-sectional study of 23,542 Norwegians (Andreassen, Torsheim, Brunborg, & Pallesen, 2012) explored the association between social media addiction and narcissism with self-esteem using the Bergen social media addiction scale (BSMAS), Narcissistic Personality Inventory-16 and the Rosenberg self-esteem scale. The results showed an association between social media addiction, narcissism and low self-esteem. However, the design of the study cannot identify the direction of causality (e.g., is it narcissism that is causing social media addiction or the other way around?). Tsai et al.'s (2009) results also indicated that internet addicts are more likely to have obsessive personality characteristics.

Personality traits have a significant influence on the individual's feelings and reactions in different situations. The previous studies explored the association between problematic internet use and personality. The findings confirmed the strong association with personality disorder clusters B and C, neuroticism traits, immature defensive style, psychoticism characteristics, introversion and low self-esteem. The studies featured large samples from different cultures, used different personality scales and confirmed the positive association between personality disorders and internet addiction.

Table 3.6: Studies that have examined the Association between Internet Addiction and Individuals Effect

	Study	Variables of interest	Design	Measure	Sample	Effects
1.	Lachmann et al.	Life satisfaction and internet addiction	Cross sectional	-Six items from German socioeconomic panel -Short-IAT	4,852 participants	-Life satisfaction negatively correlated to internet addiction. Males tend to use the internet more.
2.	Tsai et al.	Risk factors of internet addiction	Cross-sectional	CIAS-R CHQ-12 MSF Neuroticism MPI	1,360 freshmen	Male are higher internet addicts. Internet addiction is correlated with neuroticism and chq score. Skipping breakfast and mental health morbidity and deficient social support are associated with internet addiction.

	Study	Variables of interest	Design	Measure	Sample	Effects
3.	Tang et al.	Internet addiction, Online gaming Social networks addiction depression	Cross-sectional		3267 undergraduates	Difference between males and females in addiction, Chinese addiction is more severe comparing to Singapore and the states.
4.	Marino et al.	Problematic facebook use	Cross-sectional	PFU Big five questionnaire	815 university students	Extroverted personality influence PFU
5.	Odaci & Cikrikci	Gender, attachment style, wellbeing	Cross-sectional	Problematic internet use scale Relationship scale Subjective wellbeing scale	380 university students	PIU is associated to gender and attachment styles, and PIU differed significantly according to gender and attachment styles.

	Study	Variables of interest	Design	Measure	Sample	Effects
6.	Yan et al.	Perceived family functioning Personality traits internet addiction	Cross-sectional	Chen Internet addiction scale Adolescents self-rating life style checklist Eysenck personality questionnaire Family adaptability and Cohesion scale	892 college students	Severe internet addiction had lower family functioning, lower extraversion, higher neuroticism and psychoticism, and more stressful life events. Subjects with mild internet addiction (11.21%) had higher neuroticism and more health and adaptation problems.
7.	Chen	Internet use psychological wellbeing	longitudinal	Self-esteem scale Loneliness scale Beck depression inventory PIU scale	757 college freshmen	Gender and online entertainment are not associated with wellbeing. Greater use of social resources online is probability related to positive wellbeing.

2.10.4 The association between internet addiction and life satisfaction and perceived stress.

This part of the chapter discusses the studies that investigated the association between internet addiction and life appraisal, with stress as a subtheme of life appraisal, where a person evaluates life satisfaction and/or their perceived stress level.

A study of 713 adults in the United States aimed to examine the relationship between pornography use and wellbeing. The results revealed that internet pornography predicted psychological distress. The model was replicated using a sample of 1,215 undergraduates, with a one-year longitudinal follow-up with 106 participants. The results revealed a significant association between perceived addiction to internet pornography and psychological distress over time (Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015). Yan et al. (2014) also found that those with severe internet addiction had more stressful life events.

A comparison study was carried out by Ko et al. (2014) using a sample of 79 women diagnosed with premenstrual dysphoric disorder (PMDD), and a control sample of 76 healthy women. Participants answered the Perceived Stress Scale, Chen Internet Addiction Scale, and the Barratt Impulsiveness Scale twice, once in the premenstrual and once in the follicular phases, to examine the association of PMDD, internet addiction and their associated factors such as impulsivity and stress. The results revealed that women with PMDD were more likely to have internet addiction and a greater severity of internet addiction, perceived stress and impulsivity. Both perceived stress and impulsivity mediated the relationship between PMDD and internet addiction.

Studies on stress have confirmed the association between stress and PIU, however the studies are limited to student and women samples; there is also a need to distinguish between the types and causes of perceived stress.

Table 2.7: Studies that have examined the Association between Internet Addiction and Appraisals (satisfaction; perceived stress)

	Study	***Variables of interest***	***Design***	***Measure***	***Sample***	***Effects***
1.	Lachmann et al.	Life satisfaction and internet addiction	Cross sectional	Six items from German socioeconomic panel - Short-IAT	4,852 participants	Life satisfaction negatively correlated to internet addiction. Males tend to use the internet more.
2.	Alavi et al.	University students Mental health Education satisfaction	Cross sectional	Young Diagnostic Questionnaire Internet Addiction Test Symptom Checklist-90-Revision (SCL-90-R).	250 students	Mental problems due to internet addiction, such as anxiety, depression, aggression, and job and educational dissatisfaction
3.	Satici & Uysal	Problematic Facebook use and wellbeing	Cross sectional	Bergan Facebook addiction scale Satisfaction with life scale Subjective vitality scale Flourishing scale Subjective happiness scale	311 university students	Life satisfaction, subjective vitality, flourishing, and subjective happiness were negative predictors of

	Study	*Variables of interest*	*Design*	*Measure*	*Sample*	*Effects*
						problematic Facebook use
4.	Muusses et al.	Compulsive internet use and wellbeing	longitudinal	compulsive internet use scale-short subjective happiness scale CEDS-D scale PSS self-esteem scale Loneliness scale Commitment scale	398 adults	CIU predicted increase in depression, loneliness, and stress overtime and decrease in happiness
5.	Grubbs et al.	Internet Pornography addiction	Cross sectional and longitudinal		713 adults, 1215 undergraduates	Addiction to internet pornography is uniquely related to experience of psychological distress
6.	Ko et al.	Premenstrual Dysphoric disorder	Comparison	Chen Internet addiction scale, Perceived stress scale Barratt Impulsiveness scale	79 and control group 76	Women with PMDD are more likely to have IUD, and greater severity of IUD, stress, and impulsivity.

	Study	*Variables of interest*	*Design*	*Measure*	*Sample*	*Effects*
7.	Koc & Gulyagci	Facebook addiction	Cross sectional	Facebook addiction scale General health questionnaire (GH-28)	447 college students	social motives, severe depression, and anxiety and insomnia positively predicted Facebook addiction.
8.	Akin	Internet addiction subjective vitality Subjective happiness	Cross sectional	Online cognition scale The subjective vitality scale Subjective happiness scale	328 university students	internet addiction negatively predicted subjective happiness and subjective vitality.
9.	Senol-Durak & Durak	Cognitive symptoms of PIU	Cross sectional	Online cognition scale Positive and negative affect scale Satisfaction with life scale Rosenberg self-esteem scale	480 university students	Positive affect, negative affect, life satisfaction, and self-esteem, were found to play a significant role on the cognitions that relate to problematic Internet use.

2.11 Conclusion

The literature review aimed to evaluate the studies that examined the relationship between information overload and wellbeing, and internet addiction and wellbeing by categorising the studies into the DRIVE model structure. Gaps were then identified in the literature. Although there were some studies relating internet addiction and information overload to parts of the wellbeing process, there is an enormous absence of multivariate studies which control for other predictors of wellbeing and which examine the different stages of the wellbeing process which indicate a holistic view of the influence of internet addiction and information overload on wellbeing. There is evolving literature on the psychological impact of internet addiction and information overload, however, most of the methodology is cross-sectional, which limits the understanding of the causality and motives behind the problematic use. Search results on the association of information overload and internet addiction together revealed no studies, and research on this topic will clarify the gap in the literature and our understanding of the association between different information-age problems. The cultural influence on internet addiction was investigated in only one study that compared both US and UAE internet users (Quinones & Kakabadse, 2015). The study revealed that the cultural influence on social support caused the decrease in internet addiction in the UAE sample. Further studies on cultural influence are needed to investigate other aspects of influence on internet addiction. Most of the samples studied were university students, and there has been little recognition of the specificity of the many stresses that students face based on their university circumstances and the nature of students' life and age group. Findings might be limited to the university students and it is debatable whether all findings can be extrapolated to all adults, specifically to working adults who might face different life stressors related to different life stages. Although previous studies have focused on university students, not all aspects of students' stress, perceived academic performance and related stress have been investigated.

In sum, several gaps about aspects of internet addiction and information overload research that need additional investigation have been identified in the literature review. Notably, there is an absence of a comprehensive approach to the study of information overload, internet addiction and wellbeing, and research appears to be limited to certain perceptions and samples. Association of information overload and internet addiction

has not been explored. The cultural difference, employee and students' difference in levels of information overload and internet addiction, the prevalence of information overload and internet addiction has not explored in a Kuwaiti sample before nor the prevalence and influence of information overload in UK students' sample. The different internet uses influence on holistic approach wellbeing has not been previously explored. The differences between problematic internet users and non-problematic internet users in wellbeing outcome, and hours spent online has not been investigated. All of the previous aspects have never been explored. The present research uses DRIVE model as a frame work to assess information overload and internet addiction influence on holistic wellbeing approach, considering and controlling for all wellbeing predictors: individual difference in negative coping, stress, and social support, personality; measuring demands and resources; to measure holistic wellbeing outcome. Figure 2.5 represent the research model perceived from the DRIVE model in assessing information overload and internet addiction association with the dependent variable controlling for the wellbeing covariates. Differences between students and employees are considered in each study through the difference in measuring demands and stress sources.

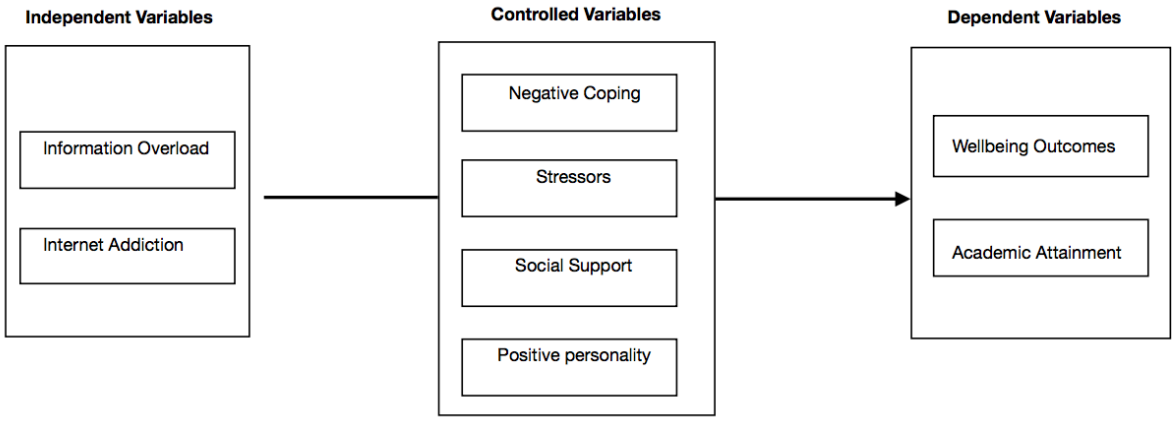

Figure 2.5: Research model based on DRIVE model.

The next chapter describes the measurement instruments used to assess the concepts described previously.

CHAPTER 3

MEASUREMENTS

3.1 Chapter Overview

Chapter 3 outlines the selected measures used to assess the research variables and to achieve thesis objectives. The chapter provides a comprehensive description of the used measures and design.

3.2 Measuring Instruments

3.2.1 Perceived information overload scale.

The Perceived Information Overload Scale by Misra and Stokols (2011**)** was generated with a good internet consistency α = .86, and good results of validity was statistically proven by results of the confirmatory factor analyses. Overall the scale reliability and validity is statistically proven (Misra & Stokols, 2011). The scale is consisted of 16-item scale that measures two subscales of information overload, environment based and cyber-based information overload. The first part consists of nine items that explore the user's experience of information overload from cyber-based sources in the previous month, through a Likert scale of 5-points (0 = *never* and 4 = *very often)*. Information users were asked about how often they felt overwhelmed to answer emails/ instant messages quickly; how often they felt that they had too many messages/emails or any social network notifications. The second part of the scale consisted of seven items surveying participant's experience of the environment or place based on information overload in the last month. The questions explored included: the workplace demands exceeding the user's ability to work, as well as a noisy and distracting work environment; full scale items are provided below. The items were totalled to produce a total cyber-based information overload score and place-based information overload score. The sum of the two scores reflects the total perceived information overload score (Misra & Stokols, 2011). Although information overload is a stress indicator, the findings of Misra and Stokols (2011) indicate that the Perceived Information Overload Scale score and the Perceived Stress Scale score were not overlapping, which suggested

that cyber-based and place-based information overload scales measured different concepts than perceived stress.

Information Overload Questions

1. In the last month how often have you felt overwhelmed with the email messages you received?
2. In the last month, how often have you forgotten to respond to important email message?
3. In the last month how often have you felt pressured to respond to email messages quickly?
4. In the last month, how often have you received more cell phone calls than you can handle?
5. In the last month, how often have you felt that you receive more email attachments than you can handle?
6. In the last month, how often have you felt that you have had to spend much time maintaining the various information and communication devices you own (e.g., laptops, desktop computers, personal digital assistants)?
7. In the last month, how often have you felt pressured to manage several information and communication inputs at the same time?
8. In the last month, how often have you felt that you have too many messages (e.g., wall postings, event notifications, personal messages, status updates, and applications) on your Facebook or Myspace page to deal with?
9. In the last month, how often have you felt that you have receive more instant messages that you can handle?
10. In the last month, how often have you felt that your work activities leave you too little for recreational activities?
11. In the last month, how often have you felt that your work demands make you less sensitive to the needs of others?
12. In the last month, how often have you felt hassled by your commute to work?
13. In the last month, how often have you felt that you have too many demands in your home to be able to handle comfortably?
14. In the last month, how often have you felt that the demands on you in your workplace exceed your capacity to deal with them?

15. In the last month, how often have you felt that your home environment is too noisy?
16. In the last month, how often have you felt that your work environment is too noisy?

3.2.2 Internet addiction test (IAT).

The IAT was developed by Young (1998). The scale has been widely used and translated to many languages. Although lots of internet measurements have been generated, the IAT scale is a very reliable and valid measure **(**Young, 1998). The IAT has high face validity and reliable instruments and is the first validated instrument to assess Internet addiction (Widyanto & McMurran, 2004). Young developed the measure based on DSM-IV criteria of pathological gambling, the criteria aimed to identify a type of behavioural addiction. The scale consists of 20 items that examine the use of the internet for non-academic or non-job purposes during the last month. The participant answers the questions using Likert scales (0= not applicable and 5= always). For example, 'How often do you find that you stay online longer than you intended?' and 'How often do you neglect household chores to spend more time online?' All of the questions are provided below. The sum of scores demonstrate three types of internet users, reflecting their dependency on the internet, these are: controlled internet user, problematic internet user, and internet addicts.

- Scores from 31-49 reflect an average online user who controls his/her online activity.
- 50-79 points reflect an individual experiencing occasional or frequent problematic internet use that might interfere with normal life flow.
- 80–100 points reflect internet usage that is causing significant problems in an individual's life.

Internet Addiction Test Questions

1. How often do you find that you stay online longer than you intended?
2. How often do you neglect household chores to spend more time online?
3. How often do you prefer the excitement of the Internet to intimacy with your partner?
4. How often do you form new relationships with fellow online users?

5. How often do others in your life complain to you about the amount of time you spend online?
6. How often do your grades or school work suffer because of the amount of time you spend online?
7. How often do you check your email before something else that you need to do?
8. How often does your job performance or productivity suffer because of the Internet?
9. How often do you become defensive or secretive when anyone asks you what you do online?
10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?
11. How often do you find yourself anticipating when you will go online again?
12. How often do you fear that life without the Internet would be boring, empty, and joyless?
13. How often do you snap, yell, or act annoyed if someone bothers you while you are online?
14. How often do you lose sleep due to late-night log-ins?
15. How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?
16. How often do you find yourself saying "just a few more minutes" when online?
17. How often do you try to cut down the amount of time you spend online and fail?
18. How often do you try to hide how long you've been online?
19. How often do you choose to spend more time online over going out with others?
20. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?

3.2.3 Measuring wellbeing.

The process of measuring wellbeing suggests the need for multi-measures to assess the different factors contributing to wellbeing outcome. Using multi-measures can result in practical implications associated to long questionnaires; like consuming time and effort which can cause low response rate (Fisher, Knobe, Strickland, & Keil, 2016). Therefore, a single item measure was selected in assessing wellbeing in the dissertation's empirical research.

3.2.3.1 Rational of single item measure.

Single item measures have been used in a diversity of research measures, in different disciplines such as overall perceived health (Bowling, 2005), quality of life (de Boer et al., 2004), quality of life (de Boer et al., 2004); and they were all successful single item measures that have been widely used. Single item measures increase face validity and reduce criterion contamination (Fisher et al., 2016; Nagy, 2002; Wanous, Reichers, & Hudy, 1997). Through the use of single item measures, a practical alternative to multi-item measures is offered, where time and effort are saved particularly in measuring concepts where multiple dimension has to be measured (Williams & Smith, 2012). Evidence of the ability for single-item measures has been provided to ensure validity and reliability of wellbeing measures (Fan & Smith, 2017a, 2017b; Nelson & Smith, 2016; Smith & Smith, 2017a, 2017b, 2017c; Williams, 2015; Williams & Smith, 2016; Williams et al., 2017; Williams, Pendlebury, & Smith, 2017; Williams, Pendlebury, Thomas, & Smith, 2017).

2.8.3.2 The wellbeing process questionnaire (WPQ).

The Wellbeing Process Questionnaire (WPQ) was developed to study wellbeing in workers (Williams & Smith, 2012), and students (Williams et al., 2017). The concepts measured were based on single-item questions designed to correlate highly with longer versions of the scales (Williams, 2014). This resulted in a valid and reliable short questionnaire for investigating wellbeing in circumstances that require brief scales like the workplace (Williams & Smith, 2016). The nature of wellbeing suggested that one has to consider a range of variables (Diener & Lucas, 1999). Using short items to measure wellbeing is ideal, and saves time, cost and effort. The wellbeing outcome score can be calculated using the combined effects of positive wellbeing (e.g., life satisfaction and happiness) and negative wellbeing (e.g., depression, anxiety, and stress; Williams, 2012). The WPQ can be combined with other multi-item scales and the established predictors of control. The WPQ is flexible and can be customised for use with specific populations and Williams, Smith and co-workers have developed a bank of questions for use with a variety of groups. The result of using the WPQ with different samples such as students (Williams et al., 2017), workers (Williams & Smith, 2013, 2016, 2018) nurses (Galvin & Smith, 2015; Williams & Smith, 2012, 2013; Williams, Pendlebury, & Smith, 2017), university staff (Williams, Pendlebury,

Thomas, et al. 2017), police officers (Nelson & Smith, 2016), and train workers (Fan & Smith, 2017) have revealed that the wellbeing outcomes are consistently predicted by the established factors and the short questionnaire often has the same predictive validity as multi-item scales.

2.8.3.1.1 The student WPQ.

The Student WPQ is a multidimensional single item measure of wellbeing which includes a measure of stressors based on students' circumstances and factors from the Inventory of College Students' Recent Life Experiences (ICSRLE), such as development challenges, social mistreatment and time pressures (Kohn, 1990). The student WPQ version also measures other wellbeing predictors based on the DRIVE model: negative coping, social support, and positive personality (self-efficacy, self-esteem and optimism). Participants answered the WPQ questions using a 10-point scale (0= not at all, 10= extremely). The items covered the 7 items of students' life demands based on the ICSRLE factors, questions measuring the student's social support, personality, positive and negative outcomes, coping style, life satisfaction, life stress, physical fatigue, and mental fatigue (Williams, 2014). The WPQ scale provides a clear result of the positive and the negative wellbeing outcomes and wellbeing predictors. Wellbeing predictors are measured in single items and can be calculated individually. The sum of negative wellbeing are the scores of depression, negative affect and anxiety. Negative appraisal is the sum of the scores of life stress, physical fatigue and mental fatigue. The positive wellbeing is the sum of scores of positive effects, and positive appraisal which is represented by the life satisfaction score.

The Student WPQ

Student Stressors

Please consider the following elements of student life and indicate overall to what extent they have been a part of your life over the past 6 months. Remember to use the examples as guidance rather than trying to consider each of them specifically:

Challenges to your development (e.g. important decisions about your education and future career, dissatisfaction with your written or mathematical ability, struggling to meet your own or others' academic standards).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Time pressures (e.g. too many things to do at once, interruptions of your school work, a lot of responsibilities).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Academic Dissatisfaction (e.g. disliking your studies, finding courses uninteresting, dissatisfaction with school).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Romantic Problems (e.g. decisions about intimate relationships, conflicts with boyfriends'/girlfriends' family, conflicts with boyfriend/girlfriend).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Societal Annoyances (e.g. getting ripped off or cheated in the purchase of services, social conflicts over smoking, disliking fellow students).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Social Mistreatment (e.g. social rejection, loneliness, being taken advantage of).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Friendship problems (e.g. conflicts with friends, being let down or disappointed by friends, having your trust betrayed by friends).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

Social Support

Please state how much you agree or disagree with the following statements:

Tangible

There is a person or people in my life who would provide tangible support for me when I need it (for example: money for tuition or books, use of their car, furniture for a new apartment).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Belonging

There is a person or people in my life who would provide me with a sense of belonging (for example: I could find someone to go to a movie with me, I often get invited to do things with other people, I regularly hang out with friends).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Emotional

There is a person or people in my life with whom I would feel perfectly comfortable discussing any problems I might have (for example: difficulties with my social life, getting along with my parents, sexual problems).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Positive Personality:

- In general, I feel optimistic about the future (For example: I usually expect the best, I expect more good things to happen to me than bad, It's easy for me to relax)
- I am confident in my ability to solve problems that I might face in life (For example: I can usually handle whatever comes my way, If I try hard enough I can overcome difficult problems, I can stick to my aims and accomplish my goals)
- Overall, I feel that I have positive self-esteem (For example: On the whole I am satisfied with myself, I am able to do things as well as most other people, I feel that I am a person of worth)

Negative Coping:

- When I find myself in stressful situations, I blame myself (e.g., I criticize or lecture myself, I realise I brought the problem on myself).
- When I find myself in stressful situations, I wish for things to improve (e.g. I hope a miracle will happen, I wish I could change things about myself or circumstances, I daydream about a better situation).
- When I find myself in stressful situations, I try to avoid the problem (e.g. I keep things to myself, I go on as if nothing has happened, I try to make myself feel better by eating/drinking/smoking).

Positive Appraisal

- Overall, I feel that I am satisfied with my life (For example: In most ways my life is close to my ideal, so far I have gotten the important things I want in life)

Negative Appraisal

- Overall, how stressful is your life?
- Overall, how often do you feel physically fatigued?
- Overall, how often do you feel mentally fatigued?

Positive outcomes

- Thinking about myself and how I normally feel, in general, I mostly experience positive feelings (For example: I feel alert, inspired, determined, attentive)

Negative Outcomes

- Thinking about myself and how I normally feel, in general, I mostly experience negative feelings (For example: I feel upset, hostile, ashamed, nervous)
- On a scale of one to ten, how anxious would you say you are in general? (e.g. feeling tense or 'wound up', unable to relax, feelings of worry or panic)
- How depressed would you say you are in general? (e.g. feeling 'down', no longer looking forward to things or enjoying things that you used to)

2.8.3.1.2 WPQ short form – for workers.

This WPQ questionnaire is similar to the Student WPQ in the concept and calculations of wellbeing covariates and wellbeing outcome. The scale items measure work circumstances rather than university; like work demands, work stress, and work-Life balance. The measure have proven to have good validity and reliability and provides a multi-dimensional assessment based on DRIVE model. Short WPQ was developed by Williams (2014) to comprise the WPQ original form which consist of 35 items reflecting dimensions from DRIVE model. The scale measures workload, work efficiency, work related stress, negative coping, positive personality, social support, work characteristics, work outcomes, and satisfaction on Likert scale from 1 (not at all) to 10 (strongly agree).

On average, how many hours are you scheduled to be in work a week?

_____

How would you rate your current workload?

	1	2	3	4	5	6	7	8	9	10	
little or no workload	○	○	○	○	○	○	○	○	○	○	very high workload

How stressful do you find your work?

	1	2	3	4	5	6	7	8	9	10	
not at all stressful	○	○	○	○	○	○	○	○	○	○	extremely stressful

How efficiently do you do your work?

	1	2	3	4	5	6	7	8	9	10	
not at all efficiently	○	○	○	○	○	○	○	○	○	○	extremely efficiently

To what extent does your job have negative characteristics (e.g. high demands; requires a lot of effort; little consultation on change; role conflict; issues with other members of staff)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

To what extent does your job have positive characteristics (e.g. control over what you do or how you do it; support from colleagues; support from managers; appropriate rewards)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much part of my life

To what extent do you try to cope with problems in a positive way (e.g. you focus on the problem and try and solve it; you get social support)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

To what extent do you deal with problems in a passive way (e.g. avoid them; use wishful thinking; blame yourself)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

Do you have a high level of well-being (e.g. high satisfaction; a positive mood; happiness)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

Do you have a low level of well-being (e.g. stress; anxiety; depression)?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

Are you satisfied with your job?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	very much so

How much stress do you have at work?

	1	2	3	4	5	6	7	8	9	10	
None	○	○	○	○	○	○	○	○	○	○	an extreme amount

Are you anxious or depressed because of work?

	1	2	3	4	5	6	7	8	9	10	
Not at all	○	○	○	○	○	○	○	○	○	○	Very much so

Are you happy at work?

	1	2	3	4	5	6	7	8	9	10	
not at all	○	○	○	○	○	○	○	○	○	○	very much so

Does your job interfere with your life outside of work?

	1	2	3	4	5	6	7	8	9	10	
not at all	○	○	○	○	○	○	○	○	○	○	very much so

Does your life outside of work interfere with your job?

	1	2	3	4	5	6	7	8	9	10	
not at all	○	○	○	○	○	○	○	○	○	○	very much so

3.8.4 Work-life balance measure.

Through the work life balance measure, Greenhaus, Collins, and Shaw (2003) identified three main components in work–family balance: time balance, involvement balance, and satisfaction balance. Greenhaus et al. (2003) suggested that work-life

balance occurs if the individual spends equal time between work and family, has equal psychological involvement, and equal satisfaction with work and family roles. The style of measurement supports the continuum theory, by using Deephouse's (1996) calculations in creating - 1 to +1 scale, the balance is represented by zero which reflects a balanced time, satisfaction or involvement in both work-family roles. The work-life imbalance occurs on either side of zero, +1 scores represent work-leaning imbalance and -1 score indicating a family-leaning imbalance (McMillan, Morris, & Atchley, 2008). The work life balance measure is a validated and reliable measure and consists of seven items. Participants were asked to answer by reflecting upon the items in their work and non-work activities over the past few months. Answers were on a five-point Likert scale, where 1 is (strongly disagree) and 5 is (strongly agree). High scores indicate a good balance between work and other life roles (Shiels et al., 2014).

Work-Life Balance Scale

1. I currently have a good balance between the time I spend at work and the time, I have available for non-work activities.
2. I have difficulty balancing my work and non-work activities.
3. I feel that the balance between my work demands and non-work activities is currently about right.
4. Overall, I believe that my work and non-work life are balanced.
5. What is the relative importance to you of your work and non-work activities?
6. Are work or non-work activities more prominent to you at the moment?
7. Do you currently receive more value (e.g., self-esteem, satisfaction) from your work or non-work activities?

3.8.5 Bergen social media addiction scale (BSMAS).

This scale was used to determine whether a specific type of internet addiction which is social networks addiction, influenced wellbeing, which Young (1998) classified one of the addictive activates online like texting and emailing. The Social Media Addiction Scale is an adaptation of the Bergen Facebook Addiction Scale (BFAS) and is a validated and reliable measure α=.83 to explore the social media user addiction (Andreassen et al., 2012). The scale contains six potential addiction components suggested by Brown (1993) and Griffiths (1996), salience, tolerance, withdrawal, mood modification, relapse and conflict (Andreassen et al., 2012). The social media scale consist of six items, are answered on a 5-point Likert scale; ranging from 1-5, where (1) is *very rarely* and (5) is *very often*, regarding experiences during the past year, e.g., "How often during the last year have you tried to cut down on the use of social media without success?"

Bergen Social Media Addiction Scale

1. How often during the last year have you spent a lot of time thinking about social media or planned use of social media?
2. How often during the last year have you felt an urge to use social media more and more?
3. How often during the last year have you used social media in order to forget about personal problems?
4. How often during the last year have you tried to cut down on the use of social media without success?
5. How often during the last year have you become restless or troubled if you have been prohibited from using social media?
6. How often during the last year have you used social media so much that it has had a negative impact on your job/studies?

3.8.6 Demographics.

In order to analyse and control for the influence of demographic factors and their association with information overload, internet addiction and wellbeing, in all empirical studies, participants were asked about age, weight, height, sleep, general health, smoking, and (for workers) annual income. The importance of asking about demographics lies in the ability to control the effects of their influence on wellbeing outcome like the influence of general health, sleep quality or smoking on wellbeing outcomes, and for further analysis to analyse their influence if significant on information overload, and internet addiction on wellbeing.

3.8.7 Internet activities measure.

Participants were asked about their most used internet activity in the empirical research in Chapters 6 and 7. The internet activity measure was developed by choosing from six main internet activities which were demonstrated in: 1) study/work related use, 2) entertainment use such as watching videos, movies and music, 3) social networking sites (SNS) such as social platforms, 4) online gaming, 5) online shopping and 6) adult websites. And how often it is used through a five point Likert scale ranging from "never" to "very often", participants respond on how often they use each internet activity. The most used internet activity and their influence on wellbeing outcomes, academic attainment, and work-life balance were explored in Chapters 6 and 7. Below is the internet content use measure which was designed by the researcher.

Internet Content Use Measure

Please indicate to which extent you use each type of internet content. Response options are never (1), rarely (2), sometimes (3), often (4), and very often (5).

Internet content	Never	Rarely	Sometimes	Often	Very often
Study/work related use	1	2	3	4	5
Entertainment related use (watching videos and listening to music)	1	2	3	4	5
SNS use (conversations and social interaction)	1	2	3	4	5
Game use	1	2	3	4	5
Shopping	1	2	3	4	5
Adults websites	1	2	3	4	5

Overall, this chapter has provided the rationale behind the selected measurements used to carry out the research. The next chapter involves the first empirical study assessing the association of information overload and internet addiction influence on wellbeing, built on previous literature.

CHAPTER 4

THE IMPACT OF INFORMATION OVERLOAD AND INTERNET ADDICTION ON WELLBEING AND COURSE PERFORMANCE ON UNIVERSITY STUDENTS FROM KUWAIT AND UK

4.1 Introduction

Building on the literature review findings in the previous chapter, there are three primary objectives and a number of research questions that will be addressed in this study. The first objective is to identify the association between internet addiction and information overload, to apply a holistic theoretical framework to examine the relationship between internet addictions, information overload and wellbeing, and to understand the influence of cultural differences on the association between information overload, internet addiction and wellbeing.

Chapters 4 and 5 contain the data from two studies from two different cultures. They serve to clarify the difference culture makes in the influence of information overload and internet addiction on wellbeing. Using the WPQ scale, which is a multidimensional framework to cover all predictors, appraisals and outcomes of university students' wellbeing. The two studies provide a comprehensive and comparable study of internet addiction and information overload on a sample of Kuwait University students and a sample of Cardiff University students. This is the first study to investigate the internet addiction and information overload association, and the internet addiction and information overload association with wellbeing, using a holistic approach considering many variables, including culture.

The study participants, who were university students, are frequent information users due to their education needs and part-time jobs, in addition to their regular internet use for either academic or leisure purposes. A recent study in 2016 identified all adults (99.2%) in the UK aged 16 to 24 years as recent internet users (Office for National Statistics, 2016). In Kuwait, 96% of Middle East University students constantly use the internet on their phones (Central Agency for Information Technology, 2016). In the College of Social Science, Kuwait University, 43.6% of students spend 15-28 hours per week online (Hamade, 2009). The easy and constant access to the internet on

smartphones makes it easier for users to be connected 24/7. Hawi and Samaha (2017) noted that students who were at a high risk of smartphone addiction are less likely to have a high GPA, confirming that it affects students' course performance.

The aim of this study was to define the relationship between information overload and internet addiction and examine to what extent information overload and internet addiction predicts the university students' wellbeing, and course performance, whilst also investigating the influence of cultural differences between Kuwait and the UK.

There is no previous study that addresses the association of information overload and internet addiction as the main and evolving information age complications. Both variables have been found to have a negative psychological influence on the individual's life flow and work performance. However, the association, and causality of the two variables have not yet been explored. There are not enough information overload studies that have explored the impact on students, even though students are high information users. Studies of information overload have focused on workers and companies. A study by Suhaimi and Hussain (2017) emphasised the lack of literature that focussed on the impact information overload can have on students' academic performance, as well as the importance of studying this topic.

No previous studies have explored the association between information overload and cultural differences. Although the majority of internet addiction literature on adults focuses on university students, only a few studies have investigated the impact of internet addiction on students' academic performance. The results indicate a negative association between academic performance and internet addiction (Min-Pei et al., 2011; Skues et al., 2016).

In this study, academic challenges were measured using a short form of the Inventory of College Students' Recent Life Experiences (ICSRLE). These include development challenges, social mistreatment, and time pressures (Kohn, 1990). This will allow for a complete perspective of information overload influence on students' wellbeing and academic performance, while controlling for other known predictors.

Only one study was found to have investigated cross-cultural differences in the effects of internet use. Quinones and Kakabadse (2015) investigated the association between self-concept clarity, social support and compulsive internet use (CIU) on two adult samples from a US (n=268) and an UAE sample (N=270). The results revealed that CIU is strongly related to low social support and self-concept clarity in the US sample. In contrast, self-concept clarity and CIU were weakly associated in the UAE sample, due to cultural differences in levels of self-concept clarity. However, the study only addressed social support without addressing wellbeing in a multidimensional approach.

4.2 Cultural Differences

Cross-cultural differences were investigated based on the model described in Chapter 2. These results are described in Chapter 5.

4.3 Research Questions

The studies addressed the following questions:

1) To what extent information overload and internet addiction influence students' wellbeing and academic performance?
2) How is perceived information overload associated with internet addiction among students?
3) How would the cultural differences between Kuwaiti and British students influence information overload and internet addiction on students' wellbeing? (This is covered in detail in Chapter 5).

4.4 Method

The two studies, one in the UK and another in Kuwait, investigated the cross-sectional association between information overload, internet addiction and wellbeing, as well as academic performance using a multivariate approach. Each study was initially analysed separately using a univariate analysis followed by multivariate analyses (see Chapter 5) and a direct comparison of the combined data.

4.5 Ethical Approval

The research (both studies) received ethical approval from the ethics committee, School of Psychology, Cardiff University.

4.6 Sample Size Consideration

In defining the appropriate sample size, the Tabachnick and Fidell (2014) equation was taken into consideration. Tabachnick and Fidell (2014) suggested the following formula for sample size consideration, considering the number of independent variables that you are willing to use in the regression analyses: $N \geq 50 + 8m$ (m = number of independent variables). A medium size relationship between dependent and independent variable was assumed, with $\alpha = .05$, $\beta = .20$ and eleven independent variables in the regression model, $N \geq 50 + (8)\ (11) = 138$. A sample size of at least 138 would be appropriate.

4.7 Design

A cross-national study measured two independent variables: information overload and internet addiction. Covariates were the established predictors of well-being and attainment. The dependent variables were wellbeing outcomes and student's academic performance.

4.8 Participants

4.8.1 Study 1- Kuwait University students.

One hundred and ten (110) Kuwait University undergraduate students from the College of Social Sciences participated in the study in the summer course 2014, as a part of their course requirements. Seventy-four were females (70%), and their mean age was 21 years old (range= 18-39, SD= 3.5).

The questionnaires were translated into Arabic with the help of Professor Othman AlKheder and Professor Taghreed AlQudsi from Kuwait University, and then a pilot study was conducted on 12 KU students to test the validity and reliability of the translated questionnaires. Information overload questions about emails were changed to ‘messages' instead to cover different text messages, because emails are not commonly used among KU students (see Appendix for Arabic version of the questionnaire). Consent forms, instructions and debrief forms were distributed with the questionnaires. The aim of the study was explained to the students prior to answering; students were given all relevant information.

4.8.2 Study 2 - Cardiff university students.

One hundred and seventy-nine (179) first year psychology undergraduate students participated in the study as part of their course requirements. The majority of the sample population (91%) were females. This percentage is to be expected within psychology which is a discipline known for having a strong female bias. The age range was 18-50 years; 89.9% were 18-21 years old. Course and exam scores were collected by the end of the course using students' ID numbers.

Questionnaires were completed electronically in a computer laboratory at the beginning of the 2014/2015 academic year. Consent were the key features of voluntary participation, freedom to withdraw, anonymous databases, instructions and debrief forms were provided at the start and the end of the study. The Ethics Committee at Cardiff University's School of Psychology provided ethical approval.

4.9 Measuring Instruments

The survey included the perceived information overload scale, which consisted of 16 items measuring cyber and environmental information overload **(**Misra & Stokols, 2011**)**. Internet addiction test which consisted of 20 items examined the use of the internet for non-academic or non-job purposes during the last month with items measuring addiction based on DSM-IV criteria of pathological gambling (Young, 1998). The Student WPQ is a multidimensional scale of wellbeing which includes a measure of stressors based on students' circumstances and factors. It also measured other wellbeing predictors based on the DRIVE model: negative coping, social support, and positive personality (self-efficacy, self-esteem and optimism) (William & Smith, 2017). All measures used were described in detail in Chapter 2.

Students were asked about perceived course performance, course stress and work quality to measure students' academic performance and conscientiousness, which is an established predictor of academic attainment. Demographic data were collected to measure general health, gender, age, sleep quality, height and weight, and smoking. The importance of recording demographic data is to control for their influence on information overload, internet addiction and outcomes, and to have a clear result that reflects the association of internet addiction and information overload with wellbeing and academic performance.

4.10 Analysis Strategy

SPSS 20.00 was used to conduct all statistical analyses. Data met the assumption of normality. The reliability of the scales was tested by Cronbach alpha coefficients. Pearson univariate correlations were conducted to evaluate the strength of the relationships among information overload (independent variable), internet addiction (independent variable), wellbeing total outcome (dependent variable) and wellbeing factors (dependent variables), using Cohen standards (1988). The scores were also dichotomized based on thresholds of internet addiction and information overload scores to identify the level that predicts wellbeing. Further analysis were conducted using http://comparingcorrelations.org to compare the two samples correlation through converting r to z value to compare the strength of correlation and the differences of the two samples (Diedenhofen & Musch, 2015).

4.11 Results and Discussion

4.11.1 Kuwait university sample results.

4.11.1.1 Reliability.

Cronbach alpha coefficients were calculated for information overload and internet addiction. Cronbach's alpha coefficients were evaluated using the guidelines suggested by George and Mallery (2016), where > .9 excellent, > .8 good, > .7 acceptable, > .6 questionable, > .5 poor, and ≤ .5 unacceptable. The items for IO had a Cronbach's alpha coefficient of 0.78, indicating acceptable reliability. The items for internet addiction had a Cronbach's alpha coefficient of 0.93, indicating excellent reliability.

4.11.1.2 Pearson correlation analysis.

A Pearson correlation analysis was conducted among information overload, internet addiction and wellbeing predictor variables (social support, belonging, positive personality, negative coping and stressors) and outcomes, and academic attainment. A high score of wellbeing outcomes in this study reflects a negative wellbeing outcome, and a high score of academic performance reflects a high perceived academic achievement. Cohen's standard was used to evaluate the strength of the relationships, where coefficients between .10 and .29 represent a small association, coefficients between .30 and .49 represent a moderate association, and coefficients above .50 indicate a large association (Cohen, 1988). A Pearson correlation requires that the

relationship between each pair of variables is linear (Conover & Iman, 1981). This assumption is violated if there is curvature among the points on the scatterplot between any pair of variables.

There was a significant positive correlation between information overload and internet addiction ($r = 0.36$, $p < .00$). This correlation coefficient between information overload and internet addiction indicated a moderate relationship. There was a significant positive correlation between information overload and total negative outcome ($r = 0.20$, $p < .03$), indicating a small relationship. There was a significant positive correlation between internet addiction and negative coping ($r = 0.25$, $p < .008$; small relationship) and a significant positive correlation between internet addiction and total negative outcome ($r = 0.20$, $p < .001$, small relationship). The correlation coefficient between information overload and internet addiction was 0.20, indicating a small relationship, and as internet addiction increases, negative outcome scores increase. Perceived course performance was significantly correlated with information overload (r=0.31, p= .001), which indicates a moderate relationship. Perceived course performance was significantly correlated with stressors (r= .28, p< .00) and course performance was also correlated with negative wellbeing outcome (r= .21, p= .02). Wellbeing factor correlations were as predicted. Table 4.1 presents the results of the correlations.

Table 4.1 Pearson Correlation Matrix among Information Overload, Internet Addiction and Wellbeing Factors: Social Support, Positive Personality, Negative Coping, Stressors, Total Outcome

Variable	1	2	3	4	5	6	7
1. Information overload	-						
2. Internet addiction	.36**	-					
3. Social support	.06	.10	-				
4. Positive personality	.12	-.09	.11	-			
5. Negative coping	.16	.25**	.24*	.09	-		
6. Stress	.12	.18	.16	-.16	.19*	-	
7. Total wellbeing outcome	.20*	.34**	.25*	-.27	.48**	.43*	-
8. P.Course performance	.31**	.14	.04	.04	.10	.28**	.21*

Note. The critical values are 0.19, 0.25, and 0.32 for significance levels .05, .01, and .001 respectively.

4.11.1.3 Information overload, internet addiction and the overall wellbeing outcome (high scores = low wellbeing).

The results of the linear regression model were significant ($F(3,103) = 4.89$, $p < .00$, $R^2 = .099$) indicating that approximately 10% of the variance in the wellbeing outcome was explained by information overload and internet addiction. Information overload significantly predicted reduced wellbeing ($B = 0.48$, $t(103) = 2.01$, $p = .04$), as did internet addiction ($B = 0.52$, $t(103) = 2.96$, $p = .001$). These results (Table 4.2) show that while information overload and internet addiction are correlated, they have some independent effects on wellbeing.

Table 4.2 Results for Multiple Linear Regression with Information Overload and Internet Addiction Predicting Wellbeing Outcome

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	32.54	3.4		9.46	.53
Information overload	.09	.06	.12	1.59	**.04**
Internet addiction	.22	.07	.24	3.20	**.001**

Note. $F(3,103) = 4.89$, $p < .00$, $R^2 = .1$

4.11.1.4 Information overload, internet addiction and perceived work efficiency.

Perceived academic efficiency was assessed by a single question with a 10-point rating scale:

How efficiently do you do your university work (1=not at all efficiently, 10 = extremely efficiently)?

1 2 3 4 5 6 7 8 9 10

Information overload and internet addiction were both included in a regression with academic efficiency as the outcome; neither had a significant effect.

A summary of the findings from the Kuwait sample indicates that information overload and internet addiction were significantly associated, and information overload was associated with negative wellbeing. Internet addiction was associated with negative wellbeing and negative coping. Neither variable was associated with perceived academic performance.

4.11.2 Cardiff University sample results.

4.11.2.1 Reliability.

Cronbach alpha coefficients were calculated for the information overload and internet addiction scales. The information overload scale had a Cronbach's alpha coefficient of 0.84, indicating good reliability. The internet addiction scale had a Cronbach's alpha coefficient of 0.89, indicating good reliability.

4.11.2.2 Pearson correlation analysis.

There was a significant positive correlation between information overload and internet addiction (r = .32, p = .00) indicating a moderate relationship. There was a significant positive correlation between information overload and negative coping (r = .29, p = .00). The correlation coefficient between information overload and negative coping was 0.29, indicating a small relationship. This indicates that as information overload increases, negative coping tends to increase. There was a significant positive correlation between information overload and stress (r = .33, p = .00). There was a significant positive correlation between information overload and negative outcomes (r = 0.28, p < .00), indicating a small relationship. This indicates that as information overload increases, negative outcomes tend to increase. There was a significant negative correlation between internet addiction and social support (r = -.18, p = .01), indicating a small relationship. This indicates that as internet addiction increases, social support tends to decrease.

There was a significant negative correlation between internet addiction and positive personality (r = -.22, p = .00), indicating a small relationship. There was a significant positive correlation between internet addiction and negative coping (r = .30, p = .00), indicating a moderate relationship. This indicates that as internet addiction increases, negative coping tends to increase. Research shows that internet addicts use the internet to escape problems and to avoid unpleasant life situations (Young, 2008). There was a significant positive correlation between information overload and negative outcomes (r = 0.28, p < .00). The correlation coefficient between internet addiction and negative outcome was 0.20. This confirms previous studies that suggest internet addiction is associated with low wellbeing. Table 4.3 presents the results of the correlations.

Academic performance was not significantly correlated with information overload or internet addiction.

Table 4.3. Pearson Correlation Matrix among Information Overload, Internet Addiction and Wellbeing Factors: Social Support, Positive Personality, Negative Coping, Stressors, and Wellbeing Outcome

Variable	1	2	3	4	5	6	7
1.Information Overload	-						
2. Internet Addiction	.32**	-					
3. Social support	-.14	-.18*	-				
4. Positive personality	-.10	-.22**	.33**	-			
5. Negative coping	.29**	.30**	-.16*	-.29**	-		
6. Stress	.33**	.12	-.23**	.38**	.46**	-	
7. Well-being Outcome	.28**	.20**	-.80	-.46**	.39**	.54**	
8.Academic performance	-.04	-.11	.11	.03	-.03	-.05	-.004

Note. The critical values are 0.15, 0.19, and 0.25 for significance levels .05, .01, and .001 respectively.

4.11.2.3 Information overload, internet addiction and the wellbeing outcome

This analysis included both information overload and internet addiction and their interaction. The results of the linear regression model were significant (F (3,177) = 6.49 $p < .001$, $R^2 = .11$), indicating that approximately 11% of the variance in wellbeing outcome can be explained by information overload, internet addiction and their interaction. Both internet addiction ($t = 2.4$, $p < 0.05$) and information overload ($t = 2.676$, $p < 0.01$) were associated with wellbeing but their interaction was not significant ($p = 0.988$).

4.11.2.4 Information Overload, Internet Addiction Predicting and Academic Performance

The results of the linear regression model were not significant in predicting information overload and internet addiction variance on course performance (F(3,177) = 1.19, $p <$ .30, $R^2 = .01$). This indicates that neither information overload, internet addiction, nor

the information overload*internet addiction interaction explained a significant proportion of variation in course performance, confirming the results from the univariate correlations. Since the overall model was not significant, the individual predictors were not examined further.

The summary of the Cardiff sample analysis confirms the strong association of information overload and internet addiction. Information overload was associated with negative coping, stress and negative wellbeing. Internet addiction was associated with negative coping and negative wellbeing. Internet addiction was negatively associated with social support and positive personality. Although internet addiction and information overload were correlated there was evidence of independent effects on wellbeing. Neither internet addiction nor information overload influenced academic attainment; there were no significant interactions between information overload and internet addiction.

4.12 Correlation Comparison

A Correlation comparison was conducted to investigate whether there were any significant differences between the two samples in the association of IO and IA, IO and WB, IA and WB. By converting r value to z value, the results revealed that there were no significant differences between the two samples in the correlations (see Table 4.4 Appendix C for more details).

4.13 Discussion

Both samples showed a significant correlation between information overload and internet addiction. Both of these variables were correlated with well-being outcomes and established predictors of wellbeing in both samples. This shows that further analyses controlling for established predictors are required. There were some differences between the two samples for associations within the wellbeing process. In the KU sample, social support was associated with negative coping and negative wellbeing outcomes, whereas in the CU sample, support is negatively associated with negative coping and stress. The differences in the association between the two samples can be explained by De Mooij and Hofstede's model (2010), and more specifically, the second dimension of individualism which indicates the difference between UK and Kuwait culture is the family support. The differences between the two cultures indicate

that if an individual experiences negative wellbeing, then they will find support and more care from their family/society, while in the UK, social support is a predictor of positive wellbeing.

Different results for course performance were obtained for the two groups. This probably reflects the different measures used for the two samples. The KU sample answered a question on their perceived course performance results, since data were collected in the middle of the semester. In the CU sample, survey data were collected at the beginning of the course, and students' course performance grades were gathered at the end of the course, which reflects the objective course performance (coursework and examination marks).

The next section extends these initial analyses. The section combines the data from the two samples to examine cultural differences, controlling for other predictors in the analyses and conducting analyses on positive and negative appraisals and outcomes. Factor scores as well as total scores were used and the information subdivided for information overload and internet addiction scores at thresholds to compare extreme groups.

CHAPTER 5

THE ROLE OF CULTURE DIFFERENCES IN THE IMPACT OF INFORMATION OVERLOAD AND INTERNET ADDICTION ON WELLBEING AND COURSE PERFORMANCE

5.1 Introduction

Based on the previous chapter objectives and univariate results, information overload and internet addiction were found to be highly associated, while differences between the two samples were observed. One of the issues noted in the previous chapter was the small sample size but by combining the two data sets, a good sample size was obtained. A further multivariate analysis of the combined samples was now needed to determine whether the effects of information overload and internet addiction on wellbeing remain when established wellbeing factors were included in the analyses. To investigate the cultural influence on information overload and internet addiction, an extension of the analysis is included by also analysing the threshold and factor scores of information overload and internet addiction on wellbeing.

5.2 Statistical Analysis

Factor analysis was conducted for the information overload and internet addiction scales. These factors were then tested in a hierarchical regression analysis similar to the previous analyses, to test which factors of information overload and internet addiction played a major role in predicting wellbeing total outcomes.

By multiplying the sum of information overload and internet addiction, a new variable was generated that measured the interaction between information overload and internet addiction. The information overload*internet addiction variable was added as an independent variable with information overload and internet addiction to each regression equation. A multiple linear regression was conducted to assess the association of information overload and internet addiction on the students' course performance. The KU sample was gathered in the middle of the summer course, so students were asked about their perceived study efficiency. For the CU sample the study

was conducted at the beginning of the course, so course and exam scores were retrieved at the end of the course.

The "Enter" variable selection method was chosen for the linear regression model. In a further analysis, wellbeing predictors were controlled in a hierarchical regression analysis to test if the information overload and internet addiction effects still existed on the overall wellbeing outcome, and on each wellbeing outcome individually.

A stepwise regression analysis was conducted with the same procedures, controlling for wellbeing predictors to predict wellbeing outcome factors (positive appraisal, positive wellbeing, negative appraisal, negative wellbeing) separately and to identify which of the factors information overload and internet addiction significantly predicted the outcomes. The assumption of normality was assessed by plotting the quartiles of the model residuals against the quartiles of a Chi-square distribution, also called a Q-Q scatterplot (DeCarlo, 1997).

A new internet addiction categorical variable was generated using a threshold ranking for internet addiction, where scores from 20-49 represented a controlled internet use and were ranked 1, and scores 50-100 representing frequent to high life problems caused by internet addiction were ranked 2. A univariate ANOVA was conducted to determine whether there was a significant influence of high and low internet addiction scores on wellbeing factors.

The two samples were combined, and a multiple linear regression analysis was conducted to evaluate whether information overload and internet addiction predict wellbeing outcome with wellbeing predictors as covariates (Chapter 4). Cultural influences were measured through Stepwise multiple regression analysis, and two new variables were generated through multiplying information overload by the culture variable, and internet addiction multiplied by the culture variable, to test whether this interaction would reveal an association of student's wellbeing after controlling for the influence of wellbeing predictors.

5.3 Combined Data Results

5.3.1 Variable frequencies and percentages.

The IAT results were classified into three categories based on the internet use, where 62.7% of the combined sample population scored as normal internet users, 36.6% scored as problematic internet users, and 0.7% scored as internet addicts. Females were the most frequently observed gender category (*n* = 192, 68%) and the most frequently observed category of age was below 19 years (n = 115, 41%). Table. 5.1 presents the frequency data.

Table 5.1 Variables Frequency Table

Variable	*N*	*%*
Internet addiction	267	
Non- PIU	175	61
PIU	102	39
Internet Addiction	2	
Gender	163	
Female	192	68
Male	89	32
Age		
21 and Above	86	31
Below 19 yrs.	115	41
From 19 to 20 yrs.	76	27
Sleeping quality (good)	128	45
Sleep 7 hours or more	177	61
Smokers	29	10
Good Health	189	65
Missing	4	1

5.3.2 Reliability.

Cronbach alpha coefficients were calculated for the following scales: information overload and internet addiction. The items for IO had a Cronbach's alpha coefficient of 0.85, indicating good reliability while the items for internet addiction had a Cronbach's

alpha coefficient of 0.92, indicating excellent reliability. Table 5.2 presents the results of the reliability analysis.

Table 5.2 Reliability Table for Information Overload and Internet Addiction

Variable	No. of Items	A
Information overload	16	0.85
Internet addiction	20	0.92

5.3.3 Pearson correlation analysis.

A Pearson correlation analysis was conducted for information overload, internet addiction and wellbeing variables: social support, positive personality, negative coping, stressors, and total outcome. Cohen's (1988) standard was used to evaluate the strength of the relationships. It was found that there was a significant positive correlation between information overload and internet addiction (r = .33, p = .00). The association between wellbeing factors was as predicted. Table 5.3 presents the results of the correlations.

Table 5.3. Pearson Correlation Matrix among Information Overload, Internet Addiction and Wellbeing Factors: Social Support, Positive Personality, Negative Coping, and Stressors, and Wellbeing Outcomes (high scores=low wellbeing)

Variable	1	2	3	4	5	6
1. Information Overload	-	-	-			
2. Internet Addiction	.33**	-	-			
3.Social support	.20**	.14*	-			
4. Positive personality	-.07	-.18**	.11	-		
5. Negative coping	.16**	.21**	-.01	.14	-	
6. Stressors	.29**	.16**	.04	-.31**	.32**	-
7.Outcome	.24**	.27**	.07	-.29**	.43**	.50**

Note. The critical values are 0.12, 0.15, and 0.20 for significance levels .05, .01, and .001 respectively.

5.3.4 Information overload and internet addiction predicting wellbeing outcome.

The results of the linear regression model were significant ($F(3,270) = 9.64$, $p < .00$, $R^2 = 0.088$), indicating that approximately 8.8% of the variance in wellbeing outcome can be explained by information overload and internet addiction. Internet addiction significantly predicted the wellbeing outcome ($B = 0.15$, $t(280) = 2.43$, $p = .016$). Information overload significantly predicted the wellbeing outcome, ($B = 0.12$, $t(280) = 3.22$, $p = .001$). The interaction between information overload and internet addiction was not significant in predicting wellbeing outcome. Table 5.4 summarises the results of the regression model.

Table 5.4 Results for Multiple Linear Regression with Information Overload and Internet Addiction Predicting Wellbeing Outcome

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	36.05	1.94		18.08	< .000
Perceived information overload	.12	.038	.20	3.22	.001
Internet addiction	.12	.053	.15	2.43	.016
Information overload*Internet addiction	.00	.001	.029	0.49	.620

Note. $F(3,270) = 9.64$, $p < .00$, $R^2 = 0.088$

Since information overload and internet addiction were significantly correlated with most wellbeing predictors, a hierarchical regression analysis was performed which controlled for wellbeing predictors (confounding factors) to understand whether the information overload and internet addiction would still be significantly associated with the wellbeing outcome. The interaction of information overload*internet addiction was not significant in predicting wellbeing which confirms that information overload and internet addiction have independent effects and do not interact.

5.3.5 Information overload and internet addiction predicting the wellbeing outcome controlling for established wellbeing predictors.

After controlling for demographics (gender, smoking, sleeping quality and health) in the first step of the Stepwise multiple regression, in order to control their influence and association with wellbeing outcomes, were previous studies (Hamilton, 1991; Norlander, Johansson, & Bood, 2005; Thoits, 1992; Wittman, Paulus, & Roenneberg,

2010), and correlation findings has confirmed their association with wellbeing outcome. Wellbeing predictors were entered in step two. The model was significant, and the demographics explained 16% of the variance in wellbeing outcome. Wellbeing predictors explained 41% of the variance in the wellbeing outcome. After the entry of information overload and internet addiction, at step 3, the total variance explained by the model as a whole was 43% (F (11, 266) = 17.50, $p < .00$, $R^2 = 0.43$), information overload and internet addiction explained an additional 2% of the variance in wellbeing outcome after controlling for demographics and wellbeing factors. Information overload did not significantly predict wellbeing outcomes (information overload results; $B = .037$; t (266) = .79, $p = .42$) which indicates that the effect of information overload on the wellbeing outcome could largely be explained by the established predictors of wellbeing. However, internet addiction was still significant in predicting the wellbeing outcome ($B = .069$, t(266) = 2.13, $p = .033$). The interaction between information overload and internet addiction was not significant in predicting wellbeing outcome. Table 5.5 summarises the results of the regression analysis.

Table 5.5 Results for Multiple Stepwise Regression with Information Overload and Internet Addiction Predicting Wellbeing Outcome

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	33.44	5.8		5.73	.00
Gender	-1.00	1.3	-.04	-.75	.45
Smoking	.106	1.5	.004	.067	.94
Sleep quality	-1.72	.62	-.14	-2.78	.00
General health	-.80	.22	-.18	-3.56	.00
Stressors	.25	.04	.30	5.52	.00
Social support	.16	.07	.10	2.09	.03
Positive personality	-.09	.06	-.07	-1.37	.17
Negative coping	.41	.08	.24	4.62	.00
Information Overload	.037	.04	.04	.795	.42
Internet Addiction	**.069**	**.03**	**.11**	**2.13**	**.03**
Information Overload*Internet Addiction	.001	.001	.05	1.07	.28

Note F(11, 266) = 17.50, $p < .00$, $R^2 = 0.43$

5.3.6 Information overload and internet addiction predicting positive appraisal controlling for established wellbeing predictors.

The next set of analyses tested the influence of information overload and internet addiction on the wellbeing outcomes and appraisals individually, while controlling for the demographics and the established wellbeing predictors as performed in the last analysis. A stepwise multiple regression was performed to evaluate the ability of information overload and internet addiction to predict positive appraisal (life satisfaction) after controlling for the influence of demographics and wellbeing predictors. The demographics were entered at Step 1 and they accounted for 8.5% of the variance in positive appraisal, while wellbeing factors were entered at Step 2 accounting for 25% of variance in positive appraisal. After the entry of information overload and internet addiction at Step 3, the total variance explained by the model as a whole was 34.3% (F (11,266) = 12.07, $p < .00$, $R^2 = 0.343$). Information overload and internet addiction did not significantly predict positive appraisal (information overload results: B = -.004, t(266) = -.31, p = .75; internet addiction results: B = .005, t(266) = .61, p = .53). The information overload and internet addiction interaction were not significant in predicting positive appraisal. Table 5.6 (see appendix C) summarises the results of the regression model.

5.3.7 Information overload and internet addiction predicting positive wellbeing controlling for established wellbeing predictors.

The stepwise multiple regression was conducted to evaluate the ability of information overload and internet addiction to predict positive wellbeing (positive affect) after controlling for the influence of demographics and wellbeing factors. Demographics accounted for 10% of the variance, while wellbeing factors were entered at step 2 totalling 45.3% of variance in positive wellbeing. After the entry of information overload and internet addiction at Step 3 the total variance given by the model as a whole was 45.7% (F(11,266) = 19.52, $p < .00$, $R^2 = 0.457$). However, neither information overload nor internet addiction significantly predicted positive wellbeing (information overload results: B = -.005, t (266) = -.40, p = .69; internet addiction results: B = .009, t(266) = -1.13, p = .25). The information overload and internet addiction interaction were not significant in predicting positive appraisal. Table 5.7 (see Appendix C) summarises the results of the regression model.

5.3.8 Information overload and internet addiction predicting negative appraisal controlling for established wellbeing predictors.

The stepwise multiple regression was conducted to evaluate the ability of information overload and internet addiction to predict negative appraisal (perceived stress and fatigue) after controlling for the influence of demographics and wellbeing factors. Demographics were entered at Step 1 accounting for 17.3% of the variance in negative wellbeing, while wellbeing factors were entered at Step 2 and accounted for 34.5% of variance in negative appraisal. At step 3, information overload and internet addiction increased the total variance explained by the model to 37.6%, ($F(11,266) = 13.98$, $p < .00$, $R^2 = 0.37$). Information overload significantly predicted negative appraisal, ($B = .08$, $t(266) = 2.6$, $p = .008$). Internet addiction did not predict negative appraisal, ($B = .027$, $t(266) = 1.2$, $p = .21$), and the information overload and internet addiction interaction was not significant in predicting negative appraisal. Table 5.8 summarises the results of the regression model.

Table 5.8. Results for Multiple Stepwise Regression with Information Overload and Internet Addiction Predicting negative appraisal

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	15.56	3.926		3.96	.00
Gender	-.60	.89	-.039	-.67	.50
Smoking	-.70	1.06	-.037	-.66	.50
Sleep quality	-1.7	.41	-.223	-4.14	.00
General health	-.43	.15	-.155	-2.87	.00
Stress	.10	.03	.197	3.42	.00
Social support	.06	.05	.061	1.15	.25
Positive personality	-.08	.04	-.097	-1.75	.08
Negative coping	.22	.06	.210	3.83	.00
Information Overload	**.08**	**.03**	**.15**	**2.65**	**.008**
Internet Addiction	.02	.02	.070	1.23	.21
Information overload*Internet addiction	.00	.00	.014	.27	.78

Note. F (11,266) = 13.98, $p < .00$, $R^2 = 0.37$.

Finding an effect of information overload on negative appraisal is logical and confirms the results from previous studies. Negative appraisal is the sum of life stress, mental and physical fatigue and these are the main symptoms of information overload: mental fatigue and feeling stressed because of the overflow of information.

5.3.9 Information overload and internet addiction predicting negative wellbeing controlling for established wellbeing predictors.

A stepwise multiple regression was conducted to evaluate the ability of information overload and internet addiction to predict negative wellbeing (anxiety, depression and negative affect) after controlling for the influence of demographics and wellbeing predictors. Demographics were entered at Step 1, accounting for 15.6 % of the variance in negative wellbeing, while wellbeing factors were entered at Step 2, accounting for 52% of the variance in negative wellbeing. At Step 3, information overload and internet addiction increased the total variance of the model to 54%, ($F(11,266) = 27$, $p < .00$, $R^2 = .54$). Internet addiction significantly predicted negative wellbeing ($B = .04$, $t(266) = 2.3$, $p = .02$), however, information overload did not predict negative wellbeing ($B = -.038$, $t(266) = -1.3$, $p = .18$). The information overload and internet addiction interaction was not significant in predicting negative wellbeing. Table 5.9 summarises the results of the regression model.

Table 5.9. Results for Multiple Stepwise Regression with Information Overload and Internet Addiction Predicting Negative Wellbeing

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	18.17	3.56		5.10	.00
Gender	-.12	.81	-.007	-.148	.88
Smoking	-.63	.96	-.03	-.65	.51
Sleep quality	-.70	.37	-.08	-1.86	.06
General health	-.48	.13	-.16	-3.50	.00
Stress	.17	.02	.29	6.03	.00
Social support	.03	.04	.03	.847	.39
Positive personality	-.34	.04	-.39	-8.37	.00
Negative coping	.19	.05	.17	3.67	.00
Information overload	-.03	.02	-.06	-1.33	.18
Internet Addiction	**.04**	**.02**	**.11**	**2.32**	**.02**
Information Overload*Internet Addiction	.00	.00	.05	1.17	.23

Note. F (11,266) = 27, $p < .00$, $R^2 = .54$

Internet addiction significantly predicted negative wellbeing, confirming previous research that showed internet addiction interferes with normal life flows and contributes to negative wellbeing.

5.3.10 Cultural differences in the associations between information overload, internet addiction and wellbeing.

This stepwise multiple regression analysis answered an important research question, which is whether the cultural difference between the two samples had an influence on the influence of information overload and internet addiction on students' wellbeing after controlling for the influence of the established wellbeing predictors. Two new variables were generated by multiplying information overload by the culture variable, and internet addiction by the culture variable, to test whether this interaction would reveal an association with students' wellbeing after controlling for the influence of wellbeing predictors. Wellbeing factors were entered at step 1, accounting for 35% of variance in negative wellbeing. After entering information overload, internet addiction and University, at step 2, the total variance covered by the model as a whole was 37% ($F(9,282)=18.34$ p=.00 $R^2 = .37$). The tested variables of culture, information overload*culture and internet addiction*culture were not significant predictors and had no influence on information overload and internet addiction association with students' wellbeing. Table 5.10 presents the results (see Appendix C).

5.3.11 Threshold analyses of the effects of information overload and internet addiction on wellbeing controlling for established wellbeing predictors.

A factorial ANOVA was performed to compare the main effects of internet addiction groups and information overload quartiles (categorical variable) with the wellbeing outcome as the dependent variable and wellbeing predictors as covariates. Information overload and internet addiction did not significantly predict the wellbeing outcome, although the effect of internet addiction was of marginal significance (information overload Quartiles: $F(3,283) = .82$ $p = .47$; internet addiction groups: $F(1,271)= 3.85$ $p = .051$. Table 5.11 presents ANOVA results.

Table 5.11 Results for Test between Subjects' Effects

Source	*df*	*MS*	*F*	*P*
Intercept	1	3645.759	67.468	.000
Negative coping	1	1649.006	30.516	.000
Positive personality	1	422.568	7.820	.006
Social Support	1	122.671	2.270	.133
Stressors	1	2125.451	39.333	.000
Internet Addiction threshold	1	208.152	3.852	.051
Information Overload Quartiles	3	44.774	.829	.479
Internet Addiction threshold * Information Overload Quartiles	3	25.686	.475	.700
Error	271	54.037		
Total	283			

Note. R Squared = .37 (Adjusted R Squared = .35)$_a$

5.3.1.2 Threshold Analyses of the Effects of Information Overload and Internet Addiction on Negative Wellbeing Controlling for Established Wellbeing Predictors.

A factorial ANOVA was conducted to examine the effects of information overload quartiles and internet addiction groups on the negative wellbeing outcome with the wellbeing predictors as covariates. The internet addiction score significantly predicted negative wellbeing (F (1, 271) = 6.63 p = .01), indicating a significant difference between non-problematic internet users (M= 13.62 , SD= .33) and problematic internet users and addicts (M= 15.15, SD= .48). The information overload quartiles were not significant predictors of negative wellbeing (F(3,271)=1.65 p = .18). Table 5.12 presents the ANOVA results.

Table 5.12 Results for Test of between Subjects' Effects

Source	*df*	Mean Square	F	Sig.
Intercept	1	904.323	47.833	.000
Stressors	1	315.526	16.689	.000
Social support	1	1814.246	95.962	.000
Positive personality	1	1.188	.063	.802
Negative coping	1	818.857	43.312	.000
Internet Addiction Threshold	1	125.427	6.634	.011
Information Overload Quartiles	3	31.292	1.655	.177
Internet Addiction Threshold * Information Overload Quartiles	3	20.233	1.070	.362
Error	271	18.906		
Total	283			

Note. R Squared = .52 (Adjusted R Squared = .50)$_a$

5.3.1.3 Threshold analyses of the effects of information overload and internet addiction on negative appraisal controlling for established wellbeing predictors.

Neither the internet addiction threshold nor information overload predicted negative appraisal significantly (internet addiction results: $F(1,271) = 1.99$ p = .16; information overload results: $F(3,271)=1.14$ p = .33). This result was different from the regression analysis, where increasing information overload scores were associated with greater negative appraisal scores. Table 5.13 presents the ANOVA results (see Appendix C).

5.3.1.4 Threshold analyses of the effects of information overload and internet addiction on positive appraisal controlling for established wellbeing predictors.

Neither internet addiction nor information overload predicted positive appraisal significantly (internet addiction results: $F(1, 283) = .026$ p = .87; information overload results: $F(3, 271) = .82$ p = .78). Table 5.14 presents the results (see appendix C).

5.3.1.5 Threshold analyses of the effects of information overload and internet addiction on positive appraisal controlling for established wellbeing predictors.

Neither internet addiction nor information overload predicted positive wellbeing significantly (internet addiction: F(1,271) = .84 p = .36; information overload: *F*(3,271) = 1.13 p = .26) Table 5.15 presents the results (see Appendix C).

5.4 Factor Analysis

The 16 items of perceived information overload were the factors analysed. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity are usually conducted to determine if the sample meets the assumptions for a factor analysis. Bartlett's test results were significant ($p < .000$; Pedhazur & Schemlkin, 1991). According to Kaiser and Rice (1974), a KMO value below .50 is unacceptable, a value above .60 is mediocre, a value above .70 is middling, while a value above .80 is meritorious and a value above .90 is marvellous. Separate KMO tests were conducted for each of the variables. The KMO score for perceived information overload was .87 and for internet addiction it was .91. Considering the criteria of Kaiser and Rice (1974), the sample meets the requirements for factor analysis.

The total variance of information overload is provided in Table 5.16, and Table 5.17 presents the perceived information overload Rotated Component Matrix. The scree plot for motivation to transfer, showing the sorted Eigenvalues, is depicted in Figure 5.1 (see Appendix C).

Table 5.16. Total Variance for Information Overload

Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.07	31.54	31.54	5.07	31.54	31.54
2	1.97	12.31	43.86	1.97	12.31	43.86
3	1.14	7.12	50.99	1.14	7.12	50.99
4	1.03	6.47	57.46	1.03	6.47	57.46

Table 5.17. Perceived Information Overload Rotated Component Matrix

Measure Item	1	2	3	4
You felt pressured to manage several information and communication inputs at the same time	**.68**			
Received more cell phone calls than you can handle	**.64**			
How often have you felt that you have received more instant messages than you can handle?	**.63**			
You felt that the demands on you in your **workplace** exceed your capacity to deal with them	**.62**			
Felt that you receive more email attachments than you can handle	.61	-.34		.10
You have too many messages (e.g., wall postings, event notifications, personal)	.60	-.30	.16	-.45
Felt that you had to spend much time maintaining the various information and communication devices	.58	-.24	-.11	
Forgotten to respond to important email message	.58	-.15	-.21	.22
Felt that your work demands make you less sensitive to the needs of others?	.56	.42	-.31	
Felt that your work demands make you less sensitive to the needs of others?	.54	.41	-.12	
Felt overwhelmed with the email messages you received	.52	-.31	-.37	.11
Felt pressured to respond to email messages quickly	.45	-.17	-.41	.40
Felt hassled by your commute to work	.43	**.62**		
Felt that your work environment is too noisy	.57	**.57**	.10	-.12
Felt that your home environment is too noisy	.40		**.54**	.44
You have too many demands in your home to be able to manage comfortably	.43		**.47**	.42

As the analysis output in Table 5.17 shows, the first four components/factors accounted for 57.36% of the variance of the perceived information overload variables. All of the 16 items of perceived information overload variables loaded as four components/factors.

The internet addiction scale, with 20 items, was factor analysed. The total variance and extraction of the sums of squared loadings are provided in Table 5.18 and Table 5.19 presents the internet addiction factor analysis component matrix. Figure 5.2 shows the scree plot for internet addiction (see Appendix).

Table 5.18 Total Variance for Internet Addiction

Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Factor
1		7.89	39.48	39.48	7.89	39.48	39.48
2		1.52	7.62	47.11	1.52	7.62	47.11
3		1.14	5.74	52.85	1.14	5.74	52.85
4		1.02	5.10	57.95	1.02	5.10	57.95

Table 5.19 Internet Addiction Component Matrix

Measure items	1	2	3	4
Find yourself saying "just a few more minutes" when online	**.72**			
Find yourself anticipating when you will go online again	**.70**			
Try to cut down the amount of time you spend online and fail	**.69**			
Feel preoccupied with the Internet when off-line, or fantasize about being online	**.68**			
Become defensive or secretive when anyone asks you what you do online			.30	
Lose sleep due to late-night log-ins	.68	.13	-.12	
Block out disturbing thoughts about your life with soothing thoughts of the Internet		-.13	.15	-.20
Try to hide how long you've been online	.57	-.23	-.29	
Grades or school work suffer because of the amount of time you spend online	.54	.18	.33	-.20
Others in your life complain to you about the amount of time you spend online			.20	
Stay online longer than you intend		.52	-.22	.10
Feel depressed, moody, or nervous when you are off-line, which goes away once you are back online		-.36	.12	.24
Neglect household chores to spend more time online		.52		.16
Choose to spend more time online over going out with others				.29
Form new relationships with fellow online users			.10	.31
Snap, yell, or act annoyed if someone bothers you while you are online			.12	-.50
Job performance or productivity suffer because of the Internet		.19	.40	-.22
Prefer the excitement of the Internet to intimacy with your partner		.12	.26	.50
Check your e-mail before something else that you need to do		.26	-.25	-.24
Fear that life without the Internet would be boring, empty, and joyless		-.48	-.18	

As the analysis output in Table 5.19 shows, the first four components/factors accounted for 58% of the variance of the IAT variables. All of the 20 items of IAT variables loaded as four components/factors.

5.5 Prediction of Wellbeing by Information Overload and Internet Addiction Factors

Stepwise multiple regressions were run to evaluate the ability of the information overload factors (pressure to manage several information and communication inputs at the same time, receiving more cell phone calls than you can handle, receiving more instant messages than you can handle, and feeling that workplace demands exceed your capacity to deal with them) and internet addiction factors (wanting to stay just a few more minutes online, finding yourself anticipating when you will go online again, trying to cut down the amount of time you spend online and failing, and feeling preoccupied with the internet when off-line or fantasizing about being online) to predict the wellbeing total outcome after controlling for the influence of the established wellbeing predictors. The established wellbeing factors accounted for 36% of the variance in wellbeing outcome. The "Managing calls" factor significantly predicted the wellbeing outcome (B = 0.86, $t(276)$ = 1.96, p = .05), as did "Messages and e-mail overload" (B = -1.10, $t(276)$ = -2.41, p = .02), which indicates that messages and emails are associated with an increase in wellbeing. Table 5.20 summaries the results of the regression model.

Table 5.20. Results of Multiple Stepwise Regression with Information Overload Factors, Internet Addiction Factors, Predicting Wellbeing Outcome

Variable	*B*	*SE*	*Beta*	*t*	*p*
(Constant)	28.698	3.306		8.681	.000
Stressors	.294	.045	.344	6.512	.000
Social support	.122	.073	.080	1.664	.097
Positive personality	-.214	.066	-.165	-3.267	.001
Negative coping	.533	.088	.306	6.084	.000
(Constant)	26.840	3.384		7.932	.000
Stressors	.279	.046	.326	6.049	.000
Social support	.068	.076	.045	.897	.371
Positive personality	-.169	.067	-.130	-2.517	.012
Negative coping	.491	.088	.281	5.556	.000
Calls	-.209	.485	-.025	-.431	.667
Manage calls	**.864**	**.440**	**.116**	**1.965**	**.050**
Messages/ emails	**-1.101**	**.457**	**-.135**	**-2.410**	**.017**
Work demands	.574	.386	.077	1.488	.138
Anticipating being online	-.313	.486	-.040	-.644	.520
Preoccupied **with online activities**	.811	.541	.095	1.498	.135
Wanting to stay more online	.568	.439	.092	1.294	.197
Cut down failure	-.055	.519	-.007	-.106	.915

Note: $F(12,276) = 15.1$, $p < .00$, $R^2 = 0.396$

5.6 Prediction of Negative Appraisal by Information Overload and Internet Addiction Factors

A stepwise multiple regression was conducted to evaluate the ability of the information overload factors and internet addiction factors to predict negative appraisal after controlling for the influence of the established wellbeing predictors. Wellbeing predictors were entered at step 1, accounting for 28% of the variance in negative appraisal. After the entry of information overload and internet addiction, at step 2 the total variance shown by the model as a whole was 32% ($F(12,276) = 10.91$ $p < .00$, $R^2 = 0.32$). The internet addiction factor "Feeling Preoccupied" predicted negative appraisal significantly ($B = .69$, $t(280) = 2.31$, $p = .02$). Table 5.21 summarises the results of the regression model.

Table 5.21 Results of Multiple Stepwise Regression with Information Overload Factors, Internet Addiction Factors, Predicting Negative Appraisal with Controlled Cofounders

Variable	***B***	***SE***	***Beta***	***t***	***P***
(Constant)	9.937	2.263		4.391	.000
Stressors	.150	.031	.271	4.853	.000
Social support	.038	.050	.038	.755	.451
Positive personality	-.153	.045	-.182	-3.412	.001
Negative coping	.321	.060	.285	5.354	.000
(Constant)	8.561	2.317		3.694	.000
Stressors	.133	.032	.241	4.218	.000
Social support	-.003	.052	-.003	-.058	.954
Positive personality	-.126	.046	-.150	-2.742	.007
Negative coping	.294	.060	.261	4.866	.000
Calls	-.449	.333	-.089	-1.349	.178
Manage calls	.713	.371	.129	1.924	.055
Messages/ emails	.324	.301	.081	1.077	.282
Work demands	-.099	.355	-.020	-.279	.781
Anticipating being online	.044	.332	.008	.133	.894
Preoccupied with online activities	.696	.301	.144	2.311	**.022**
Wanting to stay more online	-.528	.313	-.100	-1.688	.092
Cut down failure	.396	.264	.083	1.498	.135

Note $F(12,276) = 10.91$ $p < .00$, $R^2 = 0.32$

5.7 Prediction of Negative Wellbeing by Information Overload and Internet Addiction Factors

A stepwise multiple regression was conducted to evaluate the ability of information overload factors and internet addiction factors to predict negative wellbeing after

controlling for the influence of the wellbeing predictors. The wellbeing predictors were entered at step 1, accounting for 50% of variance in negative wellbeing. After the entry of information overload factors and internet addiction factors at step 2, the total variance accounted for by the model as a whole was 53% ($F(12,276) = 25.70$, $p < .00$, $R^2 = 0.53$). The information overload factor "Messages and e-mail overload" significantly predicted negative wellbeing ($B = -.74$, $t(276) = -2.75$, $p = .006$), with more messages and e-mails leading to more positive wellbeing. Table 5.22 summarises the results of the regression analysis.

Table 5.22 Results of Multiple Stepwise Regression with Information Overload Factors, Internet Addiction Factors, Predicting Negative Wellbeing with Controlled Cofounders

Variable	***B***	***SE***	***Beta***	***t***	***p***
(Constant)	14.799	1.972		7.505	.000
Stressors	.176	.027	.306	6.533	.000
Social support	-.013	.044	-.013	-.299	.765
Positive personality	-.399	.039	-.456	-10.197	.000
Negative coping	.243	.052	.207	4.643	.000
(Constant)	14.244	2.012		7.078	.000
Stressors	.181	.027	.315	6.607	.000
Social support	-.027	.045	-.026	-.598	.550
Positive personality	-.373	.040	-.427	-9.337	.000
Negative coping	.214	.053	.182	4.066	.000
Anticipating being online	-.065	.289	-.012	-.224	.823
Preoccupied with online activities	.395	.322	.069	1.227	.221
Wanting to stay more online	.411	.261	.099	1.576	.116
Cut down failure	-.159	.308	-.031	-.516	.606
Calls	-.070	.289	-.013	-.244	.807
Manage calls	-.139	.261	-.028	-.534	.594
Messages/emails	**-.749**	**.272**	**-.136**	**-2.757**	**.006**
Work demands	.434	.229	.087	1.893	.059

Note: $F(12,276) = 10.91$ $p < .00$, $R^2 = 0.32$

5.8 Prediction of Positive Appraisal by Information Overload and Internet Addiction Factors

A stepwise multiple regression was conducted to evaluate the ability of information overload factors and internet addiction factors to predict positive appraisal after controlling for the influence of the established wellbeing predictors. Wellbeing factors were entered at step 1, accounting for 32% of the variance in positive appraisal. After the entry of information overload factors and internet addiction factors at Step 2, the total variance explained by the model as a whole was 34% ($F(12,276) = 11.91$, $p < .00$, $R^2 = 0.34$). None of the information overload and internet addiction factors significantly predicted positive appraisal. Table 5.23 summarises the results of the regression model (see Appendix C).

5.9 Prediction of Positive Wellbeing by Information Overload and Internet Addiction Factors

A stepwise multiple regression was conducted to evaluate the ability of information overload factors and internet addiction factors to predict positive wellbeing after controlling for the influence of the established wellbeing predictors. Wellbeing factors were entered at step 1, accounting for 42% of the variance in positive wellbeing. After the entry of information overload factors and internet addiction factors at Step 2, the total variance shown by the model as a whole was 43% ($F(12,276) = 17.22$, $p < .00$, $R^2 = 0.43$). However, none of the information overload and internet addiction factors significantly predicted positive appraisal. Table 5.24 summarises the results of the regression model (see Appendix C).

5.10 General Discussion

Previous research has documented the negative association of information overload and internet addiction on wellbeing, and its association with mental health disorders. The current section explored the relationship of information overload, internet addiction and wellbeing with adjustment for the effects of established predictors. Separate analyses have been conducted for positive and negative appraisals and outcomes. In addition, the influence of cultural differences in the two samples on information overload and internet addiction was investigated. Analyses also split the information overload and

internet addiction scores into high and low groups and also considered factors scores rather than total scores.

5.10.1 Univariate analysis:

5.10.1.1 The association between information overload and internet addiction.

Information overload and internet addiction were correlated in all analyses, indicating a strong association between the two variables. However, one cannot mention information overload without talking about the internet, since it is the main information tool used to retrieve and share information. A two-way relationship can be seen between information overload and internet addiction. Information overload is a form of stress, and negative coping combined with this form of stress might lead to internet addiction, while long-term usage of the internet might also cause the user to feel overwhelmed with the amount of information they are receiving.

5.10.1.2 Difference in the correlations between the two samples.

Information overload, internet addiction, and wellbeing outcomes were significantly correlated in both CU, KU data and the combined data. There was a difference in the results between the two samples in the correlations with the predictors. In the KU sample, information overload was correlated with internet addiction and a low wellbeing outcome whereas internet addiction was correlated with information overload, negative coping and low wellbeing outcome. However, the association between information overload and internet addiction with different variables increased in the CU sample, where information overload was associated with negative coping, stressors, and low wellbeing, whereas internet addiction was negatively associated with social support and positive personality and associated with negative coping and a low wellbeing outcome. The difference in correlation between the two samples might be caused by the difference in sample size, as the CU sample size was 176 and the KU sample size was 110 so the two populations were considerably different. The combined data correlations showed that both information overload and internet addiction are associated with social support, negative coping, stressors, and low wellbeing outcome.

5.10.1.3 Associations of positive personality with information overload or internet addiction.

Positive personality was not correlated with either information overload or internet addiction in the KU sample. It was not correlated with information overload and was negatively correlated with internet addiction in the CU and combined sample, which indicates that people with positive personality traits will be able to avoid internet addiction. The reinforcement of positive personality traits among adolescents and young adults will help in preventing and managing internet addiction.

5.10.1.4 Information overload and internet addiction predicted wellbeing outcome in ku sample.

Information overload and internet addiction significantly predicted negative wellbeing outcomes in the KU sample (Table 5.3), although information overload and internet addiction were not significant in predicting the negative wellbeing outcome in both the CU sample and the combined sample. Even though the KU sample results confirm previous research on the negative association of information overload and internet addiction on wellbeing, the sample size was small (110 participants), and the effect disappeared when KU and CU samples were combined. Further analysis of cultural influences was not significant.

5.10.1.5 Differences in the correlations with social support in the two countries.

In the KU sample correlation (Table 5.2), internet addiction and social support were positively correlated, while in the CU sample (Table 5.5), internet addiction and social support were negatively correlated. In Kuwait and generally in the Gulf countries, social support would increase in stressful times, which explains the strong social and family relations between the society members. Most internet addicts would use the internet for social networks and socialising in the first place. However, in the UK sample, lack of social support is a sign of stress, and social support is negatively correlated with stress (Table 5.5). Also, as observed, Kuwaiti internet use is mainly on SNS (social network sites) and this explains the difference in usage of the internet between the two cultures and why internet addiction is positively correlated with social support in the Kuwait sample.

5.10.1.6 Course performance.

In the KU sample, only information overload had predict perceived course performance, whilst on the other hand, neither information overload nor internet addiction predicted CU sample's course performance. The reason behind this difference might be the timing of the study, and the difference between perceived and actual course performance. In the KU sample, data were gathered in the middle of the summer course and students scored their perceived course performance whereas in the CU sample the actual course scores were gathered at the end of the course based on the students' ID numbers.

5.10.2 Controlling for established predictors.

5.10.2.1 Internet overload predicted negative appraisal and negative wellbeing.

The results confirmed the previous studies' results in the influence of information overload on physical and mental health and depression. Negative appraisal and negative wellbeing refer to anxiety, depression, physical fatigue, mental fatigue, life stress, and negative affect.

5.10.2.2 Internet addiction predicted wellbeing outcome, and negative wellbeing.

Only 30% of the participants scored highly in the internet addiction test. However, high scores of internet addiction predicted the wellbeing outcome (high scores = greater negative wellbeing) and negative wellbeing, thus confirming the previous literature review (Casale et al., 2015; Kutty & Sreeramareddy, 2014).

5.10.2.3 Cultural difference.

Although the cultural differences between Kuwait and Britain are clear, it does not appear to have an influence on information overload and internet addiction on wellbeing. However, some difference between the samples was observed in the association between internet addiction and social support (see above).

5.10.2.4 Different components of wellbeing.

Information overload and internet addiction predicted different negative components of wellbeing; internet addiction predicted negative wellbeing, while information overload predicted negative appraisal. Information overload and internet addiction had an independent effect on wellbeing and using the DRIVE model improved the understanding of the influence of information overload and internet addiction on the different wellbeing factors.

5.10.3 Threshold analyses.

Both information overload quartiles and internet addiction threshold only predicted negative wellbeing after controlling for wellbeing predictors; negative wellbeing is the sum of depression, negative affect and anxiety. The results indicate the direct association of high scores of information overload and internet addiction on negative wellbeing but added little to the analyses that treated information overload and internet addiction as continuous variables. This may reflect the small number of internet addicts and the relatively low information overload scores.

5.10.4 Factor scores.

5.10.4.1 More calls predict low wellbeing while more emails/messages predict positive wellbeing.

Young adults nowadays rely on online communication and texting as the main way of communicating with their friends and families. The factor analysis results show that more emails and messages predict positive wellbeing and negatively predict low wellbeing outcome, which may reflect the feeling young adults require of being socially wanted and loved. However, the results also show that too many phone calls predicted low wellbeing since it might be interfering with life's flow, and answering calls is time consuming. Further investigation is needed to clearly understand the results. Apart from this result, in general, the factor score analyses added little to the analyses based on total scores.

5.11 Conclusion

The association of information overload and internet addiction on wellbeing was documented by previous research, where feeling overwhelmed or confused has a major

effect on information overload and is associated with stress, anxiety, and low life satisfaction (Bawden, 2008; Misra & Stokol, 2011; Swar et al., 2017). Internet addiction was associated with decreased social interactions, loneliness (Nawla & Anand, 2003), ADHD (Yen, Chen, Tang, & Ko, 2009), depression, and lower self-esteem (Ceyhan & Ceyhan, 2008). However, previous studies mainly focused on the impact of information overload on employees, while the association between information overload and internet addiction have not been studied. The influence of information overload and internet addiction on wellbeing had also not been investigated using a holistic approach even though university students are high information consumers. In this study, we measured the association of information overload and internet addiction on university students' wellbeing and course performance using three measures on two samples from different cultures.

The results revealed that information overload and internet addiction significantly predicted negative wellbeing, and internet addiction significantly predicted negative appraisal, while only information overload had an influence on Kuwaiti university students' perceived course performance. Two of the information overload factors, namely struggle in managing calls and feeling preoccupied, predicted negative appraisal. However, interestingly, feeling overwhelmed with emails and messages predicted positive wellbeing, and this was explained by the age group of the sample where 65% were 20 years and younger, and young adults enjoy feeling wanted and communicating with their colleagues. The study findings confirm the previous studies on the negative effect of information overload and internet addiction and their association with low wellbeing. A surprising significant result was the absence of cultural differences in the influence of information overload and internet addiction on students' wellbeing, although culture and ethnicity were proven to influence the pattern of internet use (Misra & Stokols, 2011). Most notably, this is the first study to investigate regional differences in the association of information overload and internet addiction on university students using a holistic model of wellbeing. When controlling for established wellbeing predictors, the effects of information overload and internet addiction on the overall wellbeing score were not significant. This lack of significance was also found in the analyses of positive appraisals and outcomes. However, with the negative scores, information overload influenced appraisal but not the outcome, while internet addiction had the opposite effects. Thus, information overload and internet

addiction only influenced the negative part of the DRIVE model, and because they influence different stages they have independent effects.

Nevertheless, the study sample was limited to first year psychology students starting at Cardiff University, and a sample of social sciences students at Kuwait University. Recommended future work should include testing a noticeably larger sample size, testing the use of different internet services, SNS addiction, and understanding the association between information overload and internet addiction. More attention should be paid to other outcomes, and activities associated with information overload and internet addiction as well as testing other age groups to see the influence of age on the association of information overload and internet addiction on wellbeing. Understanding the difference between different age groups in the influence of information overload and internet addiction on wellbeing factors will help in understanding the influence and providing the right solution to each age group based on their different internet usage.

The next chapter will investigate the influence of information overload, internet addiction, social networks addiction, and different internet uses on wellbeing on a larger sample of UK-based university students.

CHAPTER 6

THE IMPACT AND PREVALENCE OF INFORMATION OVERLOAD, INTERNET ADDICTION AND DIFFERENT INTERNET USAGE ON STUDENTS' WELLBEING

6.1 Introduction

The previous study combined UK and Kuwait samples and provided an initial investigation of the associations between information overload, internet addiction, academic performance and well-being in university students from two different cultural backgrounds.

The next study aimed to expand the findings on the effects of information overload and internet addiction on wellbeing with a larger sample size. It also examined the effects of different types of internet use with a focus on social network addiction and its effects on the wellbeing and academic performance of a large sample of UK full time students. The aims of the study were similar to the aims of the previous study although the sample size was increased and the effects were investigated in more detail. In summary, this study aimed to investigate cross-sectional associations in: 1) The prevalence of information overload, internet addiction and Social Network Addiction (SNA) in a UK student sample; 2) The effects of SNA and other types of internet usage on: wellbeing, work efficiency, course stress, and general health.

6.2 Methodology

6.2.1 Ethical approval:

The research received approval from the Ethics Committee at the School of Psychology, Cardiff University.

6.2.2 Sample size calculation.

In determining the appropriate sample size, the Tabachnick and Fidell (2014, p.159) formula was taken into consideration. Tabachnick and Fidell suggested the following formula for sample size consideration, considering the number of independent variables that you are willing to use in the regression analyses: $N \geq 50 + 8m$ (m = number of

independent variables). A medium size relationship between dependent and independent variable was assumed, with $\alpha = .05$, $\beta = .20$ and ten independent variables in the regression model, $N \geq 50 + (8)\ (10) = 130$. The formulae suggested a sample size of 130 would be appropriate.

6.2.3 Design.

This was a cross-sectional online survey.

6.2.4 Participants.

Two hundred and twenty-six (226) UK-based students, who were regular internet users, participated in the study by answering online questionnaires through Qualtrics. Each participant was paid 5 pounds after completing the questionnaires. Fifty percent were male 50%, with an age range of 18-71 years (SD= 13.4). The mean number of hours spent at the University per week was 30 hours.

Consent forms, instructions and debrief forms were included with the questionnaires. The aim of the study was explained, and participants were given all relevant information.

6.2.5 Measuring instruments.

The questionnaire used in this study was similar to that used in the earlier studies. This included the perceived information overload scale, which consist of 16 items measuring cyber and environmental information overload **(**Misra & Stokols, 2011**)**. Internet addiction test which consisted of 20 items, examined the use of the internet for non-academic or non-job purposes during the last month; items measured addiction based on DSM-IV criteria of pathological gambling (Young, 1998). The Student WPQ is a multidimensional scale of wellbeing which includes a measure of stressors based on students' circumstances and factors. It also measures other wellbeing predictors based on the DRIVE model: negative coping, social support, and positive personality (self-efficacy, self-esteem and optimism) (William & Smith, 2017), and Bergen social media addiction scale (BSMAS) which consist of six items to assess social media addiction based on 6 addiction elements (Andreassen et al., 2012). A detailed description of the measures is provided in Chapter 2.

Demographic data were collected to measure general health, gender, age, sleep quality, height, weight and smoking. In addition, participants were asked about their most used internet content (games, SNS, gambling, adults' website, shopping - questions are displayed in Chapter 2).

6.2.6 Statistical analysis.

SPSS 20.00 was used to conduct all statistical analyses. Data met the assumption of normality. The reliability of the scales was tested using Cronbach alpha coefficients. Pearson correlations were conducted to evaluate the strength of the relationships among information overload, internet addiction, and the wellbeing total outcome and wellbeing factors using Cohen standards (1988). A multiple linear regression, and stepwise regression were conducted to assess the impact of information overload, internet addiction, SNA and different internet uses on the students' wellbeing. The 'Enter' variable selection method was chosen for the linear regression model. A multiple linear regression was conducted to predict the effects of different internet use on internet addiction, information overload, positive and negative wellbeing, and positive and negative appraisal.

A total wellbeing outcome score was calculated by summing positive wellbeing, negative wellbeing, positive appraisal, and negative appraisal.

6.3 Results

6.3.1 Descriptive results.

Table 6.1 shows the frequency of different types of internet usage. The results can be summarised as follows:

- 53% of the participants used the internet for study/work related purposes.
- 58% of the participants used the internet for entertainment purposes often and very often.
- 54% of the participants used social networks often and very often.
- 31.2% of the participants used the internet very often and often for game use.
- 40% of the participants used the internet for shopping often and very often.

- 20.8% of the participants used the internet for adult websites very often and often.

Table 6.1. Frequency of Usage of Different Types of Internet Activity

Internet use	Never %	Rarely %	Sometimes %	Often %	Very often %
Study/work	8.4	4.9	32.6	33	25.4
entertainment	2.7	6.3	32.6	33.0	25.4
Social networks	5.4	8.1	32.4	28.4	25.7
Online gaming	12.8	21.6	34.4	18.9	12.3
Online shopping	2.2	13.4	43.8	25.4	15.2
Adults website	32.7	22.6	23.9	12.8	8

6.3.1.1 Internet Addiction, PIU and SNA prevalence.

Using the thresholds for defining internet addiction, problematic internet usage and social network addiction showed the following frequencies for the different categories:

- 0% were internet addicts
- 24.6% of the sample suffered from problematic internet use
- 28.8% were social networks addicts
- 25.4% suffered from information overload very often

6.3.2 Pearson correlation analysis information overload, internet addiction, SNA, and wellbeing variables.

A Pearson correlation analysis was conducted using the information overload, internet addiction, SNA, and wellbeing variables. The results revealed that there was a significant positive correlation between information overload and internet addiction ($r = 0.76$, $p < .0001$). The correlation coefficient between information overload and internet addiction indicated a large relationship. There was a significant positive correlation between information overload and total SNA ($r = 0.71$, $p < .0001$). The correlation coefficient between information overload and SNA indicated a large relationship. There was a significant positive correlation between information overload

and negative appraisal (r = 0.51, p < .0001). The correlation coefficient between information overload and negative appraisal indicated a large relationship showing that as information overload increases, negative appraisal increases. There was a significant negative correlation between information overload and positive wellbeing (r = - .18, p < .01). The correlation coefficient between information overload and positive wellbeing was .18, indicating a small relationship. There was a significant positive correlation between information overload and negative wellbeing (r = .45 p < .005). The correlation coefficient between information overload and negative wellbeing was .45, indicating a moderate relationship as information overload increases negative wellbeing tends to increase.

There was a significant positive correlation between internet addiction and SNA (r = 0.84, p < .0001). The correlation coefficient indicated a large relationship. There was a significant positive correlation between internet addiction and total negative appraisal (r = 0.41, p < .005). The correlation coefficient between internet addiction and negative appraisal indicated a moderate relationship. There was a significant negative correlation between internet addiction and total positive wellbeing (r = -0.14, p < .001). The correlation coefficient between internet addiction and positive wellbeing indicated a small relationship. There was a significant positive correlation between internet addiction and negative wellbeing (r = 0.40, p < .005). The correlation coefficient between internet addiction and negative wellbeing indicated a moderate relationship confirming that as internet addiction increases, negative wellbeing increases.

There was a significant positive correlation between SNA and total negative appraisal (r = 0.28, p < .005). The correlation coefficient between SNA and negative appraisal indicated a small relationship. There was a significant negative correlation between SNA and positive wellbeing (r = -0.14, p < .01). The correlation coefficient between SNA and positive wellbeing was 0.14 indicating a small relationship. There was a significant positive correlation between SNA and negative wellbeing (r = 0.28, p < .005). The correlation coefficient between SNA and negative wellbeing indicated a small relationship. Information overload was positively correlated with course stress (r =.33, p < .005) with the size of the correlation indicating a small relationship between course stress and information overload. SNA was positively correlated with course stress (r = .22, p < .01), and a small association was indicated. SNA was negatively

correlated with smoking (r = -.15, p < .02). Internet addiction was positively associated with course stress (r = .32, p < .0001), which indicated that if internet addiction increased, course stress would increase. Internet addiction was negatively correlated with smoking (r = -.183, p < .006), showing a small association. Internet addiction was negatively correlated with sleep quality (r = -.13, p < .01) which indicated a small association. Table 6.2 presents the results of the correlations.

Table 6.2. Pearson Correlation Matrix among Information Overload, Internet Addiction, SNA, and Wellbeing Outcomes and Demographics

Variable	Information Overload	SNA	Internet Addiction	Wellbeing
Social support	.11	-.038	.020	**.49****
Negative coping	**.47****	**.30****	**.40****	**.28****
Positive wellbeing	**-.18****	**-.13***	**-.14***	**-.40****
Negative wellbeing	**.45****	**.28****	**.40****	**.62****
Negative appraisal	**.51****	**.28****	**.41****	**.54****
Positive appraisal	.109	.057	.072	**-.73****
Stressors	**.69****	**.63****	**.63****	**.53****
Positive personality	**.15***	.07	.07	**-.77****
Course stress	**.33****	**.22****	**.32****	**.44****
Sleep Quality	-.109	-.105	**-.13***	.07
General Health	.001	-.045	-.028	**.21****

Note. The critical values are 0.19, 0.25, and 0.32 for significance levels .05, .01, and .001 respectively.

6.3.3 Pearson correlation analysis of different internet uses, information overload, internet addiction, SNA and wellbeing outcome.

A Pearson correlation analysis was conducted to assess the association of different types of internet use, information overload, internet addiction, SNA and wellbeing. The results indicated that all types of internet use were significantly highly correlated with each other, except for work/study-related use and adults website use which were not associated. All types of internet uses were highly correlated with information overload, internet addiction and the wellbeing outcome except for entertainment use which was

not significantly associated with information overload, internet addiction and SNA. Table 6.3 shows the correlations.

Table 6.3. Pearson Correlation Matrix Different Internet Uses and Information Overload, Internet Addiction and SNA

Variables	1	2	3	4	5	6	7	8	9
1.Study/Work									
2.Entertainment use	**.38****								
3.Social network	**.41****	**.53****							
4.Game use	**.21****	**.36****	**.43****						
5. Shopping	**.42****	**.36****	**.33****	**.37****					
6. Adult websites	.10	**.19****	**.17***	**.41****	**.28****				
7.Information Overload	**.29****	.11	**.25****	**.41****	**.28****	**.31****			
8.SNA	**.21****	.10	**.28****	**.42****	**.29****	**.35****	**.71****		
9.Internet Addiction	**.27****	.11	**.31****	**.45****	**.33****	**.38****	**.75****	**.84*****	
10. Wellbeing	**.24****	**.18****	**.22****	**.33****	**.22****	**.32****	**.49****	**.28****	**.40****

6.3.4 Information overload, internet addiction and SNA predicting wellbeing outcomes.

To test the associations between information overload, internet addiction, SNA and the wellbeing outcome, a linear multiple regression was conducted. The results of the linear regression model were significant ($F(3,227) = 28.43$, $p < .001$, $R^2 = 0.27$), indicating that approximately 27% of the variance in wellbeing outcome was explained by information overload, internet addiction and SNA. Information overload significantly predicted the wellbeing outcome ($B = 0.40$, $t(227) = 5.59$, $p < .001$). Similarly, internet addiction significantly predicted the wellbeing outcome ($B = 0.29$, $t(227) = 2.56$, $p = .00$), as did SNA ($B = .46$, $t(227) = 4.51$ $p = .00$). Table 6.4 summarises the results of the regression model. These results show that although internet addiction, information overload and SNA are correlated, they still have independent effects on wellbeing.

A stepwise regression was conducted to investigate the influence of the independent variables, information overload, internet addiction and SNA on the wellbeing outcome after controlling for demographics and wellbeing covariates (stressors, social support, positive personality, and negative coping). The results indicated that the effects of information overload, internet addiction and SNA were not significant in predicting wellbeing, neither were the interaction variables of information overload* internet addiction, SNA*internet addiction or SNA*information overload.

Table 6.4 Results for Multiple Linear Regression with Information Overload, Internet Addiction and SNA Predicting Wellbeing Outcome

Variable	*B*	*SE*	β	*t*	*P*
(Intercept)	19.64	2.78		7.06	.00
Information Overload	**.40**	**.07**	**.49**	**5.59**	**.00**
Internet Addiction	**.29**	**.11**	**.30**	**2.56**	**.01**
SNA	**.46**	**.10**	**.28**	**4.51**	**.00**

Note. $F(3,227) = 28.43$, $p < .00$, $R^2 = 0.27$

6.3.5 Information overload, internet addiction and SNA predicting positive wellbeing.

A stepwise regression was conducted to investigate the influence of the independent variables, information overload, internet addiction and SNA, after controlling for demographics and wellbeing covariates (stressors, social support, positive personality, and negative coping). The results indicated that the effects of information overload, internet addiction and SNA were not significant in predicting positive wellbeing. Results are shown in Table 6.6 (see Appendix E).

6.3.6 Information overload, internet addiction and SNA predicting negative wellbeing.

A stepwise regression was conducted to investigate the influence of the independent variables, information overload, internet addiction and SNA after controlling for demographics and wellbeing covariates. The results indicated that the effects of information overload, internet addiction and SNA were not significant in predicting negative wellbeing. Results are demonstrated in Table 6.7 (see Appendix E).

6.3.7 Information overload, internet addiction and SNA predicting positive appraisal.

Through a stepwise regression the influence of information overload, internet addiction, and SNA on positive appraisal were tested through controlling for demographics and wellbeing covariates. No significant effects of information overload, internet addiction and SNA were resulted. Table 6.8 demonstrates the findings in the Appendix E.

6.3.8 Information overload, internet addiction and SNA predicting negative appraisal.

Through conducting a stepwise regression, the effects of demographics and wellbeing covariates were controlled to test the influence of information overload, internet addiction and SNA on negative appraisal. The results indicated that only information overload was significant in predicting negative appraisal, after controlling for demographics and wellbeing covariates (B = 0.09, t (217) = 3.47, p < .001). Internet addiction and SNA were not significant in predicting negative appraisal. The results of the last model of the stepwise regression are presented in Table 6.9.

Table 6.9. Stepwise Regression Last Model Results Information Overload, Internet Addiction and SNA Predicting Negative Appraisal

Variable	***B***	***SE***	***β***	***t***	***P***
(Constant)	2.05	1.58		1.29	.19
Smoking	-.37	.45	-.04	-.81	.41
Work stress	.13	.09	.08	1.42	.15
Gender	.48	.44	.05	1.08	.27
Sleep Quality	-.04	.35	-.01	-.11	.90
General Health	-.25	.12	-.12	-1.95	.05
Stressors	.01	.02	.04	.55	.57
Social support	.09	.04	.13	1.93	.05
Positive personality	-.10	.05	-.15	-2.09	.03
Negative coping	.33	.04	.45	6.68	.00
Information Overload	**.09**	**.02**	**.28**	**3.47**	**.001**
SNA	-.11	.06	-.17	-1.87	.069
Internet Addiction	.03	.03	.09	.94	.34

Note. F (12, 217) = 19.88, p =.00, R^2 = 0.53.

6.3.9 Information overload, internet addiction and SNA predicting academic attainment.

Through a stepwise regression the influence of information overload, internet addiction, and SNA on academic attainment were examined, controlling for demographics and wellbeing covariates. No significant effects of information overload, internet addiction and SNA were obtained. Table 6.10 in Appendix E shows these results.

6.3.10 Different internet uses predicting information overload.

To test the associations of different types of internet usage on information overload, a multiple linear regression was conducted to compare work/study use, social network use, entertainment, online gaming, online shopping, and adult websites and their contribution in predicting information overload. The result of the multiple linear regression was significant, (F (6,209) = 12.55, $p < .00$, $R^2 = 0.27$), indicating that those different internet uses can explain 27% of the variance in information overload. The use of the internet for studying was significant in predicting information overload, (B = 2.65, t (209) = 3.07, p = .002). Entertainment related use was negatively associated with information overload (B = -2.53, t (209) = -2.45, p = .015) and game use predicted information overload significantly (B = 3.41, t (209) = 3.98, $p < 0.001$). Adult websites use predicted information overload significantly (B = 1.90, t (209) = 2.67, p = .008) whereas social networks and online shopping did not significantly predict information overload, highlighting that not all internet uses cause information overload. Table 6.11 summarises the results of the regression model.

Table 6.11. Results for Multiple Linear Regression of different Internet Uses Predicting Information Overload

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	28.169	3.993		7.054	.000
Study/Work related use	**2.658**	**.865**	**.218**	**3.073**	**.002**
Entertainment	**-2.534**	**1.034**	**-.184**	**-2.450**	**.015**
Social Network	1.070	.957	.086	1.118	.265
Games	**3.416**	**.857**	**.291**	**3.985**	**.000**
Shopping	1.409	1.024	.097	1.377	.170
Adults websites	**1.900**	**.712**	**.176**	**2.671**	**.008**

Note: *$F(6,209) = 12.55$, $p < .00$, $R^2 = 0.27$*

6.3.11 Different types of internet use and internet addiction.

A linear regression model was conducted to test the associations between different types of internet use and internet addiction. The results of the multiple linear regression were significant, ($F(6,209) = 17.54$, $p < .00$, $R^2 = 0.34$), indicating that those different internet uses can explain 34% of the variance in internet addiction. Study/work-related use was significant in predicting internet addiction ($B = 1.36$, t (209) = 1.97, $p = .049$). Entertainment use significantly predicted internet addiction ($B = -2.63$, t (209) = -3.19, $p = .002$) which indicates that on average, every one-unit increase of entertainment use will result in a -3.19 decrease unit change in internet addiction. Social networks significantly predicted internet addiction ($B = 1.80$, $t(209) = 2.36$, $p = .01$), as did game use ($B = 2.93$, $t(209) = 4.29$, $p < 0.0001$), shopping online ($B = 1.87$, t (209) = 2.29, $p = .02$) and adult websites usage ($B = 2.10$, t (209) = 3.70, $p < .0001$). Table 6.12 summarises the results of the regression model.

Table 6.12 Results of Multiple Linear Regression of Different Internet Uses Predicting Internet Addiction

Variable	*B*	*SE*	β	*t*	*p*
(Intercept)	19.209	3.182		6.037	.000
Study/Work related use	**1.362**	**.689**	**.133**	**1.976**	**.049**
Entertainment	**-2.631**	**.824**	**-.227**	**-3.192**	**.002**
Social Network	**1.801**	**.763**	**.172**	**2.362**	**.019**
Games	**2.933**	**.683**	**.298**	**4.293**	**.000**
Shopping	**1.873**	**.816**	**.154**	**2.296**	**.023**
Adults websites	**2.101**	**.567**	**.232**	**3.706**	**.000**

Note *$F (6,209) = 17.54$, $p < .00$, $R^2 = 0.34$*

6.3.12 Different types of internet use and positive wellbeing.

A linear regression model was conducted to test the association between different types of internet use and positive wellbeing. The results of the multiple linear regression were significant ($F(6,239) = 3.63$, $p < .001$, $R^2 = 0.085$), indicating that those different internet uses can explain 8.5% of the variance in positive wellbeing. Study/work related use was significant in predicting positive wellbeing ($B = 1.53$, t (239) = 3.12, $p = .002$). Easy access to information and the feeling of satisfaction and productivity can explain the study/ work-related use in predicting positive wellbeing. Entertainment internet use significantly predicted positive wellbeing ($B = -1.55$, t (239) = -2.60, $p = .01$). This indicates that on average, every one-unit increase of entertainment use will result in a -1.53 unit decrease in positive wellbeing. However, adult websites, social networks, games, and shopping did not significantly predict positive wellbeing. Table 6.13 summarises the results of the regression model.

Table 6.13 Results of Multiple Linear Regression of Different Internet Uses Predicting Positive Wellbeing

Variable	*B*	*SE*	β	*t*	*p*
(Intercept)	27.338	2.800		9.762	.000
Study/Work related use	**1.534**	**.492**	**.205**	**3.120**	**.002**
Entertainment	**-1.551**	**.595**	**-.199**	**-2.608**	**.010**
Social Network	.105	.526	.015	.200	.842
Games	.785	.500	.118	1.571	.117
Shopping	.934	.698	.092	1.338	.182
Adults websites	.572	.475	.084	1.203	.230

Note $F(6,239) = 3.63$, $p < .00$, $R^2 = 0.085$

A follow-up stepwise regression was conducted to assess the influence of different types of internet use on negative wellbeing after controlling for demographics, wellbeing covariates, internet addiction, information overload, and SNA. The results indicated no significant influence of any type of internet use on positive wellbeing. Results are shown in Table 6.14 in Appendix E.

6.3.13 Different types of internet use and positive appraisal.

A stepwise regression was conducted to investigate the influence of type of internet use on positive appraisal after controlling for demographics and wellbeing covariates (stressors, social support, positive personality, and negative coping), information overload, internet addiction and SNA. The results indicated that none of the types of internet use were significant in predicting positive appraisal. Results are shown in Table 6.15 (see Appendix E).

6.3.14 Different types of internet use and negative wellbeing.

A linear regression model was conducted to test the impact of different internet usage in predicting negative wellbeing. The results of the multiple linear regression were significant (F (6,209) = 7.06, $p < .00$, $R^2 = 0.17$), indicating that those different internet uses can explain 17% of the variance in negative wellbeing. Online gaming was significant in predicting negative wellbeing (B = 1.12, t(209) = 3.16, p = .002). Adult websites use also significantly predicted negative wellbeing (B = .78, t(209) = 2.68, p = .008). However, study and work internet use, entertainment, social networks, and online shopping, did not significantly predict negative wellbeing. Table 6.16 summarises the results of the regression model.

Table 6.16 Results for Multiple Linear Regression of different Internet uses Predicting Negative Wellbeing

Variable	*B*	*SE*	β	*t*	*p*
(Intercept)	11.068	1.649		6.712	.000
Study/Work related use	.227	.357	.048	.636	.526
Entertainment	.444	.427	.083	1.040	.299
Social Network	-.041	.395	-.009	-.104	.917
Games	1.120	.354	.246	3.164	**.002**
Shopping	.052	.423	.009	.124	.902
Adults websites	.788	.294	.188	2.680	**.008**

Note *F(6,239) =7.82, p < .00, R^2= 0.168*

A stepwise regression was conducted, controlling for demographics, wellbeing covariates, information overload, internet addiction and SNA to investigate the effects of different types of internet use on negative wellbeing outcome. The results indicated that social networks use influenced negative wellbeing (B = -.64, t (200) = -2.82, p =

.005), and that entertainment use influenced negative wellbeing (B = .62, t (200) = 2.38, p = .018). Table 6.17 shows the results of the last model of the stepwise regression.

Table 6.17 Stepwise Regression Results of Different Internet Uses Influencing Negative Wellbeing

Variable	**B**	**SE**	**β**	**t**	**P**
(Constant)	.314	1.498		.209	.834
smoke	.288	.419	.032	.688	.493
Work Stress	.010	.086	.006	.119	.905
Gender	.429	.418	.048	1.027	.306
Sleep quality	-.443	.332	-.071	-1.335	.184
General Health	.013	.115	.006	.115	.909
stressors	.095	.023	.302	4.157	.000
Social support	-.041	.043	-.058	-.953	.342
Positive personality	-.054	.045	-.078	-1.195	.234
Negative coping	.406	.044	.548	9.247	.000
Information overload	.017	.023	.051	.709	.479
SNA	-.089	.053	-.139	-1.681	.094
Internet addiction	.068	.034	.175	1.975	.050
Study/Work related use:	-.298	.216	-.075	-1.379	.170
Entertainment related use	.621	.261	.136	2.382	**.018**
Social network sites	-.648	.229	-.160	-2.826	**.005**
Game use:	.072	.213	.019	.339	.735
Shopping:	.046	.248	.010	.187	.852
Adult websites:	.133	.183	.037	.728	.467

Note: $F(18,200) = 22.8$, $p < .00$, $R^2 = 0.69$

6.3.15 Different types of internet uses and negative appraisal.

The influence of different types of internet uses on negative appraisal was analysed through stepwise regression after controlling for demographics, wellbeing covariates, and information overload, internet addiction and SNA. The results indicated no significant effect of any type of internet use on negative appraisal. The results are shown in Table 6.18 (see Appendix E).

6.3.16 Different internet uses predicting academic attainment.

Through a stepwise regression the influence of different types of internet use were investigated after controlling for demographics, wellbeing covariates, internet addiction, information overload and SNA. The results indicated no significant effects of the different internet use on academic performance. The results are shown in Table 6.19 (see Appendix E).

6.4 Discussion

6.4.1 Information overload, internet addiction and SNA.

Information overload, internet addiction and SNA were all significantly associated with the total wellbeing outcome. The regression results showed that information overload, internet addiction, and SNA had significant effects on the wellbeing outcome however, after controlling for wellbeing covariates (stressors, social support, positive personality and negative coping) these effects were no longer significant.

Further analyses investigated the effects of information overload, internet addiction and SNA on wellbeing components while controlling for demographics and wellbeing covariates; information overload only had an influence on negative appraisal. The effects of internet addiction and SNA on different wellbeing components were not significant after controlling for demographics and wellbeing covariates. The independent variables' influence on academic attainment was also investigated and the results showed no significant effect after controlling for wellbeing covariates and demographics.

6.4.2. Different types of internet usage.

The different types of internet uses were all correlated except for work study use and adult websites use. All different uses of the internet were associated with internet addiction. The influence of these types of use of the internet on internet addiction can be interpreted in terms of the high stress levels faced by students. The internet might be potentially addictive, and students use the internet as an escape from stressful life situations. The findings confirmed that all the different types of internet use except for entertainment use were highly correlated with SNA.

The use of the internet for studying, entertainment, games, and adult websites were all associated with information overload. Study and work use are the usual information overload predictors because of the rich information intake that takes place during the learning process of unfamiliar subjects, or the lack of internet literacy skills which can cause information overload. A noteworthy finding was online gaming and entertainment predicted information overload in students and this may be explained if they are excessively used. Adult websites cause information overload if the students are not familiar with the information shown or feel stressed in hiding that they have access to adult websites, since information overload is a form of stress.

6.4.2.1 Different types of internet use and wellbeing.

All different types of internet uses were correlated with the total wellbeing outcome (where high scores reflect more negative outcomes). It was found that study/work use of the internet predicts positive wellbeing. This is a remarkable finding because although in this survey the use of internet for study/work purposes predicts information overload and internet addiction, it is still predicting positive wellbeing. This highlights the good reflection of knowledge and the feeling of accomplishment students feel while studying and reaching for their goals or making the best use of their time.

Entertainment use was negatively associated with positive wellbeing. Although entertainment is a source of fun and pleasant times, in this study entertainment use of internet predicted information overload and internet addiction, and negatively predicted positive wellbeing. These results can be explained by the guilty feeling students may experience if they are using the internet for entertainment rather than studying or working, especially as most of the sample were experiencing high stress levels. More specifically, 65% of the sample were experiencing high work stress and 67% were experiencing high workload.

Online gaming and adult websites predicted negative wellbeing. Previous studies confirm the negative impact of gaming and adult websites on wellbeing, with use of online pornography being associated with low self-esteem, depressive traits, poor health quality and health status (Manocha, 2018; Yoder, Virden, & Amin, 2005) and distress (Grubbs et al., 2015).

After controlling for demographics, wellbeing covariates, information overload, internet addiction, and SNA, different internet usage had no influence on the following wellbeing components: positive wellbeing, positive appraisal and negative appraisal. However, entertainment use influenced negative wellbeing, and social network use negatively influenced negative wellbeing. The influence of different internet uses on academic attainment was investigated with no significant effect.

If the impact of these findings were taken into a wider context, spreading awareness is crucial for learning institutions and schools to keep students aware of the negative impact of information overload, and of excessive internet use generally. This problem can be addressed by developing students' information and literacy skills, through their retrieval of the right information. It can also help develop wellbeing support units within the learning institution to guide students to use the internet sufficiently and overcome excessive internet usage.

The next chapter extends the analyses by exploring data from a sample of workers to examine the role that age, and employment may play in the influence of information overload, internet addiction, SNA and different internet on wellbeing.

CHAPTER 7

THE IMPACT AND PREVALENCE OF INFORMATION OVERLOAD, INTERNET ADDICTION AND DIFFERENT INTERNET USAGE THE WELLBEING OF WORKERS

7.1 Introduction

The previous study investigated the association and influence of information overload, internet addiction and SNA on wellbeing, and how the different types of internet use influence information overload, internet addiction, SNA and wellbeing outcomes, using a sample of UK based university students. Controlling for demographics, and wellbeing covariates in assessing the influence of information overload, internet addiction, SNA and different internet uses resulted in many of the effects on wellbeing no longer achieving significance.

The present study aimed to investigate these same issues in a sample of workers based in the UK. The objectives of the study were to assess a cross-sectional association in 1). The prevalence of information overload, internet addiction and SNA in a sample of workers 2). Investigate the impact of SNA and different internet usage on wellbeing, work efficiency, work life balance, and general health; 3). Compare the differences in the effects of information overload, internet addiction and SNA on wellbeing in student sample and workers.

7.2 Methods

7.2.1 Ethical approval.

The research received approval from the Ethics Committee, School of Psychology, Cardiff University and was carried out with the informed consent of the participants.

7.2.2 Sample size consideration

A sample size of 130 was considered appropriate. The sample size calculation was explained in detail in Chapter 6.

7.2.3 Design.

This was a cross-sectional online survey.

7.2.4 Participants.

Two hundred fifty-four (254) UK based employees were recruited from the Qualtrics participation panel. Using Qualtrics, a researcher can use the project management tool in order to get data from specified demographics, by contacting the Qualtrics team with sample restrictions, sample size, and the length of the measure. Qualtrics team then recruit the required sample panel based on sample restrictions to fulfil the research purposes by answering online questionnaires presented using the Qualtrics platform. The target sample were UK based employees and regular internet users. Each participant was paid 5 pounds by completing the questionnaires. Fifty-one percent were males with a mean age of 42 years old (range= 18-65, SD= 12.7). Education levels varied from O-Level/ GCSE to PhD. Participants' annual income ranged from £13,000-£80,000. The mean number of hours spent at work each week were 37 hours.

A consent form, instructions and debrief form were included with the questionnaires. The aim of the study was explained, and participants were given relevant information.

7.2.5 Measuring instruments.

The perceived information overload scale consisted of 16 items measuring cyber and environmental information overload **(**Misra & Stokols, 2011**)**. Internet addiction test which consisted of 20 items that examine the use of the internet for non-academic or non-job purposes, measuring addiction based on DSM-IV criteria of pathological gambling (Young, 1998). Bergen social media addiction scale (BSMAS) which consist of six items to assess social media addiction based on 6 addiction elements (Andreassen et al., 2012). The wellbeing process questionnaire (WPQ short form), a single item measure inherited from DRIVE model, consist of 15 items measuring work characteristics, demands, resources, and wellbeing outcomes (Williams, 2014) and work-life balance measure which measures work-family balance in 7 items measure (Greenhaus et al., 2003). A detailed description of the measures and procedures are provided in Chapter 2.

Demographic data were collected to measure general health, gender, age, sleep quality, height and weight, smoking, annual income. Information of the frequency of using different internet sites (games, SNS, gambling, pornography, shopping) was also collected.

7.2.6 Statistical analysis.

SPSS 20.00 was used to conduct all statistical analyses. Data met the assumption of normality. Pearson correlations were conducted to evaluate the strength of the relationships between information overload, internet addiction, SNA, wellbeing scores and work performance. A stepwise regression was carried out to assess the impact of information overload, internet addiction and SNA on wellbeing while controlling for wellbeing covariates and demographics. Multiple regressions were also used to assess the effect of different internet usage on internet addiction, information overload, SNA, and positive and negative wellbeing variables.

7.3 Results

7.3.1 Educational level descriptive statistics.

- 1.2% of the participants had no secondary school qualifications.
- 22.4% of the participants had O-level / GCSE education level
- 27.6% of the participants had A-level/ NVQ educational level
- 29.1% of the participants had an undergraduate degree
- 16.9% of the participants had a master's degree
- 2.8% of the participants had a PhD

7.3.2 Frequency of usage of different types of internet.

The frequency of usage of the different types of internet is shown in Table 7.1.

The results can be summarised as follows:

- 51% of the participants used internet for work related purposes.
- 60.9% of the participants used internet for Entertainment purposes often or very often
- 54% of the participants used social networks often or very often
- 36.8% of the participants used the internet very often or often for game use
- 51% of the participants used the internet for shopping often or very often
- 15% of the participants used the internet for adult websites very often or often

Table 7.1. Internet Use Descriptive

Internet use	Never %	Rarely %	Sometimes %	Often %	Very often %
Work	7.5	10.3	30.4	28	23.3
Entertainment	4.7	10.7	23.7	33.6	27.3
Social networks	10.4	14.8	20.8	28.8	25.5
Online gaming	22.4	15.2	25.6	25.2	11.6
Online shopping	1.2	9.2	38.2	39	12.4
Adults website	45.2	17.9	21.0	8.7	7.1

7.3.3 Internet addiction, information overload and SNA prevalence.

There were no internet addicts in the sample and the frequencies above other thresholds are shown below:

- 24% of the sample suffered from problematic internet use.
- 22% were social network addicts.
- 25% suffered from information overload very often.

7.3.4 Work stress.

- 41.5% of the participants experience high work stress.
- 53.1% of the participants experience high workload.
- 64.2 % of the participants claimed they delivered work efficiently.

Table 7.2. Work Stress Descriptive

Variable	Low %	Medium %	High %
Work-stress	24.5	34	41.5
Workload	11.4	35.4	53.1
Work efficiency	6.3	29.5	64.2

7.3.5 Pearson correlation analysis.

A Pearson correlation analysis was conducted with the information overload, internet addiction, social networks addiction (SNA), worklife balance (WLB) and wellbeing variables. Cohen's standard was used to evaluate the strength of the relationships, where coefficients between .10 and .29 represent a small association, coefficients between .30 and .49 represent a moderate association, and coefficients above .50 indicate a large association (Cohen, 1988).

There was a significant positive correlation between information overload and internet addiction (r = 0.78, p < .001) and the magnitude indicated a large relationship. There was a significant positive correlation between information overload and total SNA (r = 0.73, p < .001), again indicating a large relationship. There was a significant positive correlation between information overload and low WLB (r = 0.20, p < .001), indicating a small relationship. There was a significant positive correlation between information overload and the total negative wellbeing outcome (r = 0.51, p < .001). The correlation coefficient between information overload and total wellbeing negative outcomes was 0.51 indicating a large relationship. This indicates that as information overload increases negative wellbeing outcomes increase. The correlations between the established predictors of wellbeing and the wellbeing outcome score were as expected. There was a significant positive correlation between internet addiction and SNA (r = 0.87, p < .00) with the size of the correlation coefficient indicating a large relationship. There was a significant positive correlation between internet addiction and poor WLB (r = 0.33, p < .001) and the size of the correlation indicated a small relationship. There was a significant positive correlation between internet addiction and total negative outcomes (r = 0.43, p < .00) indicating a medium relationship.

Information overload was positively correlated with education level (r=.20, p<.00). Sleep quality was negatively associated with information overload (r=-.160, p= .01). Information overload and work stress were positively correlated (r=.45, p=.00) and information overload was highly correlated with negative wellbeing (r=.62, p=.00), negative affect (r=.67, p=.00) and negative coping (r=.46, p=.00).

Internet addiction was positively correlated with education level (r=.14, p<.01), work stress (r= .25, p < .001), negative wellbeing (r= .48, p < .001), negative affect (r= .51,

$p < .001$) and negative coping ($r = .503$, $p < .001$), which shows a strong association between internet addiction and negative coping. Table 7.3 summarises the correlation results.

Table 7.3. Pearson Correlation Matrix among Information Overload, Internet Addiction, SNA, WLB and Wellbeing Total Outcome

Variables	Information overload	Internet addiction	SNA	Wellbeing
Information Overload	1	**.78****	**.73****	**.51****
Internet Addiction	**.78****	**1**	**.87****	**.43****
SNA	**.73****	**.87****	1	**.44****
Wellbeing Outcome	**.51****	**.43****	**.44****	1
WLB	**.20****	**.33****	**.36****	**.25****
level of education	**.20****	**.14***	**.15***	**.19****
Smoking	**-.13***	**-.18****	**-.21****	**-.15***
General Health	-.005	.08	.11	**-.19****
Sleep Quality	**-.16***	-.09	-.02	-.01
Work stress	**.45****	**.25****	**.17****	**.40****
Positive wellbeing	-.08	-.02	.035	**-.46****
Negative wellbeing	**.62****	**.48****	**.449****	**.68****
Negative affect	**.67****	**.51****	**.484****	**.54****
Positive affect	-.02	.06	.110	**-.48****
Positive personality	.003	.017	.03	**-.25****
Negative coping	**.46****	**.50****	**.48****	**.43****

7.3.6 Information overload, internet addiction and SNA predicting the wellbeing outcome.

A linear regression model was conducted to investigate the impact of information overload, internet addiction and SNA on wellbeing total outcome. The results of the linear regression model were significant ($F(3,253) = 32.29$, $p < .001$, $R^2 = 0.27$), indicating that approximately 27% of the variance in wellbeing outcome can be explained by information overload, internet addiction and SNA. Information overload

significantly predicted wellbeing outcome ($B = 0.22$, t (253) = 2.43, $p < .001$). Neither internet addiction nor SNA significantly predicted the wellbeing outcome. Table 7.4 summarises the results of the regression model.

Table 7.4. Results for Multiple Linear Regression with Information Overload Internet Addiction and SNA Predicting Wellbeing Outcome

Variable	*B*	*SE*	B	*t*	*p*
(Intercept)	24.62	1.8		13.52	.00
Information Overload	**.22**	**.04**	**.42**	**4.90**	**.00**
Internet Addiction	-.05	.08	-.07	-.59	.55
SNA	.22	.12	.20	1.78	.07

Note. $F(3,253) = 32.29$, $p < .00$, $R^2 = 0.27$

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA predicted the wellbeing outcome after controlling for demographics, wellbeing covariates, and work life balance. The results of the stepwise regression were significant ($F(12,248) = 54.50$, $p < .00$, $R^2 = 0.73$). However, none of the information overload, internet addiction, or SNA variables predicted the wellbeing outcome at a level which was statistically significant. Table 7.5 summarises the results of the regression model (see Appendix).

7.3.7 Information overload, internet addiction and SNA predicting negative wellbeing.

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA predicted negative wellbeing after controlling for demographics, wellbeing covariates, and work-life balance. The results of the stepwise regression were significant ($F(12,244) = 32.95$, $p = .00$, $R^2 = 0.63$). However, only information overload ($B = 0.62$, $t(244) = 4.50$, $p < .001$) predicated negative wellbeing. Table 7.6 summarises the results of the third model stepwise regression.

Table 7.6. Results for Stepwise Regression Information Overload Internet Addiction and SNA predicting Negative Wellbeing

Variable	***B***	***SE***	***β***	***t***	***P***
Constant	-.33	1.10		-.29	.76
Gender	.18	.23	.03	.80	.42
Age	.00	.01	.01	.35	.72
Smoking	-.14	.24	-.02	-.57	.56
Sleep Quality	-.23	.18	-.05	-1.24	.21
General Health	-.03	.07	-.02	-.51	.60
Negative effect	.36	.06	.32	5.94	.00
Positive effect	.01	.07	.00	.15	.87
Negative coping	.20	.05	.18	3.77	.00
Positive personality	-.19	.06	-.16	-2.84	.005
Information Overload	.06	.01	.32	4.50	.000
Internet Addiction	.02	.02	.10	1.11	.26
SNA	-.01	.03	-.03	-.38	.70

Note: $F(12,244) = 32.95$, $p = .00$, $R^2 = 0.63$

7.3.8 Information overload, internet addiction and SNA predicting positive wellbeing.

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA predicted positive wellbeing after controlling for demographics, wellbeing covariates, and work-life balance. The results of the stepwise regression were significant ($F(12,244) = 12.80$, $p < .001$, $R^2 = 0.39$). However, none of the information overload, internet addiction, or SNA variables predicted positive wellbeing. Table 7.7 summarises the results of the regression model (see Appendix E).

7.3.9 Information overload, internet addiction and SNA predicting positive appraisal.

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA predicted positive appraisal after controlling for demographics, wellbeing covariates, and work life balance. The results of the stepwise regression were significant (F (12, 244) = 49.76, $p = .00$, $R^2 = 0.72$). However, none of the information

overload, internet addiction, or SNA variables were significant predictors of positive appraisal. Table 7.8 summarises the results of the regression model (see Appendix E).

7.3.10 Information overload, internet addiction and SNA predicting negative appraisal.

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA influence negative appraisal after controlling for demographics, wellbeing covariates, and work-life balance. The results of the stepwise regression were significant (F (12,243) = 11.06, $p < .00$, $R^2 = 0.36$). Information overload (B = 0.08, t(243) = 4.8, $p < .001$) and SNA (B = -0.12, t(243) = -2.80, $p < .001$) predicted negative appraisal. Table 7.9 summarises the results of the regression model.

Table 7.9. Results for Stepwise Regression last Model with Information Overload Internet Addiction and SNA predicting Negative Appraisal

Variable	B	SE	β	t	P
(Constant)	3.47	1.34		2.58	.01
Gender:	.08	.28	.01	.30	.75
Age	.00	.01	-.00	-.02	.98
Smoking	-.40	.30	-.07	-1.33	.18
Sleep Quality	-.60	.22	-.16	-2.65	.00
General Health	.01	.08	.01	.21	.83
Negative effect	.33	.07	.32	4.49	.00
Positive effect	.12	.09	.09	1.29	.19
Negative coping	-.08	.06	-.08	-1.25	.21
Positive personality	-.05	.08	-.05	-.68	.49
Information Overload	.08	.01	.45	4.8	**.00**
Internet Addiction	.01	.03	.05	.45	.64
SNA	-.12	.04	-.32	-2.80	**.00**

Note: $F(12,243) = 11.06$, $p < .00$, $R^2 = 0.36$.

7.3.11 Information overload, internet addiction and SNA predicting work efficiency.

A stepwise regression was conducted to assess whether information overload, internet addiction and SNA predicted work efficiency after controlling for demographics, wellbeing covariates, and work-life balance. The results of the stepwise regression were significant ($F(12,244) = 6.73$, $p < .00$, $R^2 = 0.25$). However, none of the information overload, internet addiction, or SNA significantly predicted work efficiency. Table 7.10 summarises the results of the regression model (Appendix E).

7.3.12 Information overload, internet addiction and SNA predicting work-life balance.

A stepwise regression examined the effects of information overload, internet addiction and SNA on work-life balance after controlling for demographics, and wellbeing covariates. The regression model was significant ($F(12,244) = 19.11$, $p = .00$, $R^2 = 0.49$). Only information overload predicated work- life balance significantly $B = 0.082$, $t(244) = 5.21$, $p = .001$. Table 7.11 displays the results of the last model of the stepwise regression.

Table. 7.11. Results of Stepwise Regression Information Overload, Internet Addiction and SNA predicating Work-life Balance

Variable	***B***	***SE***	***β***	***t***	***P***
(Constant)	.226	1.273		.178	.859
Gender:	-.262	.268	-.046	-.977	.330
Age	.006	.012	.025	.466	.641
Smoking	-.388	.284	-.067	-1.367	.173
Sleep Quality	-.106	.216	-.027	-.488	.626
General Health	.019	.083	.013	.227	.821
Negative effect	.318	.071	.285	4.477	.000
Positive effect	-.039	.088	-.028	-.439	.661
Negative coping	.068	.062	.063	1.103	.271
Positive personality	-.017	.080	-.014	-.209	.834
Information Overload	.082	.016	.440	5.211	**.000**
Internet Addiction	-.001	.028	-.005	-.042	.966
SNA	.008	.042	.019	.186	.853

Note: $F(12,244) = 19.11$, $p = .00$, $R^2 = 0.49$

7.3.13 Information overload, internet addiction and SNA predicting life-work balance.

A stepwise regression was carried out to analyse the influence of information overload, internet addiction and SNA on life-work balance, controlling for demographics and wellbeing covariates. The regression model was significant ($F(12,244) = 23.2$, $p < .001$, $R^2 = 0.54$) and the results indicated that only internet addiction was significant in predicting life-work balance ($B = 0.083$, $t(244) = 3.26$, $p = .001$). Table 7.12 shows the results of the last of model of the stepwise regression.

Table 7.12. Last Model Results of Stepwise Regression Information Overload, Internet Addiction and SNA predicating Life Work Balance

Variable	***B***	***SE***	***β***	***t***	***P***
(Constant)	-1.123	1.158		-.970	.333
Gender:	-.362	.244	-.066	-1.483	.139
Age	-.009	.011	-.043	-.846	.399
Smoking	-.303	.258	-.055	-1.176	.241
Sleep Quality	-.097	.197	-.026	-.493	.623
General Health	-.048	.075	-.034	-.639	.524
Negative effect	.076	.065	.072	1.180	.239
Positive effect	.091	.080	.070	1.148	.252
Negative coping	.164	.056	.158	2.915	.004
Positive personality	.078	.072	.069	1.074	.284
Information Overload	.025	.014	.142	1.762	.079
Internet Addiction	.083	.026	.344	3.265	**.001**
SNA	.041	.038	.106	1.082	.280

Note: $F(12,244) = 23.2$, $p < .00$, $R^2 = 0.54$

7.3.14 Different internet usage predicting internet addiction.

To test the effect of different internet usage on internet addiction, a multiple linear regression was conducted to examine work/study use, social network use, entertainment, online gaming, online shopping, and adult websites and their contribution in predicting internet addiction. The result of the multiple linear regression was significant ($F(6,239) = 20.84$, $p < .001$, $R^2 = 0.34$), indicating that those different

internet uses can explain 34% of the variance in internet addiction. Internet game use was significant in predicting internet addiction (B = 2.15, t(239) = 3.87, p < .001), as was use of Adult websites (B = 3.54, t(239) = 6.7, p < .001). However, study/work related use, entertainment use, social networks and online shopping did not significantly predict internet addiction, highlighting that not all types of internet usage cause internet addiction. Online games and adult websites did significantly predict internet addiction however. Table 7.13 summarises the results of the regression model.

Table 7.13 Results for Multiple Linear Regression of different Internet uses predicting Internet Addiction

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	14.996	3.110		4.822	.000
Study/Work related use	.437	.546	.044	.800	.425
Entertainment	.532	.660	.052	.805	.422
Social Network	-.183	.584	-.020	-.313	.755
Games	2.150	.555	.246	3.873	**.000**
Shopping	1.283	.775	.096	1.656	.099
Adult websites	3.545	.528	.393	6.716	**.000**

Note, $F(6,239) = 20.84$, $p < .00$, $R^2 = 0.34$

7.3.15 Different internet use predicting information overload.

A linear regression model was conducted to test the impact of different internet usage in predicting information overload. The results of the multiple linear regression were significant (F(6,239) = 17.46, p < .001, R^2= 0.31), indicating that those different internet uses can explain 31% of the variance in information overload. Study/work related use was significant in predicting information overload (B = 2.26, t(239) = 3.03, p = .003), as was online shopping. Use of adult websites also significantly predicted information overload (B =4.41, t (239) = 6.1, p = .001). However, using the internet for entertainment, social networks and games did not significantly predict information overload. The results confirm that the use of the internet as an information source for studying or working can predict information overload, and that use of adult websites

contributes to increasing information overload and internet addiction. Table 7.14 summarises the results of the regression model.

Table 7.14. Results for Linear Regression of Different Internet Uses Predicting Information Overload

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	13.952	4.252		3.281	.001
Study/Work related use	2.266	.747	.173	3.034	**.003**
Entertainment	.863	.903	.063	.955	.340
Social Network	-.398	.799	-.034	-.499	.618
Games	1.167	.759	.100	1.538	.125
Shopping	3.049	1.060	.171	2.878	**.004**
Adult websites	4.412	.722	.369	6.113	**.000**

Note, $F(6,239) = 17.46$, $p < .00$, $R^2 = 0.31$

7.3.16 Different internet use predicting total wellbeing outcome.

A linear regression was conducted to assess the influence of different internet usage on the total wellbeing outcome which reflects low wellbeing. The regression model was significant ($F(6,239) = 8.05$, $p < .001$, $R^2 = 0.17$) and the results indicate that the influence of study/work internet use ($B = .98$, $t(239) = 2.28$, $p = .02$), online shopping ($B = 1.30$, $t(239) = 2.1$, $p = .03$) and adults websites use on the wellbeing outcome ($B = 1.68$, $t(239) = 4.03$, $p < .001$). Table 7.15 shows the results of the linear regression.

Table 7.15. Results of the Linear Regression of Different Internet Usage Predicting the Total Wellbeing Outcome

Variable	***B***	***SE***	***β***	***t***	***P***
Constant	23.806	2.458		9.685	.000
Study/Work	.984	.432	.143	2.280	**.024**
Entertainment	-.459	.522	-.064	-.879	.380
Social network sites	.021	.462	.003	.046	.963
Game use	.750	.439	.122	1.709	.089
Shopping	1.304	.612	.139	2.129	**.034**
Adult websites	1.685	.417	.267	4.038	**.000**

Note: $F(6,239) = 8.05$, $p < .00$, $R^2 = 0.17$

A stepwise regression was conducted to test the influence of different internet usage on wellbeing outcome. The regression model was significant ($F(19,235) = 30.95$, $p < .001$, $R^2 = 0.73$). However, none of the internet use types were significant in predicting the wellbeing outcome after controlling for demographics, wellbeing covariates, information overload, internet addiction, and SNA. Results of the stepwise regression are in Table 7.16 (see Appendix E).

7.3.17 Different internet use predicting positive wellbeing.

A linear regression model was conducted to test the impact of different internet use in predicting positive wellbeing. The results of the multiple linear regression were significant ($F(6,239) = 3.63$, $p < .00$, $R^2 = 0.085$), indicating that those different internet uses explain 8% of the variance in positive wellbeing. Study/work related use was significant in predicting positive wellbeing ($B = 1.53$, $t(239) = 3.12$, $p = .002$). In contrast, using the internet for entertainment was negatively associated with positive wellbeing ($B = -1.55$, $t(239) = -2.60$, $p = .01$). However, the use of adult websites, social networks, games, and shopping did not predict positive wellbeing significantly. Table 7.17 summarises the results of the regression model.

Table 7.17 Results for Linear Regression of Different Internet Uses Predicting Positive Wellbeing

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	27.338	2.800		9.762	.000
Study/Work related use	1.534	.492	.205	3.120	**.002**
Entertainment	-1.551	.595	-.199	-2.608	**.010**
Social Network	.105	.526	.015	.200	.842
Games	.785	.500	.118	1.571	.117
Shopping	.934	.698	.092	1.338	.182
Adults websites	.572	.475	.084	1.203	.230

Note $F(6,239) = 3.63$, $p < .00$, $R^2 = 0.085$

A stepwise regression was conducted to control the influence of demographics, wellbeing covariates, information overload, internet addiction and SNA. The stepwise regression was significant $F(18, 231) = 8.05$, $p < .00$, $R^2 = 0.40$. However, none of the types of internet use were significant in predicting positive wellbeing. Results of the stepwise regression are displayed in Table 7.18 (See appendix E).

7.3.18 Different internet use predicting negative wellbeing

A linear regression model was conducted to test the impact of different internet use in predicting negative wellbeing. The results of the multiple linear regression were significant ($F(6,239) = 7.82$, $p < .00$, $R^2 = 0.168$), showing that different internet use explained 17% of the variance in negative wellbeing. Online shopping was significant in predicting negative wellbeing ($B = 1.71$, $t(239) = 2.14$, $p = .03$), as was adult website use ($B = 2.38$, $t(239) = 4.38$, $p < .001$). However, study and work internet use, entertainment, social networks, and games, did not significantly predict negative wellbeing. Table 7.19 summarises the results of the regression model.

Table 7.19 Results for Multiple Linear Regression of different Internet uses Predicting Negative Wellbeing

Variable	*B*	*SE*	β	*t*	*p*
(Intercept)	10.338	3.208		3.223	.001
Study/Work related use	.416	.563	.046	.739	.461
Entertainment	1.000	.681	.107	1.467	.144
Social Network	-.102	.603	-.013	-.169	.866
Games	.169	.573	.021	.294	.769
Shopping	1.715	.799	.140	2.145	**.033**
Adults websites	2.388	.545	.290	4.386	**.000**

Note *F(6,239) =7.82, p < .00,* R^2*= 0.168*

A follow-up stepwise regression was conducted to measure the influence of different internet uses on negative wellbeing after controlling for demographics, wellbeing covariates, information overload, internet addiction and SNA. The regression was significant ($F(6, 239) = 7.82$, $p < .001$, $R^2 = 0.168$). Only adult websites had a significant influence on employees' negative wellbeing ($B = .27$, $t(239) = 2.07$, $p = .04$). Table 7.20 summarises the results of the last model of stepwise regression.

Table 7.20 Summaries the Results of Stepwise Regression Last Model of Different Internet Use Influence on Negative Wellbeing

Variable	***B***	***SE***	***β***	***t***	***P***
(Constant)	.229	1.264		.181	.856
Gender	.427	.274	.074	1.560	.120
Age	.003	.011	.014	.274	.784
Smoking	-.058	.261	-.010	-.221	.825
Sleep Quality	-.293	.198	-.073	-1.477	.141
General Health	-.059	.077	-.039	-.769	.443
Negative effect	.373	.065	.327	5.759	.000
Positive effect	.004	.084	.003	.048	.962
Negative coping	.193	.057	.174	3.365	.001
Positive personality	-.179	.076	-.151	-2.368	.019
Information Overload	.065	.015	.343	4.229	**.000**
Internet Addiction	.031	.026	.122	1.201	.231
SNA	-.039	.039	-.096	-1.002	.318
Study/Work	-.141	.115	-.057	-1.225	.222
Entertainment	-.103	.136	-.040	-.759	.449
Social network sites	.071	.120	.032	.588	.557
Game use	-.045	.116	-.021	-.389	.698
Shopping	-.162	.165	-.048	-.984	.326
Adult websites	.270	.131	.119	2.070	**.040**

Note: $F(6,239) = 7.82$, $p < .00$, $R^2 = 0.168$

7.3.19 Different internet use predicting positive appraisal.

A stepwise regression was conducted to analyse the influence of different internet use on positive appraisal, controlling for the influence of demographics, wellbeing covariates, information overload, internet addiction and SNA. The stepwise regression was significant ($F(18, 213) = 30.19$, $p < .00$, $R^2 = 0.71$). However, none of the types of internet use were significant in predicting positive appraisal. Table 7.21 shows the findings of the stepwise regression (see Appendix E).

7.3.20 Different internet use predicting negative appraisal.

A stepwise regression was conducted to analyse the influence of different types of internet use on negative appraisal, controlling for the influence of demographics, wellbeing covariates, information overload, internet addiction and SNA. The stepwise regression was significant ($F(18, 230) = 8.7$, $p < .00$, $R^2 = 0.42$). The results showed that social network use significantly increased negative appraisal ($B = .38$, t (230) = 2.76, $p = .006$), whereas the use of adult websites reduced negative appraisal ($B = -.29$, t (230) = -1.96, $p = .05$). Table 7.22 shows the findings of the stepwise regression last model.

Table. 7.22 The Results of the Last Model of the Stepwise Regression of the Influence of Different Internet Uses on Negative Appraisal

Variable	**B**	**SE**	**β**	**t**	**P**
(Constant)	2.221	1.446		1.536	.126
Gender:	-.214	.313	-.040	-.683	.496
Age	.008	.013	.039	.634	.527
Smoking	-.300	.300	-.056	-.999	.319
Sleep Quality	-.517	.227	-.141	-2.279	.024
General Health	-.049	.088	-.036	-.556	.579
Negative effect	.359	.074	.345	4.844	.000
Positive effect	.057	.096	.045	.592	.554
Negative coping	-.065	.065	-.064	-.989	.324
Positive personality	.012	.087	.011	.139	.889
Information Overload	.080	.018	.463	4.550	.000
Internet Addiction	.030	.030	.127	1.001	.318
SNA	-.137	.045	-.364	-3.030	.003
Study/Work	-.227	.131	-.101	-1.725	.086
Entertainment	.178	.155	.076	1.147	.252
Social network sites	.381	.138	.187	2.765	**.006**
Game use	-.090	.133	-.045	-.673	.502
Shopping	.128	.188	.041	.680	.497
Adult websites	-.296	.150	-.142	-1.967	**.050**

Note: $F(18, 230) = 8.7$, $p < .00$, $R^2 = 0.42$

7.3.21 Different internet use predicting work efficiency.

Through a stepwise regression the influence of different internet uses on work efficiency was analysed, controlling for demographics, wellbeing covariates, information overload, internet addiction and SNA. The regression model was significant ($F(18, 231) = 6.19$, $p < .00$, $R^2 = 0.34$) and the results indicated that the use of the internet for entertainment ($B = .26$, $t\ (231) = 2.13$, $p = .03$) and online shopping ($B = .49$, $t\ (231) = 3.28$, $p < .001$) influence work efficiency positively. In contrast, the use of adult websites influenced work efficiency negatively ($B = -.29$, $t\ (231) = -2.46$, $p = .01$). Table 7.23 summaries the results of the last model of the stepwise regression.

Table 7.23. Last Model of the Stepwise Regression Analysing Different Internet Use Predicting Work Efficiency

Variable	***B***	***SE***	***β***	***t***	***P***
(Constant)	2.813	1.167		2.411	.017
Gender:	-.347	.253	-.087	-1.369	.172
Age	.025	.010	.160	2.428	.016
Smoking	-.407	.241	-.101	-1.687	.093
Sleep Quality	-.254	.183	-.092	-1.389	.166
General Health	.237	.071	.229	3.347	.001
Negative effect	.173	.060	.219	2.886	.004
Positive effect	.396	.077	.414	5.136	.000
Negative coping	-.029	.053	-.038	-.543	.588
Positive personality	-.017	.070	-.020	-.240	.811
Information Overload	-.015	.014	-.115	-1.062	.289
Internet Addiction	-.022	.024	-.122	-.898	.370
SNA	.040	.036	.143	1.110	.268
Study/Work	-.047	.106	-.028	-.441	.660
Entertainment	.267	.125	.151	2.130	**.034**
Social network sites	-.087	.111	-.056	-.780	.437
Game use	.013	.108	.009	.121	.904
Shopping	.499	.152	.213	3.285	**.001**
Adult websites	-.297	.121	-.189	-2.461	**.015**

7.3.22 Different internet use predicting work-life balance.

A stepwise regression was conducted to analyse the influence of different internet uses on work-life balance, controlling for the influence of demographics, wellbeing covariates, information overload, internet addiction and SNA. The stepwise regression was significant ($F(18, 231) = 11.99$, $p < .001$, $R^2 = 0.50$). However, none of the types of internet use were significant in predicting work-life balance. Table 7.24 shows the findings of the stepwise regression (see Appendix E).

7.3.23 Different internet use predicting life-work balance.

A stepwise regression was conducted to analyse the influence of different internet uses on life-work balance, controlling for the influence of demographics, wellbeing covariates, information overload, internet addiction and SNA. The stepwise regression was significant ($F(18, 231) = 14.16$, $p < .00$, $R^2 = 0.54$). None of the different types of internet use significantly predicted life-work balance. Table 7.25 shows the findings of the stepwise regression (see Appendix E).

7.4 Discussion

The current chapter has introduced the prevalence of information overload, internet addiction and SNA in sample of workers based on UK. The study also explored the most used internet activities and their prediction of positive wellbeing, negative wellbeing, information overload, internet addiction and work-life balance. The present section will address each of these findings before discussing limitations of the study and directions for future research.

7.4.1 Correlations.

Similar to previous studies, information overload, internet addiction and SNA, were strongly positively associated. Information overload, internet addiction and SNA were correlated with negative wellbeing, negative affect, negative coping and work stress. Information overload was negatively associated with sleep quality, which indicates that if information overload increases, sleep quality decreases. Prior to this result, there was no literature found to support an association between information overload and sleep quality. Information overload and internet addiction were not correlated with general health which conflicted with the findings of Kutty and Sreeramareddy (2014), and the

difference in results may reflect a cultural difference since Kutty and Sreeramareddy's study used a Malaysian sample.

7.4.2 Information overload, internet addiction and SNA predicting wellbeing, work efficiency and work-life balance

A multiple linear regression was conducted to assess the effects of information overload, internet addiction and SNA on the wellbeing outcome which combines both negative and positive values and high scores reflect low wellbeing. Information overload was significant in predicting the wellbeing outcome. However, after controlling for demographics, stress, negative coping and other wellbeing covariates through stepwise regression (see Appendix Table 7.5), neither information overload, internet addiction nor SNA were significant in predicting the wellbeing outcome. This result confirms the findings of the previous two results that information overload, internet addiction can be accounted for by stress and negative coping.

A further analysis investigated the impact of information overload, internet addiction and SNA on wellbeing factors, namely positive wellbeing, negative wellbeing, positive appraisal and negative appraisal, while controlling for the effects of demographics and wellbeing covariates. The results indicated that information overload significantly influenced negative wellbeing. Negative appraisal was significantly influenced by information overload and SNA. Information overload, internet addiction and SNA had no influence on work efficiency after controlling for the established predictors. However, the results confirmed the influence of information overload on work-life balance, and of SNA on life-work balance. High information overload at work interferes with life outside, and problematic internet use at home can interfere with work.

7.4.3 Different internet uses predicting information overload, internet addiction and wellbeing

The internet provides a variety of services and the hypothesis stated that different internet usage has a different influence on information overload, internet addiction and wellbeing. Initial results using multiple linear regression confirmed that different internet usage predicted information overload, internet addiction, and wellbeing significantly. The findings indicated that online gaming and adult website use predicted

internet addiction. Study-work related use, online shopping, and adult website use significantly predicted information overload. Internet entertainment use was negatively associated with positive wellbeing, confirming results from the student study, and this can be explained by the self-blame for not working or neglecting work resulting in negative feelings. Study/work related use of the internet predicted positive wellbeing which can be explained by the positive effect of achievement. In contrast, online shopping and adult website use predicted negative wellbeing. The stepwise regressions changed lots of the significant results. After controlling for demographics, wellbeing covariates and information overload, internet addiction and SNA, only adult website use remained as a significant influence on negative wellbeing and negative appraisal. Social network use had a negative influence on negative appraisal (mental fatigue, physical fatigue, and life stress) which suggests that the controlled use of social networks can enhance the users' life appraisal.

In summary, use of adult websites predicted information overload, internet addiction, and negative wellbeing which confirms results from the previous study and the literature on the negative influence of pornography and its association with depression, anxiety, and stress (Grubbs et al., 2015).

7.4.4 Difference in internet uses predicting wellbeing, internet addiction and information overload.

In the student sample all types of internet use predicted internet addiction, while with workers only online gaming and adult website use predicted internet addiction. These last findings are similar to Frangos, Frangos, and Sotiropoulos' (2011) result from a sample of Greek university students. Here the risk factors of PIU users were online gaming and visiting pornography sites.

In the workers' sample, online shopping and pornography were associated with information overload, whereas in the students' sample, entertainment use decreased information overload.

Study-work related use in both samples predicted positive wellbeing. Both samples agreed on the influence of adult websites on negative wellbeing. However, in the

students' sample, online gaming predicted negative wellbeing, while in the workers sample online shopping predicted negative wellbeing.

Controlling for the established predictors in stepwise regressions showed that information overload influenced the workers' negative wellbeing and negative appraisal. SNA influenced negative life appraisal. In the students' sample only information overload influenced negative appraisal and only the use of the internet for entertainment and social networks influenced negative wellbeing. In the workers' sample, adult website use influenced both negative wellbeing and negative appraisal, and social network use reduced negative appraisal. Table 7.26 summarises the differences between the two samples after controlling for demographics and wellbeing covariates.

Table.7.26 Summary of the Stepwise Regression Findings in Students and Workers Samples

Variables	**Students**	**Workers**
Information Overload	Influence negative appraisal	Influence negative wellbeing Negative appraisal
Internet Addiction	-	-
SNA	-	Negative appraisal
Work/Study use	-	-
Entertainment use	Reduce Negative wellbeing	-
Social networks use	Reduce Negative wellbeing	Reduce negative appraisal
Online Gaming	-	-
Online shopping	-	-
Adults website	-	Negative wellbeing Negative appraisal

7.5 Conclusion and Future Research

Although a number of negative effects of information overload, internet addiction, SNA and different internet use effects were detected at a univariate level, few stayed significant after controlling for wellbeing covariates at the multivariate level, which explains the influence of information overload and internet addiction on wellbeing covariates. Education level was correlated with information overload and internet addiction, although higher education level is assumed to be associated with higher information literacy skills that can deal with information overload. However, further research is needed to explore the relationship between information overload, internet addiction and education level.

A potential method for further investigation of the impact of information overload and internet addiction was considered through data collection from problematic internet users or addicts longitudinally. This provides information on the temporal relationships between the influences of information overload and internet addiction on compulsive internet users' wellbeing. The next chapter will present findings from a diary study on problematic internet users compared to a sample of non-problematic internet users.

CHAPTER 8

A DIARY STUDY ANALYSIS OF PROBLEMATIC INTERNET USERS DAILY ROUTINE AND INFLUENCE OF INFORMATION OVERLOAD AND PROBLEMATIC INTERNET USE ON WELLBEING

8.1 Introduction

Previous chapters provided evidence that certain types of internet activity were associated with wellbeing outcomes, and influence information overload and internet addiction. However, the studies presented so far were cross-sectional, therefore, causality and in-depth understanding could not be concluded. This chapter presents the findings of a week long, comparative diary study of problematic and non-problematic internet users from Kuwait.

As with the earlier chapters, the objectives of this chapter were to examine the influence of information overload and internet addiction on wellbeing through providing in-depth understanding of the difference between problematic internet users and non-problematic internet users' health routine, wellbeing scores, internet usage and hours spent online. The chapter also seeks to discover the prevalence of internet addiction and problematic internet use between Kuwaiti adults.

8.2 Aims of the Study

This study provided an in depth understanding of the psychological impact of information overload and internet addiction on wellbeing. Previous studies confirmed the association and the negative impact of information overload, internet addiction and PIU on wellbeing for different cultural backgrounds and ages. Although different uses of the internet, individual differences, and different factors play a role in the size of the impact on wellbeing, the nature of the relationship is not yet clarified.

This study aimed to analyse the changes that occur in mood and the daily routine of problematic internet users to investigate whether this plays a role in reducing or increasing the impact. The study provided a closer look and a clear impression of the routine and lifestyle of PIU and non-PIU to understand the differences and the impacts of internet addiction and information overload on wellbeing.

8.3 Methods

8.3.1 Ethical approval:

The research received ethical approval from the Ethics Committee, School of Psychology, Cardiff University.

8.3.2 Design.

This was a quantitative, one-week diary study.

8.3.3 Sample size considerations.

Relative to other diary studies, the achieved sample of 45 can be considered to be of average size (Briner & Parkinson, 1993). It should also be noted that for many of the later analyses the number of cases equals 'person-days' rather than 'persons', giving an effective sample size of 450 (45 participants, 10 daily diary entries).

A convenience sample size does not essentially present a problem in a diary study, due to the design. However, the analysis of a diary study can be controlled at an individual level. The achieved sample in this study was 22 participants, which reflects a medium sample size (Briner & Parkinson, 1993). In a diary study analysis, the number of cases equals "participant-days" rather than "participants", which reflects a sample size of >150 (22 participants, 7 daily diary entries).

8.3.4 Participants.

Table 8.1 summarises the demographic composition of the two samples. The problematic internet users sample consisted of 11 Kuwaiti adults, of whom 73% were female, 18.2% were married, with a mean age of 25 years, and an age range from 20-30 years. The non-problematic internet users sample consisted of 11 Kuwaiti adults, of whom 70% were female, 40% were married, 10% were divorced, with a mean age of 30 years, and an age range from 23-39 years.

Eighty-one percent (81.8%) of the PIU group reported having enough sleep sometimes, 36.4% of them exercised daily and ate a healthy diet, 30% of them found their work very stressful, and 45% of them had high information overload scores. For the control group, 50% of the non-PIU sample had enough sleep most of the time, 20% reported to

exercise daily, 30% ate a healthy diet, 40% found their work stressful and 100% of the non-PIU sample were low on information overload.

Table 8.1. Demographic Description of the Two Samples

	Problematic Internet users	Non- problematic Internet users
Gender	73% females	70% females
Marital status	18.2% Married	40% Married 10% divorced
Age range	20-30 years	23-39 years
Mean age	25 years	30 years
Smoking	27.3% smoke	10% smoke
Sleep	81.8% of the participants have enough sleep sometimes	50% get enough sleep most of the time
Exercise daily	36.4% of the participants exercise daily	20% exercise daily
Healthy diet	36.4% of the participants follow a healthy diet	30% follow a healthy diet
Stressful work	30% of the participants find their work very stressful	40% find their work stressful
Information overload	45% suffer from information overload a lot.	100% low information overload
Was it a normal week	60% yes	70% yes

8.3.5 Procedures.

The research procedures took place in two steps; the first step involved an IAT test, which was uploaded on Qualtrics, and the questionnaire link distributed online through 'WhatsApp' to 570 Kuwaiti adults, along with a participant information sheet that explains the aim of the exploratory test. Participants were asked to answer demographic questions about age and gender, and to provide their contact details either email or contact number, in order to be contacted if their IAT scores were 50 or above. After summing the IAT score, only 15% of the participants scored as problematic internet users; 1.1% scored as internet addicts.

The second research step involved contacting participants: 11 problematic internet users agreed to participate in the diary study, along with 11 non-problematic internet users. Diary study participants were given an information sheet about the study and answered demographics along with completing the Information Overload test. Starting from Day 1 to Day 7 participants reported their routine through answering nine questions concerning their wellbeing, hours of sleep, quality of sleep, stress, information overload, hours spent online, most used activity online, and productivity (see Appendix F). On the last day participants were asked if this was a normal/ average week.

8.3.6 Statistical analysis.

SPSS 20.00 was used for all statistical analyses. Data met the assumption of 4.6. A repeated measures ANOVA was conducted to analyse the between-subject effect (non-problematic internet users and problematic internet users) and between-item effect. Pearson correlations were also used to evaluate the strength of the relationship between the factors. Partial correlations were conducted to measure the strength and direction of the relationship between the variables.

8.4 Results

8.4.1 Correlation of problematic internet users.

Table 8.2 represents the results of average scores of variables across the days. Productivity and wellbeing were moderately correlated (r = .30, p < .021) and this describes the association of productivity and achievements with positive psychological wellbeing. Information overload and stress were correlated (r =.28, p < .030) which indicates a small relationship between stress and information overload. An explanation for this could be that information overload is a form of stress and therefore could explain a portion of the stress that the PIU sample face. Information overload was negatively correlated with positive wellbeing (r = -.29, p < .029). Stress was also negatively strongly correlated with positive wellbeing (r =-.50, p < .00), which means if stress increases, positive wellbeing decreases. Good sleep quality was correlated with positive wellbeing (r = .25, p <.007), which is a logical consequence of having good deep rest and a good psychological wellbeing routine.

Table 8.2. Pearson Correlation Matrix among Problematic Internet Users' Productivity, Information Overload, Stress, Sleep Quality, Wellbeing, and Hours Spent Online

Variable	1	2	3	4	5
1. Productivity					
2. Information overload	-				
3. Stress	-	.285*			
4. Sleep Quality	-	-	-		
5. Positive Wellbeing outcome	.307*	-.293*	-.509**	.356**	
6. Hours online	-	-	-	-	-

Note. The critical values are 0.19, 0.25, and 0.32 for significance levels .05, .01, and .001 respectively.

8.4.2 Pearson correlation of the daily effect of hours spent online with next day wellbeing in a PIU sample.

A Pearson correlation was performed to calculate the daily effect of hours spent online on next day wellbeing. However, there were no significant correlations with hours spent online and wellbeing for any of the days. This indicates that the number of hours spent online is not associated with next day wellbeing.

8.4.3 Correlation of non-problematic internet users.

The sample of non-problematic internet users scored 100% low information overload which explained why it was correlated moderately with productivity ($r = .34$, $p < .005$). Sleep quality was strongly correlated with positive wellbeing, which is a sign of healthy wellbeing ($r = .50$, $p < .00$). Table 8.3 presents the results of the correlations.

Table 8.3 Pearson Correlation among Non-Problematic Internet Users' Information Overload, Stress, Productivity, Hours Online, Wellbeing and Sleep Quality

Variable	1	2	3	4	5
1. Information overload					
2. Stress	-				
3. Productivity	.340**	-			
4. Hours spent online	-	-	-		
5. Wellbeing	-	-	-	-	
6. Sleep Quality	-	-	-	-	.508**

Note. The critical values are 0.19, 0.25, and 0.32 for significance levels .05, .01, and .001 respectively.

8.4.4 Pearson correlation of the daily effect of hours spent online and wellbeing in a Non-PIU sample.

There was a significant negative correlation between hours spent online on Day 1 and positive wellbeing in Day 2 (r = -.87, p = .001), which reflects a strong negative association. The results revealed that if the hours spent online increased, positive wellbeing decreased with normal internet users. There was a significant negative correlation with hours spent online and information overload (r = -.75, p = .012), and this can be explained by the most used activity. In Day 1, 72% of the participants used social media as the most used online activity, 18.2% browsing and 8.1% online gaming. In the previous two studies social media did not predict information overload.

Table 8.4. Pearson Correlation among Non-Problematic Internet Users' Information Overload, Stress, Productivity, Hours Online, Wellbeing and Sleep Quality

Variable	1	2	3
Day 2 wellbeing			
Hours online day 1	**-.868****		
Information overload day 1	-	**-.751***	
Sleep day 1	-	-	-

Note. The critical values are 0.19, 0.25, and 0.32 for significance levels .05, .01, and .001 respectively.

8.4.5 Most used online activity throughout the week.

8.4.5.1 Problematic internet users.

Approximately 58.6% of users used the internet mostly for social media, 24.1% used the internet mostly for online browsing and surfing, while 17.2% used the internet for online gaming. Based on the previous study, online gaming predicts lower wellbeing. See Table 8.5 and Figure 8.1 for more details.

Table 8.5 Frequency of the Most Used Online Activity in Problematic Internet Users

Online Activity	Frequency	%
Social Media	34	58.6
Browsing	14	24.1
Online gaming	10	17.2
Total	58	100.0

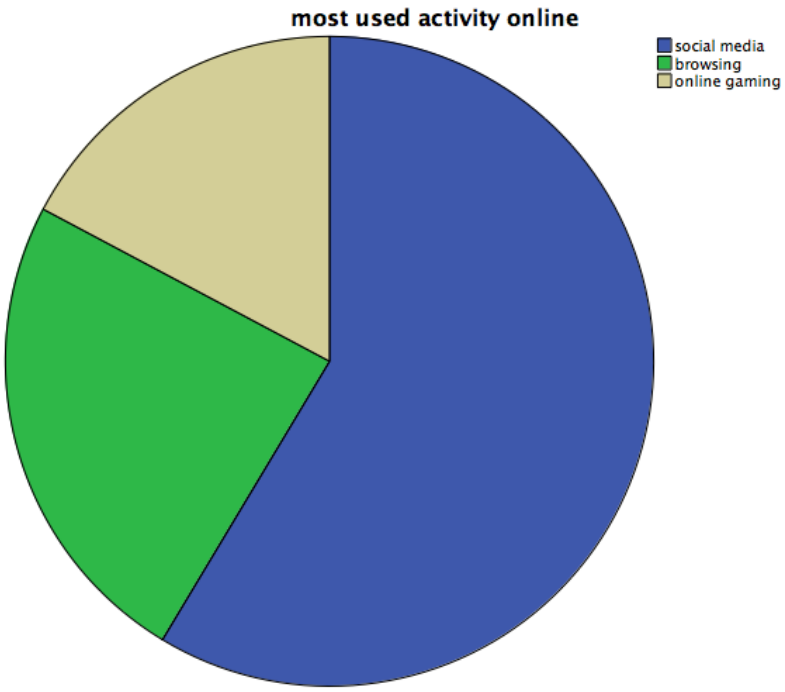

Figure 8.1: Pie chart of the frequency of the most used online activity in problematic internet users.

8.4.5.1 Non-problematic internet users.

Table 8.6 Frequency of the most used online activities in non-problematic internet users

Online Activity	Frequency	%
Social media	52	77.6
Browsing	15	22.4
Total	67	100.0

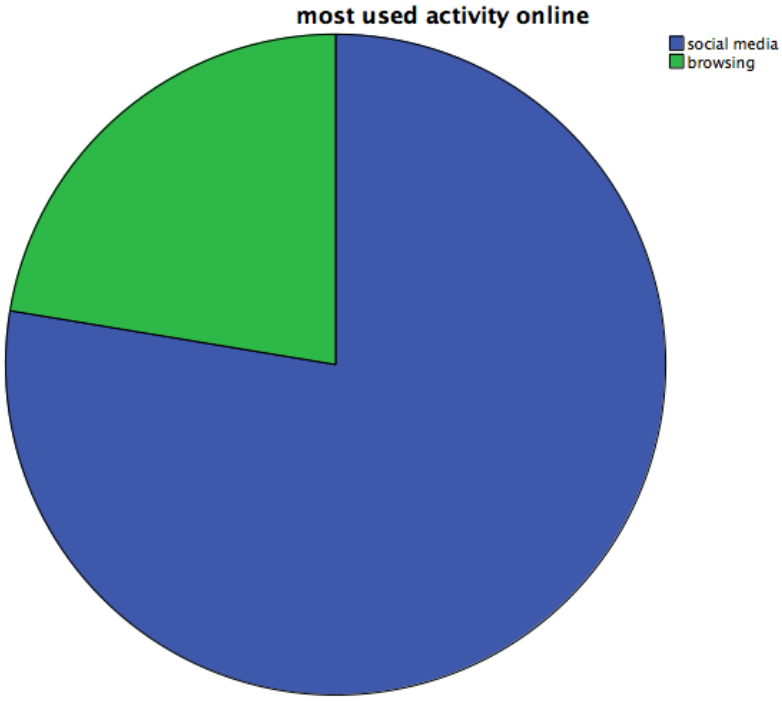

Figure 8.2: Pie chart of the frequency of the most used online activity in non- problematic internet users.

8.4.6 Repeated measures design results.

A mixed ANOVA was conducted with the different main variables (positive wellbeing, productivity, hours spent online, stress, sleep quality) in 7 days as the repeated measures. The two groups (problematic internet users & non-problematic users) were the between-subjects factor.

8.4.6.1 Wellbeing factor.

A repeated measures ANOVA was performed to compare the effect of the two groups of problematic and non-problematic internet users on different factors such as wellbeing. Information overload and sleep quality over seven days had no significant

effect of days on wellbeing, which means wellbeing was stable throughout the week ($F(6,16) = 1.21$, $p = .35$, $\eta^2 = 0.08$). However, the between-subjects effect was significant; the two groups, problematic and non-problematic users, differed overall in wellbeing ($F(1,16) = 5.30$, $p < .04$, $\eta^2 = 0.37$), which confirms that problematic internet users suffer from lower wellbeing compared to non-problematic internet users and this is a stable effect.

8.4.6.2 Information overload.

The results of the within-subjects output showed no significant effect of days on information overload, which means information overload is stable throughout the week ($F(1,13) = 1.51$, $p = .24$). However, the between-subjects effect was significant; the two groups, problematic and non-problematic users, differed overall in information overload, ($F(1,13) = 15.75$, $p < .002$), which confirms the association of information overload with problematic internet use.

8.4.6.3 Productivity factor.

The results showed no significant difference in productivity in either the within-subject ($F(6,13) = .89$, $p = .50$), or between-subject effect ($F(1,13) = .13$, $p = .71$).

8.4.6.4 Hours spent online.

There was no significant within-subject effect ($F(6,12) = 2.06$, $p = .068$). There was also no significant difference in hours spent online between the two groups ($F(1,12) = 1.11$, $p = .311$).

8.4.6.5 Stress factor.

There was no significant within-subject effect ($F(6,12) = .53$, $p = .78$). Neither was there a significant difference in the between-subjects effect of stressors between the two groups ($F(1,12) = .99$, $p = .33$).

8.4.6.6 Sleep quality factor.

The was no significant within-subjects effect ($F(6,13) = .43$, $p = .85$ $\eta^2 = .033$). There was a significant difference in the between-subjects effect of sleep quality between the two groups ($F(1,12) = 26.35$, $p < .001$, $\eta^2 = 0.67$).

8.5 Discussion

The current chapter produced an overview of the daily routine of problematic internet users and non-problematic internet users. The aim of this study was to deliver current evidence on the differences internet addiction and information overload produce and their negative impact on wellbeing in daily effect, by comparing weekly diary responses of two groups: problematic internet users and non-problematic internet users. Studies 3 and 4 resulted in associations between information overload and internet addiction and low wellbeing and the absence of such effects when covariates were controlled. The present study confirmed the difference in the rate of wellbeing and sleep quality and information overload between the two samples. However, the two groups were similar in food, diet, exercise and general health rates.

One of the main study objectives was to explore the prevalence of internet addiction and problematic internet use in Kuwaiti adults; 15% of the sample scored as PIU and only 1.1% scored as Internet addicts. This was compared to Asian countries who are known for high rates of internet addiction. For example, a study in Taiwan calculated the internet addiction prevalence as 15.3% in Taiwanese adults (Min-Pei et al., 2011), and a Japanese study by Hirao (2015) estimated the prevalence of Internet addicts to be 15%. Compared to the previous studies 3 and 4, the internet addiction prevalence in the British adults' sample was 0%, and 19.7% of the sample were categorised as problematic internet users.

8.5.1 Correlation.

There was a significant difference in the effect of the number of hours spent online on next day's wellbeing between the two groups. The total wellbeing score of the PIU group was not associated with the number of hours spent online in the previous day. However, a negative significant association was noticed in the control group between the number of hours spent online and next day positive wellbeing score.

The results clearly showed a between-subjects' effect for wellbeing, sleep quality, and information overload between the two samples. Although there were no significant differences in the number of hours spent online between the two groups, the results revealed a stable general effect rather than an effect produced by what had recently happened (day by day difference).

Clearly, what makes the problematic internet users with low wellbeing is the feeling of the uncontrolled attachment to the internet and the mind preoccupation with internet activities, not the number of hours spent online. There was not a significant difference between the groups in stress, although the PIU group scored higher in information overload and work stress. There was a significant between-subject effect for information overload. Additionally, participant stress was not significant, and this can be explained by the fact that there are different sources of stress. The study confirmed the negative impact through a different angle and perspective. Future studies should explore questions including: are PIU users aware of the negative impact of information overload and internet addiction? Why do they use the internet excessively? And what makes the internet very addictive?

8.5.2 Limitations.

The study's limitations were mainly the small sample size, and the fact that the problematic internet users' group were mostly students. The diary study time occurred during the summer break so university-related stress and university-related information overload were not reported. Participation in the study was voluntary and participants were not paid. Participants' lack of interest to proceed through the week was one of the main struggles as there was no strong motivation for them to continue. There was no significant difference in productivity between the two groups. This is probably because most of the control sample were students and the diary study time was in their summer vacation. As a result, the productivity factor may be low because of the vacation when compared to the non-problematic internet users' sample, which consisted mainly of active employees.

The next chapter concludes the thesis objectives, findings, limitations, and implications.

CHAPTER 9

CONCLUSION

9.1 Introduction

This chapter provides a summary and discussion of the objectives and the findings of the conducted research. An overview of the strengths and weaknesses of the methodology, research limitations, and implications are presented.

9.2 Overview

Previous studies have investigated the association of information overload and negative wellbeing, and internet addiction and negative wellbeing. Several negative symptoms such as stress, anxiety and depression were associated with information overload and internet addiction. The evolving internet addiction literature investigated the associations of internet addiction with different psychological outcomes, but these studies were mainly on samples of adolescents and university students. The established literature on information overload mainly focused on employees' negative outcomes and suggested solutions within the information science and management sectors. Few studies have investigated the associations of information overload and negative wellbeing outcomes on adults (see Chapter 2) and almost none on students' wellbeing and academic performance. Previous studies were mainly cross-sectional while a few were longitudinal and qualitative. Moreover, none of these studies have examined wellbeing using a holistic wellbeing approach to investigate the influence of information overload and internet addiction, through controlling stress, negative coping and other wellbeing covariates that might influence the wellbeing outcome results. In addition, the association and causality of information overload, internet addiction and negative wellbeing, the difference between problematic internet users and non-problematic internet users in the number of hours spent online and wellbeing have never been investigated using different methods to measure the effects of information overload and internet addiction. This research aimed to fill the gaps in the evolving literature of information-psychological studies by exploring the association of information overload and internet addiction, and their influence on a holistic wellbeing approach, on different adult samples, by exploring all related group factors and covariates.

9.3 Main Thesis Findings in Contrast with Previous Literature:

1. Information overload and internet addiction were associated in all empirical findings. The influence of information overload on wellbeing didn't overlap with internet addiction on wellbeing, where each variable influenced different wellbeing outcomes. As previously mentioned these were novel findings, no previous study has investigated the association of information overload and internet addiction.
2. Information overload always influenced negative coping significantly, which confirmed that information overload is a form of stress (Wilson, 2001).
3. Positive personality was negatively influenced by internet addiction. This confirmed previous studies in the association of internet addiction and problematic internet use with negative personality traits (Laconi et al., 2018; Marino et al., 2016; Tsai et al., 2009; Yan et al., 2014).
4. Information overload and internet addiction had direct effects in some situations in effecting wellbeing outcomes, and sometimes a moderating effect in influencing wellbeing covariates. Further analysis is needed to generate a model that explains the direct, moderating and mediating influence of information overload and internet addiction on a wellbeing based on DRIVE model.
5. There was no cultural difference in the influence of information overload and internet addiction on wellbeing.
6. The receipt of too many messages and emails influenced university students' positive wellbeing. Thus far, no known study has investigated this association, however as previously explained this may affect the satisfaction of the psychological need of being wanted and loved.
7. Based on a student sample, only information overload has significant influence on negative appraisal after controlling for wellbeing covariates.
8. The use of social networks negatively influenced negative wellbeing, after controlling for wellbeing covariates in student samples. For the employees sample, social networks use influenced negative appraisal. This finding supports the differences between students and employees, and how each internet use has a different influence on each group's wellbeing.
9. After controlling for wellbeing covariates in the employees sample, information overload influenced negative wellbeing, negative appraisal and work life imbalance while internet addiction influenced life work imbalance.

10. The results confirmed that the use of adult websites has a very negative consequences on employees. This influenced information overload, internet addiction, negative wellbeing, negative appraisal and negatively influence work efficiency. Use of adult websites influence wellbeing, a topic that was investigated for the first time.
11. There was no significant difference in the number of hours spent online between problematic and non-problematic internet users which influenced the number of hours spent online on next day wellbeing. There were significant differences in wellbeing levels between internet addicts, problematic internet users, and non-problematic internet users. There was a stable general difference in wellbeing of these groups rather than day to day differences reflecting use on that day.

9.4 Meeting Thesis Objectives

This thesis investigated the influence of the main and current information problems, information overload and internet addiction, on adults' wellbeing. The thesis objectives are now discussed in association with the summarised findings below:

1. To review the literature on the associations between information overload, internet addiction, wellbeing and academic performance.

   Chapter 2 provided an overview of the established literature on information overload including: information overload history, theories and models, causes, and negative effects on organisational and psychological levels and recommended solutions. A search to establish the association between information overload and wellbeing using databases such as PubMed and PsycINFO revealed very limited results, so a narrative review on studies that cited Misra and Stokols (2011) was conducted. These studies confirmed the association of information overload and negative wellbeing, low social support, association with negative personality traits, negative life satisfaction, and mental, social and physical fatigue. None of the information overload studies that were retrieved investigated the association of information overload and academic performance.

Chapter 2 presented a systematic literature review of the association of internet addiction and wellbeing. The results were divided into four main themes and sub-themes based on the DRIVE model. The selected findings focused on adults which revealed an association between internet addiction and negative wellbeing, depression, insomnia, low academic performance, loneliness, low social support, negative personality traits, stress, and low life satisfaction. Two studies investigated the association of internet addiction and academic performance; no results were found on the association of internet addiction and information overload. Moreover, most of the studies were cross-sectional; causality was not measured, nor were motivations and awareness levels investigated.

2. To investigate the association between information overload and internet addiction and wellbeing, academic performance, work life balance, and health outcomes between students and workers.

Empirical research in Chapters 4 and 5 investigated the association of information overload and internet addiction and wellbeing using two samples of university students from Kuwait and the UK. The results revealed associations between information overload, internet addiction and the wellbeing outcome. Information overload and internet addiction significantly predicted negative wellbeing, and internet addiction significantly predicted negative appraisal, while only information overload had an influence on Kuwaiti university students' perceived course performance. Thus, information overload and internet addiction only influenced the negative part of the DRIVE model, and because they influenced different stages they had independent effects.

Chapters 6 and 7 investigated the associations between information overload, internet addiction and wellbeing with further samples of students and workers. The influence of different types of internet use on information overload, internet addiction, academic performance, work-life balance and different wellbeing outcomes were investigated. A dramatic difference in the results was found

when controlling for demographics and the established wellbeing covariates. A lot of the findings were no longer significant after adjusting for covariates.

3. To provide reliable and validated versions translated to Arabic for the internet addiction test, information overload scale and Wellbeing Process Questionnaire (WPQ).

   The influence of information overload, internet addiction and wellbeing were investigated in a sample of Kuwaiti students in Chapter 4. The questionnaires that were used were: the IAT, the information overload scale, and the student's version of the WPQ and these were translated to Arabic with the help of two faculty members in Kuwait University. A pilot study was then conducted on 12 KU students to test the validity and reliability of the translated questionnaires. Most notably, this is the first Arabic version of the questionnaires and the first study in Arabic to investigate the influence of information overload and internet addiction on students' wellbeing. The translated questionnaires are provided in the Appendix.

4. To investigate the influence of culture on the association between information overload and internet addiction with wellbeing.

   Chapters 4 and 5 investigated the influence of information overload and internet addiction on samples of university students from two different cultures, the UK and Kuwait. The importance of culture was explained in Chapter 2 and tested in Chapter 5 by combining the data. The results indicated an absence of cultural differences in the influence of information overload and internet addiction on students' wellbeing. Most remarkably, this is the first study to investigate regional differences on the impact of information overload and internet addiction on university students using a holistic model of wellbeing.

5. To investigate the difference between students and employees in information overload and internet addiction, and how the different internet uses influence wellbeing.

Chapters 6 and 7 investigated the association of information overload and internet addiction using samples of students and workers. The differences between the two samples were compared based on the influence of information overload, internet addiction and different types of internet use on wellbeing. After controlling for demographics and the wellbeing covariates, information overload influenced both students' and workers' negative appraisal, and information overload influenced the negative wellbeing of the workers. Internet addiction influenced the negative appraisal of workers and had no influence on students' wellbeing.

The use of the internet for entertainment and social networks influenced students' wellbeing. However, it had no effect on workers' wellbeing, except for social network use which increased their negative appraisal. Internet use of adult websites influenced workers' negative wellbeing and negative appraisal (see Table 7.26). The difference between the two samples reflected different psychological needs, and outcomes between the two samples due to the different life roles each sample were handling. Although the two groups were regular information users, the usage and outcome differed, due to different age predictors and the role challenges each group was facing.

6. To understand the causality between information overload, internet addiction and wellbeing on a daily basis.

Chapter 8 used a longitudinal design to obtain a better understanding of the causal effects of internet use in a sample of problematic internet users and non-problematic internet users. The findings did not demonstrate a significant difference in the effect of the number of hours spent online on the next day's wellbeing between the two groups. However problematic internet users' wellbeing scores were generally significantly lower than non-problematic internet users.

9.5. Strengths and Limitations

The main strength of this research was that it investigated the association of major variables that interfere and influence information users' daily life and wellbeing using a holistic approach. The DRIVE model provided a comprehensive and flexible framework for understanding the wellbeing process by including the established predictors and using both positive and negative appraisals and outcomes. In summary, the thesis started with a comprehensive conceptual background of all the related variables in the thesis (see Chapter 2), following with an explicit narrative and a systematic literature review of the previous studies (see Chapter 2). Following this, the first empirical study was conducted in order to investigate the associations of information overload, internet addiction and wellbeing on a sample of university students (see Chapter 4). The influence of information overload and internet addiction on wellbeing, academic performance and cultural differences were explored by controlling for possible variables that might have an influence, such as demographics (i.e., sleep quality, general health, and gender) and wellbeing covariates (i.e., social support, negative coping, and stressors); these were subsequently included in the analyses. The analysis continued to highlight the factors that stimulate IO and IA's influence on wellbeing (see Chapter 5). The differences between employees and students in perceiving information overload and internet addiction, and their influence on wellbeing, academic attainment, work efficiency, and work-life balance were investigated by considering the influence of different internet uses (see Chapters 6 and 7). The causality and daily differences in internet use between problematic internet users and non-problematic internet users were investigated through a diary study (see Chapter 8). Within the knowledge-research dynamics, this approach represents the first study to use a diary study to investigate the casualty of the influence of information overload and internet addiction on the wellbeing of international, and especially on an Arabic sample.

A remarkable feature of the thesis was that the influence of information overload and internet addiction, were investigated using a variety of methods: cross-sectional, cross-cultural, and a diary study (longitudinal). All methods and the analysis used confirmed the results of the association of information overload and internet addiction. The methods used and the approach of using single-item measures enabled the researcher

to consider and control for many possible confounding factors (i.e., demographics, and wellbeing covariates). The methods and approaches used also enabled the researcher to determine the specific influence of information overload and internet addiction on positive and negative wellbeing appraisals, and outcomes; and determining the influence of different internet uses on wellbeing, information overload, and internet addiction which resulted in robust and novel empirical results.

9.5.1 Limitations.

Certain limitations need to be taken into consideration when interpreting the results and generalising them. First, the limited sample size of the first and second studies as all samples were based in the UK or Kuwait. The cross-sectional and cross-cultural design of the first four studies might restrict the generality of the findings. This is apart from the use of self-report measures as the main data source are open to biases in reporting. The use of single item measure for academic attainment resulted in an inaccurate measure in comparison due to the differences in type of data collected. The KU study was done during a summer course and students answered self-reported questions of academic attainment. For the CU study, the data were collected in the beginning of the academic year and the grades were collected by the end of the course which resulted in a difference between perceived and actual academic attainment.

A short one-week diary study was used as a form of longitudinal research. Unfortunately, the limitation of the small sample size of each group that undertook the dairy study might not reflect the complete causality, comparison and consequences of the influence of information overload and internet addiction.

9.6 Practical Implications of the Findings.

It is important to apply the research findings into real life thus raising the awareness of the negative consequences of information overload, and internet addiction on students and employees. To explain, the regular use of certain types of internet activities may result in negative influences, like adults' websites and online gaming. Information literacy workshops would be highly recommended and should be organised to teach information literacy techniques on how to navigate the flood of information and filter

the results to get the right knowledge. A support unit of educated counsellors of information-psychology in workplaces and universities should be provided to teach information users about positive coping strategies when exposed to excessive internet and information use. Positive personality traits should be nourished to limit internet addiction and the consequences on wellbeing outcome. Authorities and managers should be educated on the negative consequences of information overload and internet addiction, and be trained to develop positive coping strategies to limit the negative consequences. Given that many effects of internet addiction and information overload reflect other predictors of wellbeing, it would be desirable to consider information overload and internet addiction in a more holistic wellbeing framework; and to develop a students' version of information overload scale that is designed based on students' life demands and circumstances. It is important to highlight and encourage the positive use of social networks, receipt of emails and messages that influence students' wellbeing, however it is should be controlled without exceeding excessive or problematic use. There is need to be alert to the negative influence of the use of adult's websites in influencing information overload and internet addiction and influencing negative wellbeing outcomes and work efficiency.

9.6.1 Future research.

It is important to highlight the need for further future research, specifically the use of longitudinal and experimental design studies to understand the causality between the information overload and internet addiction, and their direct and moderating influence on wellbeing outcomes. There is need to clarify the casual role of wellbeing covariates life social support, positive personality, negative coping and stressors, in order to develop a solid model of the influence of information overload, and internet addiction on wellbeing. This includes individual differences and information overload and internet addiction association which needs to be investigated as a holistic approach.

9.7. Conclusion

In conclusion, it is crucial to understand that wellbeing is a complex and comprehensive process; there are lots of factors that can integrate and influence an individual's wellbeing outcome. Measuring wellbeing using a holistic approach enables the researcher to control for many possible covariates based on previous research to reach

clear and assured results of the influence of information overload and internet addiction. Through the empirical studies the influence of information overload and internet addiction on information users' wellbeing outcomes and covariates were documented. Differences in age groups and occupation and different types of internet uses resulted in different effects of information overload and internet addiction on wellbeing. Many effects were no longer significant when other predictors of wellbeing were considered. Further research is required to extend these findings to provide a full explanation and a profile of effects that can form the basis of prevention and management strategies.

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APPENDICES

APPENDIX A: TRANSLATED ARABIC QUESTIONNAIRES

عنوان البحث: تأثير الانفجار المعلوماتي على الصحة النفسية

أقوم ببحث عن تأثير الانفجار المعلوماتي على الصحة النفسية لدى طلبة الجامعة كجزء من متطلبات برنامج الدكتوراة في جامعة كاردف، بريطانيا. المشاركة في الدراسة تطوعي، والاجابة على الاستبيان لن يأخذ من وقتك أكثر من ٢٥ دقيقة. جميع المعلومات سرية ولن تستخدم إلا للغرض البحثي.
لأي معلومات اضافية عن الدراسة يرجى التواصل مع الباحثة حصه الهنيدي

معلومات التواصل
حصه الهنيدي
alheneidih@cardiff.ac.uk

التعليمات

شكرا على موافقتك على المشاركة في هذه الدراسة عن تأثير الإنفجار المعلوماتي على الصحة النفسية. المطلوب التكرم بحل الأسئلة حسب التعليمات والتي لن تأخذ من وقتك أكثر من ٢٥ دقيقة. هذه المعلومات سيتم حفظها بدون اسم.

١- الجنس ( ) ذكر ( ) أنثى

٢- العمر ( ) سنة

٣- كم ساعة يجب أن تقضيها في الجامعة أسبوعيا ؟ (محاضرات وندوات)

٤- كيف تقييم العبء الدراسي الحالي في الجامعة علي مقياس من ١إلي ١٠

(١ بمعنى لايوجد عبئ دراسي، ١٠ تعني عبئ دراسي عالي جدا هذا الفصل الدراسي)

1 2 3 4 5 6 7 8 9 10

٥- ما نسبة الضغط التي تجدها في هذا الفصل الدراسي في مقياس من ١ إلى ١٠

لا يوجد ضغط ابدا ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ الضغط عالي جدا

٦- ما هي نسبة اتقان عملك الدراسي ؟

متقن ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ غير متقن

الصحة العامة

7- هل تدخن نعم ( ) لا ( )

٨- كم معدل ساعات نومك ليلا؟

٥ ساعات أو أقل ٦ ساعات ٧ساعات ٨ ساعات ٩ ساعات أو أكثر

٩- ما مدى تكرار حصولك على نوم جيد ليلا ؟

( ) نادرا ( ) أحيانا ( ) غالبا ( ) دائما

١٠- كم طولك؟

١١- كم وزنك؟

_____

١٢- خلال هذه السنة كيف تقييم صحتك العامة؟

سيئة جدا ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ ممتازة

مقياس تجارب حياة الطالب

يرجى النظر في العناصر التالية الخاصة بحياة الطالب وبيان الى اي حد كانت حياتك مشابه في اخر ٦ اشهر، تذكر ان تستخدم الامثلة كتوجه عام بدلا من النظر إلى كل واحد منهم :

١- تحديات في تطويرك لذاتك. مثال: قرار مهم عن تعليمك ومهنتك المستقبلية، عدم الرضى عن قدراتك الحسابية و الكتابية، صراع لتلبية المعايير الاكاديمية الخاصة بك او بغيرك.

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٢- ضغط الوقت. مثال: أشياء كثيرة يجب أن تقوم بها في وقت واحد، مقاطعتك أثناء عمل دراسي، مسؤوليات كثيرة.

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٣- عدم رضى أكاديمي. مثال: عدم حبك لدراستك، إيجاد المواد عملية مجدية؟ غير مشوقة، عدم الرضى عن الكلية.

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٤- مشاكل عاطفية. مثال: قرارات خاصة بعلاقات حميمية، مشاكل مع أهل شريك حياتك، مشاكل مع شريك حياتك.

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٥- مضايقات اجتماعية. مثال: صراعات او خلافات اجتماعية بشأن التدخين، كرهك لزملائك الطلبة، سرقتك او الخداع من قبل الغير من اجل شراء الخدمات.

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٦- سوء معاملة اجتماعية. (رفض اجتماعي، وحده، استغلال)

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

٧- مشاكل الصداقة. (مشاكل مع اصدقاء، خذلان او خيبة امل من اصدقاء، خيانة الثقة من أصدقاء)

ليس جزء من حياتي ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ جزء كبير من حياتي

الدعم الاجتماعي للطالب

الرجاء ذكر مدى اتفاقك مع العبارات التالية:-

٨- ماديات

هناك شخص أو أشخاص في حياتي قدموا لدي الدعم المادي عندما أحتجته . مثال: مال، دفع رسوم أو كتب دراسية، استخدام سيارتهم، اثاث لسكن جديد.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

٩- الانتماء

هناك شخص أو اشخاص في حياتي يشعروني بالإنتماء. مثال: أجد من اذهب معه الى السينما، غالبا ما يتم دعوتي لإنجاز عمل مع الاخرين، اخرج بانتظام مع اصدقائي.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٠- عاطفيا

.هناك شخص أو أشخاص في حياتي أشعر معهم بالراحة الاجتماعية، علاقتي مع والدي، مشاكل خاصة

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١١- الاكتئاب

على مقياس من واحد إلى عشرة، إلى أي مدى تشعر بأنك مكتئب بشكل عام. مثال: ماعدت اتطلع للأمور ولا أستمتع بها، أشعر بالاحباط وخيبة الأمل.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٢- المشاعر الايجابية

أفكر في نفسي وكيف أشعر عموما، غالبا ما أشعر بمشاعر إيجابية. مثال: أشعر بأني يقظ ملهم، عازم، مهتم.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٣- التفاؤل

بوجه عام، أشعر بالتفاؤل اتجاه مستقبلي. مثال: عادة أتوقع الافضل، أتوقع حدوث أمور جيدة أكثر من سيئة، من السهل أن أسترخي.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٤- القدرة الذاتية

أنا واثق من قدرتي على حل المشكلات التي ممكن أن أواجها في حياتي. مثال: عادة أستطيع أن أتعامل مع أي شي يواجهني، إذا حاولت بجد أستطيع حل المشكلات الصعبة، أستطيع أن أستمر في متابعة غاياتي وان أحقق أهدافي.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٥- تقدير الذات

بوجه عام اشعر بتقديري لذاتي. مثال: على العموم أنا را ضي عن نفسي، أنا قادر أن أعمل الاشياء مثل باقي الناس، أشعر بأني شخص ذا قيمة.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٦- المشاعر السلبية

أفكر بنفسي وكيف أشعر عادة، أشعر غالبا بمشاعر سلبية مثال: أشعر بإنزعاج، عداوة، خجل، توتر.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

نمط التكيف

١٧- لوم النفس

عندما أجد نفسي قي موقف ضاغط، ألوم نفسي. مثال: أنقد نفسي، أستوعب أني جلبت المشاكلة لنفسي.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٨ التمني

عندما أجد نفسي في موقف ضاغط، أتمنى أن تتحسن الأمور. مثال: أتمنى أن تحدث معجزة، أتمنى أن أغير أمور بي او بمحيطي، أحلم بمواقف أفضل.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

١٩- التجنب

عندما أجد نفسي في موقف ضاغط يثقلني، أحاول أن اتجنب المشكلة. مثال: احفظ الامور لنفسي، استمر كأن شيء لم يحصل، أحاول أن أشعر بتحسن من خلال الاكل أو التدخين.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

٢٠- الانبساط

اعتبر نفسي أنني شخص منفتح. مثال: أتكلم بكثرة، مرتاح مع نفسي، واثق في المواقف الاجتماعية.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

٢١- الثبات العاطفي

أشعر أنني استطيع ان اكون على مايرام مع الغير. مثال: أنا عادة استرخي مع الغير، غالبا لا اغار من غيري، اتقبل الناس كما هم.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

٢٢- الرضا عن الحياة

عموما، أشعر اني راض عن حياتي. مثال: عادة حياتي قريبة من المثالية التي أصبو لها، حصلت على أهم ما أريد في حياتي إلى الان.

لا أوافق بشدة ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ أوافق بشدة

٢٣- القلق

على مقياس من واحد إلى عشرة، ماهي نسبة قلقك في عامة الامر؟ مثال: أشعر بالتوتر أو العب، لست قادر على الاسترخاء، أشعر بالقلق أو الذعر.

لست قلق ابدا ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ قلق بشدة

٢٤- ضغوط الحياة

إلى أي مدى حياتك ضاغطة؟

غير ضاغطة ابدا ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ ضاغطة جدا

٢٥- الارهاق البدني

في صورة عامة، كم نسبة احساسك بالارهاق البدني؟

لست مرهقا على الاطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ في كثير من الاحيان

٢٦- الارهاق الذهني

في صورة عامة، كم نسبة احساسك بالارهاق الذهني؟

لست مرهقا على الاطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ في كثير من الاحيان

مقياس الانفجار المعلوماتي

هذا الاستبيان يهدف الى قياس مشاعرك وافكارك في الشهر الماضي ، حدد الاجابة التي تعبر عن مشاعرك من خلال اختيار اقرب اجابة لك. قد تبدو لك بعض الاسئلة متشابهه، إلا أن هناك درجة تفاوت بينهم. لا تحاول تعداد المرات التي تعبر عن شعورك في بعض الاحيان، المطلوب اقرب تقدير لإجابتك، لكل سؤال من الاسئلة اختر خيار واحد من الاختيارات المتعددة.

١- ما عدد المرات التي شعرت بها أنك أثقلت بعدد الرسائل (الايميل، رسائل نصية، الرسائل الفورية) التي وصلتك في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٢- ما عدد المرات التي نسيت أن تجاوب على رسالة(ايميل، رسالة نصية، رسالة فورية) مهمة في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٣- غالبا ماتشعر بالضغط لوجوب الرد على رسائل (ايميل، رسالة نصية، رسالة فورية) بسرعة، في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٤- كثيرا ماتستلم مكالمات على هاتفك النقال أكثر مما تستطيع الرد عليه، في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٥- كم مرة شعرت أنك استلمت ملحقات بالرسائل (ايميل، رسالة نصية، رسالة فورية) اكثر مما تستطيع التعامل معه، في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٦- كثيرا ما تشعر أنك يجب عليك أن تقضي وقت طويل في صيانة وإدارة أدوات التواصل والمعلومات التي تمتلكها، مثل الكمبيوتر المحمول، الكمبيوتر المكتبي، ipad، او اي ادوات الكترونية أخرى؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٧- في الشهر الماضي، غالبا ما شعرت بالضغط لتعامل مع فيض من المعلومات والاتصالات في وقت واحد؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٨- كم مرة شعرت انك تستلم رسائل كثيرة في صفحات التواصل الاجتماعي في الشهر الماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

٩- غالبا ما شعرت انك تستقبل رسائل نصية قصيرة أكثر مما تستطيع التعامل معه في الشهر لماضي؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٠- كم مرة شعرت في الشهر الماضي أن دراستك لا تترك لك وقت للانشطة الترفيهية ؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١١- كم مرة شعرت في الشهر الماضي أن متطلبات دراستك تجعلك أقل حساسية اتجاه حاجات الاخرين؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٢- كم مرة شعرت في الشهر الماضي أنك متضايق وأنت في طريقك للجامعة؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٣- كم مرة شعرت في الشهر الماضي أن لديك مطالب كثيرة في البيت ولا تستطيع التعامل معها براحة؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٤- كم مرة شعرت في الشهر الماضي ان مطالبك الدراسية تفوق قدرتك على التعامل معهم؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٥- كثيرا ما شعرت في الشهر الماضي أن بيئتك المنزلية ينتابها الضوضاء؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

١٦- غالبا ماشعرت في الشهر الماضي أن بيئتك الجامعية ينتابها الضوضاء؟

٠= إطلاقا ١= تقريبا مطلقا ٢= بعض المرات ٣= احيانا بكثرة ٤= غالبا

ادمان الانترنت

ببساطة اجب عن العبارات التالية عن طريق اختيار الاجابة المقاربة لك. فقط اجب عن الوقت الذي تمضيه على الانترنت لاسباب غير اكاديمية او تتعلق بالعمل.

١- غالبا ما تقضي وقت في الانترنت أكثر مما نويت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

كثيرا ما تهمل الاعمال المنزلية لتقضي وقت أكثر على الانترنت 2-

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٣- تفضل الاستمتاع بالانترنت على علاقتك مع شريك حياتك؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٤- غالبا ما تنشئ علاقات جديدة مع أعضاء من مستخدمي الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٥- كثيرا ما يشتكي الاخرون من كمية الوقت الذي تقضية على الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٦- يتأثر معدلك الدراسي ودرجاتك بسبب الساعات التي تقضيها على الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

؟كثيرا ما تتصفح رسائلك (الايميل، رسائل نصية، الرسائل الفورية) قبل البدء بعمل شيء اخر 7-

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٨- أحيانا يتأثر ادائك أو انتاجك سلبيا بسبب الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٩- غالبا ما تصبح متحفظا او دفاعي في حال سألك شخص ماذا تفعل على الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٠- كثيرا ما تحاول تجاهل الافكار المزعجة والهروب لما يريحك علي الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١١- تجد نفسك تنتظر الفرصة للعودة للانترنت مرة اخرى؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٢- غالبا ما تفكر أن الحياة بدون الانترنت ستكون مملة وبدون بهجة؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٣- أحيانا ترد بعنف أو تصرخ أو تبدو منزعجا عندما يقاطعك أحد خلال استخدامك للانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٤- غالبا ما تصحو طوال الليل بسبب استخدام الانترنت؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٥-غالبا ما تتخيل الرجوع للانترنت عندما تكون بعيدا عنه ؟

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٦- غالبا ما تجد نفسك تردد عبارة "بعد عدة دقائق سأوقف اتصالي بالانترنت"

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٧- كثيرا ما تحاول تقليل الوقت الذي تقضيه على الانترنت وتفشل

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٨- كثيرا ما تحاول اخفاء حقيقة الوقت الذي تمضية على الانترنت

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

١٩- غالبا ما تفضل امضاء الوقت على الانترنت بدل الخروج والاستمتاع مع الاخرين

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

٢٠- غالبا ما تشعر انك مكتئب، ومتوتر، ومزاجي وانت غير متصل على الانترنت، وتختفي هذه المشاعر فور العودة الى الانترنت

٠= لا ينطبق ١=نادرا ٢= بين حين وأخر ٣= كثيرا ٤=غالبا ٥= دائما

APPENDIX B: RESEARCH PARTICIPANTS INFORMATION SHEET

Research title: Effects of information overload and internet addiction on well-being.
As part of my PhD program in the school of psychology, I am conducting research on the influence of information overload on well-being. The rest of the information sheet provides more details about the study.
Participating in the study is voluntary; it will be credited as part of school of psychology course requirement. Answering the research questionnaires will take about 30 minutes.
All given information is confidential and will only be used for research purposes.
For further information kindly contact the researcher Hasah AlHeneidi or her supervisor Andy Smith.
Contact Details

Hasah Alheneidi
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: AlheneidiH@cardiff.ac.uk

Professor A.P.Smith,
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: smithap@cardiff.ac.uk
Tel: 02920874757

Informed Consent

The aim of this project is to investigate information overload and wellbeing.
I understand that my participation in this project will involve completing a questionnaire on information overload and well-being.
I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to avoid responding to any questions that I feel uncomfortable answering and that I can discuss my concerns with Professor Andy Smith at the email address below.

I understand that the survey information provided by me will be anonymous, with my email address provided separately for credit purposes. I understand that this information may be retained indefinitely.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

By checking the box below and continuing, I consent to participate in the study conducted by Hasah Alheinedi, School of Psychology, Cardiff University with the supervision of Professor Andy Smith.

I have read and understood the above statement and consent to participate.

Contact Details
Professor A.P.Smith,
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: smithap@cardiff.ac.uk
Tel: 02920874757

Hasah Alheneidi
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: AlheneidiH@cardiff.ac.uk

If you have any concerns regarding practice and procedures please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

Instructions

Thank you for agreeing to participate in this study on the effects of information overload on the wellbeing of students. You will be required to complete an online questionnaire that should take no longer than 30 minutes of your time. This information will be stored anonymously.

Once you have submitted the questionnaire, you will be given a link to another page where you can provide your email address separate from your responses for credit payment purposes. YOU MUST FILL IN THIS INFORMATION IN ORDER TO RECIEVE YOUR COURSE CREDITS.

SURVEY

1. Gender: M □ F □

2. Age: years

3. On average, how many hours are you scheduled to be in university a week (e.g. lectures, seminars)?

   _____

4. How would you rate your current university workload on a scale of 1-10 (1 meaning “there is little or no workload” and 10 meaning “there is a very high workload on my course”)?

1 2 3 4 5 6 7 8 9 10

5. How stressful do you find your course on a scale of 1-10 (1 meaning “not at all stressful” and 10 meaning “the most stressful it could possibly be”)?

1 2 3 4 5 6 7 8 9 10

6. How efficiently do you do your university work (1=not at all efficiently, 10 = extremely efficiently) ?

1 2 3 4 5 6 7 8 9 10

General Health

7. Do you smoke? Yes □ No □

8. How many hours of sleep do you have on an average week night?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
□0	□1	□2	□3	□4

9. How often do you have good quality sleep?

Never	Sometimes	Often	Always
□0	□1	□2	□3

10. What is your height?

11. What is your weight?

12. Over the past 12 months, how would you say your health in general has been?

Extremely poor 1 2 3 4 5 6 7 8 9 10 Extremely good

ICSRLE Students Life Experiences (7 Factors)

Please consider the following elements of student life and indicate overall to what extent they have been a part of your life over the past 6 months. Remember to use the examples as guidance rather than trying to consider each of them specifically:

13. Challenges to your development (e.g. important decisions about your education and future career, dissatisfaction with your written or mathematical ability, struggling to meet your own or others' academic standards).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

14. Time pressures (e.g. too many things to do at once, interruptions of your school work, a lot of responsibilities).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

15. Academic Dissatisfaction (e.g. disliking your studies, finding courses uninteresting, dissatisfaction with school).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

16. Romantic Problems (e.g. decisions about intimate relationships, conflicts with boyfriends'/girlfriends' family, conflicts with boyfriend/girlfriend).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

17. Societal Annoyances (e.g. getting ripped off or cheated in the purchase of services, social conflicts over smoking, disliking fellow students).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

18. Social Mistreatment (e.g. social rejection, loneliness, being taken advantage of).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

19. Friendship problems (e.g. conflicts with friends, being let down or disappointed by friends, having your trust betrayed by friends).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Students Social Support (3 Factors)

Please state how much you agree or disagree with the following statements:

Tangible

20. There is a person or people in my life who would provide tangible support for me when I need it (for example: money for tuition or books, use of their car, furniture for a new apartment).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Belonging

21. There is a person or people in my life who would provide me with a sense of belonging (for example: I could find someone to go to a movie with me, I often get invited to do things with other people, I regularly hang out with friends).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Emotional

22. There is a person or people in my life with whom I would feel perfectly comfortable discussing any problems I might have (for example: difficulties with my social life, getting along with my parents, sexual problems).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Depression

24. On a scale of one to ten, how depressed would you say you are in general? (e.g. feeling 'down', no longer looking forward to things or enjoying things that you used to)

Not at all depressed 1 2 3 4 5 6 7 8 9 10 Extremely depressed

---

Positive Affect

25. Thinking about myself and how I normally feel, in general, I mostly experience positive feelings (For example: I feel alert, inspired, determined, attentive)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Optimism

26. In general, I feel optimistic about the future (For example: I usually expect the best, I expect more good things to happen to me than bad, It's easy for me to relax)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Self Efficacy

27. I am confident in my ability to solve problems that I might face in life (For example: I can usually handle whatever comes my way, If I try hard enough I can overcome difficult problems, I can stick to my aims and accomplish my goals)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Self Esteem

28. Overall, I feel that I have positive self-esteem (For example: On the whole I am satisfied with myself, I am able to do things as well as most other people, I feel that I am a person of worth)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Negative Affect

29. Thinking about myself and how I normally feel, in general, I mostly experience negative feelings (For example: I feel upset, hostile, ashamed, nervous)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Coping Style:

<u>Blame Self</u>

30.When I find myself in stressful situations, I blame myself (e.g. I criticize or lecture myself, I realise I brought the problem on myself).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

<u>Wishful Thinking</u>

31. When I find myself in stressful situations, I wish for things to improve (e.g. I hope a miracle will happen, I wish I could change things about myself or circumstances, I daydream about a better situation).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Avoidance

32. When I find myself in stressful situations, I try to avoid the problem (e.g. I keep things to myself, I go on as if nothing has happened, I try to make myself feel better by eating/drinking/smoking).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Extraversion

33. I consider myself to be outgoing (For example: Talkative, comfortable with myself, confident in social situations)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Emotional Stability

34. I feel that I can get on well with others (For example: I'm usually relaxed around others, I tend not to get jealous, I accept people as they are)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Life Satisfaction

35. Overall, I feel that I am satisfied with my life (For example: In most ways my life is close to my ideal, so far I have gotten the important things I want in life)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Anxiety

36. On a scale of one to ten, how anxious would you say you are in general? (e.g. feeling tense or 'wound up', unable to relax, feelings of worry or panic)

Not at all anxious 1 2 3 4 5 6 7 8 9 10 Extremely anxious

Life Stress

37. Overall, how stressful is your life?

Not at all stressful 1 2 3 4 5 6 7 8 9 10 Very Stressful

Physical Fatigue

38. Overall, how often do you feel physically fatigued?

Not at all 1 2 3 4 5 6 7 8 9 10 Very Often

Mental Fatigue

39. Overall, how often do you feel mentally fatigued?

Not at all 1 2 3 4 5 6 7 8 9 10 Very Often

Perceived Information Overload Scale

The questions in the scale ask about your feelings and thoughts in the last month, please indicate how often you felt or thought certain way.

1.in the last month how often you felt overwhelmed with the email messages you received?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

2. In the last month, how often have you forgotten to respond to important email message?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

3. In the last month how often you felt pressured to respond to email messages quickly?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

4.in the last month, how often have you received more cell phone calls than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

5.In the last month, how often have you felt that you receive more email attachments than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

6. In the last month, how often have you felt that you have had to spend much time maintaining the various information and communication devices you own (e.g., laptops, desktop computers, personal digital assistants)?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

7. In the last month, how often have you felt pressured to manage several information and communication inputs at the same time?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

8. In the last month, how often have you felt that you have too many messages (e.g., wall postings, event notifications, personal messages, status updates, and applications) on your facebook or Myspace page to deal with?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often
9. In the last month, how often have you felt that you have receive more instant messages that you can handle?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

10. In the last month, how often have you felt that your work activities leave you too little for recreational activities ?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

11. In the last month, how often have you felt that your work demands make you less sensitive to the needs of others?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

12. In the last month, how often have you felt hassled by your commute to work?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

13. In the last month, how often have you felt that you have to many demands in your home to be able to handle comfortably?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

14. In the last month, how often have you felt that the demands on you in your workplace exceed your capacity to deal with them?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

15. In the last month, how often have you felt that your home environment is too noisy?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

16. In the last month, how often have you felt that your work environment is too noisy?
0=never 1=almost never 2=sometimes 3=fairly often 4= very often

Simply answer the 20-item questionnaire based upon the following five-point Likert scale. only consider the time spent online for non-academic or non-job (or recreational) purposes when answering.

1. How often do you find that you stay online longer than you intended?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

2. How often do you neglect household chores to spend more time online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

3. How often do you prefer the excitement of the Internet to intimacy with your partner?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

4. How often do you form new relationships with fellow online users?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

5. How often do others in your life complain to you about the amount of time you spend online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

6. How often do your grades or school work suffer because of the amount of time you spend online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

7. How often do you check your email before something else that you need to do?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

8. How often does your job performance or productivity suffer because of the Internet?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

9. How often do you become defensive or secretive when anyone asks you what you do online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

11. How often do you find yourself anticipating when you will go online again?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

12. How often do you fear that life without the Internet would be boring, empty, and joyless?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

13. How often do you snap, yell, or act annoyed if someone bothers you while you are online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

14. How often do you lose sleep due to late-night log-ins? 5

0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

15. How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

16. How often do you find yourself saying "just a few more minutes" when online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

17. How often do you try to cut down the amount of time you spend online and fail?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

18. How often do you try to hide how long you've been online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

19. How often do you choose to spend more time online over going out with others?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

20. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?
0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

Debrief – Information overload and the wellbeing of students

Thank you for completing the questionnaire. The questions you answered are intended to provide short ratings of life events and social support that are relevant to students, along with ratings of personality, health-related behaviours and well-being such as self-esteem, depression and happiness. The data you provided will be used to investigate whether information overload is associated with wellbeing. It may be that findings from this research will have implications for students by raising awareness of the effects of information overload.

If you have any queries or concerns about the research, please contact either Hasah Alheneidi or her supervisor (Andy Smith) using the contact details below. If you are affected by any of the issues raised in the questionnaire then there are a number of services available through the university which can offer support at the following links:

http://www.cardiff.ac.uk/govrn/cocom/equalityanddiversity/index.html (equality and diversity)
http://www.cardiff.ac.uk/counselling/about/index.html (counselling service)

Thank you again for your participation.
Contact Details
Hasah Alheneidi
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: AlheneidiH@cardiff.ac.uk

Professor A.P.Smith,
School of Psychology,
63 Park Place,
Cardiff CF10 3AS
e-mail: smithap@cardiff.ac.uk
Tel: 02920874757

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

APPENDIX C: CHAPTERS 4 & 5 INSIGNIFICANT ANALYSIS

Table 4.4 Correlation Comparison Between UK and Kuwait Sample

Variable	Z score	p value
Information overload and internet addiction	0.36	0.7121
Information overload and wellbeing	-0.69	0.48
Internet addiction and wellbeing	1.23	0.21

Table 5.6. Results for Stepwise Regression IO and IA predicting positive appraisal

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	2.76	.84		3.28	< .000
Stress	-.03	.01	-.15	-2.85	.005
Social support	.07	.02	.21	4.25	.000
Positive personality	.13	.01	.43	8.26	.000
Negative coping	-.005	.02	-.01	-.23	.816
(Intercept)	2.61	.87		2.97	.003
Stress	-.031	.01	-.15	-2.66	.008
Social support	.078	.02	.20	4.09	.000
Positive personality	-.139	.01	-.44	8.26	.000
Negative coping	-.008	.02	-.01	-.36	.717
IO	-.006	.01	.02	-.48	.630
IA	.007	.01	.04	.86	.388
IO*IA	.00	.00	.04	.83	.40

Note. $F(7,270) = 17.95$, $p < .00$, $R^2 = 0.32$

Table 5.7 *Results for Stepwise Regression with IO and IA predicting positive wellbeing*

Variable	***B***	***SE***	**β**	***t***	***p***
(Intercept)	1.57	.84		3.28	< .000
Stress	-.002	.01	-.15	-2.85	.005
Social support	.013	.02	.21	4.25	.000
Positive personality	.198	.01	.43	8.26	.000
Negative coping	-.026	.02	-.01	-.23	.816
(Intercept)	1.75	.82		2.97	.03
Stress	-.001	.01	-.005	-.08	.93
Social support	.017	.02	.04	.92	.35
Positive personality	.197	.01	.62	12.45	.00
Negative coping	-.023	.02	-.05	-1.10	.27
IO	-.005	.01	-.02	-.43	.66
IA	-.004	.01	-.02	-.49	.62
IO*IA	.000	.00	-.03	-.64	.51

Note. $F(7,270) = 26.62$, $p < .00$, $R^2 = 0.41$

Table 5.9 *Stepwise Regression predicting the Influence of Culture, IO, and IA on WB*

	B	SE	Beta	t	Sig.
(Constant)	28.94	3.38		8.55	.00
Stress	.29	.04	.34	6.36	.00
Social support	.12	.07	.07	1.62	.10
positive personality	-.21	.06	-.16	-3.24	.00
Negative coping	.52	.08	.30	5.92	.00
(Constant)	21.44	6.31		3.39	.00
Stress	.28	.04	.33	5.97	.00
Social support	.14	.09	.09	1.52	.12
Positive personality	-.22	.06	-.17	-3.25	.00
Negative coping	.46	.09	.26	5.00	.00
IO	.11	.16	.13	.65	.51
IA	.17	.09	.29	1.79	.07
culture	3.19	3.98	.16	.80	.42
IO*Culture	-.03	.09	-.11	-.35	.72
IA*Culture	-.08	.06	-.31	-1.2	.22

Note $F(9,282)=18.34$ $p=.00$ $R^2=.37$

5.13. Results of between-subjects effect predicting negative appraisal

Source	*df*	Mean Square	F	Sig.
Intercept	1	501.308	20.424	.000
Negative coping	1	600.771	24.476	.000
Positive Personality	1	196.877	8.021	.005
Social Support	1	.508	.021	.886
Stress	1	499.376	20.345	.000
Internet Addiction Threshold	1	48.835	1.990	.160
Information Overload Quartiles	3	28.150	1.147	.331
Internet Addiction Threshold * Information Overload Quartiles	3	49.076	1.999	.114
Error	271	24.545		
Total	283			

5.14 Results of between-subjects effects predicting positive appraisal

Source	*df*	Mean Square	F	Sig.
Intercept	1	28.618	8.342	.004
Negative coping	1	.004	.001	.971
Positive Personality	1	214.986	62.666	.000
Social Support	1	59.106	17.229	.000
Stress	1	23.696	6.907	.009
Internet Addiction Threshold	1	2.087	.608	.436
Information Overload Quartiles	3	.262	.076	.973
Internet Addiction Threshold * Information Overload Quartiles	3	1.005	.293	.831
Error	271	3.431		
Total	283			

5.15 Results of between-subjects effects predicting positive wellbeing

Source	*df*	Mean Square	F	Sig.
Intercept	1	6.598	2.194	.140
Negative coping	1	3.002	.998	.319
Positive Personality	1	458.233	152.403	.000
Social Support	1	2.511	.835	.362
Stress	1	6.589E-5	.000	.996
Internet Addiction Threshold	1	5.362	1.783	.183
Information Overload Quartiles	3	2.674	.889	.447
Internet Addiction Threshold * Information Overload Quartiles	3	1.844	.613	.607
Error	271	3.007		
Total	283			

5.23. Results of Stepwise Regression with IO factors, IA factors, predicting Positive Appraisal with controlled cofounders

variable	*B*	*SE*	*Beta*	*t*	*p*
(Constant)	2.527	.828		3.053	.002
Stress	-.030	.011	-.144	-2.645	.009
Social Support	.080	.018	.216	4.369	.000
Positive Personality	.138	.016	.439	8.426	.000
Negative Coping	-.002	.022	-.005	-.105	.917
(Constant)	2.351	.857		2.742	.006
Stress	-.032	.012	-.156	-2.770	.006
Social Support	.079	.019	.213	4.100	.000
Positive Personality	.136	.017	.431	7.989	.000
Negative Coping	.003	.022	.006	.122	.903
Anticipating	.133	.123	.070	1.079	.282
Pre Occupied	-.156	.137	-.075	-1.137	.257
More	-.065	.111	-.043	-.581	.562
Cut Down Failure	.149	.131	.080	1.138	.256
Calls	-.056	.123	-.028	-.455	.649
Manage Calls	.177	.111	.098	1.591	.113
Messages	.110	.116	.055	.947	.344
Work Demands	-.170	.098	-.094	-1.737	.083

Note: $F(12,276) = 11.91$, $p < .00$, $R^2 = 0.34$

5.24. Results of Stepwise Regression with IO factors, IA factors, predicting Positive Wellbeing with controlled cofounders

Variable	*B*	*Se*	*Beta*	*T*	*P*
(Constant)	1.436	.777		1.847	.066
Stress	-.002	.011	-.009	-.188	.851
Social support	.017	.017	.045	.987	.325
Positive personality	.200	.015	.624	12.939	.000
Negative coping	-.028	.021	-.066	-1.377	.169
(Constant)	1.685	.810		2.080	.038
Stress	-.003	.011	-.014	-.275	.783
Social support	.019	.018	.051	1.057	.292
Positive personality	.194	.016	.607	12.071	.000
Negative coping	-.020	.021	-.046	-.939	.349
Anticipating	.068	.116	.035	.583	.560
Pre occupied	-.141	.130	-.067	-1.088	.278
More	-.103	.105	-.067	-.977	.329
Cut down failure	.054	.124	.028	.431	.667
Calls	-.127	.116	-.061	-1.091	.276
Manage calls	.130	.105	.071	1.239	.216
Messages	.066	.109	.033	.607	.544
Work demands	-.086	.092	-.047	-.936	.350

Note $F(12,276) = 11.91, p < .00, R^2 = 0.34$

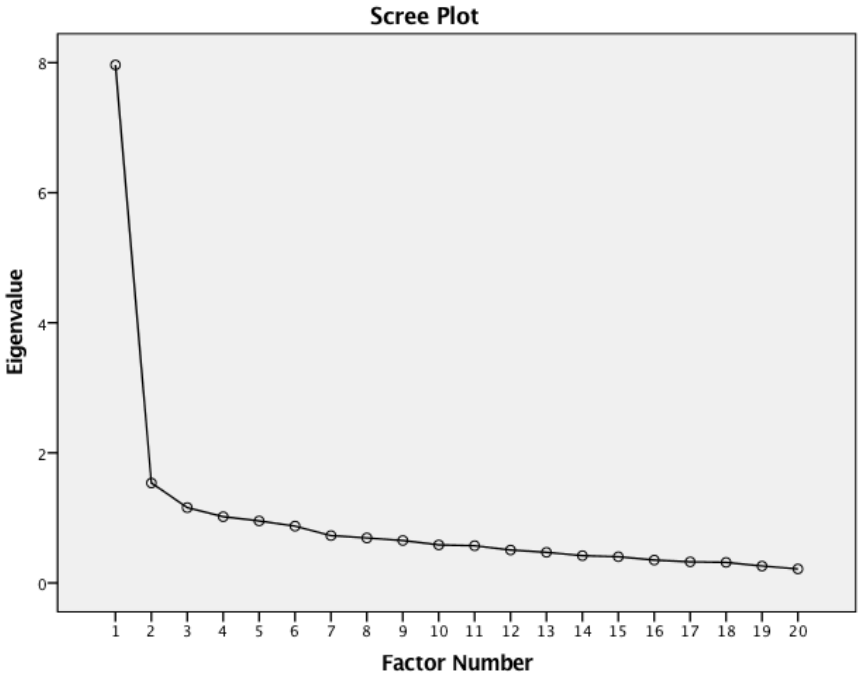
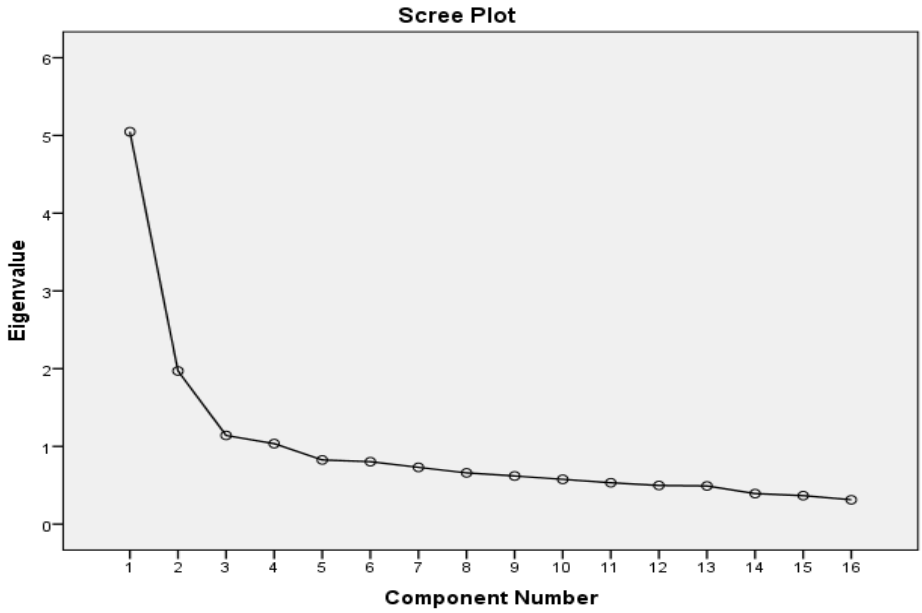


Figure 5.1 *Scree Plot for Perceived IO factor analysis*

Figure 5.2 Scree Plot for IAT factor analysis



APPENDIX D: RESEARCH PARTICIPANTS INFORMATION SHEET

Research title: The Impact of Information Overload and Internet Addiction on Students Wellbeing.

As part of my PhD program in the school of psychology, I am conducting research on the influence of information overload and internet addiction on well-being. The rest of the information sheet provides more details about the study.
Participating in the study is voluntary; five pounds will be credited after answering the questionnaire. Answering the research questionnaires will take about 20 minutes.
All given information is confidential and will only be used for research purposes.
For further information, kindly contact the researcher Hasah AlHeneidi or her supervisor Andy Smith.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

Informed Consent

The aim of this project is to investigate the impact of Information overload and Internet addiction on wellbeing.
I understand that my participation in this project will involve completing a questionnaire on information overload and well-being.
I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to avoid responding to any questions that I feel uncomfortable answering and that I can discuss my concerns with Professor Andy Smith at the email address below.

I understand that the survey information provided by me will be anonymous, with my email address provided separately for credit purposes. I understand that this information may be retained indefinitely.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

By checking the box below and continuing, I consent to participate in the study conducted by Hasah Alheinedi, School of Psychology, Cardiff University with the supervision of Professor Andy Smith.

☐ I have read and understood the above statement and consent to participate.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

Instructions

Thank you for agreeing to participate in this study on the effects of information overload and Internet addiction on students wellbeing. You will be required to complete an online questionnaire that should take no longer than 30 minutes of your time. This information will be stored anonymously.

SURVEY:
1.Gender: M □ F □

2.Age: years

3. On average, how many hours are you scheduled to be in university a week?

4. How would you rate your current course workload? on a scale of 1-10 (1 meaning "there is little or no workload" and 10 meaning "there is a very high workload")?

1 2 3 4 5 6 7 8 9 10

5. How stressful do you find your university course? on a scale of 1-10 (1 meaning "not at all stressful" and 10 meaning "the most stressful it could possibly be")?

1 2 3 4 5 6 7 8 9 10

6. How efficiently do you do your coursework? (1=not at all efficiently, 10 = extremely efficiently) ?

1 2 3 4 5 6 7 8 9 10

General Health

7.Do you smoke? Yes □ No □

8.How many hours of sleep do you have on an average week night?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
□0	□1	□2	□3	□4

9.How often do you have good quality sleep?

Never	Sometimes	Often	Always
□0	□1	□2	□3

10. What is your height?

11. What is your weight?

12. Over the past 12 months, how would you say your health in general has been?

Extremely poor 1 2 3 4 5 6 7 8 9 10 Extremely good

Internet content use measure

Please indicate to which extent you use each type of Internet content. Response options are never (1), rarely (2), sometimes (3), often (4), and very often (5).

Internet content	Never	Rarely	Sometimes	Often	Very often
Study/work related use	1	2	3	4	5
Entertainment related use (watching videos and listening to music)	1	2	3	4	5
SNS use (conversations and social interaction)	1	2	3	4	5
Game use	1	2	3	4	5
Shopping	1	2	3	4	5
Adults websites	1	2	3	4	5

ICSRLE Students Life Experiences (7 Factors)

Please consider the following elements of student life and indicate overall to what extent they have been a part of your life over the past 6 months. Remember to use the examples as guidance rather than trying to consider each of them specifically:

13. Challenges to your development (e.g. important decisions about your education and future career, dissatisfaction with your written or mathematical ability, struggling to meet your own or others' academic standards).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

14. Time pressures (e.g. too many things to do at once, interruptions of your school work, a lot of responsibilities).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

15. Academic Dissatisfaction (e.g. disliking your studies, finding courses uninteresting, dissatisfaction with school).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

16. Romantic Problems (e.g. decisions about intimate relationships, conflicts with boyfriends'/girlfriends' family, conflicts with boyfriend/girlfriend).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

17. Societal Annoyances (e.g. getting ripped off or cheated in the purchase of services, social conflicts over smoking, disliking fellow students).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

18. Social Mistreatment (e.g. social rejection, loneliness, being taken advantage of).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

19. Friendship problems (e.g. conflicts with friends, being let down or disappointed by friends, having your trust betrayed by friends).

Not at all part of my life 1 2 3 4 5 6 7 8 9 10 Very much part of my life

---

Students Social Support (3 Factors)

Please state how much you agree or disagree with the following statements:

Tangible

20. There is a person or people in my life who would provide tangible support for me when I need it (for example: money for tuition or books, use of their car, furniture for a new apartment).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Belonging

21. There is a person or people in my life who would provide me with a sense of belonging (for example: I could find someone to go to a movie with me, I often get invited to do things with other people, I regularly hang out with friends).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Emotional

22. There is a person or people in my life with whom I would feel perfectly comfortable discussing any problems I might have (for example: difficulties with my social life, getting along with my parents, sexual problems).

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

Depression

24. On a scale of one to ten, how depressed would you say you are in general? (e.g. feeling 'down', no longer looking forward to things or enjoying things that you used to)

Not at all depressed 1 2 3 4 5 6 7 8 9 10 Extremely depressed

---

Positive Affect

25. Thinking about myself and how I normally feel, in general, I mostly experience positive feelings (For example: I feel alert, inspired, determined, attentive)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Optimism

26. In general, I feel optimistic about the future (For example: I usually expect the best, I expect more good things to happen to me than bad, It's easy for me to relax)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Self Efficacy

27. I am confident in my ability to solve problems that I might face in life (For example: I can usually handle whatever comes my way, If I try hard enough I can overcome difficult problems, I can stick to my aims and accomplish my goals)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Self Esteem

28. Overall, I feel that I have positive self-esteem (For example: On the whole I am satisfied with myself, I am able to do things as well as most other people, I feel that I am a person of worth)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Negative Affect

29. Thinking about myself and how I normally feel, in general, I mostly experience negative feelings (For example: I feel upset, hostile, ashamed, nervous)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Coping Style:

<u>Blame Self</u>

30.When I find myself in stressful situations, I blame myself (e.g. I criticize or lecture myself, I realise I brought the problem on myself).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

<u>Wishful Thinking</u>

31. When I find myself in stressful situations, I wish for things to improve (e.g. I hope a miracle will happen, I wish I could change things about myself or circumstances, I daydream about a better situation).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Avoidance

32. When I find myself in stressful situations, I try to avoid the problem (e.g. I keep things to myself, I go on as if nothing has happened, I try to make myself feel better by eating/drinking/smoking).

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Extraversion

33. I consider myself to be outgoing (For example: Talkative, comfortable with myself, confident in social situations)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Emotional Stability

34. I feel that I can get on well with others (For example: I'm usually relaxed around others, I tend not to get jealous, I accept people as they are)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Life Satisfaction

35. Overall, I feel that I am satisfied with my life (For example: In most ways my life is close to my ideal, so far I have gotten the important things I want in life)

Disagree strongly 1 2 3 4 5 6 7 8 9 10 Agree strongly

Anxiety

36. On a scale of one to ten, how anxious would you say you are in general? (e.g. feeling tense or 'wound up', unable to relax, feelings of worry or panic)

Not at all anxious 1 2 3 4 5 6 7 8 9 10 Extremely anxious

Life Stress

37. Overall, how stressful is your life?

Not at all stressful 1 2 3 4 5 6 7 8 9 10 Very Stressful

Physical Fatigue

38. Overall, how often do you feel physically fatigued?

Not at all 1 2 3 4 5 6 7 8 9 10 Very Often

Mental Fatigue

39. Overall, how often do you feel mentally fatigued?

Not at all 1 2 3 4 5 6 7 8 9 10 Very Often

Short IAT scale

Simply answer the 12-item questionnaire based upon the following five-point Likert scale. only consider the time spent online for non-academic or non-job (or recreational) purposes when answering.

0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

1. How often do you find that you stay on-line longer than you intended?
2. How often do you find yourself saying ‘‘just a few more minutes’’ when on-line?
3. How often do you neglect household chores to spend more time on-line?
4. How often do you try to cut down the amount of time you spend on-line and fail?
5. How often do your grades or school work suffer because of the amount of time you spend on-line?
6. How often do you lose sleep due to being online late at night?
7. How often do you choose to spend more time on-line over going out with others?
8. How often do you try to hide how long you’ve been on-line?
9. How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?
10. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back on-line?
11. How often do you feel preoccupied with the Internet when off-line, or fantasize about being on-line?
12. How often do you become defensive or secretive when anyone asks you what you do on-line?

Reference:Validation and psychometric properties of a short version of Young’s Internet Addiction Test 2013

Bergen Social Networking Addiction Scale (BSNAS)

Instruction: Below you find some questions about your relationship to and use of social media (Facebook, Twitter, Instagram, Snapchat, and the like). Choose the response alternative for each question that best describes you.

How often during the last year have you...	**Very rarely**	**Rarely**	**Sometimes**	**Often**	**Very often**
..spent a lot of time thinking about social media or planned use of social media?1	❑	❑	❑	❑	❑
..felt an urge to use social media more and more?2	❑	❑	❑	❑	❑
..used social media in order to forget about personal problems?3	❑	❑	❑	❑	❑
..tried to cut down on the use of social media without success?4	❑	❑	❑	❑	❑
..become restless or troubled if you have been prohibited from using social media?5	❑	❑	❑	❑	❑
..used social media so much that it has had a negative impact on your job/studies?6	❑	❑	❑	❑	❑

Perceived Information Overload Scale

The questions in the scale ask about your feelings and thoughts in the last month, please indicate how often you felt or thought certain way.

1.In the last month how often you felt overwhelmed with the email messages you received?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

2. In the last month, how often have you forgotten to respond to important email message?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

3. In the last month how often you felt pressured to respond to email messages quickly?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

4.in the last month, how often have you received more cell phone calls than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

5.In the last month, how often have you felt that you receive more email attachments than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

6. In the last month, how often have you felt that you have had to spend much time maintaining the various information and communication devices you own (e.g., laptops, desktop computers, personal digital assistants)?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

7. In the last month, how often have you felt pressured to manage several information and communication inputs at the same time?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

8. In the last month, how often have you felt that you have too many messages (e.g., wall postings, event notifications, personal messages, status updates, and applications) on your facebook or Myspace page to deal with?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

9. In the last month, how often have you felt that you have receive more instant messages that you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

10. In the last month, how often have you felt that your work activities leave you too little for recreational activities ?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

11. In the last month, how often have you felt that your work demands make you less sensitive to the needs of others?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

12. In the last month, how often have you felt hassled by your commute to work?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

13. In the last month, how often have you felt that you have to many demands in your home to be able to handle comfortably?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

14. In the last month, how often have you felt that the demands on you in your workplace exceed your capacity to deal with them?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

15. In the last month, how often have you felt that your home environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

16. In the last month, how often have you felt that your work environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

Debrief – Information overload, internet addiction and the students wellbeing

Thank you for completing the questionnaire. The questions you answered are intended to provide short ratings of life events and social support that are relevant to students, along with ratings of personality, health-related behaviours and well-being such as self-esteem, depression and happiness. The data you provided will be used to investigate whether information overload and internet addiction are associated with wellbeing. The findings from this research may have implications for students by raising awareness of the effects of information overload and internet addiction on students' wellbeing .

If you have any queries or concerns about the research, please contact either Hasah Alheneidi or her supervisor (Andy Smith) using the contact details below. If you are affected by any of the issues raised in the questionnaire, then there are a number of services available through the university which can offer support at the following links:

http://www.cardiff.ac.uk/govrn/cocom/equalityanddiversity/index.html (equality and diversity)
http://www.cardiff.ac.uk/counselling/about/index.html (counselling service)

Thank you again for your participation.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

Research Participants Information Sheet

Research title: The Impact of Information Overload and Internet Addiction on Employees Wellbeing.

As part of my PhD program in the school of psychology, I am conducting research on the influence of information overload and internet addiction on well-being. The rest of the information sheet provides more details about the study.
Participating in the study is voluntary; five pounds will be credited for each participant after answering the questionnaire. Answering the research questionnaires will take about 20 minutes.
All given information is confidential and will only be used for research purposes.
For further information, kindly contact the researcher Hasah AlHeneidi or her supervisor Andy Smith.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

Informed Consent

The aim of this project is to investigate the impact of Information overload and Internet addiction on wellbeing.
I understand that my participation in this project will involve completing a questionnaire on information overload and well-being.
I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to avoid responding to any questions that I feel uncomfortable answering and that I can discuss my concerns with Professor Andy Smith at the email address below.

I understand that the survey information provided by me will be anonymous, with my email address provided separately for credit purposes. I understand that this information may be retained indefinitely.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

By checking the box below and continuing, I consent to participate in the study conducted by Hasah Alheinedi, School of Psychology, Cardiff University with the supervision of Professor Andy Smith.

I have read and understood the above statement and consent to participate.

Hasah Alheneidi **School of Psychology,** **63 Park Place,** **Cardiff CF10 3AS** **e-mail: AlheneidiH@cardiff.ac.uk**	**Professor A.P.Smith,** **School of Psychology,** **63 Park Place,** **Cardiff CF10 3AS** **e-mail: smithap@cardiff.ac.uk** **Tel: 02920874757**

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

Instructions

Thank you for agreeing to participate in this study on the effects of information overload and Internet addiction on employees wellbeing. You will be required to complete an online questionnaire that should take no longer than 30 minutes of your time. This information will be stored anonymously.

SURVEY:
1.Gender: M □ F □

2.Age: years

3. On average, how many hours are you scheduled to be in work a week?

4. How would you rate your current workload? on a scale of 1-10 (1 meaning "there is little or no workload" and 10 meaning "there is a very high workload")?

1 2 3 4 5 6 7 8 9 10

5. How stressful do you find your work? on a scale of 1-10 (1 meaning "not at all stressful" and 10 meaning "the most stressful it could possibly be")?

1 2 3 4 5 6 7 8 9 10

6. How efficiently do you do your work? (1=not at all efficiently, 10 = extremely efficiently) ?

1 2 3 4 5 6 7 8 9 10

General Health

7.Do you smoke? Yes □ No □

8.How many hours of sleep do you have on an average week night?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
□0	□1	□2	□3	□4

9.How often do you have good quality sleep?

Never	Sometimes	Often	Always
□0	□1	□2	□3

10. What is your height?

11. What is your weight?

12. Over the past 12 months, how would you say your health in general has been?

Extremely poor 1 2 3 4 5 6 7 8 9 10 Extremely good

Internet content use measure

Please indicate to which extent you use each type of Internet content. Response options are never (1), rarely (2), sometimes (3), often (4), and very often (5).

Internet content	Never	Rarely	Sometimes	Often	Very often
Study/work related use	1	2	3	4	5
Entertainment related use (watching videos and listening to music)	1	2	3	4	5
SNS use (conversations and social interaction)	1	2	3	4	5
Game use	1	2	3	4	5
Shopping	1	2	3	4	5
Adults websites	1	2	3	4	5

Wellbeing Measure

The following questions all have a response scale of 1 (Not at all) to 10 (very much so):

1. To what extent does your job have negative characteristics (e.g. high demands; requires a lot of effort; little consultation on change; role conflict; issues with other members of staff)?

1 2 3 4 5 6 7 8 9 10

2.To what extent does your job have positive characteristics (e.g. control over what you do or how you do it; support from colleagues; support from managers; appropriate rewards)?

1 2 3 4 5 6 7 8 9 10

3.To what extent do you try to cope with problems in a positive way (e.g. you focus on the problem and try and solve it; you get social support)?

1 2 3 4 5 6 7 8 9 10

4.To what extent do you deal with problems in a passive way (e.g. avoid them; use wishful thinking; blame yourself)?

1 2 3 4 5 6 7 8 9 10

5.Do you think you have a positive personality (e.g. open; conscientious; extravert; agreeable; stable; high self-esteem; high self-efficacy; optimistic)?

1 2 3 4 5 6 7 8 9 10

6.Do you have a high level of wellbeing (e.g. high satisfaction; a positive mood; happiness)?

1 2 3 4 5 6 7 8 9 10

7.Do you have a low level of wellbeing (e.g. stress; anxiety; depression)?

1 2 3 4 5 6 7 8 9 10

8.Are you satisfied with your job?

1 2 3 4 5 6 7 8 9 10

9.How much stress do you have at work?

1 2 3 4 5 6 7 8 9 10

10.Are you anxious or depressed because of work?

1 2 3 4 5 6 7 8 9 10

11.Are you happy at work?

1 2 3 4 5 6 7 8 9 10

12.Does your job interfere with your life outside of work?

1 2 3 4 5 6 7 8 9 10

13.Does your life outside of work interfere with your job?

1 2 3 4 5 6 7 8 9 10

Work–life balance measure

When I reflect over my work and non-work activities (your regular activities outside of work such as family, friends, sports, study, etc.), over the past three months, I conclude that:

Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I currently have a good balance between the time I spend at work and the time I have available for non-work activities.	1	2	3	4	5
2. I have difficulty balancing my work and non-work activities.	1	2	3	4	5
3. I feel that the balance between my work demands and non-work activities is currently about right.	1	2	3	4	5
4. Overall, I believe that my work and non-work life are balanced.	1	2	3	4	5

Note: Item 2 is reverse scored.

5.What is the relative importance to you of your work and non-work activities?

6. Are work or non-work activities more prominent to you at the moment?

7. Do you currently receive more value (e.g., self esteem, satisfaction) from your work or non-work activities?

Paula Brough, Carolyn Timms, Michael P. O'Driscoll, Thomas Kalliath, Oi- Ling Siu, Cindy Sit & Danny Lo (2014): Work–life balance: a longitudinal evaluation of a new measure across Australia and New Zealand workers, The International Journal of Human Resource Management, DOI: 10.1080/09585192.2014.899262

Bergen Social Networking Addiction Scale (BSNAS)

Instruction: Below you find some questions about your relationship to and use of social media (Facebook, Twitter, Instagram and Snapchat). Choose the response alternative for each question that best describes you.

How often during the last year have you...	**Very rarely**	**Rarely**	**Sometimes**	**Often**	**Very often**
..spent a lot of time thinking about social media or planned use of social media?1	❑	❑	❑	❑	❑
..felt an urge to use social media more and more?2	❑	❑	❑	❑	❑
..used social media in order to forget about personal problems?3	❑	❑	❑	❑	❑
..tried to cut down on the use of social media without success?4	❑	❑	❑	❑	❑
..become restless or troubled if you have been prohibited from using social media?5	❑	❑	❑	❑	❑
..used social media so much that it has had a negative impact on your job/studies?6	❑	❑	❑	❑	❑

Short IAT scale

Simply answer the 12-item questionnaire based upon the following five-point Likert scale. only consider the time spent online for non-academic or non-job (or recreational) purposes when answering.

0 = Not Applicable, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always

13. How often do you find that you stay online longer than you intended?
14. How often do you find yourself saying ‘‘just a few more minutes’’ when on-line?
15. How often do you neglect household chores to spend more time online?
16. How often do you try to cut down the amount of time you spend on-line and fail?
17. How often do your grades or school work suffer because of the amount of time you spend on-line?
18. How often do you lose sleep due to being online late at night?
19. How often do you choose to spend more time on-line over going out with others?
20. How often do you try to hide how long you’ve been on-line?
21. How often do you snap, yell, or act annoyed if someone bothers you while you are online?
22. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?
23. How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?
24. How often do you become defensive or secretive when anyone asks you what you do online?

Refrence:Validation and psychometric properties of a short version of Young’s Internet Addiction Test 2013

Perceived Information Overload Scale

The questions in the scale ask about your feelings and thoughts in the last month, please indicate how often you felt or thought certain way.

1.in the last month how often you felt overwhelmed with the email messages you received?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

2. In the last month, how often have you forgotten to respond to important email message?

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4.in the last month, how often have you received more cell phone calls than you can handle?

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5.In the last month, how often have you felt that you receive more email attachments than you can handle?

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6. In the last month, how often have you felt that you have had to spend much time maintaining the various information and communication devices you own (e.g., laptops, desktop computers, personal digital assistants)?

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8. In the last month, how often have you felt that you have too many messages (e.g., wall postings, event notifications, personal messages, status updates, and applications) on your facebook or Myspace page to deal with?

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10. In the last month, how often have you felt that your work activities leave you too little for recreational activities ?

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11. In the last month, how often have you felt that your work demands make you less sensitive to the needs of others?

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12. In the last month, how often have you felt hassled by your commute to work?

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14. In the last month, how often have you felt that the demands on you in your workplace exceed your capacity to deal with them?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

15. In the last month, how often have you felt that your home environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

16. In the last month, how often have you felt that your work environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

Debrief – Information overload, internet addiction and Employees wellbeing

Thank you for completing the questionnaire. The questions you answered are intended to provide short ratings of work-life balance, psychological wellbeing that are relevant to employees, along with ratings of personality, health-related behaviours and well-being such as self-esteem, depression and happiness. The data you provided will be used to investigate whether information overload and internet addiction are associated with wellbeing. The findings from this research may have implications for employees by raising awareness of the effects of information overload and internet addiction on employees' wellbeing and work stress.

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Thank you again for your participation.

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APPENDIX E: CHAPTER 6 NOT SIGNIFICANT ANALYSIS

Variable	B	SE	β	t	P
(Constant)	-.086	.791		-.108	.914
Smoking	-.045	.230	-.010	-.196	.845
Work stress	.013	.047	.015	.271	.787
Gender	.082	.221	.018	.371	.711
Sleep Quality	-.043	.176	-.013	-.244	.807
General Health	.259	.063	.240	4.082	.000
Stressors	.013	.013	.079	1.002	.317
Social support	.035	.025	.097	1.417	.158
Positive personality	.193	.025	.531	7.616	.000
Negative coping	-.018	.025	-.046	-.713	.477
Information Overload	-.007	.013	-.043	-.542	.588
SNA	.017	.030	.051	.563	.574
Internet Addiction	.004	.019	.022	.228	.820

Table. 6.8. Results of Stepwise regression predicting Positive wellbeing

Table. 6.7. Results of Stepwise regression predicting Negative Wellbeing

Variable	B	SE	β	t	P
(Constant)	1.136	1.342		.847	.398
Smoking	.046	.389	.005	.119	.905
Work stress	-.001	.080	-.001	-.011	.992
Gender	.120	.375	.013	.321	.749
Sleep Quality	-.123	.298	-.020	-.413	.680
General Health	-.057	.108	-.028	-.534	.594
Stressors	.097	.021	.312	4.526	.000
Social support	-.047	.042	-.068	-1.133	.259
Positive personality	-.058	.043	-.083	-1.359	.176
Negative coping	.419	.042	.569	10.037	.000
Information Overload	.013	.022	.042	.600	.549
SNA	-.086	.051	-.134	-1.681	.094
Internet Addiction	.053	.033	.137	1.619	.107

Table. 6.8. Results of Stepwise regression predicting Positive Appraisal

Variable	B	SE	β	t	P
(Constant)	-.086	.791		-.108	.914
Smoking	-.045	.230	-.010	-.196	.845
Work stress	.013	.047	.015	.271	.787
Gender	.082	.221	.018	.371	.711
Sleep Quality	-.043	.176	-.013	-.244	.807
General Health	.259	.063	.240	4.082	.000
Stressors	.013	.013	.079	1.002	.317
Social support	.035	.025	.097	1.417	.158
Positive personality	.193	.025	.531	7.616	.000
Negative coping	-.018	.025	-.046	-.713	.477
Information Overload	-.007	.013	-.043	-.542	.588
SNA	.017	.030	.051	.563	.574
Internet Addiction	.004	.019	.022	.228	.820

Variable	B	SE	β	t	P
(Constant)	4.227	1.103		3.832	.000
Smoking	-.838	.317	-.174	-2.648	.009
Work stress	.285	.063	.323	4.500	.000
Gender	.176	.303	.036	.580	.563
Sleep Quality	-.245	.248	-.072	-.988	.325
General Health	.087	.089	.079	.976	.330
Stressors	.012	.018	.074	.702	.484
Social support	.073	.033	.193	2.201	.029
Positive personality	.087	.035	.231	2.515	.013
Negative coping	-.065	.033	-.162	-1.943	.054
Information Overload	-.016	.018	-.095	-.906	.366
SNA	-.047	.041	-.138	-1.143	.254
Internet Addiction	.025	.026	.119	.939	.349

Table. 6.10. Results of Stepwise regression predicting Academic Attainment

Table. 6.14. Results of Stepwise regression predicting Positive Wellbeing

Variable	B	SE	β	t	P
(Constant)	.247	.831		.297	.766
Gender	-.026	.234	-.006	-.112	.911
Age	-.044	.048	-.053	-.908	.365
Smoking	-.146	.234	-.032	-.621	.535
Sleep Quality	.250	.183	.079	1.361	.175
General Health	-.039	.064	-.037	-.608	.544
Negative effect	.008	.013	.048	.593	.554
Positive effect	.106	.024	.295	4.423	.000
Negative coping	.198	.025	.554	7.866	.000
Positive personality	-.037	.025	-.099	-1.524	.129
Information Overload	.011	.014	.066	.788	.432
Internet Addiction	.039	.030	.119	1.309	.192
SNA	-.002	.019	-.012	-.120	.904
Study/Work	-.055	.120	-.027	-.453	.651
Entertainment	-.113	.144	-.049	-.782	.435
Social network sites	-.012	.127	-.006	-.098	.922
Game use	.143	.118	.075	1.213	.227
Shopping	-.002	.138	-.001	-.015	.988
Adult websites	.023	.101	.013	.230	.818

Table. 6.15. Results of Stepwise regression predicting Positive Appraisal

Variable	B	SE	β	t	P
(Constant)	.890	.880		1.011	.314
Gender	-.069	.246	-.015	-.282	.779
Age	.016	.051	.019	.315	.753
Smoking	.121	.245	.026	.492	.623
Sleep Quality	-.064	.194	-.020	-.329	.743
General Health	.270	.067	.255	4.010	.000
Negative effect	.012	.014	.073	.883	.379
Positive effect	.055	.025	.150	2.156	.032
Negative coping	.185	.027	.509	6.939	.000
Positive personality	-.025	.026	-.065	-.966	.335
Information Overload	-.007	.014	-.039	-.478	.633
Internet Addiction	.039	.031	.118	1.260	.209
SNA	-.008	.020	-.039	-.385	.701
Study/Work	.043	.127	.021	.336	.738
Entertainment	-.181	.154	-.077	-1.176	.241
Social network sites	-.048	.135	-.023	-.357	.721
Game use	.044	.125	.022	.347	.729
Shopping	-.208	.147	-.085	-1.416	.159
Adult websites	.106	.107	.058	.995	.321

Table. 6.18. Results of Stepwise regression predicting Negative Appraisal

Variable	B	SE	β	t	P
(Constant)	3.001	1.804		1.664	.098
Gender	-.529	.504	-.059	-1.050	.295
Age	.141	.103	.087	1.362	.175
Smoking	.552	.503	.062	1.097	.274
Sleep Quality	-.136	.406	-.022	-.335	.738
General Health	-.188	.140	-.093	-1.342	.181
Negative effect	.016	.028	.051	.578	.564
Positive effect	.123	.052	.177	2.366	.019
Negative coping	-.130	.055	-.187	-2.372	.019
Positive personality	.320	.053	.437	6.059	.000
Information Overload	.087	.028	.272	3.099	.002
Internet Addiction	-.093	.064	-.146	-1.456	.147
SNA	.037	.041	.096	.895	.372
Study/Work	.013	.260	.003	.050	.960
Entertainment	.091	.313	.020	.290	.772
Social network sites	-.206	.276	-.052	-.746	.457
Game use	-.105	.256	-.028	-.412	.681
Shopping	-.308	.298	-.067	-1.034	.303
Adult websites	.250	.219	.072	1.142	.255

Table. 6.19. Results of Stepwise regression predicting Academic attainment

Variable	B	SE	β	t	P
(Constant)	4.089	1.182		3.459	.001
Gender	-.907	.331	-.188	-2.739	.007
Age	.267	.068	.302	3.943	.000
Smoking	.156	.331	.032	.472	.638
Sleep Quality	-.298	.266	-.088	-1.121	.264
General Health	.098	.091	.089	1.070	.286
Negative effect	.012	.018	.073	.663	.508
Positive effect	.068	.034	.181	1.999	.047
Negative coping	.086	.036	.227	2.378	.018
Positive personality	-.062	.035	-.155	-1.761	.080
Information Overload	-.019	.018	-.107	-1.006	.316
Internet Addiction	-.044	.042	-.128	-1.045	.298
SNA	.028	.027	.136	1.039	.300
Study/Work	.135	.172	.063	.786	.433
Entertainment	.214	.206	.088	1.036	.302
Social network sites	-.166	.182	-.076	-.914	.362
Game use	-.018	.168	-.009	-.105	.917
Shopping	.015	.195	.006	.074	.941
Adult websites	-.101	.143	-.054	-.707	.481

Chapter 7
Insignificant Results

Table7.7. Results of Stepwise Regression Predicting Positive Wellbeing

Variable	B	SE	β	t	p
(Constant)	1.594	.998		1.597	.112
Gender:	.241	.210	.059	1.144	.254
Age	.013	.009	.080	1.382	.168
Smoking	-.245	.222	-.059	-1.102	.271
Sleep Quality	.148	.170	.053	.870	.385
General Health	.288	.065	.276	4.434	.000
Negative effect	-.003	.056	-.004	-.061	.951
Positive effect	.209	.069	.215	3.048	.003
Negative coping	-.054	.049	-.069	-1.103	.271
Positive personality	.212	.062	.252	3.402	.001
Information Overload	.005	.012	.036	.390	.697
Internet Addiction	.002	.022	.012	.096	.924
SNA	-.026	.033	-.088	-.781	.436

Table 7.8. Results of Stepwise Regression Predicting Positive Appraisal

Variable	B	SE	β	t	p
(Constant)	1.357	.856		1.584	.114
Gender:	-.076	.181	-.015	-.421	.674
Age	.003	.008	.016	.413	.680
Smoking	-.234	.191	-.045	-1.229	.220
Sleep Quality	-.105	.146	-.030	-.719	.473
General Health	-.143	.056	-.108	-2.558	.011
Negative effect	-.001	.048	-.001	-.027	.978
Positive effect	.335	.059	.273	5.678	.000
Negative coping	-.066	.042	-.067	-1.582	.115
Positive personality	.739	.054	.696	13.800	.000
Information Overload	-.006	.011	-.033	-.530	.597
Internet Addiction	.008	.019	.035	.429	.669
SNA	.005	.028	.014	.181	.857

Table7.10. Results of Stepwise Regression Predicting Work Efficiency

Variable	B	SE	β	t	p
(Constant)	3.799	1.078		3.524	.001
Gender:	-.002	.227	-.001	-.009	.993
Age	.026	.010	.164	2.548	.011
Smoking	-.373	.240	-.092	-1.555	.121
Sleep Quality	-.264	.183	-.097	-1.442	.151
General Health	.252	.070	.248	3.586	.000
Negative effect	.158	.060	.204	2.636	.009
Positive effect	.398	.074	.419	5.361	.000
Negative coping	-.024	.053	-.032	-.464	.643
Positive personality	-.030	.067	-.036	-.438	.662
Information Overload	-.009	.013	-.070	-.685	.494
Internet Addiction	-.014	.024	-.080	-.593	.554
SNA	.011	.035	.039	.307	.759

Table. 7.17. Results of Stepwise Regression Predicting Positive Wellbeing

Variable	B	SE	β	t	P
(Constant)	1.340	1.134		1.181	.239
Gender	.305	.246	.075	1.242	.216
Age	.015	.010	.091	1.451	.148
Smoking	-.190	.235	-.046	-.809	.419
Sleep Quality	.104	.178	.037	.586	.559
General Health	.279	.069	.264	4.049	.000
Negative effect	.011	.058	.014	.198	.844
Positive effect	.224	.075	.230	2.990	.003
Negative coping	-.065	.051	-.084	-1.265	.207
Positive personality	.190	.068	.226	2.793	.006
Information Overload	-.005	.014	-.037	-.354	.724
Internet Addiction	.001	.023	.003	.022	.982
SNA	-.017	.035	-.058	-.476	.635
Study/Work	-.002	.103	-.001	-.018	.986
Entertainment	-.129	.122	-.071	-1.060	.290
Social network sites	.037	.108	.024	.345	.730
Game use	.146	.105	.094	1.401	.163
Shopping	.142	.148	.059	.959	.339
Adult websites	.009	.117	.006	.080	.937

Table. 7.21. Results of Stepwise regression predicting Positive Appraisal

Variable	B	SE	β	t	P
(Constant)	1.508	.985		1.531	.127
Gender	-.041	.214	-.008	-.194	.846
Age	.005	.009	.025	.586	.559
Smoking	-.310	.204	-.059	-1.523	.129
Sleep Quality	-.119	.155	-.033	-.771	.441
General Health	-.151	.060	-.113	-2.516	.013
Negative effect	.005	.051	.005	.105	.916
Positive effect	.350	.065	.284	5.370	.000
Negative coping	-.069	.045	-.070	-1.546	.124
Positive personality	.751	.059	.709	12.726	.000
Information Overload	-.004	.012	-.023	-.321	.748
Internet Addiction	.012	.020	.054	.611	.542
SNA	-.004	.031	-.010	-.117	.907
Study/Work	-.095	.090	-.044	-1.060	.290
Entertainment	.148	.106	.065	1.395	.164
Social network sites	-.057	.094	-.029	-.603	.547
Game use	.009	.091	.005	.098	.922
Shopping	-.119	.128	-.039	-.927	.355
Adult websites	-.026	.102	-.013	-.254	.800

Table. 7.24. Results of Stepwise Regression Predicting Work life Balance

Variable	B	SE	β	t	P
(Constant)	-.562	1.459		-.385	.701
Gender	-.067	.316	-.012	-.212	.832
Age	.012	.013	.052	.903	.368
Smoking	-.210	.302	-.036	-.695	.488
Sleep Quality	-.104	.229	-.026	-.455	.649
General Health	.025	.089	.017	.286	.775
Negative effect	.335	.075	.295	4.469	.000
Positive effect	-.071	.096	-.052	-.738	.461
Negative coping	.050	.066	.046	.760	.448
Positive personality	-.017	.087	-.014	-.189	.850
Information Overload	.084	.018	.448	4.744	.000
Internet Addiction	-.002	.030	-.009	-.075	.940
SNA	-.021	.045	-.051	-.459	.646
Study/Work	.083	.133	.034	.623	.534
Entertainment	-.094	.157	-.037	-.600	.549
Social network sites	.141	.139	.064	1.016	.311
Game use	.156	.134	.072	1.162	.246
Shopping	-.242	.190	-.072	-1.276	.203
Adult websites	.199	.151	.088	1.318	.189

Table. 7.25. Results of Stepwise Regression Predicting Life Work Balance

Variable	B	SE	β	t	P
(Constant)	-.015	1.321		-.012	.991
Gender	-.226	.287	-.042	-.790	.431
Age	-.014	.012	-.066	-1.200	.232
Smoking	-.254	.273	-.046	-.928	.354
Sleep Quality	-.136	.207	-.036	-.655	.513
General Health	-.043	.080	-.030	-.534	.594
Negative effect	.085	.068	.079	1.257	.210
Positive effect	.114	.087	.088	1.305	.193
Negative coping	.147	.060	.141	2.449	.015
Positive personality	.082	.079	.073	1.029	.305
Information Overload	.035	.016	.196	2.164	.032
Internet Addiction	.086	.027	.357	3.151	.002
SNA	.014	.041	.037	.344	.731
Study/Work	-.196	.120	-.085	-1.631	.104
Entertainment	-.071	.142	-.029	-.500	.617
Social network sites	-.005	.126	-.002	-.039	.969
Game use	-.011	.122	-.005	-.092	.927
Shopping	-.224	.172	-.070	-1.299	.195
Adult websites	.149	.137	.070	1.088	.278

APPENDIX F: RESEARCH PARTICIPANTS INFORMATION SHEET

Research title: Dairy study on the impact of problematic internet use and information overload on wellbeing.

As part of my PhD program in the school of psychology, I am conducting research on the influence of information overload on well-being. The rest of the information sheet provides more details about the study.
Participating in the study is voluntary. Answering the research questionnaires will take about 5-10 minutes daily for a week. Every day you'll receive an email with new questions for a week.

All given information is confidential and will only be used for research purposes and The initial confidential information will be made anonymous at the end of the study.

For further information, kindly contact the researcher Hasah AlHeneidi or her supervisor Andy Smith.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

Informed Consent

The aim of this project is to investigate the impact of problematic internet use and information overload on wellbeing in depth through answering questions by Problematic internet users daily for a week.
I understand that my participation in this project will involve completing a questionnaire on information overload and well-being.
I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to avoid responding to any questions that I feel uncomfortable answering and that I can discuss my concerns with Professor Andy Smith at the email address below.

I understand that the survey information provided by me will be anonymous, with my email address provided separately for credit purposes. I understand that this information may be retained indefinitely.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

By checking the box below and continuing, I consent to participate in the study conducted by Hasah Alheneidi, School of Psychology, Cardiff University with the supervision of Professor Andy Smith.

☐ I have read and understood the above statement and consent to participate.

Contact details:

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk

Instructions

Thank you for agreeing to participate in this study. You will be required to complete an online questionnaire that should take no longer than 5-10 minutes of your time every night for a week. This information will be stored anonymously.

Demographics

1. Gender: M F
2. Age: years
3. What is your occupation?
4. Marital status?
5. How many hours a day do you spend at work?
6. Please rate your workload?

Very low 1 10 very high

7. Do you smoke? Yes No
8. How many hours of sleep do you have on an average week night?
   5 hours or less 6 hours 7 hours 8 hours 9 hours or more
9. How often do you have good quality sleep?
   Never Sometimes Often Always
10. Do you exercise on daily basis?
11. Are you on a healthy diet?
12. What is your height?
13. What is your weight?
14. Over the past 12 months, how would you say your health in general has been?
    Extremely poor 1 2 3 4 5 6 7 8 9 10 Extremely good

Personal characteristics –

1. To what extent do you try to cope with problems in a positive way (e.g. you focus on the problem and try to solve it; you get social support)?

Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

2. To what extent do you deal with problem in a passive way (e.g. avoid them; use wishful thinking; blame yourself)?

Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

3. Do you think you have a positive personality (e.g. open; conscientious; extravert; agreeable; stable; high self-esteem; high self-efficacy; optimistic)?

Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

4. Thinking about myself and how normally feel, I mostly experience negative feelings (e.g. I feel upset, hostile, ashamed and nervous).

Strongly disagree 1 2 3 4 5 6 7 8 9 10 Strongly agree

5. Thinking about myself and how normally feel, I mostly experience positive feelings (e.g. I feel alert, inspired, determined and attentive).

Strongly disagree 1 2 3 4 5 6 7 8 9 10 Strongly agree

Perceived Information Overload Scale

The questions in the scale ask about your feelings and thoughts in the last month, please indicate how often you felt or thought certain way.

1.in the last month how often you felt overwhelmed with the email messages you received?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

2. In the last month, how often have you forgotten to respond to important email message?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

3. In the last month how often you felt pressured to respond to email messages quickly?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

4.in the last month, how often have you received more cell phone calls than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

5.In the last month, how often have you felt that you receive more email attachments than you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

6. In the last month, how often have you felt that you have had to spend much time maintaining the various information and communication devices you own (e.g., laptops, desktop computers, personal digital assistants)?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

7. In the last month, how often have you felt pressured to manage several information and communication inputs at the same time?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

8. In the last month, how often have you felt that you have too many messages (e.g., wall postings, event notifications, personal messages, status updates, and applications) on your facebook or Myspace page to deal with?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

9. In the last month, how often have you felt that you have receive more instant messages that you can handle?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

10. In the last month, how often have you felt that your work activities leave you too little for recreational activities ?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

11. In the last month, how often have you felt that your work demands make you less sensitive to the needs of others?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

12. In the last month, how often have you felt hassled by your commute to work?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

13. In the last month, how often have you felt that you have to many demands in your home to be able to handle comfortably?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

14. In the last month, how often have you felt that the demands on you in your workplace exceed your capacity to deal with them?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

15. In the last month, how often have you felt that your home environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

16. In the last month, how often have you felt that your work environment is too noisy?

0=never 1=almost never 2=sometimes 3=fairly often 4= very often

Daily questions

1. How many hours did you spend online? (total)
    a. Please clarify how many hours did you spend for work/ academic purposes?
    b. And how many hours did you spend on leisure?

2. what online activity did you use the most?
    a) Social media b) Shopping c) Online surfing d) online gaming

3. Do you feel today you are overwhelmed with information?

    Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

4. Rate your productivity today from 0-10

    Not productive 1 2 3 4 5 6 7 8 9 10 Very productive

5. Rate your stress today from 0-10

    Not at all stressed 1 2 3 4 5 6 7 8 9 10 Very stressed

6. Today, did you have a high level of well-being (e.g. high satisfaction, a positive mood; happiness)?

    Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

6.Today, did you have a low level of well-being (e.g. stress; anxiety; depression)?

Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

7.How many hours of sleep did you have?

5 hours or less 6 hours 7 hours 8 hours 9 hours or more

8.Rate the quality of your sleep?

Bad 1 2 3 4 5 6 7 8 9 10 Very deep

9. How sleepy were you today?

Not at all 1 2 3 4 5 6 7 8 9 10 Very much so

Debrief – Information overload and the wellbeing of students

Thank you for completing the questionnaire. The questions you answered are intended to provide in depth understanding of information overload, psychological wellbeing that are relevant to problematic internet users, along with ratings of personality, health-related behaviours and well-being such as self-esteem, depression and happiness. The data you provided will be used to understand the daily behaviour and routine of problematic internet users. The findings from this research may have implications for internet users by raising awareness of the effects of information overload and internet problematic use on wellbeing and general health.

If you have any queries or concerns about the research, please contact either Hasah Alheneidi or her supervisor (Andy Smith) using the contact details below. If you are affected by any of the issues raised in the questionnaire, then there are a number of services available through the university which can offer support at the following links:

http://www.cardiff.ac.uk/govrn/cocom/equalityanddiversity/index.html (equality and diversity)
http://www.cardiff.ac.uk/counselling/about/index.html (counselling service)

Thank you again for your participation.

Hasah Alheneidi School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: AlheneidiH@cardiff.ac.uk	Professor A.P.Smith, School of Psychology, 63 Park Place, Cardiff CF10 3AS e-mail: smithap@cardiff.ac.uk Tel: 02920874757

If you have any concerns regarding practice and procedures, please contact Ethics Committee in the School of Psychology.

Telephone: +44 (0) 029 208 70360
Email: psychethics@cardiff.ac.uk