NATIONAL CENTRE FOR FREEDOM FROM ADDICTIONS

PROBLEMATIC INTERNET USE IN MALTA AMONGST YOUNG PEOPLE AGED BETWEEN 18-30 YEARS

A QUANTITATIVE STUDY

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This report was prepared by the National Centre for Freedom from Addictions, as part of the President's Foundation for the Wellbeing of Society.

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Foreword from Her Excellency, President of Malta

The President's Foundation for the Wellbeing of Society, which I established in June 2014, upheld the concept that wellbeing should be approached holistically, equally exploring how wellbeing is fostered, and how it is hindered. The National Centre for Freedom from Addictions, as the research entity within the Foundation tasked with exploring the area of addictions, aims to look at issues which potentially inhibit the promotion of wellbeing, whilst fostering an environment in which healthy and meaningful human relationships may flourish.

In order to set the research work of the Centre in motion, I asked the National Centre for Freedom from Addictions to explore the topic of addiction to internet and social media, particularly the potential impact which the overuse of such technologies could cause. I was moved to do so within a wider context in which our children and young people, for the most part, barely have any memory or experience of a life in which internet and social media have not been prominent features. The current status quo has necessitated a fair degree of familiarity with communicative technologies, to the point where it has become increasingly important for young people to be digitally literate, and rightly so. However, the question remained as to whether increasing familiarity with the internet and social media had produced a contrary and harmful effect – that of excessive use, which in turn risked damaging personal relationships, and creating obstacles to meaningful and personal connections between human beings.

The Centre initially set out to explore the impact which problematic internet use has on relationships, in order to develop a deeper understanding of how these are subsequently influenced. However, in doing so, it became apparent that very little is presently known on the prevalence of problematic and excessive internet use in itself in Malta. Therefore, prior to considering the impact of problematic internet use, the National Centre for Freedom from Addictions set out to innovatively investigate the prevalence of problematic internet use in Malta in the first place. This was an important first step towards better understanding this particular phenomenon, and falls in line with the Centre's mandate to provide timely and original research which engages with society for the promotion of peace and unity.

I would like to thank the Centre's members, the President's Foundation for the Wellbeing of Society more broadly, and the researchers and contributors to this particular work, for their efforts and dedication towards initiating this discussion, addressing questions which would otherwise have remained unasked on a national level. It is my hope that the relevant academic and policy discussions on this issue will not end with this publication, but rather will be propelled by it.

Her Excellency Marie-Louise Coleiro Preca
President of Malta

A Message from the Director

It is with great pleasure that this work is being launched, as the first research study published by the National Centre for Freedom from Addictions – one of five Research Entities within the President's Foundation for the Wellbeing of Society. From the outset, the President's Foundation for the Wellbeing of Society put forward the concept of relationships as the fundamental structure nurturing human existence. In its first year, the National Centre for Freedom from Addictions took on the task of exploring one phenomenon which is largely assumed to hinder the flourishing of human relationships and wellbeing – that of frequent internet use.

Internet use has increased exponentially in the past few decades, to an unprecedented degree. The rise of this relatively recent phenomenon led the President's Foundation for the Wellbeing of Society, through the National Centre for Freedom from Addictions, to ask whether this has contributed to a high prevalence of problematic internet use in Malta, particularly amongst younger members of the population. Given that frequent use of the internet is popularly held to affect the wellbeing of young people, the Centre set out to address this local lacuna of academic knowledge, by asking whether problematic internet use presently exists amongst young people in Malta. Such an academic exercise had never before been undertaken in Malta, thus leaving a fundamental gap on the way this phenomenon manifests itself locally, and subsequently, how this issue should be engaged with from this point onwards.

A fundamental tenet of the ethos of the President's Foundation for the Wellbeing of Society is the promotion of participatory methodologies and bottom-up approaches, which in this instance were set in motion through visits undertaken by Her Excellency Marie-Louise Coleiro Preca, President of Malta. The Foundation ethos strongly sustains that research findings are to be subsequently presented back to the community, to inform and serve as a catalyst for practice, while feeding in to further research. This is the stage we have now reached. It is hoped that this work will be the first step in a more critical engagement with this particular issue, in order that any obstacles which potentially hinder the wellbeing of young people may be addressed appropriately, in a way that is informed by further scientific research and ongoing academic debate.

Dr Ruth Farrugia
Director
The President's Foundation for the Wellbeing of Society

An Introduction from the Chairperson, National Centre for Freedom from Addictions

The National Centre for Freedom from Addictions was set up in June 2014 by Her Excellency the President of Malta, Marie Louise Coleiro Preca as part of the President's Foundation for the Wellbeing of Society. It is made up of specialists and academics who work in the field of addictions. Immediately the entity was asked to investigate whether Internet use was influencing the wellbeing of the family. This topic was very intriguing and the entity was interested to delve deeply into the subject for various reasons. Although in other countries the subject has long been researched, in Malta the prevalence of internet use according to age was still unknown. There are various entities and academics in Malta who are interested in Internet use, and although various research projects have been carried out, the prevalence was never measured. Therefore in order to be able to establish whether internet was affecting the wellbeing of the family, the entity decided to measure prevalence.

This was not a simple matter. We couldn't measure all the Maltese population's prevalence. The feat would have been gargantuan! Therefore which age group? Since the younger population is known to be more computer literate and dependent there was no difficulty in choosing them. The under-18 years adolescents would have required parental consent, so in order to overcome this hurdle we chose the age group from 18 to 30 years.

As an entity we knew that there were other entities and academics interested in our research and in the subject of internet addiction. We organised 2 breakfast meetings with all the stakeholders involved, and received great encouragement to work with all those present. All were willing to share their experience and their knowledge and to see the results of our study. As the Foundation for the Wellbeing of Society, this is the way all entities work: sharing knowledge both as a bottom-up and top-down approach. All research must be relevant to the general public and at the same time available to them.

After sounding the local experts, the entity did an extensive literature review of what tools were used to measure internet use and how to decide whether it was problematic or not. It was very interesting to study and read about different measurements and different ways to define problematic internet use. We had to be sure that what would be chosen as a tool and as a cut off point for problematic internet use was relevant to Malta and our culture.

Also we did not want to talk about 'addiction' loosely. Addiction, in medicine is defined as a compulsive action that is enhanced by reinforcing behaviour because the result is pleasurable. The term is often used in everyday life referring to any compulsive behaviour, even though there is no pleasurable effect. The entity was very careful with the use of this potentially alarmist term.

The results have shown that contrary to our expectation, in Malta at present we are not really facing internet addiction and all its consequences. The wellbeing of our families is not yet threatened by technology. That does not mean we can rest on our laurels. The subject needs to be investigated further, especially in younger adolescents. Although internet use in Malta is not problematic amongst the 18 to 30 year old population, one third do use it excessively. This is not to be considered trivial or of little importance. These young people require care to address their needs.

Dr Anna Maria Vella
Chairperson
National Centre for Freedom from Addictions

Executive Summary

With over one billion users worldwide, the internet has become one of the major necessities of life in almost all countries (Miniwatts Marketing Group, 2010). For most users, the internet is a tool that facilitates communication and information flow. However for others, it can lead to a "clinically significant behavioural or psychological syndrome […] that is associated with present distress […] and an important loss of freedom" (American Psychiatric Association, (APA) 2013).

Locally, estimates of Problematic Internet Use (PIU) amongst the Maltese population or a sub-section of the general population remain unknown. Therefore, this research is a first attempt to explore the prevalence of PIU and related socio-demographic variables among a representative sample of young people in Malta aged between 18-30 years.

The study has three particular aims:

1. to assess the prevalence of PIU amongst young Maltese people;
2. to explore the relationship between PIU and a number of socio-demographic variables, namely age, gender, district of residence, educational status successfully completed, labour status, type of occupation and relationship/marital status;
3. to contribute to international empirical research in the last decade and provide data that can be used to further understand the phenomenon of PIU and its related variables. To date, the classification of Internet Addiction is still contentious and no gold standard of assessment formally exists.

Young's Internet Addiction Test (IAT) was used to measure PIU amongst the sample. The final questionnaire package consisted of the following:

* One open question asking participants what they use the Internet most for.
* The 20 IAT Likert-scale questions.
* An additional 8 close-ended questions related to socio-demographic variables: age, gender, locality, educational level successfully achieved, labour status, job title, relationship status and household composition.

The target population for this survey consisted of all persons aged 18 to 30 residing in private residences. A Stratified Random sampling process was employed for this survey. In addition to this, quotas were used throughout the data collection phase to ensure that the required number of individuals from each sub-group was obtained. Data was collected by means of Computer Assisted Telephone Interviewing (CATI) between 23 February and 11 March 2015.

A total of 4,233 persons were contacted for this survey, of whom 1,507 participated, while another 2,558 persons were not eligible to participate. This resulted in a net effective response rate of 90.0 per cent.

The current study revealed that the majority (65.9%) were average internet users (IAT scores <39). One third of the sample (33.3%) were excessive Internet users who experienced some problems in their lives due to Internet overuse (IAT scores of 40-69) and 0.8% were problematic Internet users (IAT scores >70).

The most popular online activity amongst the whole sample was social networking, with 83.8% listing it as the top activity performed online from a list of other activities which included email, research and education, browsing, online shopping, online news, streaming, playing games, chatting and Internet banking/online bill payment.

Mean IAT scores amongst the sample differed significantly on a number of socio-demographic variables, although none of the mean scores reached the threshold for either excessive use or PIU, apart from unemployment. The unemployed group had mean scores of 39.45, which lies at the top end of 'average use' (scores <39), and the lower end of 'excessive use' (scores of 40-69).

Male respondents had significantly higher mean IAT scores than their female counterparts and were also more likely to be excessive users than average users.

Younger cohorts (those aged between 18-21 years) also had higher mean IAT scores and were also more likely to be excessive users than average users. Being single and not in a relationship also emerged as another factor for higher IAT scores. Also, those who were single were more likely to be excessive Internet users as opposed to average users.

Respondents who had completed post-secondary levels of education had higher mean IAT scores than those who had completed just primary, secondary levels or tertiary levels, and were also more likely to be excessive users than average users.

Respondents who resided in the Southern Harbour region of Malta had the highest mean IAT scores (34.94). This score was significantly higher than the lowest mean IAT scores that were endorsed by residents from Gozo (30.95). This finding merely shows that respondents from Gozo scored significantly lower than persons from Malta, particularly residents from the Southern harbour region. Mean scores across all the 6 districts however, fall well within the range for average Internet use.

Results from the GLM that was conducted to analyse collectively the contribution of each of the socio-demographic variables revealed that the strongest predictor variables for higher IAT scores were: (1) type of education level completed (post-secondary level), marital status (single) and age (younger cohorts aged between 18-21 years). In the local context, this finding sheds light on the fact that increased Internet use is most strongly observed amongst 18-21 year old, single, well-educated persons. This cohort was also more likely to form part of the excessive users as opposed to average users of PIUs.

The prevalence rates in the current study may be interpreted as follows:

1. PIU as conceptualised by the IAT does not appear to be a major endemic problem in the present sample.
2. The low prevalence rates may be under-represented due to specific properties of Internet use which were overlooked (e.g. quality of time on the Internet as opposed to quantity) and – due to some shortcomings of the IAT itself – the fact that it does not take into account the time criterion (Griffiths, 1999). If PIU is to be treated as a behaviour analogous to substance dependence, then a minimum number of symptoms need to be present simultaneously over a given time period. The IAT does not measure this temporal dimension.

The current study can be regarded as contributing to empirical research over the last decade. It provides national data that can be used to further understand the phenomenon of PIU and its related socio-demographic variables.

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GLOSSARY OF TERMS

THE INTERNET
A world-wide public computer network that provides access to a number of computer services including the World Wide Web and carries e-mail, news, entertainment and data files.

INTERNET USERS
Persons who use the Internet with any digital modality and from any location.

AVERAGE INTERNET USERS
Persons who have no problem with controlling their Internet use.

EXCESSIVE INTERNET USERS
Persons who are experiencing frequent problems in life because of the Internet but are not addicted.

PROBLEMATIC INTERNET USERS
Persons who cannot control their online behaviour, which besides being excessive, causes significant problems in normal everyday life and functioning, such as neglecting daily activities, behavioural and cognitive salience, experiencing negative consequences due to overuse, using the Internet as a form of escapism and deceiving others regarding one's Internet use.

NAVIGATING
The process of movement from one Web page to another in order to access a network of information resources available on the World Wide Web.

ONLINE GAMING
Using a specialised application or technology and live network connection whereby players are connected through the Internet or over a computer network.

SOCIAL NETWORKING
The use of dedicated websites and applications to interact with other users, or to find people with similar interests to one's own.

ABBREVIATIONS

APA   American Psychiatric Association
CATI Computer Assisted Telephone Interviewing
DSM Diagnostic and Statistical Manual of Mental Disorders
GLM General Linear Model
IAT   Internet Addiction Test
MCA Malta Communications Authority
NSO National Statistics Office
PFEC President's Foundation Ethics Committee
PIU   Problematic Internet Use
SES   Socio Economic Status

CHAPTER 1 - INTRODUCTION AND A REVIEW OF THE LITERATURE ON PROBLEMATIC INTERNET USE

1.1 Preamble

With over one billion users worldwide, the Internet has become one of the major necessities of life in almost all countries (Miniwatts Marketing Group, 2010). The Internet provides instantly accessible information, entertainment and social network facilities for all age groups. For these reasons, its use continues to increase rapidly worldwide, particularly among youth (Gencer & Koc, 2012).

For most users, the Internet is a tool that facilitates communication and information flow. However for others, it can lead to a "clinically significant behavioural or psychological syndrome […] that is associated with present distress […] and an important loss of freedom" (American Psychiatric Association, (APA) 2013).

Locally, estimates of Problematic Internet Use (PIU) amongst the Maltese population or a sub-section of the general population remain unknown. Therefore, this research is a first attempt to explore the prevalence of PIU and related socio-demographic variables among a representative sample of young people in Malta aged between 18-30 years.

The frame of reference for this particular study was set by the National Centre for Freedom from Addictions under the auspices of the President's Foundation for the Wellbeing of Society. The study has three particular aims:

1. to assess the prevalence of PIU amongst young Maltese people;
2. to explore the relationship between PIU and a number of socio-demographic variables, namely age, gender, district of residence, educational status successfully completed, labour status, type of occupation and relationship/marital status;
3. to contribute to international empirical research in the last decade and provide data that can be used to further understand the phenomenon of PIU and its related variables. To date, the classification of Internet Addiction is still contentious and no gold standard of assessment formally exists.

1.2 Background

The first reports regarding the excessive use of computers date back to the 1970s, when scientists, clinicians and academics began to express their concerns with computer overuse (Weizenbaum 1976; Zimbardo, 1980). However, it was not until the 1990s that the Internet was regarded as a medium that could potentially lead to a "technological addiction" defined as a "non-chemical addiction involving human-machine interaction", which could be passive or active, with inducing and reinforcing features" (Griffiths, 1996).

One of the pioneers in the field was the New York psychiatrist Ivan Goldberg. In 1995, he formulated a symptom list for what he called Internet Addiction Disorder. Based on this, an individual had to experience a minimum of three of the following symptoms over a period of twelve months: tolerance, withdrawal, lack of control, relapse, spending large amounts of time online, negative consequences and continued use despite negative consequences (Goldberg, 1996). However, it was Young (1996) and Griffiths (1996) who were the pioneers of researching this growing phenomenon in a methical manner. Initially, their criteria were based on that of substance dependence (APA, 1994, Diagnostic and Statistical Manual of Mental Disorders, 4th ed. DSM IV). Later, Young modified her criteria and based her diagnosis on the DSM-IV criteria for pathological gambling, an impulse-control disorder (Young, 1998).

These initial efforts set the pace for further empirical research in the area that led to ongoing debates as to whether addiction to the Internet should be considered an impulse control disorder (Treurer et al., 2001; Shapira et al., 2000; Young, 1998) or one that can be likened to substance dependence (Griffiths, 1999). Consequently, various terms have been used to name the condition: Internet addiction (Griffiths, 1996), compulsive computer use (Dowling & Quirk, 2009), Internet dependency (Huang et al., 2009), pathological Internet use (Leshner, 1997), virtual addiction

(Griffiths, 1996) and problematic Internet use (Davis et al., 2002; Volkow et al., 2003). The authors of the current paper have adopted the terminology PIU instead of other labels used in the literature. The term 'problematic' delineates the epitome of the phenomenon (Kuss et al., 2014) – the behaviour, besides being excessive, causes problems in normal and daily functioning (Young, 1996, Young, 1998; Young & Rogers, 1998). Furthermore, adoption of this term as opposed to other terminologies could be justified since there is still no consensus in the clinical and academic field regarding the diagnostic criteria for this condition (Griffiths, 2014).

1.3 Theoretical Framework

While research dealing with PIU before the millennium focused on general use (surfing, communicating, etc.), today another trend has emerged in the empirical literature – treating the Internet as a channel of different and independently existing activities. The Internet can be used for various activities related to work, leisure or interpersonal communication; yet it can cause problems when its use becomes excessive (Griffiths, 2010). The last decade has seen a surge in the number of studies addressing the Internet's addictive potential, however there is still controversy as to whether addiction to the Internet is a real, distinctive problem or just a transient social phenomenon that all modern technologies have gone through (Hinic, 2011).

Publications in both the academic and clinical fields are what contributed significantly to the recent scientific debate (Block, 2008; Petry & O'Brien, 2013) regarding whether or not PIU or Internet Addiction should be included as a disorder in itself in the latest fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM–V; APA, 2013). This debate resulted in two ways of viewing the phenomenon of PIU – one way is looking at addictions 'on' the Internet and the other way is looking at addictions 'to' the Internet (Griffiths, 2000). Gamblers who play online and use the Internet as a medium with which to conduct their chosen 'addictive' behaviour is an example of the former. On the other hand, there are case studies (e.g. Young, 1996; Griffiths, 2000) that also report an addiction to the Internet 'itself' where activities are not available in any other medium. Young et al. (2000) have highlighted five such subtypes of behaviour:

- Cybersexual addiction: downloading, viewing and trading online pornography.
- Cyper-relational addiction: over involvement in online relationships.
- Net compulsions: online behaviours that result in financial losses and/or relational and occupational disruptions.
- Information overload: Excessive web surfing and database searching
- Computer addiction: Being addicted to computer-related activities at the expense of other activities.

Nevertheless, common features exist between addictions 'on' the Internet and being addicted 'to' the Internet, these being: the negative consequences of excessive Internet use (neglect of work, social life and relationship breakdowns) and loss of control over one's use (persistent and compulsive use despite any negative adverse consequences and despite having expressed the desire to control one's use) (Widyanto & Griffiths, 2007).

As a result of these ongoing discussions and disputes, the DSM Substance Use Disorder Working Group decided, for the first time, to include a behavioural addiction (i.e., Internet gaming disorder) in Section 3 of the DSM-V as "a mental disorder that still requires further empirical and clinical research" (APA, 2013). To date, Internet Addiction or PIU is still not included in the DSM-V as a separate and independent disorder in its own right and consequently clinical evaluations or diagnoses of the condition remain somewhat inaccurate (APA, 2013).

The lack of a clearly defined and established working and clinical definition of PIU leads to an array of problems when attempting to determine prevalence rates, such as comparability and generalisability of findings stemming from differences in working definitions and assessment methods and tools (Griffiths et al., 2014). Despite these limitations, Internet use–related problems and associated addiction symptoms continue to be reported globally (Griffiths & Pontes, 2014; Ko et al., 2012) and research studies report similar behavioural symptoms, such as school and work-related impairments, personal and interpersonal conflicts, preoccupation with using the Internet, dependency on the Internet to modify mood and withdrawal symptoms (Kuss et al., 2013; Morahan-Martin, 2008).

1.4 Diagnostic Definition of Problematic Internet Use (PIU)

The diagnostic classification of PIU is still a widely debated topic (Shaw & Black, 2008). Young (1996) was the first to propose a set of diagnostic criteria for what she termed "Internet addiction". These criteria were originally modelled on the DSM-IV definition for substance dependence, because of their similarities with states of tolerance and withdrawal symptoms (Young, 1996).

Others followed, and conceptualised PIU as a behavioural addiction that did not involve any intoxicant (Griffiths, 1996). Subsequently, Young (1998) updated her definition, adapting the DSM-IV criteria for pathological gambling which included criteria such as:

* inability to control Internet use
* neglecting daily activities
* behavioural and cognitive salience
* experiencing negative consequences due to overuse
* using the Internet as a form of escape or to enhance one's mood
* lying or deceiving others regarding one's Internet use

Five years later, Shapira et al. (2003) proposed a more inclusive diagnostic schema that closely resembled that of the impulse control disorders. Shapira's (2003) proposal veered away from the concept of Internet Addiction and adopted the less controversial PIU label, thus defined as:

* excessive and irresistible preoccupation with the Internet
* experiencing distress due to Internet overuse
* the absence of an Axis I pathology that might better explain the behaviour (e.g. mania or hypomania).

More recently the APA (2013) included Internet Gaming Disorder in its Appendix. The specific criteria include:

* preoccupation with games
* withdrawal symptoms
* tolerance
* unsuccessful efforts to control the behaviour
* decreased interest in other activities
* continued excessive use despite acknowledgement of an existing problem
* deceiving others regarding the amount of time spent gaming
* escapism
* continued excessive use despite work or familial problems.

This inclusion however, still does not facilitate a formal PIU diagnosis since this section states explicitly that the specific criteria, and threshold for diagnosis, apply only to Internet gaming, and not to the more general Internet use (APA, 2013). Furthermore, it has been argued that some of the proposed criteria make negligible sense for online gaming and appear to be included as residual criteria from other disorders, such as substance dependence (Kardefelt-Winther, 2015). To date, a gold standard for classification of PIU does not exist and further research is needed to continue to elucidate its theoretical basis (Kuss et al., 2014).

1.5 Assessing PIU

The assessment of PIU attempts to quantify the components that encompass the potentially addictive behaviour of online activities. The first developed instruments targeted general Internet use and assessed the degree of problems related to excessive use on the basis of DSM-IV criteria for pathological gambling or substance dependence (i.e., Brenner, 1997; Young, 1998). This then led to the development of other instruments that measured specifically problematic (online) gaming. Eventually, three main approaches were adopted:

* The first approach views online gaming addiction as a sub-type of video game addiction and assesses problematic gaming based on Brown's (1991) behavioural addiction criteria (Charlton and Danforth, 2007; Porter et al., 2010) or pathological gambling (Gentile, 2009; Lemmens et al., 2009; Porter et al., 2010).

- The second approach assesses PIU in general based on PIU instruments (Kim, 2008; Van Rooij et al., 2011).
- The third approach is more integrative and stresses the importance of both the content (e.g. online gaming) and the channel (the Internet) (Kim & Kim, 2002; Griffiths & Demetrovics, 2012).

As a result of these different conceptualisations, one essential criticism regarding the measurement of PIU is related to the theoretical background that it is built upon. This is then closely related to the psychometric properties and dimensional structure that underpin the instruments that are used to measure it. To date, the diagnostic tools that have been proposed since 1996 accentuate similarities with:

- substance use disorders;
- impulse control disorders;
- pathological gambling criteria;
- viewing the Internet as a medium that facilitates independently existing activities such as gambling, shopping, sex, gaming and social networking (Kiraly et al., 2014).

The academic papers on PIU have been divided into five categories (Widyanto & Griffiths, 2007):

- Surveys comparing PIU's with non-PIU's;
- Surveys examining groups that are vulnerable to PIU;
- Studies that examine the psychometric properties of PIU;
- Case studies;
- Correlational studies examining the relationship between PIU and other problematic behaviours
.
Although a plethora of research now exists on the assessment of PIU, these studies differ so greatly in their methodology that comparison of findings becomes problematic; furthermore, the lack of consistent operational definitions of PIU makes data comparison almost impossible (Widyanto & Griffiths, 2006).

1.6 Prevalence of PIU

As stated above, prevalence data on PIU are limited by methodological difficulties mainly concerning the lack of uniformity of the definitions employed, the relatively small sample sizes and heterogeneity of diagnostic instruments. Cultural differences between countries also impact the prevalence of PIU, therefore one has to be cautious when attempting to generalise and compare findings (Widyanto & Griffiths, 2006; Shaw & Black, 2008).

Kuss et al.'s (2014) review of epidemiological research on PIU over the last decade outlined the major studies conducted to date amongst adolescents and adults. Some of these studies are presented in Tables 1.1 and 1.2 and delineate the different types of instrumentation utilised to measure PIU, criteria for PIU and prevalence estimates (as cited from Kuss et al.'s 2014 review).

1.6.1 Prevalence of PIU amongst Adolescents

Table 1.1 outlines the instrumentation, criteria and cut-off points for PIU across the different studies.

Classifications across studies differ tremendously, consequently prevalence rates also vary. For example, stringent cut-off points using Young's IAT have yielded estimates of 0.6% amongst Chinese adolescents (Lam et al., 2009) and 0.7% amongst Italian adolescents (Poli & Agrimi, 2012). Less stringent cut-off points using the same tool yielded estimates of 12.2% in China (Wang et al., 2011). Utilisation of a different tool (e.g. Chen's Internet Addiction Scale) yielded estimates as high as 20% in Taiwan (Yen et al., 2008)

Table 1.1 Internet addiction studies amongst adolescents

Study	Country	Sample	Instruments	Addiction Classification/Criteria	Prevalence
Ak et. al., 2013	Turkey	N=4,311 (15-19 years)	IAT	Scores >60/100 = excessive use	5%
Poli & Agrimi, 2012	Italy	N=2,533 (14-21 years)	IAT	Scores 50-79/100 = moderately addicted Scores >80 = seriously addicted	5% 0.79%
Cao et. al., 2011	China	N=17,599 (10-24 years)	IAT	Scores >50 = PIU	8.10%
Wang et.al., 2011	China	N=14,296 (high school students)	IAT	Scores >50 = PIU	12.20%
Lam et.,al., 2009	China	N=1,1618 (13-18 years)	IAT	Scores 50-79 = moderate use Scores 80-100 = severely addicted	10.20% 0.60%
Choi et.al., 2009	S.Korea	N=2,336 (mean age 16 years)	IAT	Scores >70 = addicted	2.5% (males) 1.9% (females)
Kim et.al., 2006	Korea	N=1,573 (15-16 years)	Young's Internet Addiction Scale	Score >70/100=addicted	1.60%
Siomos et. al., 2012	Greece	N=2,107 (12-19 years)	YDQ	Score of 5/8 - internet addiction	15.20%
Gong et. al., 2009	China	N=3,018 (mean age 15 years)	Young's IADQ	Scores >5/8 = internet addicted	5%
Johansson, 2004	Norway	N=3,237 (12-18 years)	Young's IADQ	Scores >5/8 = internet addicted	1.98%
Kaltiala-heino, 2004	Finland	N=7,292 (12-18 years)	pathological gambling criteria	Endorsing >4/7	1.7% (males) 1.4% (females)
Wang et.al., 2013	China	N=10,988 (13-23 years)	Diarnostic Questionaire for IA	Endorsing >5/8	7.50%
Ko et. al., 2009	Taiwan	N=2,293 (13-17 years)	Chen's Internet Addiction Scale	Scores>64/104= internet addicted	10.80%
Ko et. al., 2008	Taiwan	N-=2,114 (mean age 16 years)	Chen's Internet Addiction Scale	Scores>63/104= internet addicted	18.30%
Yen et. al.,2 008	Taiwan	N=3,662(11-21 years)	Chen's Internet Addiction Scale	Scores>63/104= internet addicted	20.80%
Kuss et. al., 2013	Holland	N=3,105	Compulsive Internet Use Scale	Scores 28/56= potentially addicted	3.70%
Xu et. al., 2012	China	N=5,122 (11-20 years)	DRM52 Scale of Internet Use	Scores >163/260= internet addicted	8.80%
Carbonell et. al., 2012	Spain	N=1,879 (mean age 15 years)	Quest. on internet-related experiences	Scores 26-40= PIU	6.10%

1.6.2 Prevalence of PIU amongst Adults

Various studies conducted amongst the adult population in the last decade (Table 1.2) have also yielded different prevalence estimates depending on criteria, cut off points for classification and type of instrumentation. The highest estimates have been observed in Iran – 22% (Kheirkhah et al., 2010) and Taiwan – 17.9% (Tsai et al., 2009) and the lowest in USA – 0.7% (Aboujaoude et al., 2006), Norway – 1% (Bakken et al., 2009) and UK – 1.2% (Morrison & Gore, 2010). The USA, Norwegian and UK studies endorsed more stringent definitions for PIU, and this could have contributed to the lower prevalence rates reported.

Table 1.2 Internet addiction studies amongst adults

Study	Country	Sample	Instruments	Addiction Classification/Criteria	Prevalence
Barke et. al., 2012	Germany	N=1,041 (mean 24.2 years)	Internet Addiction Questionnaire	Scores >70/100= Significant problems	2.0%
Canan et. al., 2012	Turkey	N=1,034 (18-27 years)	Internet Addiction Scale	Scores >80 = Internet Addiction	9.7%
Yates et. al., 2012	USA	N=1,470 (mean 19 years)	IAT	Scores >50/100=PIU	6.0%
Morrison & Gore, 2010	UK	N=1,319 (16-51 years)	IAT	Scores >80/100=PIU	1.2%
Whang et. al., 2003	Korea	N=13,588 (20-40 years)	Modified Internet Addiciton Scale	Scores >60/80= Internet Addiction	3.5%
Ni et. al., 2009	China	N=3,557 (17-24 years)	IAT	Score >50/100=Internet Addiction	6.4%
Kheirkhah et. al., 2010	Iran	N=1,856 (mean 20 years)	Internet Addiction Questionnaire	Endorsing >5/8 items	22.8%
Bakken et. al., 2009	Norway	N=3,399 (16-74 years)	Young's Diagnostic Questionnaire	Scoring 5/8 items	1.0%
Huang et. al., 2009	China	N=4,400 (16-30 years)	Young's Diagnostic Questionnaire	Scoring 5/8 items	9.6%
Lin et. al., 2011	Taiwan	Rep sample of college students	Chen's Internet Addiction Scale Revised	Scores >67	15.3%
Tsai et. al., 2009	Taiwan	N=1,360 university freshmen	Chen's Internet Addiction Scale	Scores >63	17.9%
Yen et. al., 2009	Taiwan	N=2,793 (18-48 years)	Chen's Internet Addiction Scale	Scores >68/104	12.9%
Kuss et. al., 2013	UK	N=2,257 (mean 22 years)	Assmt for Computer/Internet Addiction Screener	Scores >13.5/27	3.2%
Demetrovics et. al., 2008	Hungary	N=1,037 (mean 23 years)	Problematic Internet Use Questionnaire (PIUQ)	Scores >2 SDs above the mean	4.3%
Aboujaoude et. al., 2006	USA	N=2,513 adults	4 generated diagnostic criteria sets	most stringent definition	0.7%

1.7 Risk Factors Associated with PIU amongst Young Persons

Research on the risk factors associated with PIU is still inconclusive (Gencer & Koc, 2012), however the literature highlights four main factors that have been found to be significantly correlated with the condition: socio-demographic variables, Internet use variables, psychosocial factors and co-morbid symptoms (Kuss et al., 2014).

1.7.1 Socio-Demographic Variables

The predominant socio-demographic variable cited in the literature is that of gender. While some studies indicate no gender differences in PIU (Ferraro et al., 2007; Lee et al., 2007), others revealed that males were more likely to exhibit PIU than their female counterparts (Pontes et al., 2014; Chou et al., 2005). One explanation for this has been that males are more likely to use the Internet for activities that are often associated with excessive use or PIU such as online games, pornography and gambling (Morahan-Martin & Schumacher, 2000).

Younger persons are also more likely than older persons to be the mainstream consumers of digital content (Gencer & Koc, 2012), therefore the focus of many PIU studies has in effect been on younger populations reflecting the view that this phenomenon is more prominent in adolescence and early adulthood. Young persons' involvement with accessible and affordable digital technology that provides them with opportunities to express themselves and interact socially, coupled with the sensitive adolescent developmental period, make youngsters more susceptible to digital overuse (Pontes et al., 2014; Montgomery, Gottlieb-Robles & Larson, 2004; Chou, Condron & Belland, 2005; Greenfield, 1999).

Although socio-economic status (SES) is an important socio-demographic variable, especially in developing countries where the digital rift still exists to some degree, not much attention is devoted to this factor. The few published studies, however, have shown no significant association between SES and PIU (Cakir-Balta & Horzum, 2008; Yoo et al., 2004).

1.7.2 Internet use Variables

Internet use variables are those associated with the engagement in specific online activities, as opposed to Internet addiction per sé, and researchers have now identified a number of activities that can be engaged in excessively online that may lead to symptoms similar to substance-related addictions (Yellowlees & Marks, 2007). The amount of time spent on the Internet has been one of the main variables associated with PIU because it could be seen as an indicator for increased tolerance to the Internet. However, because the studies presented are cross-sectional in nature, they do not provide a linear evaluation of the progression of increased time on the Internet at the expense of other activities (Cakir-Balta & Horzum, 2008; Chou & Hsiao, 2000; Morahan-Martin & Schumacher, 2000; Young, 1998). Furthermore, since most people use the Internet for a wide range of activities, it is difficult to identify if the person is exhibiting problems because of the actual amount of time spent on the Internet, in general, or because of the amount of time spent engaging in one particular activity online. However, this said, some Internet-related activities have been highlighted as being more problematic than others, particularly online gaming (Kuss et al., 2012) and online social networking (Kuss et al., 2011). Average users, on the other hand, tend to spend more time on activities such as reading the news online, shopping online and using the Internet for educational purposes (Kim & Kim 2002).

1.7.3 Psychosocial Factors

An epidemiological review of Internet addiction in the last decade (Kuss et al., 2014) highlighted a number of psychosocial factors related to increased Internet use amongst young persons. These included characteristics such as using the Internet to enhance mood, to feel better about oneself, to decrease feelings of boredom or loneliness, to boost self-esteem or to avoid face to face interactions (as cited in Kuss et al., 2014). A number of familial variables were also associated with higher Internet use and these included family conflict and dissatisfaction, decreased parental bonding and lower levels of parental monitoring (as cited in Kuss et al., 2014). In addition to this, poor academic achievement has also been listed as a risk factor for PIU (Lin & Tsai, 2002). Although psychosocial variables seem convincing candidates for increasing the risk of PIU, to date no study has investigated the interactions between psychological and environmental factors as increasing the risk for PIU.

1.7.4 Co-morbid Symptoms

PIU has not been incorporated into large-scale epidemiological studies aimed at estimating the co-occurrence of mental disorders. A review of smaller-scale studies however, reveals the presence of other psychiatric conditions in individuals with PIU (Black et al., 1999; Shapira et al., 2000). These studies, however, were not designed to detect the nature of this association (cause, effect or independent).

In the majority of cases, the Internet seems to act as a medium where excessive behaviours are manifested (Griffiths, 2000). Some studies have shown that specific personality traits such as self-reliance, emotional sensitivity and reactivity, deviant characteristics and low self-disclosure may predispose individuals to develop PIU (Xuanhi & Gonggu, 2001). In some studies, low self-esteem also predicted heavier Internet use (Armstrong et al., 2000; Widyanto & McMurran, 2004), however the small sample sizes have made it hard to generalise these findings.

Other co-morbid symptoms related to heavier Internet use have included alcohol and substance use (Ko et al., 2006), depression (Yen et al., 2007; Kim et al., 2006), suicidal ideation (Kim et al., 2006); attention deficit hyperactivity disorder (Yen et al., 2007), social phobia and phobic anxiety (Yen et al., 2008), antisocial and aggressive behaviours (Yen et al., 2007) and engagement in risky behaviours (Tsitsika et al., 2011).

Based on the studies outlined above, it would appear that specific personality traits, co-morbidity and other psychological characteristics may predispose individuals to PIU. Further elaboration on these variables goes beyond the scope and aims of the current study. However, as a concluding note, it is worth iterating that the literature in this area remains somewhat elusive, in that all published studies are cross-sectional in nature, and this makes it problematic when attempting to determine whether these factors were precedents of excessive use or consequences of it (Widyanto & Griffiths, 2007).

1.8 Young Persons and Internet Use in Malta
The present study was informed by several consultations hosted by the National Centre for Freedom from Addictions, President's Foundation for the Wellbeing of Society. These were specifically held during two breakfast meetings on 23 October 2014 and 17 June 2015. These breakfast meetings were attended by key stakeholders working in the area, such as Internet service providers, communication regulators, educators, the National Statistics Office, social workers, government entities, prevention units, academics, the National Drug Co-ordinating Unit, the Malta Police and the Malta Internet Governance Forum, a national multi-stakeholder forum which provides the local forum that engages interested stakeholders in debate on Internet Governance issues (https://www.mca.org.mt/migf/about-migf).

This consultation process also helped to identify and map relevant projects and initiatives already under way in this area. The Malta Communications Authority (MCA) has, in fact, carried out several surveys on Internet use in Malta, including regular Internet and e-Commerce Usage studies (MCA, 2006-2014). It also organised a Consumer Perception Survey on Internet Services between August and October 2013. This survey showed that 80% of households in Malta and Gozo have Internet access, a considerable development when compared to the 68% of households having Internet access in 2011 (MCA, 2013). In a study conducted in 2012, MCA also investigated Internet use amongst minors attending primary school years 4 to 6 (ages 8 to 10) and secondary schools forms 1 to 4 (ages 11 to 14) and their parents, and gauged Internet access, use and usage intensity (MCA, 2012). The results from this study found that amongst the whole cohort studied, 85% of males and 80% of females reported using the Internet at least twice a week (not during school hours). Furthermore, amongst the older youngsters in this cohort (i.e. students aged between 13 and 14 years in Forms 3 and 4), 90% reported having a Facebook profile. Amongst this same age group, 85% of males and 90% of females reported using the Internet mainly for social networking. 78% of males also reported using the Internet for playing games. This percentage was much lower amongst females (36%) (MCA, 2012).

Members of the BeSmartOnline! Advisory Board also attended breakfast meetings. BeSmartOnline! is a national initiative that brings together the efforts of various national stakeholders to empower and protect children and teens from risks associated with online activity. This project is co-funded by the European Union (EU) through the Safer Internet Programme, which aims at empowering and protecting children and teens online from risks associated with online activity, through numerous awareness raising initiatives and by fighting illegal and harmful content and behaviour online.

Researchers from the University of Malta are also currently participating in an EU funded project called EU Kids online (2015), which involves a quantitative study with children aged 9-14 and their parents.

During the breakfast meeting it was recognised that PIU is a relatively new phenomenon when compared to other 'addictive' behaviour. Internet use has become a 'way of life' for many, and access to the Internet is easy and vastly enabled by multiple modalities. Therefore, the measurement of PIU and what exactly constitutes PIU has become problematic in itself and encompasses a wide array of limitations, which were duly acknowledged previously in this Chapter and again later in Chapter 4 of the current study.

1.9 Summary

The present literature review of epidemiological empirical research has shown that there are problems in the assessment of PIU. No established gold standard exists by which the status, severity and assessment of PIU can be evaluated or compared cross-culturally. Nevertheless, PIU has been referred to as an important global and significant disorder (Brand, Laier & Young, 2014; Young, 1998), with Internet use-related problems having been reported on a global scale throughout adolescence (Shaw & Black, 2008) and adulthood (Bakken et al., 2009; Aboujaoude et.al., 2006). Ongoing research in this area, therefore, will serve to better understand this growing phenomenon, contribute to a clearer and more comprehensive picture of its characteristics and create further awareness of the whole spectrum that encompasses PIU, leading eventually towards the implementation of diagnostic, preventive and treatment strategies.

CHAPTER 2 - METHODOLOGY

2.1 Research Agenda and Research Questions
This research is a first attempt to investigate the prevalence of PIU amongst a representative random sample of young people in Malta aged between 18-30 years. The current study will be measuring PIU based on Young's (1998) criteria that was used in the development of the IAT. Thus, for the purpose of this study, PIU will encompass the following criteria:

• Loss of control over Internet use
• Neglecting everyday life/activities/relationships because of Internet use
• Behavioural and Cognitive Salience
• Perceived negative consequences because of Internet use
• Internet use as a means of escapism/mood modification

The study attempts to specifically address the following questions:

• What is the prevalence of PIU amongst young Maltese people aged 18-30 years?
• What socio-demographic variables are associated with excessive or problematic use? Likewise, what socio-demographic variables are associated with moderate or lower levels of Internet use?

2.2 Tool

2.2.1 Survey Measure
Young's Internet Addiction Test (IAT) was used to measure PIU amongst the sample. The IAT comprises 20 items, each of which is rated on a Likert scale: 'never/ does not apply' (0), 'rarely' (1), 'occasionally' (2), 'frequently' (3), 'often' (4) and 'always' (5). According to Young, (2011), the test measures the extent of a person's involvement with the Internet and classifies addictive behaviour in terms of mild, moderate and severe impairment. To obtain the IAT's score, the researcher just needs to sum the scores for each response provided by the participant (Young, 2011). Although several authors have used different cut-off points for diagnosing PIU, no empirical cut-off point for the IAT has yet been validated. For the current study, the following cut-off points were established based on existing literature (e.g. Young, 2011; Gencer & Koc, 2012). Scores of 70-100 indicate problematic Internet users (PIU); scores of 40-69 indicate excessive Internet users (individuals who are experiencing frequent problems in life because of the Internet but are not addicted) and scores of 39 or less indicate average Internet users (i.e. having no problem of controlling Internet use).

The final questionnaire package (Appendix) consisted of the following:

1. One open question asking participants what they use the Internet most for.
2. The 20 IAT Likert-scale questions.
3. An additional 8 close-ended questions related to socio-demographic variables: age, gender, locality, educational level successfully achieved, labour status, job title, relationship status and household composition.

2.2.2 Psychometric Properties of the IAT
The psychometric properties of the original IAT scale (1998) have been evaluated amongst university students (Jelenchick et al., 2012; Widyanto et al., 2011) and adults (Widyanto & McMurran, 2004). Although strong internal reliability estimates of the IAT have been demonstrated, reports of its factor structures have been inconsistently reported (Widyanto & McMurran, 2004; Widyanto et al., 2011; Korkeila et al., 2010; Chang & Law, 2008; Ferraro et al., 2007). Potential reasons for these divergent findings may be rooted in cultural effects, sample size issues and variations in methodologies (Widyanto & McMurran, 2004; Korkeila et al., 2010; Ferraro et al., 2007; Widyanto et al., 2011; Widyanto & McMurran, 2004).

The IAT has been translated into different languages and used in French (Khazaal et al., 2008), Italian (Ferraro et al., 2007), Finnish (Korkeila et al., 2010), Korean (Kim, 2000), Malay (Ng et al.,

2013), Chinese (Chang & Law, 2008) and Portuguese (Pontes et al., 2014) college students and adults. The IAT has obtained prevalence rates of PIU ranging from 0.6% - 10.2% amongst a sample of 1,218 13-18 year olds in China (Lam et al., 2009), 5.8% amongst a sample of 2,533 14-21 year olds in Italy (Poli & Agrimi, 2012) and 10.8% amongst a sample of 425 19-23 year olds in Iran (Ghamari et al., 2011). Prevalence rates of PIU in adults using the IAT have ranged from 1.2% in Portugal (Pontes, 2014) to 9.7% in Turkey (Canan, 2012).

The IAT operationalises the degree of subjective complaints in daily life due to excessive usage of the Internet and is based on the diagnostic criteria for pathological gambling. It assesses several problems related to excessive Internet use, such as problems related to neglecting work, family and friends. There are also items assessing "craving", such as constantly thinking about being online as well as other symptoms such as nervousness and negative mood when access to the Internet is restricted. The IAT also avoids unclear terminologies, such as "preoccupation" and "dysphoric mood" that may have caused confusion in other internet addiction tests. It is the first validated instrument to measure Internet addiction (Young, 1998), its psychometric properties showing that it is a reliable and valid tool, and to date it is also the most widely used (Shaw & Black, 2008; Durkee et al., 2012; Johansson & Götestam, 2004; Cao & Su, 2007; Chou & Hsiao, 2000).

2.3 Sampling

2.3.1 Coverage and Response
The target population for this survey consisted of all persons aged 18 to 30 residing in private residences. The number of persons who were eligible to participate in the survey were identified from the latest population register maintained by the NSO, and totalled 72,068. Tables 2.1 and 2.2 display the distribution of individuals in the target population by gender, age group and district of residence.

Table 2.1 Distribution of individuals by gender and age group

Age Group	Gender					
	Males		Females		Total	
	Count	%	Count	%	Count	%
18-21	11,610	31.4	11,056	31.5	22,665	31.4
22-26	13,342	36.1	13,098	37.3	26,440	36.7
27-30	12,026	32.5	10,936	31.2	22,962	31.9
Total	**36,978**	**100.0**	**35,090**	**100.0**	**72,068**	**100.0**

Table 2.2 Distribution of individuals by gender and district of residence

District	Gender					
	Males		Females		Total	
	Count	%	Count	%	Count	%
Southern Harbour	6,775	18.3	6,453	18.4	13,228	18.4
Northern Harbour	10,487	28.4	9,922	28.3	20,409	28.3
South Eastern	5,758	15.6	5,473	15.6	11,231	15.6
Western	5,461	14.8	5,007	14.3	10,467	14.5
Northern	5,608	15.2	5,516	15.7	11,124	15.4
Gozo and Comino	2,889	7.8	2,719	7.7	5,608	7.8
Total	**36,978**	**100.0**	**35,090**	**100.0**	**72,068**	**100.0**

2.3.2 Sample
A Stratified Random sampling process was employed for this survey. This probability sampling method entails partitioning the population into mutually exclusive sub-groups, and selecting an independent (simple) random sample from each of these groups to ensure a uniform distribution of the sample relative to a number of pre-selected characteristics of the population. In this case, sub-groups were constructed relative to different combinations of gender, age group and district of residence. The stratified random sampling approach ensures a good spread of the sample with respect to the population and yields an unbiased gross sample.

In addition to this, quotas were used throughout the data collection phase to ensure that the required number of individuals from each sub-group was obtained. The main advantage of using quotas is to ensure that an adequate number of units are sampled from every sub-group, even in very small ones for which the probability of selection is relatively small compared to other groups. Since the mechanism of selecting persons was made in a random manner, no significant bias was introduced by applying such quotas.

2.4 Ethical Considerations
The study went through a thorough and comprehensive review process prior to being conducted. A detailed ethics application was completed and submitted to the Foundation's Internal Ethics Committee, composed of a representative from the fora and from each Research Entity within the Foundation. Recommendations were formulated and put forward for the consideration of the external ethics committee, known as the President's Foundation Ethics Committee (PFEC). After careful consideration of the research proposal and recommendations, official approval was granted for the proposed study to proceed.

2.5 Pre-Testing Procedure

2.5.1 Translation of IAT into the Maltese Language
Permission was obtained from Dr Kimberly Young to translate the IAT. Procedures were taken in order to achieve the IAT's translation, back-translation and face validity when adapting the instrument to Maltese. More specifically, one independent linguistic expert translated the instrument from English to Maltese and simultaneously, yet independently, one translator from the National Statistics Office also did the same thing. Therefore, two draft Maltese versions of the IAT were created from the original one. Following this process, another linguistic expert back-translated the instrument from Maltese to English in order to ensure its concordance with the original instrument. The teams of researchers then met and analysed all versions, eventually harmonising them into a single Maltese version with all the necessary amendments.

2.6 Survey Procedure
Data was collected by means of Computer Assisted Telephone Interviewing (CATI) between 23 February and 11 March 2015. The applications which were used throughout the data collection and supervision stages were developed in-house. CATI is an interactive front-end computer system that aids interviewers to ask questions over the telephone. Throughout the process, questions included in the survey questionnaire also appeared on-screen. The interviewer then proceeded to ask the questions over the phone and upon receiving an answer from the respondent, the interviewer then entered the data immediately into the CATI system. This process thus secures data capture.

The most important aspect of a CATI system is that it uses computers to conduct interviews and it allows the interviewers to perform multiple tasks of interviewing, data entry and simple coding simultaneously. Another fundamental aspect is that it allows a comprehensive data collection process, such that each sampling unit is randomly assigned among interviewees and hence reduces interviewer bias to a minimum. In addition to this, CATI enables the interviewer to make appointments with interviewees in case they are unavailable to respond. Thus sampling units are not replaced immediately, ensuring that the random element in the final sample is preserved. The CATI system uses computers to handle the administrative and telephony functions associated with interviewing, such as sample management, quota control, call disposition monitoring, productivity reporting together with interviewer monitoring and rating. In addition, the CATI application caters for 'GoTos' (namely, skipping of questions) and other data validation automatically as soon as data is keyed in.

Participants were informed verbally of the purpose of the study. They were read out the consent form. Participants were given the option to answer in Maltese or in English. They were also given the option to refuse to participate and were informed that they could (a) refuse to answer any question they feel uncomfortable answering; (b) withdraw from the study at any point during the phone call and that (c) all information obtained would be confidential and utilized solely for the purpose of the study. The duration of the survey was approximately 20 minutes per participant.

2.7 Quality Control

A series of measures were implemented throughout the survey to certify that errors are kept under control and that optimum quality is achieved. These consist of quality checks and in-built validation rules in the software to limit the occurrence of non-sampling errors.

The data-entry application had a number of in-built validations so that skip patterns are executed exactly as intended in the questionnaire while responses are within a specific range. In addition, constant supervision during the data collection stage ensured a harmonised data collection process.

Missing data are often a problem in surveys, arising when sampled units do not respond to a particular question. A technique known as 'imputation' was used whereby missing values were filled in to create a complete dataset that could then be analysed in full.

A Hot-deck imputation method was mostly used. Observations were grouped according to relevant demographics and other questions. The mode of the respective category was then taken as the imputed value. On the other hand, there were instances when a modified Hot-deck imputation technique was adopted whereby random donors with the same demographic characteristics were used to impute missing data.

The dataset was re-checked again during the data editing stage in order to identify and adjust any further incorrect or logically misleading data.

2.8 Weighting of Results

When conducting sample-based research, it is vital that the sample is representative of the population it is being extracted from. The survey data obtained was weighted to align and gross-up sample estimates with the benchmark distribution in terms of gender, age group and district of residence. In sample-based enquiries, there might be an element of over/under representation with respect to some particular socio-demographic aspects. This issue was controlled through the use of category quotas set in the CATI environment in such a way that surveys continued until a desired number of observations in each stratum were collected, although each respondent was randomly selected to participate in the study.

In addition to this, in order to correct for biases and discrepancies present in the final sample of participating units arising from different response rates observed in different categories, weighting of the sample using post-stratification was necessary to match the population. This procedure involves the alignment and grossing-up of sample estimates with the population distribution and was carried out relative to the marital status of individuals.

2.9 Errors

The survey was checked for main sources of errors, technically referred to as Sampling and Non-Sampling errors
.
Non-sampling errors are human errors which are not attributed to chance. Numerous measures were taken to ensure that non-sampling errors were kept to a minimum, by means of the following measures:

• Well trained and experienced interviewers and good quality supervision enhanced the data collection method, thus reducing errors;
• A number of validations in the data entry program was implemented to minimise data entry errors;
• A list of definitions and clear instructions was provided to interviewers to lessen any varied interpretations by the interviewers, thus reducing any inaccuracies in the collected data;

- Testing of the CATI program prior to data collection took place in order to check for any errors in the program;
- Duplicates in the data were identified before designing the sample to reduce any over-coverage with such units having larger probabilities of selection;
- Survey interviews were conducted between 1600hrs and 2000hrs on weekdays and from 0900hrs to 1300hrs on Saturdays, to minimise the non-response bias and increase the chances of reaching a wider range of respondents;
- The CATI program was also designed in such a way to increase the probability of reaching respondents by allowing a large number of attempts. Interviewers also had the possibility of scheduling an appointment to call someone back at a specific date and time and could leave comments about call attempts;
- Using CATI as an interview method minimised errors of recoding as answers were recorded instantly. It also simplified the handling of collected data;
- The survey introduction made the survey more informative and thus reduced the number of refusals. An assurance of privacy and confidentiality impacted response rates and cooperation rates.

Sampling errors arise purely due to probability. Of particular interest is the margin of error, which constitutes sampling error. The margin of error quantifies uncertainty about a survey result and expresses the amount of sampling error in a survey's results. This is normally associated with a statistical level of confidence (normally set at 95 %) in such a way as to make it possible to calculate confidence intervals of the form estimate ± margin of error.

Table 2.3 Estimates of precision

Percentage rate (p%)	Number of persons (N)						
	5,608	11,231	20,409	22,665	36,978	48,458	72,068
1	1.8	1.2	0.9	0.9	0.7	0.6	0.5*
3	3.1	2.1	1.6	1.5	1.2	1.0	0.9*
6	4.4	3.0	2.2	2.1	1.7	1.4	1.2*
10	5.5	3.8	2.8	2.7	2.1	1.8	1.5*
20	7.3	5.0	3.8	3.6	2.8	2.4	2.0*
40	9.0	6.1	4.6	4.4	3.4	3.0	2.4*
50	9.2	6.3	4.7	4.5	3.5	3.0	2.5**
60	9.0	6.1	4.6	4.4	3.4	3.0	2.4*
70	8.4	5.7	4.3	4.1	3.2	2.8	2.3*
80	7.3	5.0	3.8	3.6	2.8	2.4	2.0*
90	5.5	3.8	2.8	2.7	2.1	1.8	1.5*

Legend:

Represents relative margin of error between 30% and 39%
Represents relative margin of error of 40% or more

Consequently, the relative margin of error is simply the margin of error expressed as a percentage of the quantity to which it refers. Table 2.3 illustrates estimates of precision for a range of derived percentage rates (p) and the corresponding (weighted) number of persons (N) over which the rates are computed. The margin of error equals 2.5%. Thus in this case, the 95% confidence interval is defined by the range 50.3% to 55.3%, i.e. 52.8% ± 2.5%.

It must be emphasised that figures based on a relative margin of error of 30 per cent or more or which are calculated on a small number of reporting individuals (for example 30 or less) must be treated with caution as they may not be statistically representative due to a large percentage of error assigned. These occurrences are shaded in Table 2.3.

2.10 Data Analysis

All data was analysed using the Statistical Package for Social Sciences version 22 (SPSS 22.0).

CHAPTER 3 - RESULTS

3.1 Demographic Characteristics of the Sample
A total of 4,233 persons were contacted for this survey, of whom 1,507 participated, while another 2,558 persons were not eligible to participate. Ineligible cases take into account persons who do not make use of the Internet, wrong telephone numbers and those who were contacted at least once to no avail and were not contacted again due to reached quotas. This resulted in a net effective response rate of 90.0 per cent.

Table 3.1 shows the distribution of the gross sample by type of response.

Table 3.1 Distribution of effective gross sample by type of response

Description	No.	%	No. (Effective)	% (Effective)
Good responses	1,507	35.6	1,507	90.0
Refusals	106	2.5	106	6.3
Other (No replies etc.)	62	1.5	62	3.7
Ineligibles (Wrong telephone numbers etc.)	2,558	60.4	-	-
Total	**4,233**	**100.0**	**1,675**	**100.0**

Tables 3.2 and 3.3 show the distribution of the net sample by gender, age group and district of residence.

Table 3.2 Distribution of net sample by gender and age group

Age Group	Gender					
	Males		Females		Total	
	Count	%	Count	%	Count	%
18-21	238	30.8	223	30.3	461	30.6
22-26	272	35.2	260	35.4	532	35.3
27-30	262	33.9	252	34.3	514	34.1
Total	**772**	**100.0**	**735**	**100.0**	**1,507**	**100.0**

Table 3.3 Distribution of net sample by gender and district of residence

District	Gender					
	Males		Females		Total	
	Count	%	Count	%	Count	%
Southern Harbour	140	18.1	132	18.0	272	18.0
Northern Harbour	215	27.8	205	27.9	420	27.9
South Eastern	119	15.4	121	16.5	240	15.9
Western	118	15.3	104	14.1	222	14.7
Northern	122	15.8	119	16.2	241	16.0
Gozo and Comino	58	7.5	54	7.3	112	7.4
Total	**772**	**100.0**	**735**	**100.0**	**1,507**	**100.0**

Very few participants (0.8%) had no formal education or had completed just primary education level. Most had completed post-secondary (40.9%) and tertiary levels (30.1%) (Table 3.4).

Table 3.4 Highest level of education

		Frequency	Valid Percent
Valid	No formal education/ Primary level	12	0.8
	Secondary level	424	28.1
	Post-secondary level	617	40.9
	Tertiary level	454	30.1

67.4% of the sample were employed and 25.7% were still students. The remainder were either inactive (4.3%) or unemployed (2.7%) (Table 3.5).

Table 3.5 Labour status

		Frequency	Valid Percent
Valid	Employed (including self-employed)	1015	67.4
	Unemployed	40	2.7
	Student	387	25.7
	Inactive (retired, homemakers, cannot work due to disability)	65	4.3

Amongst those who were employed, most participants stated that they were employed as professionals (17.8%), service and sales workers (12.3%), technicians/associated professions (9.8%) and clerical support workers (9.6%) (Table 3.6).

Table 3.6 Occupation

		Frequency	Valid Percent
Valid	Not applicable (includes students, home-makers and those seeking employment)	492	32.7
	Armed forces occupations[1]	13	0.9
	Managers	42	2.8
	Professionals[2]	268	17.8
	Technicians and associate professionals	148	9.8
	Clerical support workers	145	9.6
	Service and sales workers	185	12.3
	Craft and related trades workers	66	4.4
	Plant and machine operators, and assemblers	76	5.1
	Elementary occupations	69	4.6

[1]Armed forces = commissioned armed forces officers, non-commissioned armed forces officers and other ranks of occupation within the armed forces.
[2]Professionals = science and engineering professionals, health professionals, teachers, business and administration professionals, information and communication technology professionals, legal, social and cultural professionals.

Almost half the sample were single and in a relationship (46.3%), 40.2% were single and not in a relationship, 13.1% were married and 0.3% were separated (Table 3.7). The majority (81.9%) were still living with their parents.

Table 3.7 Marital status

		Frequency	Valid Percent
Valid	Single (not in a relationship)	606	40.2
	Single (in a relationship)	698	46.3
	Married/ Civil Union	198	13.1
	Separated	4	0.3

As regards living conditions, 81.9% said that they lived with their parents, 15.6% lived with their partner, husband or wife and 1.1% lived alone.

The top 3 activities performed online amongst the sample were use of social networks (83.8%), email (42.2%) and research/education (41.9%). The least performed activities were streaming programmes (7.1%), playing games (7.0%), chat (6.6%) and Internet banking/payment of bills/ online booking (1.1%) (Figure 3.1).

Activities Performed Online
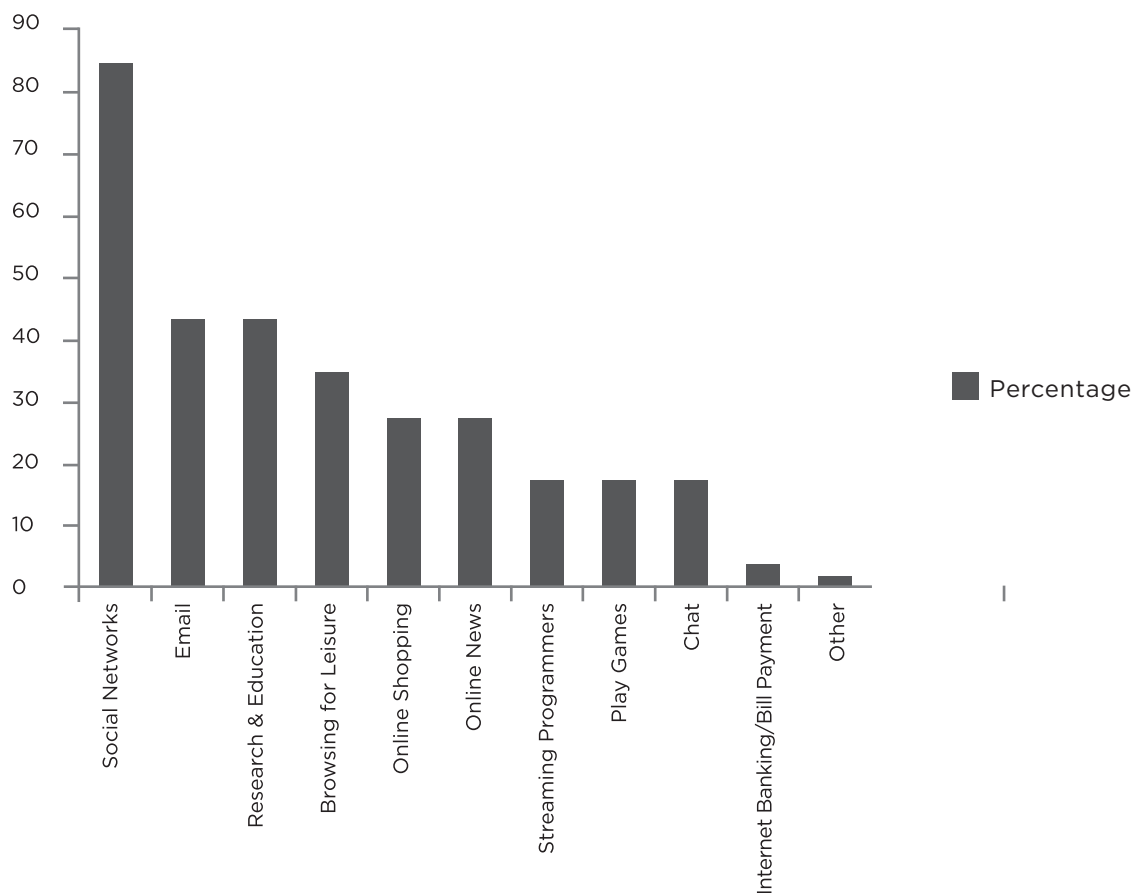
Scores of 0-39 = Average Users – 65.9%
Scores of 40-69 = Excessive Users who experience some problems due to Internet use – 33.3%
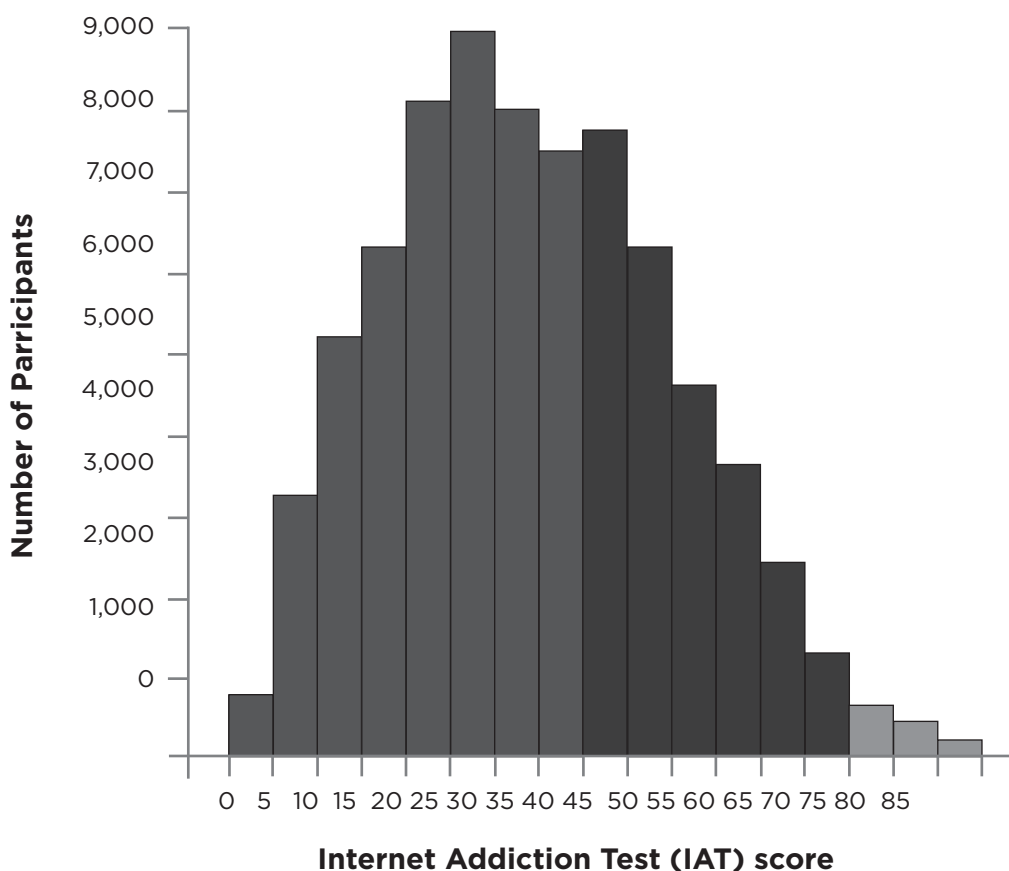**Scores of 70-100 = Problematic Internet Users – 0.8%**

Figure 3.1 Activities Performed Online

3.2 IAT Scores as Indicators for Prevalence of PIU

The following data will be presented using the weighted sample of 72,068 persons in order to provide a more representative picture of results that can be attributed to the target population. (For details regarding this procedure refer to section Weighting of Results in the methodology chapter).

IAT scores amongst the sample ranged from 0 to 85 (Figure 3.2). The mean IAT score for the population was 32.73. This score falls within the range for average use (scores of 39 or less). Respondents' scores were then categorised according to Young's (1996) cut-off points.

- 0.8.% of the population scored between 70-100 and were therefore classified as PIU's;
- 33.3% scored between 40-69 and were classified as excessive users who experience some problems in their lives due to Internet overuse;
- 65.9% had scores of <30, meaning that they were average users who had no problems in controlling their Internet use.

Scores of 0-39	=	Average Users – 65.9%
Scores of 40-69	=	Excessive Users who experience some problems due to Internet use – 33.3%
Scores of 70-100	=	Problematic Internet Users – 0.8%

Figure 3.2 Distribution of IAT Scores Amongst Weighted Population

3.3 IAT Individual Items Analysis amongst the Sample

The literature has shown that the IAT is multidimensional in nature, meaning that the different items have been shown to measure different constructs related to Internet use, such as psychological/ emotional conflict, time management problems, and mood modification (Widyanto et al., 2011). Mean rating scores for each individual item were calculated by averaging the rating scores (where 0 = 'Never', 1 = 'Rarely', 2 = 'Occasionally', 3 = 'Frequently', 4 = 'Often' and 5 = 'Always') on each individual item provided by the whole sample. Therefore, the larger the mean rating score, the higher the occurrence (Table 3.8).

The mean rating score provided for Question 1 – "How often do you stay online longer than intended?" – was the largest (3.01) indicating that it was the item most frequently endorsed

by respondents. This was followed by Question 7 (2.86) – "How often do you check your email before something else that you intended to do?" – and Question 16 (2.52) – "How often do you find yourself saying 'just a few more minutes' when online?". The top three items endorsed by the whole sample were all items related to a 'time management' construct. Figure 3.3 illustrates the order in which each of the 20 items were endorsed by the whole sample.

Table 3.8 IAT individual items analysis amongst the whole sample

| Individual Items (IAT)	Mean	Std. Dev.
1. How often do you stay online longer than intended?	3.01	1.398
2. How often do you neglect household chores to spend more time online?	1.55	1.370
3. How often do you prefer the excitement of the Internet to intimacy with your partner?	0.72	0.972
4. How often do you form new relationships with fellow online users?	1.51	1.352
5. How often do others in your life complain about the amount of time you spend online?	1.55	1.433
6. How often do your grades and/or school-work suffer because of the amount of time you spend online?	1.13	1.360
7. How often do you check your email before something else that you need to do?	2.86	1.658
8. How often is your job performance or productivity reduced because of the Internet?	1.07	1.182
9. How often do you become defensive or secretive when anyone asks you what you do online?	1.22	1.317
10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	1.84	1.450
11. How often do you find yourself anticipating when you will go online again?	2.27	1.433
12. How often do you fear that life without the Internet would be boring, empty and joyless?	2.48	1.633
13. How often do you snap, yell or act annoyed if someone bothers you while you are online?	1.33	1.260
14. How often do you lose sleep due to late night logins?	1.68	1.553
15. How often do you feel preoccupied with the Internet when offline, or fantasize about being online?	0.75	0.926
16. How often do you find yourself saying 'just a few more minutes' when online?	2.52	1.488
17. How often do you try to cut down the amount of time you spend online and fail?	1.94	1.443
18. How often do you try to hide how long you've been online? How often do you choose to spend more time online over going out with others?	0.91	1.162
19. How often do you feel depressed, moody or nervous when you are offline, which goes away once you are back online?	1.00	1.152
20. How often do you feel depressed, moody or nervous when you are offline, which goes away once you are back online?	0.72	0.956

X2(19) = 8616.6, p<0.0001
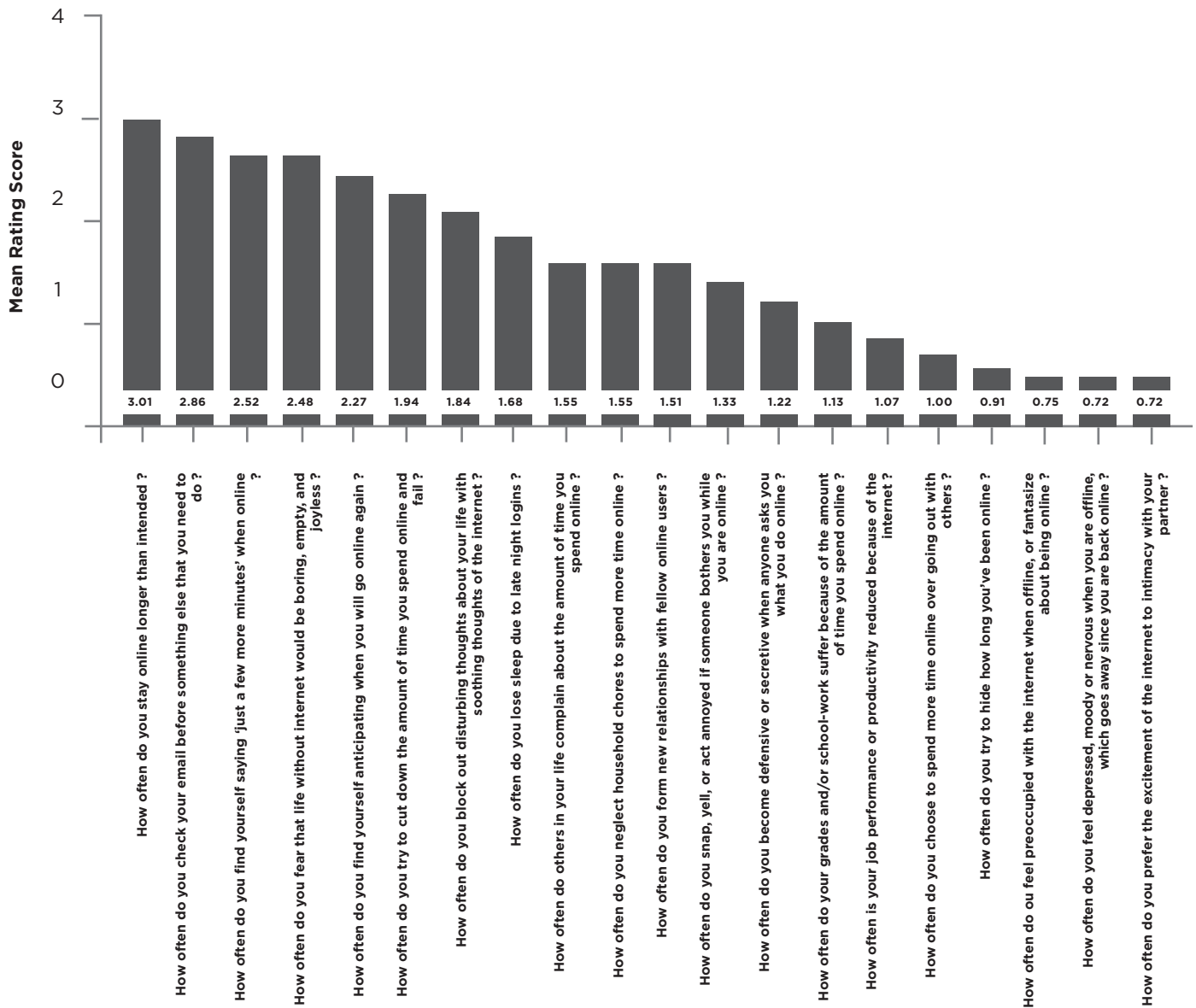
Figure 3.3 IAT Individual Items Analysis amongst the Whole Sample

3.4 IAT Individual Items Analysis amongst the Three Different Internet Use Categories

Next, the individual IAT items were analysed further to see which of the items were most endorsed by the three Internet use categories – average users, excessive users and PIUs. For all the items, the PIU group provided the largest mean rating scores throughout, whilst the average Internet users provided the lowest mean rating scores (Table 3.9). Item 1 ("How often do you stay online longer than intended?") and Item 7 ("How often do you check your email before something else that you need to do?") were the items most strongly endorsed by the average users (Mean=2.55). Item 1 was similarly most strongly endorsed by the excessive users (Mean=3.93) (Table 3.9). On the other hand, item 16 ("How often do you find yourself saying 'just a few more minutes' when online?") was the item most strongly endorsed by the PIU group (Mean=4.55) (Table 3.9). Table 3.10 illustrates the list of item endorsement in categorical order according to the three categories of Internet users. Number 1 indicates the item that was most strongly endorsed and number 20 indicates the item that was the least strongly endorsed. When items were endorsed with the same Mean values, they were given the same endorsement number (example item 1 for the average and excessive users).

Table 3.9 IAT individual items analysis amongst the 3 Internet use categories

Individual Items (IAT)		Mean	Std. Dev	P-Value
1. How often do you stay online longer than intended?	Average user Excessive user PIU	2.55 3.93 4.18	1.340 0.994 1.168	0.000
2. How often do you neglect household chores to spend more time online?	Average user Excessive user PIU	1.04 2.59 2.91	1.074 1.311 1.514	0.000
3. How often do you prefer the excitement of the Internet to intimacy with your partner?	Average user Excessive user PIU	0.46 1.21 2.82	0.731 1.131 1.779	0.000
4. How often do you form new relationships with fellow online users?	Average user Excessive user PIU	1.13 2.28 3.55	1.178 1.333 1.036	0.000
5. How often do others in your life complain about the amount of time you spend online?	Average user Excessive user PIU	1.04 2.56 4.18	1.116 1.439 0.874	0.000
6. How often do your grades and/or school-work suffer because of the amount of time you spend online?	Average user Excessive user PIU	0.66 2.04 4.18	0.991 1.476 0.874	0.000
7. How often do you check your email before something else that you need to do?	Average user Excessive user PIU	2.55 3.51 3.36	1.672 1.417 1.859	0.000
8. How often is your job performance or productivity reduced because of the Internet?	Average user Excessive user PIU	0.68 1.85 3.36	0.852 1.320 1.502	0.000
9. How often do you become defensive or secretive when anyone asks you what you do online?	Average user Excessive user PIU	0.82 1.99 3.18	1.094 1.351 1.722	0.000
10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	Average user Excessive user PIU	1.40 2.70 4.09	1.312 1.282 1.136	0.000
11. How often do you find yourself anticipating when you will go online again?	Average user Excessive user PIU	1.75 3.32 3.73	1.264 1.136 1.489	0.000
12. How often do you fear that life without the Internet would be boring, empty and joyless?	Average user Excessive user PIU	2.01 3.43 4.55	1.551 1.346 0.522	0.000
13. How often do you snap, yell or act annoyed if someone bothers you while you are online?	Average user Excessive user PIU	0.88 2.21 4.18	0.970 1.256 0.874	0.000
14. How often do you lose sleep due to late night logins?	Average user Excessive user PIU	1.11 2.78 4.36	1.265 1.442 1.206	0.000
15. How often do you feel preoccupied with the Internet when offline, or fantasize about being online?	Average user Excessive user PIU	0.44 1.34 2.82	0.658 1.034 1.471	0.000
16. How often do you find yourself saying 'just a few more minutes' when online?	Average user Excessive user PIU	2.00 3.56 4.91	1.338 1.163 0.302	0.000
17. How often do you try to cut down the amount of time you spend online and fail?	Average user Excessive user PIU	1.36 3.11 4.36	1.173 1.175 0.809	0.000
18. How often do you try to hide how long you've been online?	Average user Excessive user PIU	0.52 1.68 3.45	0.758 1.376 1.368	0.000
19. How often do you choose to spend more time online over going out with others?	Average user Excessive user PIU	0.63 1.71 3.64	0.862 1.254 1.629	0.000
20. How often do you feel depressed, moody or nervous when you are offline, which goes away once you are back online?	Average user Excessive user PIU	0.41 1.33 2.82	0.694 1.054 1.601	0.000

Table 3.10 IAT item endorsement according to the 3 Internet use categories

Individual Items (IAT)	Average. User Item Endorsement	Excessive. User Item Endorsement	PIU Item Endorsement
1. How often do you stay online longer than intended?	1	1	4
2. How often do you neglect household chores to spend more time online?	9	9	12
3. How often do you prefer the excitement of the Internet to intimacy with your partner?	16	20	13
4. How often do you form new relationships with fellow online users?	7	11	8
5. How often do others in your life complain about the amount of time you spend online?	9	10	4
6. How often do your grades and/or school-work suffer because of the amount of time you spend online?	13	13	4
7. How often do you check your email before something else that you need to do?	1	3	10
8. How often is your job performance or productivity reduced because of the Internet?	12	15	10
9. How often do you become defensive or secretive when anyone asks you what you do online?	11	14	11
10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	5	8	10
11. How often do you find yourself anticipating when you will go online again?	4	5	6
12. How often do you fear that life without the Internet would be boring, empty and joyless?	2	4	2
13. How often do you snap, yell or act annoyed if someone bothers you while you are online?	10	12	4
14. How often do you lose sleep due to late night logins?	8	7	3
15. How often do you feel preoccupied with the Internet when offline, or fantasize about being online?	17	18	13
16. How often do you find yourself saying 'just a few more minutes' when online?	3	2	1
17. How often do you try to cut down the amount of time you spend online and fail?	6	6	3
18. How often do you try to hide how long you've been online?	15	17	9
19. How often do you choose to spend more time online over going out with others?	14	16	7
20. How often do you feel depressed, moody or nervous when you are offline, which goes away once you are back online?	18	19	13

3.5 Types of Activities Performed Online amongst the Three Internet Use Categories

The literature has highlighted the fact that some Internet-related activities are more problematic than others, particularly online gaming (Kuss et. al., 2012) and online social networking (Kuss et al., 2011). A cross tabulation analysis was therefore conducted to see if there was a significant association between 'the most frequent type of online activity' and the three Internet Use categories. Only the results that yielded significant differences are presented hereunder. A significantly higher proportion of average users compared to excessive users and PIUs use the Internet for email (Table 3.11).

Table 3.11 Type of activity by Internet use category

			Email Total		Total
			Yes	No	
Internet Use Category	Average user	Count	445	566	1011
		Percentage	70.0%	65.0%	67.1%
	Excessive user	Count	186	299	485
		Percentage	29.2%	34.3%	32.2%
	PIU	Count	5	6	11
		Percentage	0.8%	0.7%	0.7%
Total		**Count**	**636**	**871**	**1507**
		Percentage	**100.0%**	**100.0%**	**100.0%**

A significantly higher proportion of excessive users compared to average users and PIUs use the Internet for social networking (Table 3.12).

Table 3.12 Type of activity (social networking) by Internet use classification

			Social Networks		Total
			Yes	No	
Internet Use Classification	Average user	Count	825	186	1011
		Percentage	65.3%	76.2%	67.1%
	Excessive user	Count	429	56	485
		Percentage	34.0%	23.0%	32.2%
	PIU	Count	9	2	11
		Percentage	0.7%	0.8%	0.7%
Total		**Count**	**1263**	**244**	**1507**
		Percentage	**100.0%**	**100.0%**	**100.0%**

A significantly higher proportion of PIUs compared to average users and excessive users use the Internet to play games (Table 3.13).

Table 3.13 Type of Activity (online games) by Internet Use Classification

			Online Games		Total
			Yes	**No**	**Total**
Internet Use Classification	Average user	Count	62	949	1011
		Percentage	60.2%	67.6%	67.1%
	Excessive user	Count	38	447	485
		Percentage	36.9%	31.8%	32.2%
	PIU	Count	3	8	11
		Percentage	2.9%	0.6%	0.7%
Total		**Count**	**103**	**1404**	**1507**
		Percentage	**100.0%**	**100.0%**	**100.0%**

3.6 The Role of Socio-Demographic Variables

Cross tabulations were conducted on the weighted sample for a number of socio-demographic variables and the three Internet use classification types. The percentages of PIUs are too small to include in the current analysis, therefore comparisons will be limited to the average users and excessive users.

In the current study, average users were more likely to be female, older in age (27-30 years), married, inactive (homemakers or those possibly seeking employment) and have completed tertiary levels of education (Table 3.14).

Excessive Internet users on the other hand, were more likely to be male, younger in age (18-21 years), single (not in a relationship), unemployed and have completed secondary levels of education (Table 3.14).

Table 3.14 Internet use classifications by socio-demographic variables

Socio-Demographic Variables	Average user %	Excessive user %	PIU %
Gender			
Male	62.3%	36.9%	0.8%
Female	69.8%	29.4%	0.8%
Age Group			
18-21 years	52.6%	46.5%	0.9%
22-26 years	68.3%	31.1%	0.6%
27-30 years	76.3%	22.7%	1.0%
Marital Status			
Single (not in a relationship)	57.2%	41.9%	0.8%
Single (in a relationship)	70.0%	29.1%	0.9%
Married/civil Union	88.8%	11.2%	0.0%
Separated	100.0%	0.0%	0.0%
Labour Status			
Employed	71.1%	28.0%	0.9%
Unemployed	44.1%	56.0%	0.0%
Student	52.2%	47.0%	0.8%
Inactive	87.9%	12.0%	0.0%
Level of Education Completed			
No formal Education/Primary	100.0%	0.0%	0.0%
Secondary Level	68.3%	30.8%	0.9%
Post-secondary Level	61.2%	38.0%	0.8%
Tertiary Level	69.4%	29.8%	0.8%

3.7 Differences in Mean IAT Scores on a Number of Socio-Demographic Variables

A series of multivariate analyses was conducted to analyse whether mean IAT scores differed significantly on a number of socio-demographic variables. The Mann Whitney Test was used to compare mean IAT scores between two independent groups (e.g. gender) and the Kruskal-Wallis test was used if there were more than two groups (e.g. age, districts of residence, marital status, education and employment status). The null hypothesis specifies that mean scores vary marginally between the groups and is accepted if the P-value exceeds the 0.05 criterion. The alternative hypothesis specifies that mean IAT scores vary significantly between groups and is accepted if the P-value is less than the 0.05 criterion. The rationale for using non parametric tests was because the IAT distribution of scores displayed in Figure 3.2 is right skewed and does not follow the normal distribution.

Mean IAT scores amongst the sample differed significantly on a number of socio-demographic variables. Although all mean scores across the different variables fell within the 'average Internet use' category (scores <39), the groups with the highest mean IAT scores were the unemployed group (M=39.45), students (M=38.47) and those aged between 18-21 years (M=37.69). Males had significantly higher mean IAT scores than their female counterparts (Table 3.15).

Table 3.15 Differences in Mean IAT scores by gender

Gender	Mean	Std. Deviation	P-value
Male	34.01	15.130	0.000
Female	31.74	15.107	

Mean IAT scores decreased significantly with age, with younger cohorts scoring significantly higher than older cohorts (Table 3.16).

Table 3.16 Differences in Mean IAT scores by age group

Age group	Mean	Std. Deviation	P-value
18-21	37.69	14.463	0.000
22-26	32.49	14.919	
27-30	28.11	14.837	

There were also significant differences in mean IAT scores according to district of residence, with those from the Southern Harbour region scoring highest and those from Gozo scoring lowest (Table 3.17).

Table 3.17 Differences in Mean IAT scores by district of residence

District	Mean	Std. Deviation	P-value
Southern Harbour	34.94	15.942	0.000
Northern Harbour	32.81	15.085	
South Eastern	31.79	14.819	
Western	32.64	15.437	
Northern	32.11	14.631	
Gozo	30.95	14.791	

Significantly higher mean IAT scores were also observed amongst those who were single (Table 3.18), those who completed post-secondary levels of education (Table 3.19) and those who were currently unemployed (Table 3.20).

Table 3.18 Differences in Mean IAT scores by marital status

Marital Status	Mean	Std. Deviation	P-value
Single (not in relationship)	35.59 1	5.203	0.000
Single (in a relationship)	31.79	14.793	
Married/ Civil Union	22.60	13.094	
Separated	14.70	6.524	

Table 3.19 Differences in Mean IAT scores by level of education achieved

Level of Education	Mean	Std. Deviation	P-value
No formal education/ Primary level	12.69	9.287	0.000
Secondary level	30.16	16.701	
Post-secondary level	34.88	14.676	
Tertiary level	32.66	13.885	

Table 3.20 Differences in Mean IAT scores by employment status

Level of Education	Mean	Std. Deviation	P-value
Employed (including self-employed)	30.73	15.005	0.000
Unemployed	39.45	17.175	
Student	38.47	13.570	
Inactive (retired, home-makers, cannot work due to disability)	22.09	14.419	

3.8 Predictor Variables for Higher IAT scores
Due to the fact that a number of significant differences were observed across the different socio-demographic variables a General Linear Model (GLM) was conducted in order to analyse collectively the contribution of each predictor in explaining variations in the IAT scores. In this model, a gamma distribution (i.e. skewed to the right) is assumed. The GLM identified all predictors as contributing significantly in explaining variation in scores. Table 3.21 highlights the different variables in order of their contribution. Type of education level completed (post-secondary level), marital status (single) and age (younger cohorts aged between 18-21 years) emerged as the strongest predictors for higher IAT scores (Table 3.21).

Table 3.21 Test of General Linear Model (GLM) effects

Source	Type III		
	Wald Chi-Square	**df**	**P-value**
Intercept	345.563	1	0.000
Education	30.146	3	0.000
Marital Status	26.983	2	0.000
Age Group	18.186	2	0.000
Labour Status	11.506	3	0.009
District	11.999	5	0.035
Sex	4.025	1	0.045

CHAPTER 4 - DISCUSSION

4.1 Prevalence Estimates of PIU amongst the Sample

The current study revealed that amongst a stratified random sample of 1,507 young Maltese persons aged between 18-30 years of age, the majority (65.9%) were average Internet users (IAT scores <39). One third of the sample (33.3%) were excessive Internet users who experienced some problems in their lives due to Internet overuse (IAT scores of 40-69) and 0.8% were problematic Internet users (IAT scores >70).

In the last decade, various instruments have been used overseas to measure PIU (Table 4.1). The current study utilised Young's IAT because it is the first validated tool and also the one that, to date, has been most widely utilised across different cultures (Widyanto & McMurran, 2004; Widyanto et al., 2011; Korkeila et al., 2010; Chang & Law, 2008; Ferraro et al., 2007).

Among the studies that have used the IAT as a measuring tool, varying cut-off points have also been adopted for PIU classification; these can range from scores >50 to scores >80 (Table 4.1). The cut-off points adopted in the current study veer towards the more stringent:

- Scores of <39 = average Internet users
- Scores of 40-69 = excessive Internet users experiencing some problems in their lives due to Internet overuse
- Scores >70 = problematic Internet users who experience significant problems in their lives due to Internet use.

In the next section the prevalence estimates obtained in the current study will be compared to those obtained in some other studies. However, these comparisons warrant a considerable amount of caution primarily because in the reported studies, sample types and measurement tools differ, as well as different PIU classification cut-off points (Widyanto & Griffiths, 2007; Shaw & Black, 2008).

Table 4.1 Prevalence estimates of PIU in the last decade

Study	Country	Sample	Instruments	Addiction Classification/Criteria	Prevalence
Barke et. al., 2012	Germany	N=1,041 (mean 24.2 years)	Internet Addiction Questionnaire	Scores >70/100= Significant problems	2.0%
Canan et. al., 2012	Turkey	N=1,034 (18-27 years)	Internet Addiction Scale	Scores >80 = Internet Addiction	9.7%
Yates et. al., 2012	USA	N=1,470 (mean 19 years)	IAT	Scores >50/100=PIU	6.0%
Morrison & Gore, 2010	UK	N=1,319 (16-51 years)	IAT	Scores >80/100=PIU	1.2%
Whang et. al., 2003	Korea	N=13,588 (20-40 years)	Modified Internet Addiciton Scale	Scores >60/80= Internet Addiction	3.5%
Ni et. al., 2009	China	N=3,557 (17-24 years)	IAT	Score >50/100=Internet Addiction	6.4%
Kheirkhah et. al., 2010	Iran	N=1,856 (mean 20 years)	Internet Addiction Questionnaire	Endorsing >5/8 items	22.8%
Bakken et. al., 2009	Norway	N=3,399 (16-74 years)	Young's Diagnostic Questionnaire	Scoring 5/8 items	1.0%
Huang et. al., 2009	China	N=4,400 (16-30 years)	Young's Diagnostic Questionnaire	Scoring 5/8 items	9.6%
Lin et. al., 2011	Taiwan	Rep sample of college students	Chen's Internet Addiction Scale Revised	Scores >67	15.3%
Tsai et. al., 2009	Taiwan	N=1,360 university freshmen	Chen's Internet Addiction Scale	Scores >63	17.9%
Yen et. al., 2009	Taiwan	N=2,793 (18-48 years)	Chen's Internet Addiction Scale	Scores >68/104	12.9%
Kuss et. al., 2013	UK	N=2,257 (mean 22 years)	Assmt for Computer/Internet Addiction Screener	Scores >13.5/27	3.2%
Demetrovics et. al., 2008	Hungary	N=1,037 (mean 23 years)	Problematic Internet Use Questionnaire (PIUQ)	Scores >2 SDs above the mean	4.3%
Aboujaoude et. al., 2006	USA	N=2,513 adults	4 generated diagnostic criteria sets	most stringent definition	0.7%

Adapted from Kuss et al., 2014

The value of 0.8% obtained in the current study appears to be at the more conservative end of estimates when compared to other studies in general, as well as when compared to similar studies utilising the same tool, albeit different samples. For example, a 2002 UK study amongst a sample aged between 18-51 years adopting an even more stringent cut-off point for PIU (IAT scores >80), obtained prevalence estimates of 1.2% (Morrison & Gore, 2010). On the other hand, a 2012 USA study, also utilising the IAT amongst a sample of 1,470 young persons with a mean age of 19 years, but with less stringent IAT cut-off points (IAT scores >50), obtained prevalence estimates of 6.0% (Yates et al., 2012). Other studies utilising other measures have obtained prevalence estimates that range from 0.7% in the USA, which utilised strict diagnostic criteria for PIU (Aboujaoude

et al., 2006) to 17.9% in Taiwan, which utilised Chen's Internet Addiction Scale adopting less stringent cut-off points, and also a more selective sample of college students (Tsai et al., 2009). Prevalence estimates of PIU tend to be higher amongst younger persons and college students (e.g. Huang et al., 2009; Canan et al., 2012) compared to older persons (e.g. Morrison & Gore, 2010; Aboujaoude et al., 2006; Bakken et al., 2009) and also tend to increase with less stringent cut-off points (e.g. Tsai et al., 2009) (Table 4.1).

A review of available studies on the prevalence of PIU in different countries concluded that the prevalence of PIU generally ranged from 4.6% to 4.7% among adolescents, 13% to 18.4% among college students and 6% to 15% among the general population (Young, Yue and Ying, 2011). The value of 0.8% obtained in this study is lower when compared to these studies and one possible explanation for this (apart from methodological reasons highlighted above) could be the role of Malta's collectivist culture and strong family ties in young people's lives. A similar explanation has been cited in a Turkish study (Gencer & Koc, 2012) on adolescents that reported lower than average PIU prevalence rates amongst adolescents (3%). Collectivist cultures belong to a strong and extended network of family and friends and such connectedness can provide social and emotional support to youngsters (Hofstede, 2001).

4.2 IAT Individual Items Analysis amongst the Three Different Internet Use Categories
A Mean ranking score was calculated for each of the individual IAT items. Scores can range from 0 (never) to 5 (always). Compared to PIU's (mean ranking scores of 2.82 – 4.91) and excessive users (mean ranking scores of 1.21 – 3.93), average users did not endorse any of the 20 items strongly (mean ranking scores of 0.41 – 2.55).

The highest mean ranking score obtained amongst average users was that of 2.55 for item 1 ("How often do you stay online longer than intended?") and item 7 ("How often do you check your email before something else that you needed to do?"). This figure means that average users only 'occasionally' or 'frequently' stay online longer than intended and check their email before something else that they needed to do. Comparatively, excessive users who also endorsed item 1 the most frequently, had a higher mean ranking score for this item (3.93), meaning that this group 'frequently' or 'often' stayed online longer than intended. PIUs on the other hand had higher mean ranking scores throughout the questionnaire and endorsed item 16 ("How often do you find yourself saying 'just a few more minutes' when online?") most frequently, with a mean ranking score of 4.91, meaning that they 'often' or 'always' find themselves saying 'just a few more minutes online'. PIUs also reported to 'often' or 'always' fear that life without the Internet would be boring, empty and joyless (item 12), lose sleep due to late night logins (item 14) and stay online longer than intended (item 1). Excessive users, show similar patterns in this regard, only with lower mean ranking scores – 'frequently' or 'often' experiencing these situations, as opposed to 'often' or 'always' experiencing them. The amount of time spent on the Internet (e.g. time management failure), negative consequences associated with Internet overuse (e.g. distress or problematic behaviour such as preferring to be online) and sleep disruption patterns (e.g. late night logins as opposed to sleeping) are all factors that were positively associated with PIU (Cakir-Balta & Horzum, 2008; Widyanto & Griffiths, 2007; Chou & Hsiao, 2000; Morahan-Martin & Schumacher, 2000; Young, 1998) .

4.3 Distinguishing between PIU and Excessive Internet Use
Due to the fact that there are some fundamental overlapping boundaries between PIU and excessive Internet use, it is important to distinguish between the two behaviours (Pontes, Kuss & Griffiths, 2015). It is generally agreed that PIUs engage in excessive Internet use patterns, however excessive users, on the other hand, are not necessarily problematic users (Griffiths, 2010).

From a theoretical point of view, Caplan (2006) argued that excessive Internet use comprises a quantity or degree of online activity that exceeds what a person thinks of as normal, usual or planned, whereas PIU involves difficulty with impulse control. Although both PIUs and excessive users spend more time online than average users, in the case of excessive users, this excess is perhaps more related to their reliance on the Internet to carry on daily activities and obtain positive outcomes that are related to their work or social lives. In other words, the amount of time spent online by itself does not necessarily indicate problematic behaviour and in order to

distinguish between PIU and excessive use, empirical and clinical research should consider the context in which the Internet is being used (Pontes, Kuss & Griffiths, 2015), the extent of the problems related to such use and how these problems impact the individual's biological, social, familial, emotional and psychological wellbeing (Griffiths, 2010; Caplan & High, 2006).

4.4 Online Activities and PIU
The most popular online activity amongst the whole sample was social networking, with 83.8% listing it as the top activity performed online from a list of other activities which included email, research and education, browsing, online shopping, online news, streaming, playing games, chatting and Internet banking/online bill payment. Social networking appears to emerge as the most prevalent online activity in other reported studies worldwide, whereby between 55% and 82% of teenagers and young adults use social networking sites on a regular basis, with Facebook alone reporting to have over 500 million users worldwide (Kuss & Griffiths, 2011).

Social networking was the activity that most of the excessive users in the current sample engaged in. Some studies have indicated that the excessive use of online social networking sites may be problematic because it substitutes real 'face-to-face' interactions (Kuss & Griffiths, 2011; Leung & Lee, 2012). However, the latter explanation does not support the findings from the sample of excessive users in the current study, who reported they 'rarely' or only 'occasionally' form new relationships online (item 4), spend more time online as opposed to going out with others (item 19) and prefer the excitement of the Internet to intimacy with a partner (item 3). A possible explanation could be that social networking appears to be more prevalent amongst younger cohorts who are not in a long-term relationship (Kuss & Griffiths, 2011). In the current sample, the excessive users were significantly younger (18-21 years) compared to the average users (27-30 years) and were also single and had more time to spend online, compared to the average use group. The attraction of social networking amongst young people seems to lie in factors like ease of communication with peer groups, social compensation, learning and social identity gratifications (Barker, 2009).

Research on the problematic use of social networking sites is still scarce (Kuss & Griffiths, 2011). However, the literature has highlighted it as a specific aspect of Internet use that warrants further research (Kuss & Griffiths, 2011), whereby factors that are specific to social networking sites such as pragmatics, attraction, communication and expectations of using social networks are investigated as predictors of social networking use and abuse (Sussman, Leventhal, Bluthenthal, et al., 2011).

Compared to excessive users, the PIU group reported to 'frequently' or 'often' spend more time online than going out with others and form new relationships online, although the main activity engaged in amongst this group was not social networking but that of playing games. Online gaming can become pathological for some players when the activity interferes with a person's social, occupational, familial and psychological functioning (Gentile et al., 2011). Internet gaming disorder has been introduced as a tentative disorder in the DSM-V (APA, 2013) that warrants further research. The finding in the current study – that a significantly higher proportion of PIUs compared to average users and excessive users played online games – provides support for the efforts in the last decade to define and measure pathological involvement with computer and online games (Lemmens, Valkenburg & Gentile, 2015) and is synonymous with the literature that has highlighted the fact that some Internet-related activities are more problematic than others, particularly online gaming (Kuss et al., 2012).

4.5 The Role of Socio-Demographic Variables
Mean IAT scores amongst the sample differed significantly on a number of socio-demographic variables, although none of the mean scores reached the threshold for either excessive use or PIU, apart from unemployment. The unemployed group had mean scores of 39.45, which lies at the top end of 'average use' (scores <39), and the lower end of 'excessive use' (scores of 40-69). The literature does not appear to cite unemployment as a socio-demographic variable that is associated with or predictive of PIU, therefore one can only speculate that possibly, this group have more time on their hands, and therefore more available time to spend online. However, this is merely speculation and this finding warrants further investigation.

Male respondents had significantly higher mean IAT scores than their female counterparts and were also more likely to be excessive users than average users . Gender is one of the predominantly investigated variables seen in the literature. While some studies have indicated no gender differences (e.g. Ferraro et al., 2007; Lee et al., 2007), others revealed that excessive use is more a male phenomenon (Gencer & Koc, 2012; Chou et al., 2005; Kuss et al., 2013; Morahan-Martin & Schumacher, 2000).

Younger cohorts (those aged between 18-21 years) also had higher mean IAT scores and were also more likely to be excessive users than average users. This finding is supported by the literature (Gencer & Koc, 2012; Pontes et al., 2014; Montgomery, Gottlieb-Robles & Larson, 2004; Chou, Condron & Belland, 2005). Accessibility, affordability and anonymity have been listed as key components that increase the attractiveness of the Internet to the young, providing them with increased and easily accessible opportunities to express themselves and interact socially amongst their peers (Greenfield, 1999; Beard, 2011).

Being single and not in a relationship also emerged as another factor for higher IAT scores. Also, those who were single were more likely to be excessive Internet users as opposed to average users. Kuss et al. (2013) in their epidemiological review of Internet addiction in the last decade have also highlighted being single as one of the socio-demographic variables linked to increased Internet use amongst adults. Although the Internet (e.g. social networking sites) facilitates the initiation of a relationship, romantic relationships are generally maintained through offline rather than online interactions. Consequently, entry into a romantic relationship may result in a decrease in time spent online, particularly on social networking sites (Peterson et al., 2014). Consistent with this prediction, McAndrew and Jeong (2012) reported that Facebook users who were in a committed relationship were less active on Facebook than those who were not in a committed relationship.

Respondents who had completed post-secondary levels of education had higher mean IAT scores than those who had completed just primary, secondary levels or tertiary levels, and were also more likely to be excessive users than average users. Findings in the literature related to participants' academic year are inconsistent. Studies that have focused specifically on college students (post-secondary equivalent in the local context) have reported higher prevalence rates for PIU amongst this cohort (13% to 18.4%) compared to the general population (6% to 15%) and adolescents (4.6% to 4.7%) (Young, Yue & Ying, 2011). Other studies amongst adults have found that increased use tends to be more associated amongst those with University levels of education (Kuss et al., 2013, Tsai et al., 2009; Bakken et al., 2009). A recent 2014 study amongst Portuguese students aged 15-39 years found increased IAT scores in secondary school students compared to University students (Pontes, Patrao & Griffiths, 2014). In this study, secondary school was categorised into 3 academic years – first, second and third. When comparing education levels, it is important to keep in mind the different educational systems and terminologies used to define academic years that may differ significantly across cultures.

Respondents who resided in the Southern Harbour region of Malta had the highest mean IAT scores (34.94). This score was significantly higher than the lowest mean IAT scores that were endorsed by residents from Gozo (30.95). This finding merely shows that respondents from Gozo scored significantly lower than persons from Malta, particularly residents from the Southern harbour region. Mean scores across all the 6 districts however, fall well within the range for average Internet use.

4.6 Predictor Variables for Higher IAT Scores
Results from the GLM that was conducted to analyse collectively the contribution of each of the socio-demographic variables revealed that the strongest predictor variables for higher IAT scores were: (1) type of education level completed (post-secondary level), marital status (single) and age (younger cohorts aged between 18-21 years). In the local context, this finding sheds light on the fact that increased Internet use is most strongly observed amongst 18-21 year old, single, well-educated persons. This cohort was also more likely to form part of the excessive users as opposed to average users of PIUs. As highlighted previously in the section 'Distinguishing between PIU and Excessive Internet use', this finding does not imply problematic use; it merely

sheds light on the fact that this cohort of persons appears to use the Internet more excessively. The types of analyses that this study permits cannot determine whether this kind of excessive use produces negative or positive consequences; however it does highlight an area for future research that should aim at investigating both the 'quantity' and 'quality' of time on the Internet as well as the context in which Internet use takes place.

4.7 The Medicalisation of Online Behaviour

A recent trend that has demanded the attention of a number of academics is the tendency to medicalise behaviours that society regards as troublesome, problematic or offensive in some way. The medicalisation of online behaviour is part of a larger trend in which more and more aspects of behaviour that deviate from the norm are being medicalised, which means "defining behaviour as a medical problem or illness and mandating or licensing the medical profession to provide some type of treatment for it" (Conrad, 1975, p.12). Examples of deviant behaviour that have become medicalised include alcoholism, drug abuse, hyperactivity, excessive eating or undereating, homosexuality, gambling and infertility.

The term "addiction" has proven to be as problematic as it has been fruitful, and the discussion on what constitutes addictive behaviour is a longstanding one. Some, such as Davies, have gone so far as to call it a 'myth', a phenomenon that only 'exists' in our socially constructed perception, serving to mollify individuals who deviate from the norm (Davies, 1992).

In society, moral panics about the loss of control, especially of the youth population, abound. There have been moral panics about music, self-harm, etc. Is this a new moral panic about the Internet? The Internet has had an important effect on the ways people behave and relate to one another, and this will likely continue in the near future. It may thus seem premature that any one sector of society should attempt to define what is or is not appropriate behaviour online, until all of us have had a chance to study and better understand this new technology and the complex ways it is affecting us. Online users and online communities might benefit by developing a greater awareness of those groups in society that would attempt to influence what is considered "normal" or "abnormal" behaviour online. The medicalisation of online behaviour represents one such attempt.

4.8 Limitations of the Study

The low prevalence rate of PIU reported here should be interpreted with caution. Different studies have utilised different psychometric tools to measure PIU and also different cut-off points for PIU classification within the same tool, therefore comparability of findings are limited.

Secondly, as suggested by early pioneers in the field (e.g. Griffiths, 1999), there are important issues that should be taken into account with regards to Young's IAT, namely the fact that this measure has no temporal dimension with which to take into account the duration of symptoms and behaviour, and secondly the IAT does not take into account the 'context' within which excessive use of the Internet takes place. Some authors have also argued that the IAT which was developed in 1998 may need to be updated to reflect more closely current online practices (Pontes, Patrao & Griffiths, 2014). For example, item 7 ("How often do you check your email before something else that you need to do?") may reflect an old way of checking email by having to log onto an email website. Nowadays, with the use of smartphones and tablets people simply push buttons from their portable devices.

Keeping the above limitations in mind, the prevalence rates in the current study may be interpreted as follows:

- PIU as conceptualised by the IAT does not appear to be a major endemic problem in the present sample.
- The low prevalence rates may be under-represented due to specific properties of Internet use which were overlooked (e.g. quality of time on the Internet as opposed to quantity) and – due to some shortcomings of the IAT itself – the fact that it does not take into account the time criterion (Griffiths, 1999). If PIU is to be treated as a behaviour analogous to substance dependence, then a minimum number of symptoms need to be present simultaneously over a given time period. The IAT does not measure this temporal dimension.

In this study, a categorical classification was adopted. Being imminently exploratory in nature, this approach was justified. However, future researchers are advised to look beyond categories and investigate the phenomenon in a more multi-dimensional way.

Finally, although the IAT is a standardised tool, the Maltese version of this tool, which was translated for the first time in this study, was not piloted. Thus, there is the possibility that certain words in the English questions, when translated in Maltese, might have been understood differently by the Maltese interviewees. The process of translation and back-translation would have to a certain extent accounted for this limitation; however a piloting phase would have served to further decrease this possibility and also to highlight the questions which appeared dubious and amend them accordingly.

4.9 Implications of the Study and Recommendations for Future Research

The present study is important for a number of reasons. It is a first attempt to explore the prevalence of PIU among a representative random sample of young people in Malta aged between 18-30 years and its relationship with a number of socio-demographic variables. The results of this study therefore can serve as a basis for Maltese clinicians or academics who are interested in this area and want to investigate it further. For instance, whether PIU is a disorder in itself or whether the Internet is simply a medium to fuel other addictions is one area that is currently debated in the literature (Weinstein et al., 2014). In this sense the causal factor of Internet addiction is complex and ranges from prior mental disorders to a dominant lifestyle model and the establishment of relations mediated through the technological medium.

Another possibility is that of looking at the Internet as a powerful technological medium that increases facilitation of communication and work – a medium that is nowadays considered part and parcel of everyday life in general. To what extent can such a strong and efficient medium substitute the deeper need for interpersonal contact? Furthermore, are such needs becoming less and less recognisable as they become concealed by the new artificial needs of human nature? Or, on the other hand, do we need to make a shift from a binary way of looking at 'online' versus 'offline' behaviour and instead look at how today's 'hyper connected' society has become accustomed to acclimatizing itself to a constantly fluctuating online and offline world? With this rationale in mind, another recommendation for future research would be to conduct a qualitative study that would explore in depth how living simultaneously in both an offline and online sphere impacts other factors related to overall social wellbeing.

Finally, the current study can be regarded as contributing to empirical research over the last decade. It provides national data that can be used to further understand the phenomenon of PIU and its related socio-demographic variables. To date, the classification of Internet addiction is still controversial and no gold standard of Internet addiction assessment has emerged. The lack of consensus concerning the diagnostic criteria for this condition in the academic and clinical fields and the controversy that surrounds its inclusion in the DSM as a disorder in itself, requiring further research, highlight the need for a clearer and more comprehensive understanding of this phenomenon in order to be able to provide research-based operational definitions of what exactly constitutes PIU. Therefore, the current study contributes to existing data on PIU locally and can be used as a starting point for future studies in this area.

4.10 Conclusion

The current study has found that amongst a representative stratified random sample of 18-30 year old Maltese young people, prevalence rates of PIU, measured with Young's IAT, are low when compared to other countries worldwide. Although the PIU prevalence rates reported in nationally representative samples range from a minimum of 1% (Morrison & Gore, 2010) to 17.9% (Tsai et al., 2009), the discrepancy among rates are obvious, and therefore they put into question the methodological issues regarding the assessment and theoretical framework of PIU. Hence, continuous research efforts aimed at further uncovering the dimensions and construct of PIU will contribute to existing debates and controversies about its very existence. Ultimately, if research continues to move in the direction of medicalising the condition, then scientific consensus will need to be reached whereby a standard definition of PIU is adopted and grounded in a solid theoretical framework that provides sufficient information on the conceptualisation and operationalisation of this phenomenon, both theoretically and clinically.

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APPENDIX – SURVEY QUESTIONNAIRE

I am _____ from the National Statistics Office.

At the moment this office is doing a survey on behalf of the President's Foundation for the Wellbeing of Society. This survey will examine internet use in Malta, and it will take around 20 minutes to complete. I would like to inform you that all information given in this survey will remain confidential and treated according to the terms of the Data Protection Act, and will only be used for statistical purposes. If there are any questions that you are not comfortable answering, please tell me so that I can skip to the next question. You may also refuse to participate, or choose to stop the interview at any time. It is also appropriate to mention that if you feel as though you might need some help, there is a Psychologists Service at Mater Dei, and you can make an appointment on 2545 6903 or by sending an email to paul.sciberras@gov.mt . You may also call Supportline 179.

SURVEY ON PROBLEMATIC Internet USE

1. List the top 3 things you normally do when you're online? (Tick all that apply)
   [Answers do not have to be prompted]

Email	O(1)
Browsing for research or education	O(2)
Browsing for leisure	O(3)
Social networks (e.g. Facebook, Twitter)	O(4)
Games	O(5)
Online shopping	O(6)
Chatting	O(7)
News	O(8)
Streaming programmes (peer-to-peer)	O(9)
Other (please specify)	

In the following questions, kindly indicate the corresponding level in a scale from 1 to 5, with 1 being the least and 5 being the most.

	Rarely	Occasionally	Frequently	Often	Always	Does not apply
2. How often do you find that you stay on-line longer than you intended?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
3. How often do you neglect household chores to spend more time on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
4. How often do you prefer the excitement of the internet to intimacy with your partner?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
5. How often do you form new relationships with fellow online users?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
6. How often do others in your life complain to you about the amount of time you spend on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
7. How often do your grades or school-work suffer because of the amount of time you spend online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
8. How often do you check your email before something else that you need to do?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
9. How often does your job performance or productivity suffer because of the internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)

	Rarely	Occasionally	Frequently	Often	Always	Does not apply
10. How often do you become defensive or secretive when anyone asks you what you do on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
11. How often do you block out disturbing thoughts about your life with soothing thoughts of the internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
12. How often do you find yourself anticipating when you will go on-line again?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
13. How often do you fear that life without the internet would be boring, empty, and joyless?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
14. How often do you snap, yell, or act annoyed if someone bothers you while you are online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
15. How often do you lose sleep due to late night logins?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
16. How often do you feel preoccupied with the internet when off-line, or fantasize about being on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
17. How often do you find yourself saying 'just a few more minutes' when on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
18. How often do you try to cut down the amount of time you spend on-line and fail?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
19. How often do you try to hide how long you've been online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
20. How often do you choose to spend more time on-line over going out with others?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
21. How often do you feel depressed, moody or nervous when you are off-line, which goes away once you are back on-line?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)

Demographic Information

22. How old are you?

23. Sex (Tick **one option** only)
    Male   O(1)
    Female   O(2)
    Other

24. In which locality do you reside? _____

25. What is the highest level of education that you have successfully completed? (Tick one option only)
    No formal education/ Primary level   O(1)
    Secondary level   O(2)
    Post-secondary level   O(3)
    Tertiary level   O(4)

26. What is your main labour status? (Choose the best option)
    Employed/Self-employed   O(1)
    Unemployed   O(2)
    Student   O(3)
    Retired   O(4)
    Cannot work due to illness and/or disability   O(5)
    Taking care of the house/family   O(6)
    Other (please specify) _____

27. What is your main job-title? _____

28. What is your marital status? (Tick one option only)

Single (not in a relationship)   O (1)

Single (in a relationship)   O (2)

Married/Civil Union   O (3)

Widowed   O (4)

Separated   O (5)

Divorced   O (6)

29. Who do you live with? (Tick all that apply)

Alone   O (1)

With my parent/s   O (2)

With my partner/wife/husband   O (3)

With my child/children   O (4)

With other family members/with other persons   O (5)

- Thank you for participating in the survey -

APPENDIX – SURVEY QUESTIONNAIRE

Jiena _____ mill-Uffiċċju Nazzjonali ta' l-Istatistika.

Bħalissa dan l-Uffiċċju qiegħed jagħmel stħarriġ f'isem il-Fondazzjoni tal-President għall-Ġid tas-Soċjeta'. Dan l-istħarriġ għandu l-iskop li jeżamina l-Użu tal-Internet f' Malta, u għandu jieħu madwar 20 minuta. Nixtieq wkoll ninfurmak li l-informazzjoni li ser tingħata f'dan l-istħarriġ ser tibqa' kunfidenzjali u ser tiġi trattata skont it-termini tal-Protezzjoni tad-Data, u ser tintuża għal skopijiet ta' statistika biss. Madanakollu, jekk ikun hemm xi domandi li ma tħossokx komdu/komda tirrispondi għalihom, nitolbok tgħidli ħalli nkunu nistgħu naqbżuhom. Nixtieq ngħidlek ukoll li tista' tirrifjuta milli tipparteċipa, jew li twaqqaf din l-intervista meta trid. Hu xieraq ukoll insemmu li jekk tħoss li jkollok bżonn xi għajnuna, hemm is-servizz tas-psychologist ġewwa Mater Dei, u tista' tagħmel appuntament fuq in-numru 2545 6903, jew billi tibgħat email lil paul.sciberras@gov.mt. Tista' wkoll iċċempel Supportline 179.

STĦARRIĠ DWAR L-UŻU PROBLEMATIKU TAL-Internet

1. Liema huma l-iżjed 3 attivitajiet li normalment tagħmel meta tkun fuq l-internet? (Immarka kull fejn japplika)
   [M' hemmx għalfejn taqra t-tweġibiet]
   Tara/tiċċekkja l-emailTagħmel
   Xogħol ta' riċerka jew fuq edukazzjon
   Tfittex fuq affarijiet ta' passatemp
   Social Networks (bħal Facebook, Twitter)
   Logħob online
   Xiri mill-internet
   Chatting
   Aħbarijiet
   Tara programmi televiżivi (peer-to-peer)
   Oħrajn (speċifika)

Fil-mistoqsijiet t' hawn taħt, jekk jogħġbok indika l-livell li japplika għalik permezz ta' l-iskala 1 sa 5, fejn 1 huwa l-inqas u 5 huwa l-iżjed.

	Rari	Kultant	Frekwenti	Spiss	Dejjem	Ma japplikax
2. Kemm-il darba tqatta' ħin fuq l-internet iżjed milli tkun qed tippjana?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
3. Kemm-il darba titraskura ix-xogħol tad-dar biex tqatta' iżjed ħin fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
4. Kemm-il darba tippreferi l-eċitament tal-internet fuq l-intimità mas-sieħeb/sieħba tiegħek?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
5. Kemm -il darba tifforma relazzjonijiet ġodda ma' nies li tkun sirt taf minn fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
6. Kemm-il darba n-nies ta' madwarek jgergrulek fuq l-ammont ta' ħin li tqatta' fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
7. Kemm-il darba ġew affettwati il-marki jew x-xogħol tal-iskola minħabba l-ammont ta' ħin li tqatta' fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
8. Kemm-il darba tiċċekja l-email qabel xi ħaġa oħra li jkollok x'tagħmel?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
9. Kemm-il darba tnaqqas il-kwalita' f'xogħolok jew il-produttività fuq il-post tax-xogħol minħabba l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
10. Kemm-il darba tkun difensiv jew ma turix meta xi ħadd jistaqsik xi tkun qed tagħmel fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)

	Rari	Kultant	Frekwenti	Spiss	Dejjem	Ma japplikax
11. Kemm-il darba jirnexxielek tieqaf taħseb u tinjora l-inkwiet tal-ħajja billi tegħda bi ħsibijiet ta' l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
12. Kemm-il darba tħossok ħerqan biex terġa' tuża l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
13. Kemm-il darba tibża' li l-ħajja bla internet ħa xxebgħek, tkun vojta u bla pjaċir?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
14. Kemm-il darba taħtaf, tgħajjat jew tħossok urtat/a jekk xi ħadd itellfek meta tkun fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
15. Kemm-il darba torqod inqas minħabba li ddum bil-lejl fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
16. Kemm-il darba toqgħod taħseb fuq l-internet meta tkun offline, jew timmaġinak qiegħed/qegħda online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
17. Kemm-il darba tgħid 'ħa nqatta' ftit minuti aktar fuq l-internet' meta tkun online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
18. Kemm-il darba tipprova tnaqqas mill-ħin li tqatta' fuq l-internet u ma jirnexxilekx?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
19. Kemm-il darba tipprova taħbi kemm qattajt ħin fuq l-internet?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
20. Kemm-il darba tippreferi tqatta' ħin fuq l-internet milli toħroġ u tissoċjalizza ma' ħaddieħor?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)
21. Kemm-il darba tħossok imdejjaq/imdejqa, burdata ħażina jew nervuż/a meta tkun offline, u dawn l-emozzjonijiet jitilqu meta terġa' tkun online?	O(1)	O(2)	O(3)	O(4)	O(5)	O(0)

Informazzjoni demografika

22. Kemm għandek żmien?

23. Sess (Immarka **waħda biss**)
    Raġel   O(1)
    Mara   O(2)
    Oħrajn

24. F' liema lokalità toqgħod? _____

25. Liema hu l-ogħla livell ta' edukazzjoni li temmejt b' suċċess? (Immarka waħda biss)
    M'attendejtx skola/Livell primarju   O(1)
    Livell sekondarju   O(2)
    Livell post-sekondarju   O(3)
    Livell terzjarju   O(4)

26. X'inhu l-istat ta' mpjieg prinċipali tiegħek? (Immarka waħda biss)
    Impjegat/a jew naħdem għall-rasi   O(1)
    Qiegħed/qegħda   O(2)
    Student/a   O(3)
    Irtirat/a   O(4)
    Ma nistax naħdem minħabba mard u/jew diżabbiltà   O(5)
    Nieħu ħsieb id-dar u l-familja   O(6)
    Oħrajn (speċifika) _____

27. X' inhu t-titlu ta' l-impjieg prinċipali tiegħek? _____

28. X' inhu l-istat maritali tiegħek? (Immarka waħda biss)
   Ġuvni/Xebba (mhux f'relazzjoni)   O(1)
   Ġuvni/Xebba (f' relazzjoni)   O(2)
   Miżżewweġ/miżżewġa/ unjoni civili   O(3)
   Armel/armla   O(4)
   Separat/a   O(5)
   Divorzjat/a   O(6)

29. Ma' min tgħix? (Immarka kull fejn japplika)
   Waħdi   O(1)
   Mal-ġenitur/i   O(2)
   Mal-partner/raġel/mara   O(3)
   Mat-tifel/tifla/tfal   O(4)
   Ma' membri oħra tal-familja/ma' persuni oħra   O(5)

- Grazzi tal-parteċipazzjoni tiegħek -

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