Young Habits and Emerging Consequences: A Study of Internet Use by the Middle Aged in Sikkim

A Thesis submitted

To

Sikkim University

In partial fulfilment of the requirement for the

Degree of Doctor of Philosophy

By

Cherrila Wangchuk Bhutia

Department of Mass Communication

School of Professional Studies

June 2022

Date: 29/06/2022

DECLARATION

I, **CHERRILA WANGCHUK BHUTIA**, hereby declare that the research work embodied in the thesis titled **"Young Habits and Emerging Consequences: A Study of Internet Use by the Middle Aged in Sikkim"** submitted to the Sikkim University in the partial fulfilment of the requirement for the **Degree of Doctor of Philosophy** is my original work. This thesis has not been submitted for any other degree of this University or any other University.

CHERRILA WANGCHUK BHUTIA

PhD Registration No.: 15/Ph.D/MCM/05

Registration Date: 20th May 2016

Department of Mass Communication

School of Professional Studies

Sikkim University

ुल, सामदुर, तादोंग - 737102
क, सिक्किम, भारत
03592-251212, 251415, 251656
क्स - 251067
इट - www.cus.ac.in

6th Mile, Samdur, Tadong-737102
Gangtok, Sikkim, India
Ph. 03592-251212, 251415, 251656
Telefax : 251067
Website : www.cus.ac.in

सिक्किम विश्वविद्यालय
SIKKIM UNIVERSITY

(भारत के संसद के अधिनियम द्वारा वर्ष 2007 में स्थापित और नैक (एनएएसी) द्वारा वर्ष 2015 में प्रत्यायित केंद्रीय विश्वविद्यालय)
(A central university established by an Act of Parliament of India in 2007 and accredited by NAAC in 2015)

Date: 29/06/2022

CERTIFICATE

This is to certify that the thesis titled **"Young Habits and Emerging Consequences: A Study of Internet Use by the Middle Aged in Sikkim"** submitted to the Sikkim University in the partial fulfilment of the requirement for the degree of **Doctor of Philosophy** in **Mass Communication** embodies the result of *bona fide* research carried out by **CHERRILA WANGCHUK BHUTIA** under my guidance and supervision. No part of the thesis has been submitted for any other Degree, Diploma, Associateship or Fellowship.

She has duly acknowledged all the assistance and help received during the investigation.

I recommend that the thesis be placed before the examiner for evaluation.

Supervisor
Dr Manoj Kumar Das
Assistant Professor
Department of Mass Communication

Dr Manoj Kumar Das
Head of the Department/In-Charge
Department of Mass Communication
Sikkim University

, सामदुर, तादोंग - 737102
सिक्किम, भारत
592-251212, 251415, 251656
- 251067
- www.cus.ac.in

सिक्किम विश्वविद्यालय
SIKKIM UNIVERSITY

6th Mile, Samdur, Tadong-737102
Gangtok, Sikkim, India
Ph. 03592-251212, 251415, 251656
Telefax : 251067
Website : www.cus.ac.in

(भारत के संसद के अधिनियम द्वारा वर्ष 2007 में स्थापित और नैक (एनएएसी) द्वारा वर्ष 2015 में प्रत्यायित केंद्रीय विश्वविद्यालय)
(A central university established by an Act of Parliament of India in 2007 and accredited by NAAC in 2015)

Date: 29/06/2022

PLAGIARISM CHECK CERTIFICATE

This is to certify that a plagiarism check has been carried out for the following PhD Thesis with the help of **URKUND/OURIGINAL SOFTWARE**, and the result is a **3 (Three) %** tolerance rate within the permissible limit (below 10% tolerance rate) as per the norm of Sikkim University.

"Young Habits and Emerging Consequences: A Study of Internet Use by the Middle Aged in Sikkim"

Submitted by **Cherrila Wangchuk Bhutia** under the supervision of **Dr Manoj Kumar Das**, Assistant Professor, Department of Mass Communication, School of Professional Studies, Sikkim University.

Signature of the Scholar
Cherrila Wangchuk Bhutia

Countersigned by the Supervisor
Dr Manoj Kumar Das

29/6/2022
Vetted by the Librarian
Dr Shri Ram

Acknowledgements

I would like to take a moment to express my profound gratitude to all who have accompanied me through this journey in one way or another.

Firstly, I would like to thank my first supervisor Prof. Silajit Guha under whom I started my research journey and whose guidance paved a way for my study to see the light of the day. His continuous support, motivation, and immense knowledge helped me throughout the time of research and the writing of my thesis.

When Prof. Guha left the Department, I was allocated to Dr. Manoj Kumar Das under whom I have been able to submit my research. His valuable advice, insightful comments and constant support helped me to explore my research from various perspectives. I would like to express my deepest gratitude to him.

Besides my advisors, I would like to thank the members of the Research Advisory Council, the Doctoral Committee, faculty, staff and my fellow scholars at the department of mass communication whose support and timely feedbacks made this work possible. A special thank you to Mr. Barun Roy, for his help with the entire submission procedure and editorial suggestions.

I am grateful to Dr. Deepak Tiwari, Principal-in-charge, Sikkim Government College, Namchi, where I am currently employed, for granting me leave as and when required for the purpose of research study. It would have been impossible to finish the study without the much-needed leave.

I am also deeply thankful to my research participantswho provided me their valuable data that formed the core of my study. Their names cannot be disclosed, but I would like to acknowledge and appreciate all their help and transparency

during my research. Without any information from them, this study would not have been possible. I am also very thankful to my friends who never once left my side in times of need. They have always lent me their support and have never failed to pick me up when I was at my lowest.

All my love and gratitude to the people who mean the world to me. My family who has been the greatest source of motivation and my unreserved support throughout this journey, and beyond. They have always encouraged me and helped me to give my best and have always had my back. I cannot imagine a life without their love and blessings. My father who is my biggest strength and my guidance, my mother whose unnerving faith in God has always spread positivity and my siblings who have been there to support in every phase of my life, I thank you all sincerely from the bottom of my heart.

Finally and most importantly my heartfelt gratitude to my husband who has always pushed me to better myself and has left no stone unturned to help me realise my dreams. This journey may have been impossible without his constant source of motivation and emotional support. Thank you for being the rock and pillar of strength in my life.

- Cherrila Wangchuk Bhutia

Table of Contents

List of Tables

List of Figures

CHAPTER I

Introduction

The use of the Internet among every age group has become integral, empowering them to enjoy a productive and independent life. A sizable body of literature demonstrates numerous benefits that Internet use brings to different age groups, including enhanced convenience in life, connectedness to information and social networks, and physical, mental, and cognitive health and well-being (Khalaila & Vitman-Schorr, 2018; Pew Research Center, 2018; Wagner et al., 2010).

This chapter attempts to argue the need for research in Internet use among the middle aged in general. The new media which comprise completely of the virtual world is the latest development in the lives of the people and now has taken over the world by a storm. With time, this virtual connectivity has steadily brought almost everyone within its ambit. The consumer base of internet which may have started with the younger users have now stretched far and wide to accommodate users across all age groups. While each age group has its own story of how it adopts/adopted the new technology in their everyday life, the context and motives behind the use of the Internet and implications of its use on their respective habit system are varied.

Habits, in a psychological sense, are activities that are performed repeatedly and regularly without much thought and effort. These are voluntary activities that result as a consequence from regular performances. A large number of activities in our everyday life constitute what may be called habits. Thus, sleeping and waking up, brushing our teeth in the evening or before going to bed, going for an evening walk, eating, etc., are all integral part of our habit system. These activities are never given

but are always learnt to the extent that they become almost natural through reinforcement and repletion. Much of our contemporary life centres around media and their use, and in many cases these have become part of our everyday 'habits'. Thus reading the morning newspapers, listening to the radio news or watching the television programmes are daily rituals that many engage in unconsciously more as a habit than anything else. These media have been around for a long time and activities around them have become so naturalized as part of our everyday life thatthese are often considered mundane and normal; in fact, their conspicuous absence makes life appear unsatisfying and abnormal.

Unlike the traditional media forms, the Internet is a relatively new technology in India (Grover, 2010).Even as its presence in our lives is almost ubiquitous today, its use is yet to become a well-entrenched habit among many sections of the society. As a social phenomenon, the use of the Internet is thus yet a 'young habit' in India, as it is in many parts of emerging economies. This is particularly true in the case of middle-aged (35 – 55yrs) and older adults (55 and above)who got an opportunity to use this technology rather late in their life. Thus, the use of the Internet has been termed as 'young habit' by the researcher in an attempt to explain Internet use as a new phenomenon developing into ahabit which is being slowly developed by the people, particularly the middle aged and the older adults.

The practice of using the internet is not an established norm, especially with reference to the middle aged and the early adults. Internet use has however slowly and steadily starting to be a part of everyday lifestyle in the lives of many. Since the a large part of target group belong to the category of people who did not witness the birth of the

internet in their learning phase or while growing up, the use of internet is a fairly new practice for this age group.

The group selected for the purpose of research study comprise of the middle-aged (35-55 yrs). According to census 2011, themiddle aged people comprise of majority of the population in Sikkim. In such case, it may be interesting to note that this category of people is the most diverse in nature. Since the age gap spans across two decades, this group has the most variants covering the era of boomers II (1955 – 1964), Gen X (1965 – 1980),and the milennials (1981 – 1996). In the sikkimese society, the middle aged people are at large the first generation literates and hence they make up for an interesting target group for the study of Internet use and how has it affected or impacted them and their lifestyle.

The study talks about the current scenario of Internet use. What motivate the middle aged to use the internet, the context of their internet use, and finally the outcomes of using the internet. The ambit of the internet and its use by the people across all age groups have had researchers divulging deeper into the virtual space trying to figure out various dimensions of the internet, its use, and any probable consequences that may have resulted in the people be it mentally, physically, psychologically, or emotionally. Ithas tried to understand the wide use of the Internet in general and aims to narrow down the usage amongst the middle aged in particular.

The Internet has changed immensely over the years unleashing a window of opportunities in the area of digital space where there are no said boundaries for its users. It has taken its users under its ambit starting right from preteens to the older adults, taking social relationships to another level. The Internet which is mostly used for communication and relationship building has greatly impacted the way people

interact with each other (Mazur et al., 2012; Cotton et al., 2014; Heo et al., 2015).The use of the Internet among every age group has become integral, empowering them to enjoy a productive and independent life. A sizable body of literature demonstrates numerous benefits that Internet use brings to different age groups, including enhanced convenience in life, connectedness to information and social networks, and above physical, mental, and cognitive health and well-being (Khalaila&Vitman-Schorr, 2018 ; Pew Research Center, 2018; Wagner et al., 2010).

In this technological era, where digital media has taken over the globe thus creating a new phenomenon, the underexposed areas like Sikkim are slowly catching up on the digital pace. With the use of internet as a young habit amongst the middle aged in Sikkim, the study has tried to unearth the the motives behind internet usage, the context on how the internet is being used or consumed by the people and finally the consequence of internet use. The term ‘emerging consequences’ has been given by the researcher with the intention to elucidate that the effects of internet use are fairly new singularly in relation to the cause i.e. the use of Internet. The consequences are termed as emerging, because these are the after-effects which weren’t established very long ago. Further, since there could be many undiscovered consequences of Internet use yet - and there is a high chance of new magnitudes being unfolded with every new research that takes place – the researcher felt the term emerging was the only appropriate fit to the title of her study.

India has more than 500 million internet users, making it the second largest consumer base globally in absolute terms (Keelery, 2020). However, despite many users, India's Internet penetration is still holding up. India's total penetration was around 38% in 2019. The capital Delhi had the highest internet penetration at 69% in 2020, while the

northeastern states with the exception of Assam subsequently showed measures of low internet penetration (Keelery, 2020). According to the 2011 census report, of 1,28,131 households in Sikkim, 14,735 (11%) have computers at home, of which 4,228 (3.3%) have internet access and 10,507 (8.2%) have no internet access. According to the report of 1,28,131 households, 93,536 are telephone users, of which 73%, of which 2,306 households with 1.8% landline, 86,745 households with 67.7% mobile phones and 4,485 of them 3.5% mobile and landline.

The Internet is a global network of technological devices connecting each other remotely. It has become increasingly common and widely used globally in today's dynamic environment. It has various benefits like faster communication, better information, unbeatable entertainment, and a broad area of online services: banking, shopping, etc. Apart from the positive side, it has specific adverse effects also like, its overuse is problematic, leading to risky behavioral symptoms and adverse psychosocial consequences. Although numerous theoretical and empirical studies have been conducted so far and examined the factors influencing Internet use and its effect both positive and negative separately.

Hence, this study focuses on developing a comprehensive framework considering both factors influencing and consequences of Internet use guided by 'Cyclic Value-Context Reinforcement Model' (CVCRM) of Internet use (Doh et al., 2018), by proposing to propose a conceptual model comprising of usage motive, Internet use context and consequences-based Internet use outcomes. The fundamental question based on this theory is the underlying factors that motivate Internet use. The Internet is generally used in a particular context like situational factors, and the consequences of using the Internet discussed in this paper. This study highlights the theoretical and

methodological gap in the existing literature and suggests multi theory perspectives to understand Internet use dynamics. This study also aims to evaluate the motives and outcome of Internet usage based on cyclic value-context reinforcement model (CVCRM) of Internet use (Doh et al., 2018). This study aims to empirically test four types of usage motive i.e. information, communication, entertainment and shopping motives on Internet use and evaluate the mediating effect of Internet Use between Motives and Psychological Well Being among the middle aged population in Sikkim.

Apart from the positive side, Internet use has specific adverse effects also like, its overuse is problematic, leading to risky behavioral symptoms and adverse psychosocial consequences. Therefore, this study presents an empirically tested comprehensive framework including both causes and effects of Problematic Internet Use (PIU) guided by Cyclic Value-Context Reinforcement Model (CVCRM) of Internet use (Doh et al., 2018). Hence, this study aims to measure the extant of Problematic Internet Useamong Middle Aged in Sikkim and empirically test the effects of Psychosocial Health (PSH), personality and culture on PIU and then the effect of Problematic Internet Use on Risky Behaviors (RB).

In this dynamic and technology oriented world, life without Internet is seemingly unimaginable. Technological devices when used with Internet have immense benefits to humans and make life easier, and faster. Be it information gaining, communicating other distant apart or entertainment, it’s the Internet whichfulfill all the basic purposes of life within no time and cost. It has proved to be one of the most influential and productive tool of information and communication in this knowledge economy. The Internet has helped to transform the way we connect and communicate with others, regulate the flow of systems and processes, with systematic sharing and retrieving

information. Its increasing influence on human beings has made it an essential element of our lives. Internet users worldwide till 2019 were about 4.13 billion, depicting more than half of the population worldwide was connected to the World Wide Web, which is exponentially increasing day-by-day. Although there is an increase in the digital population around the world, its accessibility may differ region-wise[i]. The majority of an Internet user is from East and South Asia, where countries like Korea have the fastest Internet speed. In 2019, China's position was at the top for the maximum number of Internet users worldwide, approximately 854 million, followed by India with 560 million Internet users, where the United States is third in the list with over 313 million Internet users. Most of the online users belong to the age group between 25 and 34 years worldwide[ii].

Abundant studies on Internet use conducted based on Uses & Gratification (U&G) theory marked that the Internet is used basically for a specific purpose like for a sense of personal identity, to congregate information, to support social interaction, or satisfy a desire for entertainment (Lacey, 2002; Papacharissi and Rubin, 2000). Stafford et al. (2004), demonstrated the use of the Internet for process gratifications (i.e., online services) and content gratifications (i.e., information and entertainment). It is also used for social gratifications, like communication and networking among relationships.

The Internet is an influential and a productive tool of information and communication in this knowledge economy, having immense benefits in this technological world. Life without the Internet is just not viable to imagine, as it is deeply imbibed into our culture, and our lives are virtually dependent on it. The Internet has changed the way we communicate, live, and work. The various benefits of the use of the Internet in the

form of the social, physiological, and psychological arena at different stages of life like effective and controlled use of the Internet in a constructive way may lead to increase in knowledge and information, better communication and relationships, better academic achievements and performance at work, increase in psychological well-being (PWB), etc. Apart from positive effects of Internet use, overuse or erroneous use of the Internet may lead to a range of psychosocial and physiological problems like health, conflict, apprehension, despair (Carli et al. 2013; Ho et al. 2014), lower academic or work performance (Hahn & Kim, 2006).

At the individual and community level, be it psychologically, physiologically, and socially, it affects at every stage of life both in positive way if used wisely and in negative way if uncontrolled use is encountered. Controlled use of the Internet in a constructive way may lead to increase in knowledge and information, better communication and relationships, better academic achievements and performance at work, increase in psychological well-being (PWB), etc. Overuse of the Internet commonly known as. Problematic Internet Use (PIU) may effect in destructive manner and can lead to a range of psychosocial and physiological problems like health, conflict, apprehension, despair (Carli et al. 2013; Ho et al. 2014), lower academic or work performance (Hahn & Kim, 2006) and certain other risky behaviors that may ruin one's life.

An individual uses the Internet for various purposes in order to fulfill their personal needs and desires. The fundamental reasons for the use of Internet can be understood on the basis on an individual's motives behind using it. Many studies have been conducted so far in the context of motives and outcomes of Internet and various theories have been developed explaining the underlying dimensions of Internet use.

Among all, Uses & Gratification (U&G) theory have been widely used and studies in many studies, andhas also been considered in this study as one of the thories serving as the groundswell for the theoretical framework.

Internet use has increased exponentially worldwide. Although the use itself is not negative, since it integrates several benefits, some individuals seem to show problems related to its excessive, uncontrolled, and dysfunctional use. Therefore, the interest of researchers in exploring this use, when it is excessive and unhealthy, has been growing, especially in the last two decades.

Apart from the positive side of Internet use, the negative side is Problematic Internet Use (PIU), which is nowadays increasingly reported in various researchers among varied groups like a child (Ko et al. 2012; Scholes-Balog and Hemphill, 2012), adults and adolescents (Ko et al. 2012) and older adults (Mazur et al., 2012; Cotton et al., 2014; Heo et al., 2015) with significant physiological and psychological issues. Some researchers explained it as impulse control disorder, others as an obsessive-compulsive disorder and, few others as an addiction (Shaw and Black, 2008).

Although moderate and healthy use of the Internet alone does not represent significant risks and is generally beneficial for most users, a minority of the population shows problems related to their excessive, uncontrolled and dysfunctional use (Pontes et al., 2016). Given its relevance, the number of studies published on Problematic Internet Use has been increasing exponentially over the last two decades, and in 2018 more than 1,600 studies were published in national and international scientific journals (Wiederhold, 2018). In general, scientific literature reports consistent associations between PIU and a variety of psychosocial problems, such as poor emotional well-being (Griffiths, 2015; Piguet et al., 2015; Pontes et al., 2016) or higher levels of

psychopathology, such as depression (e.g. Cabral, Pereira, &Teixeira, 2018; Mendes & Silva, 2017; Pontes, Patrão, & Griffiths, 2014; Tokunaga & Rains, 2016).

Hence, the objective of this study is to examine the impact of various motives of Internet use on the frequency, purpose and pattern of Internet use and also evaluating the underlying outcomes of Internet use. This study is conducted on the middle-aged residents of the state of Sikkim to understand the dynamics of Internet use in terms of its reasons and outcomes. The objective of this study is also to evaluate the impact of three underlying contextual variables i.e. PSH, personality and culture on PIU and further the impact of PIU on certain types of Risky Behaviors (RB) among Middle aged in Sikkim.

1.1 Statement of the Problem:

Human communication pattern has experienced a major shift since the arrival of the Internet and its prompt acceptance by the people globally, thus producing a vehicle of substantial social change, which is yet to be understood by the people wholly. Research done on the Internet and its phenomenon is comparatively very sparse as against its penetration into the lives of the people. Internet has acted as a vital agent for creating a whole new virtual world bringing in social, cultural and economical changes. It has in addition led to the creation of new sub cultures, bringing in global trends under one single platform and has managed to get users hooked with its omnipresence. Most importantly, with the entry of the World Wide Web, the physical boundaries have been virtually de-territorialized thus making geographical distance irrelevant in the virtual world.

There is abundant literature on how internet has changed the society and its cultural ramifications. There is also no dearth of literature on how internet has affected the society at large by reinventing the boundaries of communication especially in the context of the rise of interaction society. The push model of communication being redesigned into pull model with the intervention of internet by providing agency to the user has also been dealt with extensively by communication scholars. But there has been a noteworthy gap in assessing how internet has impacted the middle aged psychologically leading to risky behaviour sometimes in the society and how demographic variant could be a factor in maintaining the psychosocial health of people who were introduced to this all pervading form of communication at a moderately mature age and how they have come to terms with internet as an active user with the freedom to use their agency without any hindrance. It is imperative to explore how internetmotivates middle aged people who all of a sudden have become frequent users of internet and if it impacts their psychological health since internet is both an exploration and a surprise to them. Since Sikkim is highly multicultural, multilingual and with a demonstrable ethnic variety, internet and its multidimensional use potential has the ability to disturb the psychosocial health of a new user even at a mature age and consequently disturb the inner rubric of this multicultural society. It is also important to explore the strategies to intervene in case of a problematic and risky behaviour. There have been attempts to assess the clinical impact of internet in various age groups, especially the adolescents, but barely any on middle aged people who have been the recipients of the severity of internet at a post-basic learning phase of their life and yet had to come up with a cope up mechanism as well as becoming a user with an agency. The usage motive and usage context of internet have the potential to impact an individual in multiple ways and it is important to evaluate if the

individual idiosyncrasies triggered by the use of a new communication medium can lead to a better sense of gratification or a sense of lack leading to problematic behaviour.

1.2 Justifications for Study

With the use of Internet spreading far and wide across the globe through various platforms, it has attracted the mass towards its virtual connectedness. The Internet may have been dominated by the young culture once, but studies show that the older adults are steadily gaining pace making their mark in the digital space. With most of the western countries now facilitating 'digital citizenship', the number of active Internet users has been on an increasing scale.

There could bea number of factors responsible for promoting the use of Internet or from barring it among the middle aged and the older adults. The impact of Internet on the middle aged, who were absolutely ignorant of this medium at their impressionistic age have become active agents of internet use. The study attempts to do justice to the field of existing knowledge in assessing how internet changes their perception of the world; how it induces affective changes in them which is slowly becoming a scholarly concern globally. Sikkim, though mired in enigmatic silence over the centuries is now a witness to global changes after merging herself into the democratic ecosystems. Even then, a large part of Sikkim's social psyche is still an interesting unknown. Those who use the Internet will have certain reservations with regard to their usage, their motivation to use the Internet and in what context do they use the Internet for. Studies have been done on a large scale on the Internet users all over the globe, however there is very little data available when it comes to the middle aged adults who use the Internet. Additionally, there have been no studies done on this age

category of individuals in the state of Sikkim. Therefore it becomes important to try and understand these factors in the context of the middle-aged people of Sikkim. There could be multiple variables associated with the use, accessibility and non-accessibility with the use of Internet and therefore it creates a need to probe on how the middle aged people of Sikkim are negotiating with the cultural and technological variables associated with the Internet.

1.3 Research Hypotheses

Research hypothesis is a predictive statement that relates an independent variable to a dependent variable. It must contain at least one independent and one dependent variable. This study was conducted in two phases and categorised as study 1 and study 2. Study 1 was conducted to find the motives for the use of Internet by the targeted audience, while study 2 was aimed to disclose the consequences of Internet use by the same group of people.

For the purpose of the study, three research hypotheses have been formulated on the basis of the research model in study 1 and three research hypotheses have been formulated on the basis of the research model in study 2 and tested separately for all the five parameters of personal factor, three parameters of organizational factor, and seven parameters of demographic factor as shown in figure 3.2.

1.3.1 Study 1

1) **Research Hypothesis: H1**. Usage motive of the middle aged has significant effect on their behavioral intention to use Internet.

a) Sub-Hypothesis: H1a. Information motive has significant effect on behavioral intention to use Internet.

b) Sub-Hypothesis: H1b. Communication motive has significant effect on behavioral intention to use Internet

c) Sub-Hypothesis: H1c: Entertainment motive has significant effect on behavioral intention to use Internet

d) Sub-Hypothesis: H1d: Shopping Motive has significant effect on behavioral intention to use Internet

2) Research Hypothesis: H2: Internet use is largely moderated by demographic factors.

a) Sub-Hypothesis: H2a: Demographic Characteristic (Gender, Age, Profession, Marital Status) significantly moderates the relationship between Motives & Internet use.

b) Sub-Hypothesis: H2b: Demographic Characteristic (Gender, Age, Profession, Marital Status) significantly moderates the relationship between Internet use & Physical Well Being.

3) **Research Hypothesis: H3:** Internet use has significant effect on Physical Well Being.

a) Sub-Hypothesis: H3a: Preference of Internet use has significant effect on PWB

b) Sub-Hypothesis: H3b: Dependency on Internet has significant effect on PWB

1.3.2 Study 2

1) **Research Hypothesis: H1:** Internet Use (Usage Context) has significant effect on Problematic Internet Use.

a) Sub-Hypothesis: H1a: PSH has significant effect on PIU.

b) Sub-Hypothesis: H1b: Personality has significant effect on PIU.

c) Sub-Hypothesis: H1c: Culture has significant effect on PIU

2) **Research Hypothesis: H2**: Problematic Internet Use has significant effect on Risky Behaviour.

3) **Research Hypothesis: H3:** Demographic characteristics significantly moderate negative use of the Internet

a) H3a: Demographic Factors significantly moderate the effect of usage context on PIU

b) H3b: Demographic Factors significantly moderate the effect of PIU on RB.

1.4 Research Objectives

The general objective of this research work was to understand the dynamics of Internet use in terms of its causes and consequences among middle-aged in Sikkim. The objectives formulated for this study representing the research questions were achieved with the help of study done in two phases. For the purpose of this study, the following research objectives were set:

1. To evaluate the mediating effect of Internet Use between motives and psychological well-being among middle aged in Sikkim.

2. To evaluate the effects of psychosocial health, personality and culture, on problematic Internet use among middle aged in Sikkim

3. To evaluate the mediating effect of problematic Internet use between Internet use and risk behaviors on middle aged in Sikkim

4. To evaluate the moderating effect of demographic characteristic on the relationship between Internet usage and its outcomes.

5. To suggest potential intervention strategies for Internet usage, particularly in the context of middle aged in Sikkim

1.5 Research Questions

Based on the purpose of the study, the research questions are framed to develop answers to the objectives of the study and to determine the framework to get the desired results of this study. The research questions of the study were:

RQ 1: What are the underlying dimensions of motives of Internet Use?

RQ 2: Which motives significantly leads to Internet use?

RQ 3: To what extent Internet usage is associated with positive and negative consequences?

RQ 4: Which underlying factors lead to PIU?

RQ 5: How do demographic factors moderate the relationship between Internet usage and its outcomes?

1.6 Study Location

In an era where digital communication has taken over the globe thus creating a new phenomenon of removing the hitherto existed spatial connotations and unleashing the concept of virtual space, the underexposed areas like Sikkim are slowly catching up on the digital space. While there is not much of a gap between the number of internet

users and non users among other age groups — given that almost everyone in these age groups today uses the Internet — the gap in the case of the middle aged and older adults seems to be pronounced.

The study focuses on the use of internet among the middle aged and the reasons behind it. For the internet users, it will try to discover their purpose for using the internet, what kind of changes are induced by internet in the late starters along with the kind of cultural variations that could be inculcated in these late starters in relation to understanding their motives to use the Internet and the probable consequences of Internet use in their daily lives. What could probably be the changing factors in their day-to-day lives with the use of Internet in addition to how their health would react, both physically and mentally with the use, under-use, or at times the over-use of the Internet. This study would then help the researcher understand the finer nuances of digital knowledge and space the middle aged in Sikkim use for.

Since a place like Sikkim has remained digitally backward despite its infrastructural development, there is a need to understand the social norms of its society and the reason for digital backwardness among the middle aged.

1.7 Limitations of the Study

The study is limited to the state of Sikkim, which merged with India just 47 years ago in 1975. The study is limited to an analysis of primary data based on a structured and generalized questionnaire to elicit the responses of active internet users of a select age group of the state. The study inferences are drawn on the basis of statistical computations of responses collected through the structured questionnaire only. The study does not try to generalize the findings despite having a representative and

statistically valid sample size as the respondents were found through convenience sampling technique as snowball sampling, a probability sampling technique adopted initially through social media profile could not be applied for the lack of complete details of their individual identity including email on their social media accounts and the propensity of people of having multiple social media accounts. In other words, the findings are applicable only to the category of middle aged adults who qualify to be included in the study i.e. (people with access to the internet &some command over English language) and is not applicable to the middle aged who do not fall in this bracket.

1.8 Organization of the Thesis

The thesis has been organised into a total of six chapters. The current chapter, i.e.,Chapter 1 introduces the theme of the theme of the study and goes on to explain the relevance of the research study, its target audience, why the study was conducted in a certain location. The second chapter deals with the review of literature of various studies pertaining to the subject matter and also discusses about causes and consequences of Internet use. This chapter also examines the various studies on Internet use both at national and international levels. Finally the review of literature concludes with the theoretical framework used for the purpose of the study and gives reasons and its validity for the adaption of the borrowed theories.

The third chapter constitutes research methodology part of the study, where research objective, variables and instrument, hypothesis, model and procedure of study is discussed. It also includes the detailed information regarding research plan and sample plan of the study, while the fourth chapter includes the data analysis, wherein the data collected has been tested for validity and reliability and further multivariate

analysis has been conducted in order to prove the hypothesis for the purpose of fulfilling the objectives of the study.

The fifth chapter presents the results of the study and the discussion of the result in order to validate the hypothesis in light of previous research on the subject matter and to conclude the study. Finally, the last chapter contains the recommendations given by the researcher in the light of the results of the study;the limitations of the study have been discussed along with directions for future research if done. This chapters ends with the conclusion of the study along with an endnote based on the subject matter along with the summary of each section of the study.

1.9 Summary: This chapter has introduced the theme of the study and has provided the rationale of the study on the middle aged. It demystifies the meaning of "young habits and emerging consequences" in the context of internet use by the middle aged. It underscores the objectives and research questions that guided the study.

For the purpose of the research, the study has been done in two phases and each phase has been worked upon on the basis of three hypotheses each catering to the motive, usage, and outcome of Internet use by the middle aged in Sikkim.

The research objectives were formed on the basis of reviews of earlier works relating to the field, which the current research work is carried upon. The main objective of the study is to understand the undercurrents of Internet use in relation to the causes and consequences among the middle aged in Sikkim.

Research questions have been framed to find the concrete answers in a way that would help in locating the objectives of the study in proper context. Hence the questions have been formulated in accordance with the objective of the study. There are a total of five research questions in the study.

Study location gives reasoning behind the study being done in the state of Sikkim and its middle-aged residents.

CHAPTER II

Review of Literature

There have been a large number of studies done on the use of Internet by many researchers and therefore for the purpose of this study, the researcher has tried to review the earlier works of researchers done before her at both national and international levels. In this chapter, an attempt has made to thematically categorise these studies and their findings, thus providing with an understanding of the missing narrative with reference to middle aged — the category under consideration in the current study. A recurring theme of interest in this chapter is a review of studies pertaining to the causes and consequences of Internet use. Studies on various sub-branches on the use of the Internet and its various outcomes in terms of physical, social, mental, emotional, and psychological have been the focus of attention here. The studies have been classified into thematic subheads such as 'Effects of Internet on older adults'; 'Internet use and habits'; Rise of Internet'; 'Use of Internet among older adults'; 'Internet and aging'; and finally on 'Internet and Health'. The chapter also tries to look into the deeper aspects of Internet use and gives a glimpse into the theoretical framework of the study and the model on which the study is based on. The variables used in the framework have been discussed after that, along with their relationships with other variables as justified in previous studies.

2.1 Effect of Internet and Older Adults

In a joint paper 'Computer, Internet, and Email use among the older adults: Barriers and Benefits', Susan L. Gatto and Sunghee H. Tak (2008), talk about how the use of computers are slowly and steadily taking over the older adults into their periphery.

"Over the past 20 years, professionals from various disciplines have examined older adult's use of computers". Early studies explored whether older adults could be taught computer skills and whether they were able to retain what they learned and continue long-term use. The last 10 years have shown that young older adults are bringing computer skills learned from work and hobbies into their retirement. "Many older adults are now using computers, Internet, and email for various life activities (Fox, 2004)". The study covers the older adults in America who have been in touch with computers and are Internet users both personally and professionally.

Fox, 2004;Nahm, Resnick, & Gains, 2004, have found that the older adult age group is becoming one of the fastest growing online user groups. The use of Internet has been widely studied across the globe with many trying to understand the positive effects or the negative repercussions of Internet use.

In a joint study 'Internet Use and Social Networking Among Middle Aged and Older Adults' done by David L. Hogeboom, Robert J. McDermott, Karen M. Perrin, and Hana Osman, they cover the Internet habits of the older adults and the middle aged and how through the Internet they have benefitted.

According to the research done by Lubben & Gironda (1996), it suggests, "strong social networks help manage stress, reduce depression, and improve health outcomes".

In similar manner, Heaney & Israel (2002) have proposed, "Social networks link people and provide social support." Crawford (1987) suggests that a strong social support network because of the encouragement it provides affects health promotion behaviours of older adults. This finding is supported by Cohen &Syme (1985) who

imply that “During times of illness, social networks may affect adaptation and accelerate recovery”. The Internet affects the way people communicate and interact. On the flipside of its use, studies done over time by (Kraut et al. 1998; Nie&Hillygus 2002) advocate that “Internet use may promote declines in face-to-face communication with family and small social circles, damage social interaction with family member, or lead to depression and isolation.

On the contrary, (Katz &Aspden 1997; Kraut et al. 2002) have discovered that Internet use is a source of civic organizational involvement and new personal friendships, with positive effects on communication, social involvement, and well being. Furthermore, based on the findings on a study done by (Malcom et al. 2001; Lawhorn, Ennis, & Lawhorn 1996), it has been suggested that Internet tools such as email, online forums, and websites have allowed older adults to fell less isolated, better informed, and more socially connected.

Thus it can be said that the potential influence that Internet use has on social networking may depend upon the quality of Internet relationships or what is given up to be online (Kraut et al. 2002).

2.2 Internet use and Habits

According to White, McConnell, Branch, Sloane, Pieper, et al (2002), married older adults and those living with someone else are more likely to use computers than older adults who are single, widowed, or living alone.

This implies that the surrounding one live in somehow influences the Internet use. The use of Internet has its influence emerging from the younger generation who has encouraged the older adults to use the Internet as a means to facilitate communication.

This observation comes from the study done by (Tan & Hong, 2005) who've accounted that "Older adults report that family members have encouraged them to get a computer and access to the Internet. However, seniors are more likely to use a computer if a friend or an adult child uses a computer".

This fact strengthens the statement that using the Internet is definitely a young habit which is slowly making its way into the lives of the middle aged and the older adults.

There have been problems which are faced by the new computer users who face various difficulties and sometimes they doubt their ability to learn thus getting frustrated at the beginning of the learning (Duaz, Moore, Smith, Puno, &Schaag, 2004). However, accepting the challenge of learning a new skill gives older adults a sense of accomplishment and feelings of confidence after computer training. According to (Bruck, 2002; Clark, 2002; Hendrix, 2000; Hill &Weinert, 2004; Nahm&Resnick, 2001) "Many feel the learning process is enjoyable, and it helps in keeping their minds active, while they are having fun and accessing new information related to their personal interests".

The Pew Internet and American Life Project did a survey on older adults using the Internet in 2000 and in 2004, in which they found that during this period, the Internet use among the seniors increased drastically. The time spent online ranged from 3 to 10 or more hours per week, averaging to 5 hours per week.

Fox, 2004; Vanderwerker & Perigerson, 2004; White et al., 2002; report that seniors get Internet access to go online and access friends. They are eager to learn and use the Internet and once online are just as enthusiastic as younger users. However, unlike younger users, they do not take time away from face-to-face interactions with others

(Moody, 2001). Instead they decrease the use of television and radio and see the Internet as a replacement for the library. They tend to not visit the mass media sites, but use search engines to navigate to sites of interest (Hilt &Lipschultz, 2004).

The studies undertaken so far implicate that though the older adults use the Internet, a habit put upon by the younger generation, the use of Internet however varies. While the younger users see Internet mostly as a tool for communicating and for mass media updates, the older adults use it for their own generic interests.

The emerging consequences have created a mark in terms of replacement in the electronic devices as well. There is a shift from old media to new media in a large manner. The Internet has slowly taken over the idyllic functions of television and radio.

2.3 Rise of Internet Use among Older Adults

With changing times the penetration of Internet has made its way in every corner of the globe. In such times, one may find that not having access to Internet has an overall impact in the lives of the people and the society they live in at large. Where information is now instantly available at the palms of an individual and news becomes stale after just a few seconds, this dynamic change in lifestyle can be wholly credited to the existence of Internet.

While the middle aged or the older adults may have been late entrants into this digital form of communication, studies show that “people aged over 50 are among the fastest-growing demographic to use social media such as Facebook, Twitter, Skype, and LinkedIn. “ (Madden M, 2010).

Coulson I, (2000) states that the Internet has a vital role to play in uniting the older adults to news and information, health resources, government services, and also creates ample opportunities for social support. In addition, it also provides a means through which older adults are able to strengthen their existing relationship with their friends, uphold family ties, or even develop new social networks. As per the findings of Smith A. (2014), 46% of the older adults in America who go online use social networking sites and they have more tenacious social connections with the people they care about.

Different studies done in different parts of the globe have yielded in varying uses of the Internet by the older adults. Sum S, Matthews M, and Hughes I (2009), have analyzed data generated from 222 Australian Internet users aged 55 years and older. It was found that the older adults used the Internet most commonly for the purposes of communication, information, and commerce (viz. online shopping), which was then followed by entertainment and making new connections. Whereas according to the Statistics of Canada (2007), "nine out of ten Internet users in Canada who were aged 65 and over used email to connect or maintain their existing relations with large and dispersed families. Many agreed that this form of communication had improved their family connections".

2.4 Use of Internet among Older Adults

While the Internet users have their individual purposes for surfing the web, according to Wagner, Hassanein, and Head (2010), who reviewed 151 articles that examined the Internet use among older adults, "the most common use of computers and the use if Internet is for communication and social support." Following the review of these 151 articles, there were a number of benefits, which was reaped through the use of

Internet by the older adults *viz.* The Internet helped them in bringing down the territorial boundaries thus increasing contacts with family and friends (especially grandchildren), helped them in handling grief better, and made up for their physical limited mobility so on and so forth. The use of Internet has not been limited to a single platform; rather, different kinds of online communication were used namely; email, instant messaging, and various other online forums, each being used to support different social interactions.

However, the use of Internet has not only been limited to social interactions i.e. maintain existing relations and finding new connections. There are various other benefits that have been found to contribute in the wellbeing of older adults. Ristau (2011), states, "Online activities may also contribute to brain health in addition to benefitting social interactions". This statement could further be corroborated with the findings of Cotton, Ford, Ford and Hale (2012), who examined the relationship between Internet use and depression among retired American older adults aged 50 or older. They found that "Internet use reduces depression categorization by approximately 20-28%".

In addition, while analyzing "how Internet use affects perceived social isolation and loneliness of older adults in assisted and independent living communities", Cotten, Anderson, and McCullough (2013) reported that a one-point increase in online frequency was associated with a 0.147-point decrease in respondents' loneliness scores after controlling for the number of friends and family, physical, social, and emotional limitations followed by age.

2.5 Internet and aging

The use of Internet among the older adults has also contributed to the notion of successful aging. Kauffman. D (2013), defines successful aging as "maintaining an independent, positive, healthy, and meaningful quality of life". It is an on-going challenge for older adults and essential at the same time. The status of successful aging has changed perceptions from absence of disease or disability to that of being a multifaceted construct in the recent years through demonstrations by gerontology researchers. Rowe JW and Kahn RL (1997) pointed the three main elements of successful aging namely – "(a) cognitive function, and (b) social engagement, in combination with (c) physical function." According to Reichstadt, Sengupta, Depp, Palinkas, and Jeste (2010), the primary facet to augment successful ageing is *'Social engagement'*. This component alone in itself could help in providing opportunity to connect with friends and family, receive social support, and aid in dealing with stress to the older adults.

The notion of successful aging among the older adults in relation to Internet use has been a statement of study among various researchers. A study done on the elders' of Alaska by Lewis J in 2014 implies that social engagement is vital than physical and mental health conditions in marking their successful aging. In their work, Mirowshy& Rose (1992); Tomaka, Thompson, & Palacios (2006), state that with ageing, it also brings in a lot of other changes in their social, physical, and psychological wellbeing, which directly or indirectly have a perceived effect on their self-confidence and self-esteem in their late adulthood which are the by-products of one's mental health like depression, anxiety, loneliness etc. URMC, (2014) Forsman (2012) have portrayed that when the older adults are better on their social capital, it also improves their

social activity which in turn lead to benefit the mental health and thus improving overall cognitive function and physical health in the older adults.

Zhang & Kaufman's study "Social and Emotional Impacts of Internet Use On Older Adults" found that the social capital did not make any difference on the use of the Internet overall by an older individual. The study was done taking into account the physical health and financial status of the older adults as the covariates.

The physical health of the older adults and their financial status did not make any difference when it was covariated with loneliness, thus showing that the cause of loneliness was not affected by the physical health and financial status for those adults who were frequent users of internet and communicated more often with their friends and families thus showing minimal loneliness in their lives.

The paper highlights a few categories in which the adults were studied on the basis of; mainly in the aspects of loneliness, belongingness and self-esteem. The findings were as given below;

2.5.1 Belongingness: It was also found that the older adults who were more active and having good communication with their friends showed a better result in belongingness, which was a direct cause for successful aging. This finding complimented with the factors of physical health and financial security, which showed that these two important factors affected successful aging according to the studies done previously.

2.5.2 Self Esteem: As a result of the study, it was found that the older adults who were more engaged on the Internet and making new friends online showed a higher self-esteem, while communicating with already known friends had a lower extent of self-esteem among individuals.

2.5.3 Loneliness: The study revealed that the reason for loneliness or the lack of it among the older adults was primarily predicted by their frequency of communication with their friends. Individuals who were involved in using the Internet to communicate with friends on higher frequency were found with lower level of loneliness and vice versa.

2.6 Internet and Health

Nancy Hodgson, Mia Cajita and Chakra Budhathki in their paper "Association between Internet and decision-making preference in older adults" has studied the health of the older adults in association with patient centered cares and have found how Internet helps the patient make better decisions when aided by the information they receive on the Internet. They found that the patients were better satisfied by their role and engagement in the decision making process with regard to their health and as such resulted in improved health outcomes.

There is a growing use of the Internet ever since for the requirement of accessibility, interactivity, connectivity, and convenience. Different theories and models have been postulated so far on the various aspects of Internet use to understand better the phenomenon from the perspective of influencers and consequences of Internet use, that have been actively conducted since the 1990s. No study so far has been conducted on both influencers and consequences together, and this study is the first of

its type to consider proposing a comprehensive framework in the light of usage context.

The Internet has evolved as an essential tool in everyone's' life during this technological era where there's a shortage of time with immense and fast changing needs for a wide variety of daily actions (Khang et al., 2013; Odacı & Cıkrıkcı, 2014). To stay with these demands within this fast-changing world, The Internet is the need of the hour. People worldwide have also accepted it widely and freely because it facilitates and easy use of online activities like shopping, paying bills, watching movies, listening to music, and accessible communication with near ones, socializing, academic or work-related activities, etc. (Shen & Williams, 2011). The use of the Internet has various positive outcomes like better relations due to increased communication, enhanced information and knowledge, entertainment, improved academic and work performance, and so on which leads to increased PWB and life satisfaction. Another side of Internet use is its harmful effects apart from many positive outcomes like psychosocial problems and risk behaviors associated with the overuse of the Internet that can be seen differently in diverse age groups.

Another critical concern is the extent and pattern of use of the Internet that may vary due to various usage context factors like psychosocial health, including depression, stress, loneliness, anxiety, cultural factors, individuals' personality, or demographic characteristics like age, gender, etc. Various studies conducted for decades considered the mentioned use context on different age groups, although not covering all the factors simultaneously for causes and consequences of Internet use.

Internet use among every age group has become a fundamental and powerful facet to enjoy a useful and self-sufficient life. The extent and pattern of use of the Internet broadly vary due to age differences, i.e., in different spheres of life that may be prominently seen in Internet use studies.Most of the researches available in the literature are conducted on child and adolescents on Internet use related to its motives and consequences in different usage context like Jiang et al. (2018) examined the factors influencing Problematic Internet Use and adolescent risk behaviors among extreme Internet users and observed the influence of personality, Internet connectedness and demographics. The results disclosed that certain personality traits are significantly associated with Problematic Internet Use and Risk Behaviors. Dutta et al. (2017) investigated the relationship between Physical Well Being and generalized Problematic Internet Use among international students studying in Singapore. They found that depression was the most critical predictor of Problematic Internet Use, and loneliness acted as a mediator between Problematic Internet Use and depression. McIntyre et al. (2015) studied among Australian university students regarding the relationship between social connectedness, personality, and Problematic Internet Use. They proved that introvert students show more PIU symptoms than extroverts, whereas introversion acted as a partial mediator between PIU and social connectedness.

Studies of Internet use on adults also have been conducted extensively so far, and available in literature like Meerkerk et al. (2010) in their study examined the association between personalities, Problematic Internet Use, and Physical Well Being among adults and found that Problematic Internet Use leads to more loneliness, more dissatisfaction with life, more despair and lower self-esteem.

Almost every study available on literature reveals several benefits of Internet use for older adults, including increased connectedness, enhanced social networks, improved convenience in life due to online activities along with healthy and Physical Well Being, life that is also true with almost every age group if used judiciously (Wagner et al., 2010; Khalaila&Vitman-Schorr, 2018). An integrative research model was developed to determine the association between Internet use, loneliness, social support, life satisfaction, and Physical Well Being among older adults by Heo et al. (2015) and the results indicated that Internet use is positively related to enhanced social support, reduced loneliness, and better life satisfaction and Physical Well Being among older adults. Similarly, Cotton et al. (2014) tested the Internet's use of depression in retired older adults in the United States. They found a positive contribution of Internet use on Physical Well Being, of retired older adults, and negatively associated with depression.

Another widely studied concept related to Internet use is its negative perspective, i.e., Problematic Internet Use. It is noted that Problematic Internet Use is the widely studied aspect of Internet use so far again in all the age groups accept middle-aged. Recent studies on Problematic Internet Use, like Wong et al. (2015) measured PIU, distress, and satisfaction among 229 Hong Kong University students and explored the mediation effect of psychological distress between satisfaction and Problematic Internet Use. Likewise, Mihara et al. (2016) conducted a study to examine the prevalence of Problematic Internet Use and Internet use among adolescents in Japan. Results revealed that the prevalence of Problematic Internet Use in junior and senior high school students was 6.2% (males), 9.8% (females), and 7.9% (total) and was significantly higher in females than in males for all school years.Chao et al. (2020) conducted a study among adolescents in senior high schools in Taiwan to test the

moderating role of bonding in the relationship between cyber bullying, pornography, online fraud, and Problematic Interent Use. The results suggested that bonding in relationships significantly moderates the association between the two.

It has been observed that none of the studies has documented so-far considering the middle-age group for any aspect of Internet-use. There is a shortage of information on the actual causes of Internet use and its consequences, both positive and negative, within this subgroup. To acknowledge this gap, the objective of this study is to explore the actual causes of Internet use and the probable consequences in the light of different use-context to develop and present a comprehensive framework in general based on the value-context reinforcement model of Internet use behavior and proposing to conduct future studies regarding middle-aged population as it is the most untouched cluster in the studies of Internet use.

Almost every research on Internet use is based on consequence and usage motive conducted separately or together considering few aspects not all, the importance of use context – that is, the circumstances that affect or interact with use behavior – has been mostly overlooked (Kim et al., 2018), which has been considered in this study along with use motive and use consequences based on CVCRM Model of Internet use for the formulation of a comprehensive framework as the objective of this study.

2.7 Cyclic Value-Context Reinforcement Model of Internet use

The literature on Internet use has provided techniques to evaluate its pattern and consequences based on two contexts, i.e., *usage motive and usage consequences*. However, *usage context*, which is an individual's perception of their circumstances, has not been intensely measured in Internet use research so far. It has a general

understanding that the usage context influences positive (life satisfaction) or negative (PIU and risk behaviors) behavior.

Hence, in this study, we aim to explore the entire three contexts in understanding Internet use, so we adopted the Cyclic Value-Context Reinforcement Model of Internet use (Doh et al., 2018), which helps to combine existing theoretical approaches and highlights the three interacting aspects of motive, context and consequences in describing the dynamics of Internet use (Davis, 2001; Song, LaRose, Eastin, & Lin, 2004), as shown in Figure 2.1.

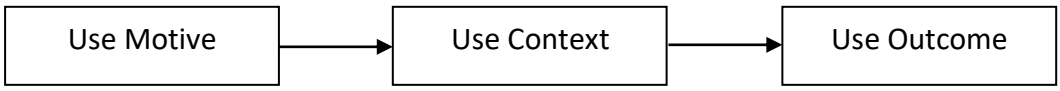


Figure 2.1

[Source: CVCRM of Internet use (Doh et al., 2018)].

In explaining the theoretical framework to understand the complete mechanism of Internet use in this study adopted by Cyclic Value-Context Reinforcement Model of Internet use that initially proposes four aspects: "environmental context," "psychosocial value," "Internet utility," and "adaptive consequences," this study grouped psychosocial value and Internet utility into one cluster known as "usage motive," and various motive factors will be considered as the underlying causes of Internet use. The usage motive category refers to the psychological factors that motivate any individual to use the Internet. The intrinsic needs satisfied by the use of the Internet are known as a psychological value. In contrast, the Internet's usefulness in helping the extrinsic needs is what refers to utility value.

The 'Usage Context' refers to environmental factors that are defined as the circumstances that lead to a particular perception or behavior of a person using the Internet that includes elements that interact with an individual's psychology and interferes in the life, i.e., psychosocial health, personality, culture, etc. The usage consequence refers to the positive or negative results of Internet use, i.e., the underlying symptoms or after-effects, be it positive, i.e., PWB and life satisfaction or negative, i.e., risk behaviors due to PIU.

Hence, the comprehensive framework based on the underlying theory of Cyclic Value-Context Reinforcement Model of Internet use behavior has been presented in figure 2.2. The variables used in the framework have been discussed after that, along with their relationships with other variables as justified in previous studies.

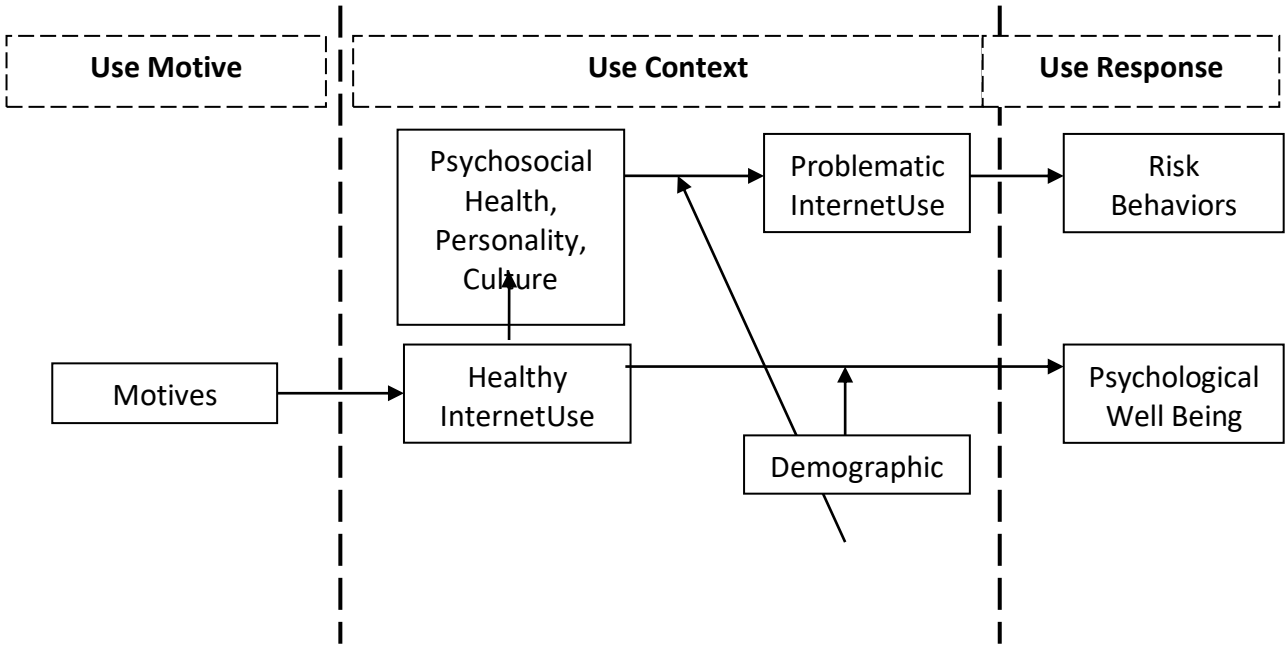


Figure 2.2: Comprehensive Framework based onCVCRM of Internet Use

Independent Variables	**Source**	**Dependent Variable**
Motives	Adams et al., 1992; Subramanian, 1994; Hendkson& Collins, 1996; Kim et al., 2011	InternetUse
InternetUse	Young, 1996, 1998; Morahan-Martin & Schumacher, 2000; Sanders et al., 2000;	PIU
Psychosocial Health	Caplan, 2002; Douglas et al., 2008; Morahan-Martin, 2003	PIU
PIU	Davis (2001); Jiang et al. (2018)	Risk Behaviors
InternetUse	Heo et al (2015); Błachnio et. al (2019)	PWB
PWB	Heo et al. (2015)	Life Satisfaction
Personality	Jiang et al. (2018)	PIU
PIU	Meerkerk et. al (2010); Błachnio et. al (2019)	PWB

Table 2.1: Relationship between Independent and Dependent Variables

The variables considered for usage motives, usage context and usage consequences as mentioned in the comprehensive framework as suggested in this study and are inter-related with each other as discussed below in table 1 drawn based on various reviews helped to figure out the model for the theoretical framework and the underlying concepts for each variable can be understood based on multiple theories and models as mentioned in table 2.1.

All three interacting dimensions of the theoretical framework are discussed below, along with its underlying factors.

2.7.1Usage Motive

For decades, many researchers in their studies based on their usage motives on a variety of users of the Internet-based on their demographic characteristics, especially for age and gender, have differentiated various online activities. Studies also differ based on theories considered, where most of the studies used uses-and-gratifications approach, which elucidates the pattern of adoption of technology and Internet for various types of their needs and desires they wish to fulfill (Kim et al., 2011; Kim et al., 2018).

Another prominent theory in Internet use studies is Media Dependency Theory, which appraises the relations between technology and its users and external social conditions. It was introduced by the American communications researchers Sandra Ball-Rokeach and Melvin DeFleur in 1976. It focuses on understanding users' dependency on a particular technology to satisfy a variety of their needs, ranging from a need for communication to a need for information and entertainment (Matthew, 2008; Kim et al., 2011; Jung, 2017).

Usage motives of the Internet can also be understood based on Self-determination theory, which focuses on one's innate tendency to fulfill psychological needs and desires (Zhao et al. 2011; Wong et al., 2015; Mills & Allen, 2019). This theory is concerned with people's decisions to fulfill their needs and desires due to their self-motivation without outside control and interventions. This theory depends on the extent to which one's behavior is self-determined and self-motivated (Deci& Ryan, 2012; Ryan &Deci, 2017).

The most contributing theory in explaining the usage motives is the 'Technology Acceptance Model, ' which is among the first theory to explain technology acceptance due to psychological factors, addressing the concern of exploring the reason for using a particular technology. Figure 2.3 demonstrates this theory's concept comprising two elements, i.e., perceived usefulness and perceived ease of use, which are elementary determinants of acceptance of the technology.

Together, these antecedents form a particular type of attitude towards technology use (Venkatesh, 2000). This theory also explains technology's use across genders (Venkatesh& Morris, 2000) and cultures (Teo, Wong, & Chai, 2008). In addition to these factors, few researchers highlighted perceived enjoyment as the third determinant for using technology motive (Chesney, 2006; Van der Heijden, 2004; Wu, Chen, & Lin, 2007).

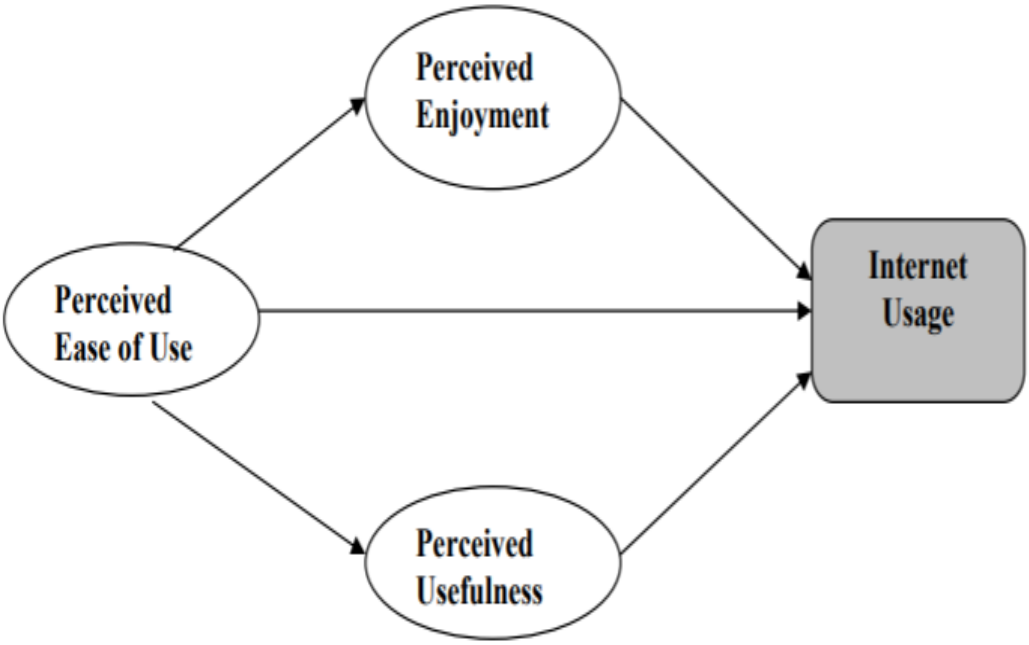


Figure 2.3: Technology Acceptance Model (Davis et al., 1989)

Hence, based on the uses-and-gratifications approach, Media Dependency Theory, Self-Determination Theory, and Technology Acceptance Model, two categories of Internet use motives, i.e., intrinsic & extrinsic have been identified. Many researchers have justified the relationship between these motives with Internet use like Thompson et al. (1999); Ramayah, Dahlan, Mohamad&Siron, (2002); Castaneda et al. (2007); Chulmo Koo et al. (2015), Lee et al. (2017); i.e., users prefer the use of Internet mainly because they perceive the usefulness of Internet to their job tasks, more enjoyable and easy to use for the fulfillment of one's needs and desires. Hence, two types of motives are identified, i.e., intrinsic and extrinsic those are discussed below

2.7.1 (a) Intrinsic (Perceived Enjoyment)

Intrinsic motivation is the inner drive of one-self to fulfill needs and desires, as explained by that Self-Determination Theory. According to Deci and Ryan (1985), Cognitive evaluation theory is a sub-theory of Self-Determination Theory that best

fits in explaining the concept of intrinsic motivation, which mainly focuses on the social and environmental factors that interfere with intrinsic motivations. One would like to engage in a particular kind of behavior if it leads to fun and enjoyment. This entails that anyone may adopt the Internet or technology because its use is fun or enjoyable. Researchers in their study like Davis et al. (1992); Kinde, 2007; Oudeyer et al., 2016; Sun et al., 2020 proved that perceived enjoyment significantly affects the intention of using technology, and the purpose maybe for fun, entertainment, shopping whatever makes them feel pleasurable. In this context, many researchers have postulated a positive relationship between perceived enjoyment and Internet use (Teo et al., 1999; Lee et al., 2005). The two types of perceived enjoyment considered as intrinsic motives are entertainment motives, and interpersonal communication motives.

2.7.1(b) Extrinsic (Perceived Usefulness)

Extrinsic motivation is the external factors that motivate an individual to do something. Deci and Ryan (1985) developed Organismic Integration Theory, a sub-theory of SDT, which explains the dynamics of different ways of extrinsically motivated behavior of an individual. It details the various factors of extrinsic sources and the circumstances they act to motivate an individual. Extrinsic motivation is related to an individual's perception of the technology's usefulness, encouraging them to use it further.

Hence, an individual's subjective belief for something is known as perceived usefulness based on which that individual may use or not use any specific technology. Therefore, anything high in perceived benefit for an individual is what an individual believes to affect performance that motivates to use positively. In other words, the

individual may feel the positive benefits of using that particular technology. Hence, a probable reason to use the Internet is only if an individual perceives its usefulness. Researchers also identified the same relationship and justified that perceived usefulness affects behavior and leads to the Internet (Igbaria et al., 1994; Teo et al., 1999; Koo et al., 2005). The two types of perceived usefulness considered as extrinsic motives are information motive and recognition motive.

Therefore, with the above discussion, it can be depicted that extrinsic motivation, i.e., perceived usefulness including information motive and recognition motive, and intrinsic motivation, i.e., perceived enjoyment including entertainment motive and interpersonal communication motive, are the fundamental explanations behind an individual's use of the Internet and is included in the framework as usage motives. Motivation theorists argued that both intrinsic and extrinsic motivation modulates the type of behavior, i.e., the pattern of Internet use. Individuals adopt the Internet because they perceive and experience their use as enjoyable, pleasurable, informative, communicative, etc. Some benefit from its use.

2.7.2 Use Context

Internet Usage Context approach determines the use of the Internet in different situations. It is now an area of growing interest in research. It defines the set of scenarios in which something is to be used, including the environments in which the Internet is used, the types of tasks it performs, and the conditions under which it operates. In the context of the use of the Internet, the use context defines situational factors like psychosocial health, personality type, culture, and demographic characteristics of the users and over-use that may lead to negative or positive behaviors in the form of consequences. Circumstances in which the Internet is used as

supposed by an individual have not been thoroughly considered in Internet use so far (Kim et al., 2018). It has been understood that the usage context has been an essential dimension in persuading the type of Internet use. This study has considered different factors of usage context. Based on CVCRM of Internet use behavior (Doh et al., 2018), modifying its theoretical constructs (Song et al.;□Kim et al., 2018), this study emphasizes the four underlying aspects of usage context, i.e., psychosocial health, personality, culture and demographic factors in describing the context of Internet use, as shown in Figure 2. The dimensions of the usage context are explored and discussed below.

2.7.2 (a) Psychosocial Health

Psychosocial Health is comprised of psychological health and social well-being. It includes factors like despair and self-esteem. Social well-being includes factors like loneliness and shyness. Internet users with adverse psychosocial health may lead to PIU and justified by various research in the past like depression and PIU (Young & Rogers, 1998), loneliness, and PIU (Caplan, 2002; Douglas et al., 2008). Studies related to the association between two factors, i.e., Internet use and psychosocial health (despair, loneliness, low self-respect) has generated an urge to further research for a critical negative aspect, i.e., PIU (Beard & Wolf, 2001; Sanders et al., 2000; Morahan-Martin & Schumacher, 2000;). Previous studies related to psychosocial health and PIU are mostly conducted on younger ones compared to the middle or older population because younger ones using the Internet are more prone to PIU and poor psychosocial health (Morahan-Martin, 2003; Douglas et al., 2008). Negative consequences at home and work due to psychosocial health (i.e., depression and

social disconnection) can be risky or problematic behaviors that may happen through the Internet's overuse, i.e., PIU (Young & Rogers, 1998; Sanders et al., 2000).

2.7.2 (b) Personality

An individual's personality is its enduring tendency to think, feel, and behave in a particular manner, depending on a specific set of traits (Allik and McCrae, 2002). Many studies proved that individuals' personalities greatly influence proclivity or pattern of Internet use (Hills and Argyle, 2003; Anolli et al. 2005; McElroy et al. 2007; Orchard and Fullwood, 2010). A study conducted by Ozer and Benet-Martinez (2006) demonstrated the practicality of personality traits in envisaging many vital outcomes of life like psychosocial health, social interaction, etc. Personality also predicts the individuals' preference of technology use (McElroy et al. 2007) and also explains the reasons behind the use of different applications of software (Ludford and Terveen, 2003); moreover, it also initiates the negative aspects of over Internet use such PIU and risky behavior (Hardie and Tee, 2007, van der Aa et al. 2009).

The extent to which personality traits can predict various online activities and their usage patterns like communication, entertainment, shopping, or content creation. Many studies conducted on different personality traits as explained in the Big five personality traits theory given by Goldberg in 1993, described the impact of individual characteristics on various dimensions of Internet use like extraversion is positively related to using the Internet for leisure (Hamburger and Ben-Artzi, 2000), for entertainment (Amiel and Sargent, 2004), social media engagement (Correa et al. 2010), or playing online games (Teng, 2008). Openness to Experience is another trait that is also positively related to frequent social networking sites users (Ross et al. 2006; Buffardi and Campbell 2008), blogging (Guadagno et al. 2008), giving

suggestions on social forums (Tai-Kuei et al. 2010), and playing games online (Teng, 2008). Finally, neuroticism is positively related to an individual using the Internet for social interaction (Amiel and Sargent 2004, Gombor and Vas 2008) and instant messaging (Ehrenberg et al. 2008).

Hence, personality traits significantly affect Internet use and its pattern and may lead to disastrous effects like PIU, but none of the studies justified that it can also act as a mediator or moderator; moreover, it has never been studied along with other usage context factors like socio-demographic variables, i.e., age, gender, occupation, education, etc. (Correa et al. 2010). Thus, this study's exceptionality lies in considering personality traits as one of the factors of Usage context as a mediator between Internet use and PIU and as a moderator in combination with psychosocial health, demographic variables, and culture.

2.7.2 (c) Culture

Culture characterizes a cluster of people based on their convictions, beliefs, value systems, thinking patterns, and behavior adapted over time and shared among other group members. It gives an identity as a group and its members to experience and enjoy the belongingness towards a particular group or community or nation.

Ones' self is defined as an identity through which a person perceives something about himself. It is formed by a fundamental association of culture, society, religion, region, etc. There is a strong connection between culture and identity, including the 'Cultural Identity' of a person that refers to a person's sense of belonging to a particular culture or group. It involves acceptance of the culture and society to which it belongs. It is the process of internalizing oneself and the identity with culture and

hence becomes a part of their self-concept (Lustig, 2013). Chen (2017), in his study on the relationship between culture, one's identity, and behavior, suggested that the behavior of an individual depends on one's identity, which depends on the type of culture he belongs to as based on Cultural Identity Theory.

To understand the relationship between culture and one's identity, Collier (1998) suggests 'Culture Identity Theory,' which justifies the association between the competence of oneself and similarity with a particular culture to self-identify as cultural identification. The theory talks about individuals' communication processes to determine their cultural group and justify their similarity (Oetting, 1998). Cultural identification is defined as "the existence of specific sets of values and beliefs in which specific human groups recognize themselves" (Castells, 2009). An individual accepts anything depending on its cultural identification to fulfill the needs and desires, be it technology or anything else.

Hence, the adoption of technology can be understood through several theories and models available in the literature. Most of them were based on the theory of reasoned action, technology acceptance model, etc., all of them were tested on different cultural settings based on other nations using the idea of Hofstede's cultural dimensions revolving around cross-cultural communication (Nelson and Clark, 1994; Sivakumar and Nakata, 2001), but no such study has been conducted considering differences in culture within the nation on different communities concerning the use of the Internet for which cultural identification theory is referred to identify more significant differences between ethnic groups within one country (van Everdingen and Waarts, 2003). Hofstede's cultural dimensions can be used to measure ones' identity of culture

for the use of the Internet at the individual level among different communities (Srite, 2006).

Hofstede's cultural dimensions highlight the impact of a society's culture on its members' identity and how these identities relate to behavior (Hofstede, 1980). According to Hofstede, the four dimensions of culture are Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, and Uncertainty Avoidance. In the 1980s, a fifth dimension 'Long-term vs. Short-term Orientation' was added as the fifth dimension of culture based on research by Canadian psychologist Michael Harris Bond centered in the Far East (Hofstede & Bond, 1988). The study conducted by Michael Minkov (2007) resulted in the addition of a sixth dimension, i.e., Indulgence vs. Restraint.

The use of the Internet in context with different cultural backgrounds of users may have various Internet use patterns and directly moderate Internet use's effect on positive or negative consequences. Culture has been widely studied as a usage context for technology adoption or Internet use, as highlighted by various researchers in their study like Nath& Murthy, 2004; Hermeking, 2005; Verboord& Janssen, 2015.

2.7.2 (d) Demographic Factors

Numerous studies differentiated the Internet's use among individuals through demographic variables as situational factors like age, gender, etc. Studies indicate the use of the Internet is significantly affected by age (Dutton et al. 2009; Ewing and Thomas 2010; Dutta et al., 2017; Bugeun et al., 2018). For instance, studies suggest that young people are more active in entertainment and leisure activities than other age groups (Dutton et al. 2009; Jones and Fox, 2009). In contrast, older people prefer

online shopping, emailing, and searching for health-related information (Jones and Fox, 2009).

Recent studies demonstrated a decline in the difference of Internet usage among gender (Losh, 2009; Ewing and Thomas, 2010; Chao et al., 2020), that means male and female equally use technology and Internet, but their preference may differ. Like, males tend to be occupied more in almost all activities related to communication, entertainment, leisure, and content creation than females (Dutton et al. 2009, Mihara et al., 2016). Income (Ewing and Thomas, 2010; Smith et al., 2008) and education (Ewing and Thomas, 2010; Liang, 2007) are significant factors having notable Internet use effects. Research suggests that individuals with higher income and education spend less time online than those with less fortunate backgrounds (Goldfarb and Prince, 2008; Mazur et al., 2012).

2.7.3Usage Consequences

The taxonomy of Internet use has mainly focused on using consequences-based outcomes of Internet use or usage motive as the two essential aspects of Internet use. Regarding consequences-based effects, studies distinguished between problematic and healthy consequences of Internet use based on negative or positive symptoms, respectively (Young, 1998). Hence the two types of consequences have been discussed, i.e., PIU and Safe Internet Use (SIU). The effects of PIU is evaluated by risky behaviors, and SIU by PWB and life satisfaction.

2.7.3 (a) Problematic Internet Use

The increasing popularity of the Internet and its various benefits has resulted in the overuse of the Internet that may lead to negative consequences on health and social

well-being and result in risky behaviors (Kuss, Griffiths, Karila, &Billieux, 2014). PIU (Aboujaoude, 2010; Spada, 2014) is an issue to be discussed and diagnosed on an urgent basis as use of the Internet is increasing day-by-day, and it is becoming problematic despite any age group (Block, 2008; Pies, 2009; Byun et al., 2009; Weinstein et al., 2010).

Widely used PIU model, i.e., the cognitive-behavioral model developed by Davis (2001), discusses the consequences of overuse of the Internet such as despair and social apprehension (Charlton &Danforth, 2007). This model discusses the reasons for the overuse of the Internet that may lead to PIU, which may further lead to risky behavior. Many studies account for the wide occurrence of PIU (Morahan-Martin & Schumacher, 2000; Calpan, 2002; Mihara et al., 2016; Artemis et al., 2016). Many studies also justify PIU's association with psychosocial variables (like depression and loneliness) and negative consequences (Sanders et al., 2000; Dutta et al., 2017; Bugeun et al., 2018).

PIU mostly indicate the excessive use of the Internet that is assumed to be addictive and pathological, which further leads to negative consequences related to physical, psychological, and social effects, evident through certain risky behaviors like sleep disturbances, dietary problems, aggression, academic/work failure, crimes, excessive smoking, drinking, gambling, stealing, etc. (Chak& Leung, 2004; Widyanto& Griffiths, 2006; Jiang et al., 2018)

2.7.3 (b) Effects of Problematic Internet Use

Previous researches on PIU and its consequences mostly worked on the cognitive-behavioral theory that highlighted cognitive symptoms (Young, 1996). PIU's

consequences can be fanatical thoughts about using the Internet, lesser control, inability to stop using the Internet, and importantly, considering the Internet as a friend. PIU may also lead to thinking of the Internet every time and like to be alone and not hesitate to spend enough money on the Internet.

An individual with PIU indulges less in pleasurable activities and experiences non-enjoyable that was enjoyable before. PIU's most disastrous effect is social isolation due to the person interacting only online and stops physical interaction. They may further have a sense of guilt for their extensive online activities if ever they realize, and they may also hide it from others and try to keep it as a secret. Even if they understand that what they are doing is socially unacceptable, they still cannot avoid or stop it. These different results in the devaluation of self and then further lead to problems or risky behaviors.

As demonstrated by Davis's cognitive-behavioral model (Davis, 2001), PIU's consequences confirm the mal-adaptive cognitions and social problems such as social isolation or lack of social support. This model explains that individuals who indulge in PIU prefer to remain in virtual social life, disregarding the need for social life. Various researchers also identified that PIU is strongly linked to social problems such as being alone, lack of social interaction, and poor social skills (Kim et al., 2006; Ghassemzadeh et al., 2008).

2.7.3 (c) Risky Behaviours

Behavior that obstructs the psychosocial development and educes, either formal or informal social responses intend to control them is known as risky behavior according to Risky Behavior Theory (RBT) (Jessor and Jessor, 1977). This theory presents the

most transparent understandings of dysfunctional behavior in adolescence (Steinberg & Morris, 2001). This theory also defines risky behaviors as those that increase the possibility of subjective loss (DiClemente, Hansen, &Ponton, 1996). Social and legal norms of conventional society are characterized as socially undesirable, which may include drinking, smoking, illegal drug use, precocious sexual intercourse, risky driving, eating disorders, gambling, criminal behaviors, and other non-acceptable social acts (Austin &Knaus, 2000; Hays, Stacy, &DiMatteo, 1987; Jessor, 1991; Witte, 1996). Earlier studies on risky behaviors justified that youngsters may have a lower threshold concerning developing another due to the similar psychological meanings and functions those risk behaviors may have (Holden, 2001). All risky behaviors are positively interrelated to each and subsist as part of our daily life that can be severe hazards to physical health and PWB in any age group (Isralowitz&Reznik, 2006; Ko, Yen, Chen, Chen, & Yen, 2008). These risky behaviors' potential negative consequences include delinquency, unwanted pregnancy, sexually transmitted diseases, severe disability, and death (DiClemente et al., 1996). The construct of risky behavior is theoretically useful because it allows for investigating specific risk behaviors in others' contexts (DiClemente et al., 1996). According to RBT, PIU is a strong predictor of various risk behaviors as justified by various researchers like Chak& Leung, 2004; Widyanto& Griffiths, 2006; Jiang et al., 2018.

2.8 Healthy Internet Use (HIU)

While many papers have addressed PIU in the literature, there has been little discussion of HIU. Everyone uses the Internet for some other reasons, like information and knowledge gaining, connecting with friends, work play,

entertainment, shopping, etc. The overuse of the Internet is a malicious resource. On the contrary, the Internet is an innovative new medium that continuously transforms into an integral part of everyone's everyday life, fulfilling life's meaning, making it easier and better. However, we must be aware of the negative consequences of the overuse of the Internet and understand the behavior of people who use it pathologically.Safe Internet refers to using the Internet for an expressed reason in a reasonable amount of time besides cognitive or behavioral discomfort. Safe Internet users can separate Internet verbal exchange with actual lifestyle communication.They utilize the Internet as beneficial instrument as an alternative than a source of identity. There is no specific time limit, nor is there any behavioral benchmark. It is essential to recognize the thin line between safe Internet use and PIU. This study finds out about a range of functioning, with safe Internet use on one side and unhealthy use. There is no standard threshold of behavior or even cognitive functioning. Instead, the individual determines the degree to which they are using the Internet in an adaptive or maladaptive manner. The wholesome consequences of controlled Internet use are related to social, physiological, and psychological consolidation as one parameter, i.e., PWB, which can also lead to life satisfaction.

2.8.1Effect of Healthy Internet Use: Physical Well Being& Life Satisfaction

Many studies discussed the correlation between Internet use and PWB (Yang et al., 2014; Scimeca et al., 2014) and life satisfaction (Lachmann, 2016). Also, several studies have highlighted the relationship between PIU and PWB (Ang, Chong, Chye, &Huan, 2012; Chong, Chye, Huan, &Ang, 2014; Huan, Ang, Chong, &Chye, 2014). PWB is the positive and negative emotions experienced by an individual and

evaluates it subjectively to the extent of a higher level of satisfaction with life (Diener&Suh, 1997). The negative aspects of PWB can be loneliness, stress, and depression, whereas positive elements can be self-acceptance, positive relations, personal growth, etc.

2.9 Problematic Internet Use (PIU)

The literature on PIU provides a strong understanding to evaluate its causes and consequences. However, *usage context*, which is an individual's perception of their circumstances, have not been intensely measured for PIU so far. It has a general understanding that the usage context of PIU influences positive (well being) or negative (risk behaviors) consequences. Hence, this study aims to evaluate the entire three contexts i.e. PSH, personality and culture in understanding PIU, through the CVCRM of Internet use (Doh et al., 2018), which helps to combine existing theoretical approaches and highlights the interacting aspects of causes and consequences in understanding the dynamics of PIU (Davis, 2001; Song, LaRose, Eastin, & Lin, 2004), as shown in Figure 1.

The 'Usage Context' refers to factors that are defined as the circumstances that lead to a particular perception or Behavior of a person using the Internet that includes elements that interact with an individual's psychology and interferes in the life, i.e., psychosocial health, personality, culture, etc. The usage consequence refers to the positive or negative results of Internet use, i.e., the underlying symptoms or after-effects, be it positive, i.e., PWBor negative, i.e., RB due to PIU. All interacting dimensions of the theoretical framework are discussed below, along with its underlying factors and relationship between PIU generating hypothesis for the study.

2.9.1 Usage Context (Causes of PIU)

Internet Usage Context approach determines the use of the Internet in different situations leading to PIU. It is now an area of growing interest in research. It defines the set of scenarios in which something is to be used, including the environments in which the Internet is used, the types of tasks it performs, and the conditions under which it operates. In the context of the use of the Internet, the use context defines situational factors like PSH, personality type, culture, and demographic characteristics of the users and over-use that may lead to negative or positive behaviors in the form of consequences. Circumstances in which the Internet is used as supposed by an individual have not been thoroughly considered in Internet use so far (Kim et al., 2018). It has been understood that the usage context has been an essential dimension in persuading the type of Internet use. This study has considered different factors of usage context. Based on CVCRM of Internet use behavior (Doh et al., 2018), modifying its theoretical constructs (Song et al.;□Kim et al., 2018), this study emphasizes the four underlying aspects of usage context, i.e., PSH, personality, culture and demographic factors in describing the context of Internet use, as shown in Figure 2. The dimensions of the usage context are explored and discussed below.

2.9.1 (a) PsychosocialHealth (PSH) and PIU

PSH is comprised of psychological health and social well-being. Psychological health includes factors like despair and self-esteem. Social well-being includes factors like loneliness and shyness. Internet users with adverse PSH may lead to PIU and justified by various research in the past like depression and PIU (Young & Rogers, 1998), loneliness, and PIU (Caplan, 2002; Douglas et al., 2008). Studies related to the association between two factors, i.e., Internet use and PSH (despair, loneliness, low

self-respect) has generated an urge to further research for a critical negative aspect, i.e., PIU (Beard & Wolf, 2001; Sanders et al., 2000; Morahan-Martin & Schumacher, 2000;). Previous studies related to PSH and PIU are mostly conducted on youngerones compared to the middle or older population because younger ones using the Internet are more prone to PIU and poor PSH (Morahan-Martin, 2003; Douglas et al., 2008). Negative consequences at home and work due to PSH (i.e., depression and social disconnection) can be risky or problematic behaviors that may happen through the Internet's overuse, i.e., PIU (Young & Rogers, 1998; Sanders et al., 2000).

2.9.1 (b)Personality and PIU

An individual's personality is its enduring tendency to think, feel, and behave in a particular manner, depending on a specific set of traits (Allik and McCrae, 2002). Many studies proved that individuals' personalities greatly influence proclivity or pattern of Internet use (Hills and Argyle, 2003; Anolli et al. 2005; McElroy et al. 2007; Orchard and Fullwood, 2010). A study conducted by Ozer and Benet-Martinez (2006) demonstrated the practicality of personality traits in envisaging many vital outcomes of life like PSH, social interaction, etc. Personality also predicts the individuals' preference of technology use (McElroy et al. 2007) and also explains the reasons behind the use of different applications of software (Ludford and Terveen, 2003); moreover, it also initiates the negative aspects of over Internet use such PIU and RB (Hardie and Tee, 2007, van der Aa et al. 2009).

Although, many studies conducted on different personality traits as explained Big five personality traits theory given by Goldberg in 1993, described the impact of individual characteristics on various dimensions of Internet use like extraversion is positively related to using the Internet for leisure (Hamburger and Ben-Artzi, 2000),

for entertainment (Amiel and Sargent, 2004), social media engagement (Correa et al. 2010), or playing online games (Teng, 2008). Openness to Experience is another trait which is also positively related to frequent social networking sites users (Ross et al. 2006; Buffardi and Campbell 2008), blogging (Guadagno et al. 2008), giving suggestions on social forums (Tai-Kuei et al. 2010), and playing games online (Teng, 2008). Finally, neuroticism is positively related to an individual using the Internet social interaction (Amiel and Sargent 2004, Gombor and Vas 2008) and instant messaging (Ehrenberg et al. 2008). The effects of the Big Five personality traits on cognitions regarding PIU have not been studied so far (Durak and Senol-Durak; 2014). Despite the increasing amount of international research on PIU, there is a lack of understanding of the relationships between many personality and psychopathological variables linked with PIU (Laconi et al, 2017)

2.9.1 (c) Culture and PIU

Culture characterizes a cluster of people based on their convictions, beliefs, value systems, thinking patterns, and behavior adapted over time and shared among other group members. It gives an identity as a group and its members to experience and enjoy the belongingness towards a particular group or community or nation.

Hofstede's cultural dimensions highlight the impact of a society's culture on its members' identity and how these identities relate to behavior (Hofstede, 1980). According to Hofstede, the four dimensions of culture are Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, and Uncertainty Avoidance. In the 1980s, a fifth dimension 'Long-term vs. Short-term Orientation' was added as the fifth dimension of culture based on research by Canadian psychologist Michael Harris Bond centered in the Far East (Hofstede & Bond, 1988). The study

conducted by Michael Minkov (2007) resulted in the addition of a sixth dimension, i.e., Indulgence vs. Restraint.

The use of the Internet in context with different cultural backgrounds of users may have various Internet use patterns and directly moderate Internet use's effect on positive or negative consequences. Culture has been widely studied as a usage context for technology adoption or Internet use, as highlighted by various researchers in their study like Nath& Murthy, 2004; Hermeking, 2005; Verboord& Janssen, 2015.

Most studies operationalize personal cultural orientations for individual based on the national scores on Hofstede (1980, 1991) cultural dimensions. In response to these concerns, the Cultural Values Scale (CVSCALE) is a 26-item scale that has been developed by Yoo, Donthu, and Lenartowicz (2011) to capture Hofstede's (1991) five cultural dimensions at the individual level. However, none previous studies have investigated these dimensions in India in general and specifically in Sikkim, a country which has many different ethnic groups.

Hofstede's (1980 and 2001) renowned five-dimensional measure of cultural values is the overwhelmingly dominant metric of culture. His measure has been used as a contextual variable, but it is often required to directly measure cultural values for individual consumers or managers. By overcoming every major weakness of past studies, this research offers CVSCALE, a 26-item five-dimensional scale of individual cultural values that assesses Hofstede's cultural dimensions at the individual level. The scale shows adequate reliability, validity, and across-sample and across-national generalizability.

2.10 Usage Consequences

The taxonomy of PIU has mainly focused on its consequences-based outcomes in the form of negative symptoms (Young, 1998). Hence the effect of PIU is evaluated by RBs in this study.

Previous research on PIU and its consequences mostly worked on the cognitive-behavioral theory that highlighted cognitive symptoms (Young, 1996). PIU's consequences can be fanatical thoughts about using the Internet, lesser control, inability to stop using the Internet, and importantly, considering the Internet as a friend. PIU may also lead to thinking of the Internet every time and like to be alone and not hesitate to spend enough money on the Internet.

An individual with PIU indulges less in pleasurable activities and experiences non-enjoyable that was enjoyable before. PIU's most disastrous effect is social isolation due to the person interacting only online and stops physical interaction. They may further have a sense of guilt for their extensive online activities if ever they realize, and they may also hide it from others and try to keep it as a secret. Even if they understand that what they are doing is socially unacceptable, they can still avoid or stop it. These different results in the devaluation of self and then further lead to problems or RBs.

As demonstrated by The Davis cognitive-behavioral model (Davis, 2001), PIU's consequences confirm the maladaptive cognitions and social problems such as social isolation or lack of social support. This model explains that an individual indulges in PIU prefers to remain in virtual social life, disregarding the need for social life. Various researchers also identified that PIU is strongly linked to social problems such

as being alone, lack of social interaction, and poor social skills (Kim et al., 2006; Ghassemzadeh et al., 2008).

2.10.1 Risky Behaviour and PIU

RB Theory (RBT) (Jessor and Jessor, 1977) explains the behavior that obstructs the psychosocial development and educes, either formal or informal social responses intend to control them is known as RB. According to this theory, the RB is the most transparent understandings of dysfunctional behavior (Steinberg & Morris, 2001). This theory also defines RBs as those that increase the possibility of subjective loss (DiClemente, Hansen, &Ponton, 1996). Social and legal norms of conventional society are characterized as socially undesirable, which may include drinking, smoking, illegal drug use, precocious sexual intercourse, risky driving, eating disorders, gambling, criminal behaviors, and other non-acceptable social acts (Austin &Knaus, 2000; Hays, Stacy, &DiMatteo, 1987; Jessor, 1991; Witte, 1996).

Earlier studies on RBs justified that youngsters may have a lower threshold concerning developing another due to the similar psychological meanings and functions those RB may have (Holden, 2001). All RBs are positively interrelated to each and subsist as part of our daily life that can be severe hazards to physical health and PWB in any age group (Isralowitz&Reznik, 2006; Ko, Yen, Chen, Chen, & Yen, 2008). These RBs' potential negative consequences include delinquency, unwanted pregnancy, sexually transmitted diseases, severe disability, and death (DiClemente et al., 1996). The construct of RB is theoretically useful because it allows for investigating specific RB in others' contexts (DiClemente et al., 1996). According to RBT, PIU is a strong predictor of various RBas justified by various researchers like Chak& Leung, 2004; Widyanto& Griffiths, 2006; Jiang et al., 2018.

The questions for data on risk behaviours were borrowed from the Global School Based Student Health Survey (GSHS). Developed by the World Health Organization (WHO) and collaborators, the GSHS is a school-based survey assessing health risk-behaviors among adolescents aged 13–17 years. This self-report questionnaire comprises items that correspond to the primary tenreasons of morbidity among the younger adults and teenagers. Based on the GSHS, individual risk-behaviors were delineated into three categories: (i) substance use; (ii) sensation-seeking; (iii) and lifestyle characteristics.

2.11 Demographic Factors

Numerous studies discovered the effect of various demographic variables like age, gender, marital status or profession on PIU and its associated RBs on young and adolescent group, but middle-aged and older populations have not been comprehensively investigated for demographic effects and other dynamics of PIU (Ioannidis et al., 2018). Studies indicate the use of the Internet is significantly affected by age i.e. older age associated with higher levels of PIU as explained Ioannidis et al. (2018)

Recent studies demonstrated a decline in the difference of Internet usage among gender (Losh, 2009; Ewing and Thomas, 2010; Chao et al., 2020), that means male and female equally use technology and Internet. Like, males tend to be occupied more in Internet leading to PIU and RBs as compared to females as documented by various researchers like Dutton et al. 2009, Mihara et al., 2016). There is some evidence from observational studiesthat males and females differ in the way they operate in the online environment in terms of activities they choose and their negative consequences (Ha & Hwang, 2014; Liang, Zhou, Yuan, Shao, &Bian, 2016).

Income (Ewing and Thomas, 2010; Smith et al., 2008) and education (Ewing and Thomas, 2010; Liang, 2007) are significant factors having notable Internet use effects. Research suggests that individuals with higher income and education spend less time online than those with less fortunate backgrounds (Goldfarb and Prince, 2008; Mazur et al., 2012). Although this study has not considered income and education as control variables. Although marital status (married vs. unmarried) and profession (service vs. business) have been considered as control variables in this study. Few studies worked on finding relationship of these control variables on PIU and RBs like Internet addiction is more among singles than married as proved by Iravania et al. (2013), but does not find any evidence to believe job employment has any impact on PIU.

Although studies mentioned generating relationships between variables were conducted in different countries, targeting different age groups other then middle aged, the focus area of this study has been the middle aged, since there has ben very little or no studies conducted on this particular age group.

2.12 Theoretical Framework of the study

The study has used the cross-cultural theory borrowed from Gerard Hendrik (Greet) Hofstede's "*five cultural dimension*" in order to understand the finer nuances of cultural diversity in the state of Sikkim. The study through this theory has tried to comprehend how the use of Internet has impacted on the lives of the people living here by either overcoming the cultural barriers or blending into the virtual territory as digital netizens, or has the society been divided due to the restrictions faced by certain communities barring them from exploring the virtual arena.

The four dimensions are: Power Distance (PD), Individualism vs. Collectivism (IC), Masculinity vs. Femininity (MF), and Uncertainty Avoidance (UA). In the 1980s, a fifth dimension 'Long-term vs. Short-term Orientation' (LSO) was added to the four.

These dimensions are shortly explained in the following (Hofstede, 2011):

1. Power distance is related to the different solutions to the basic problem of human inequality. Although power and inequality are inevitable facts of any society, some are still more unequal than others. Accordingly, one way of distinguishing between nations can be based on how they tend to deal with these inequalities.

2. Individualism vs. Collectivism is related to the integration of individuals into primary groups. In individualistic cultures, everyone is expected to look after himself and his immediate family. In collectivist societies, however, people are integrated into cohesive in-groups, often extended families that continue protecting them in exchange for unquestioning loyalty.

3. Masculinity vs. Femininity concerns the division of emotional roles between women and men. It opposes tough masculine to tender feminine societies. In masculine societies, men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, caring, and concerned with the quality of life. In feminine societies, both men and women are supposed to be modest, tender.

4. Uncertainty Avoidance involves the level of stress in a society in the face of an unknown future. It deals with a society's tolerance for ambiguity and is not the same as risk avoidance; Uncertainty avoiding cultures try to minimize the possibility of

unstructured situations by strict behavioral codes, laws and rules, disapproval of deviant opinions.

5. Long-term vs. Short-term Orientation is related to the choice of focus for people's efforts: the future or the present and past. Long-term oriented cultures show a pragmatic future-oriented perspective and underscore the values of thrift, perseverance, and adaptiveness. In short-term oriented cultures, on the other hand, a conventional historical short-term point of view prevails and immediate need gratification and respect for traditions are encouraged.

Along with the cross-cultural study, the researcher has also delved into the theory of Uses and Gratification in order to learn the motive behind the use of Internet by the middle aged adults in Sikkim. There could be a plethora of reasons for the digitalization of their everyday lifestyles. Hence, by adapting the uses and gratifications theory, the study has tried to zero in the main factors which lead up to the internet use by these adults.

2.13 Summary: The review of literature has attempted to provide studies done previously concerning Internet and its various related effects and has categorised it in sub-themes. The gist of the entire chapter has been explained as the following;

Effects of Internet and Older Adults – Studies on the use of the Internet by the older adults and its effects that mostly deals with mental aging and physical well-being.
Internet Use and Habits – What are the new habits and changes in the lifestyle of the people that have most likely been conceived by the introduction Internet in their lives.
Rise of Internet Use Among Older Adults – Data and statistics on the increasing number of Internet users among the older adults.

Use of Internet Among Older Adults – Statistical analysis on the rising graph among the Internet users.

Internet Use and Aging – How the Internet has aided in the idea of successful aging to its users through extra-curricular activities and its communication capacity.

Internet Use and Health – The use of Internet has had both positive and negative reinforcements among its users. This section deals with both physical and mental health of the Internet users as per the studies done previously.

CVCRM of Internet Use – Cyclic Value Context Reinforcement Model has been used as a reference point for forming the basis of the research being done by the scholar. Based on the model, the study has been pursued on the Usage motive, Usage context, and Usage consequence by the Internet users.

Finally, the review of literature has attempted to explain the theoretical framework used for the purpose of the study i.e. the adaptation Hofstede's cross cultural theory and the theory of uses and gratification.

CHAPTER III

Research Methodology

The third chapter of this study includes detailed information regarding research plan and sample plan of the study. This chapter discusses the methodology used for the purpose of research study. The independent and dependent variables in the research have been identified and for a better understanding, mediators and moderators have been identified as well. In addition, a model has been developed in order to achieve the research objectives of the study. The study has been conducted in two phases starting with trying to identify the motive of Internet use of the middle aged in Sikkim and creating a path to identify the consequences of the mentioned Internet use. The research hypotheses therefore have been accordingly created thus orchestrating the two phases of the study that would eventually be linked and merged as a whole.

3.1 Research Variables

An appropriate instrument is required to formulate the questionnaire for data collection in order to prove the hypothesis and fulfill the objectives of the study. This instrument needs some base and background of independent and dependent variables. For the purpose of the study, Motives of Internet Use has been considered as independent variable, Internet Use is considered as mediator 1, Problematic Internet Use is considered as mediator 2, Psychosocial Health, Personality, Culture, Demographic are considered as moderator, whereas, Psychological Well Being and Risk Behaviors are considered as dependent variables, as mentioned in table 3.1.

Usage Motive	Usage Context			Usage Outcome
Independent Variables	**Mediator 1**	**Moderator**	**Mediator 2**	**Dependent Variable**
Motives of Internet Use	Internet Use	Psychosocial Health	Problematic Internet Use	Risk Behaviours
		Personality		
		Culture		
		Demographic		
				Psychological Well Being

Table 3.1. Research Variables for Motives of Internet Use

Various researches have been conducted identifying the relationship between variables under study that is mentioned in table 3.2.

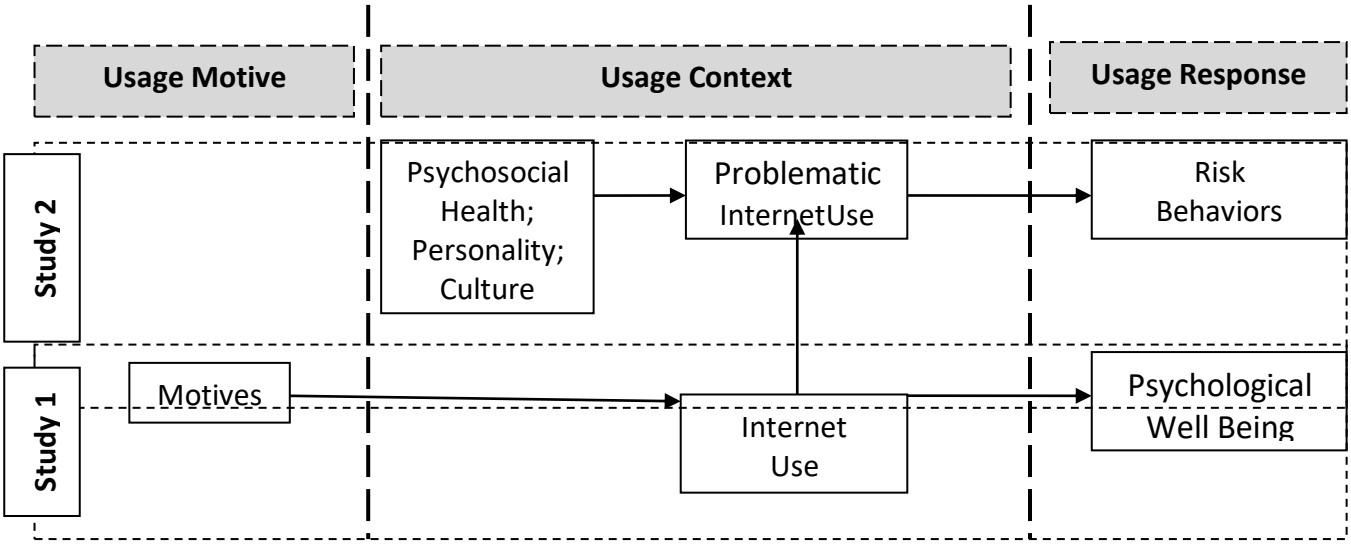
Independent Variables	Source	Dependent Variable
Motives	Adams et. al, 1992; Hendrickson & Collins, 1996; Subramanian, 1994; Kim et al., 2011	InternetUse
InternetUse	Heo et. al (2015); Błachnio et. al (2019)	Psychological Well Being
InternetUse	Beard & Wolf, 2001; Davis, 2001; Morahan-Martin & Schumacher, 2000; Sanders et al.,	ProblematicInternetUse

	2000; Young, 1996, 1998	
ProblematicInternetUse	Davis (2001); Jiang et. al (2018)	Risk Behaviors
Psychosocial Health	Caplan, 2002; Douglas et al., 2008; Morahan-Martin, 2003	ProblematicInternetUse
Personality	Jiang et. al (2018)	ProblematicInternetUse
Culture	Meerkerk et. al (2010); Błachnio et. al (2019)	ProblematicInternetUse

Table 3.2: Relationship Between Variables for Motives of Internet Use

3.2 Research Moel

To accomplish the identified research objectives, a 'Research Model' has been developed on the basis of identified factors through literature review as shown in figure 3.1.



Source: Authors Own

Figure 3.1: Organizational Commitment Model of the Study

3.3 Research Hypotheses

Research hypothesis is a predictive statement that relates an independent variable to a dependent variable. It must contain at least one independent and one dependent variable. For the purpose of the study, three research hypotheses have been formulated on the basis of the research model in study 1 and three research hypotheses have been formulated on the basis of the research model in study 2 tested separately for all the five parameters of personal factor, three parameters of organizational factor, and seven parameters of demographic factor as shown in figure 3.2.

3.3.1 Study I

1. **Research Hypothesis: H1**. Usage motive of the middle aged has significant effect on behavioral intention to use Internet.

a) **Sub-Hypothesis: H1a**. Information motive has significant effect on behavioral intention to use Internet.

b) **Sub-Hypothesis: H1b**. Communication motive has significant effect on behavioral intention to use Internet

c) **Sub-Hypothesis: H1c**: Entertainment motive has significant effect on behavioral intention to use Internet

d) **Sub-Hypothesis: H1d**: Shopping Motive has significant effect on behavioral intention to use Internet

2. **Research Hypothesis: H2.** Internet use is largely moderated by demographic factors.

a) **Sub-Hypothesis: H2a:** Demographic Characteristic (Gender, Age, Profession, Marital Status) significantly moderates the relationship between Motives & Internet use.

b) **Sub-Hypothesis: H2b:** Demographic Characteristic (Gender, Age, Profession, Marital Status) significantly moderates the relationship between Internet use & Physical Well Being.

3. **Research Hypothesis: H3:** Internet use has significant effect on Physical Well Being.

a) **Sub-Hypothesis: H3a:**Preference of Internet use has significant effect on Physical Well Being

b) **Sub-Hypothesis: H3b:** Dependency on Internet has significant effect on Physical Well Being

Hence, the research model for study 1 along with hypothesis based on the underlying theory of CVCRM of Internet use behavior has been presented in figure 3.2.

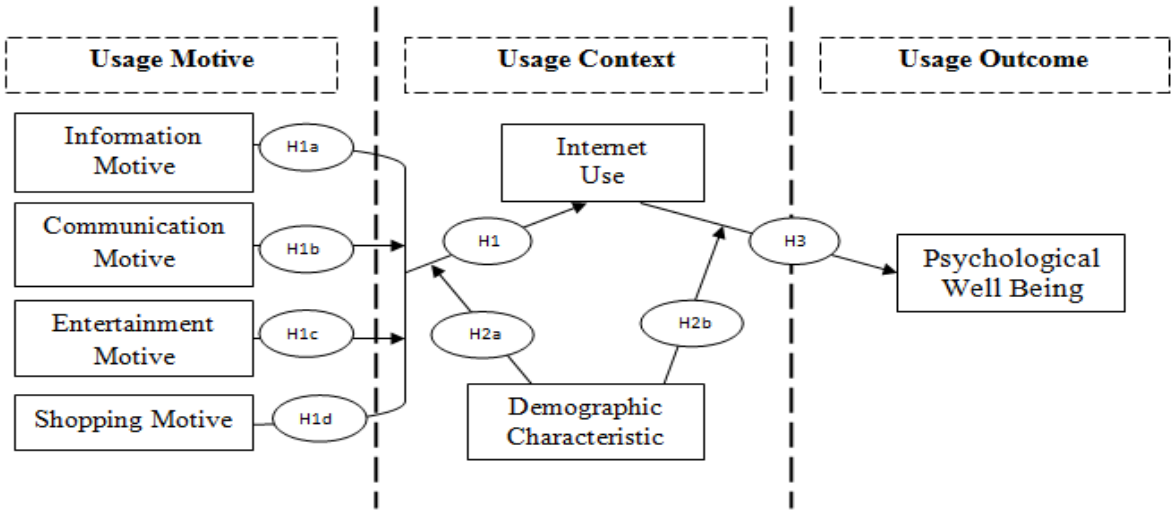


Figure 3.2: Research Model & Hypotheses of the Study 1

3.3.2 Study II

1. **Research Hypothesis: H1**: Internet Use (Usage Context) has significant effect on PIU.

a) **Sub-Hypothesis: H1a**: Psychosocial Health has significant effect on Problematic Internet Use.

b) **Sub-Hypothesis: H1b:** Personality has significant effect on Problematic Internet Use.

c) **Sub-Hypothesis: H1c:** Culture has significant effect on Problematic Internet Use

2. **Research Hypothesis: H2:** Problematic Internet Use has significant effect on Risky Behaviour.

3. **Research Hypothesis: H3:** Demographic characteristics significantly moderate negative use of the Internet

a) **Sub-Hypothesis H3a:** Demographic Factors significantly moderate the effect of usage context on Problematic Internet Use

b) **Sub-Hypothesis H3b:** Demographic Factors significantly moderate the effect of Problematic Internet Use on Risky Behaviour.

Hence, the research model along with hypothesis based on the underlying theory of CVCRM of Internet use behavior has been presented in figure 3.3.

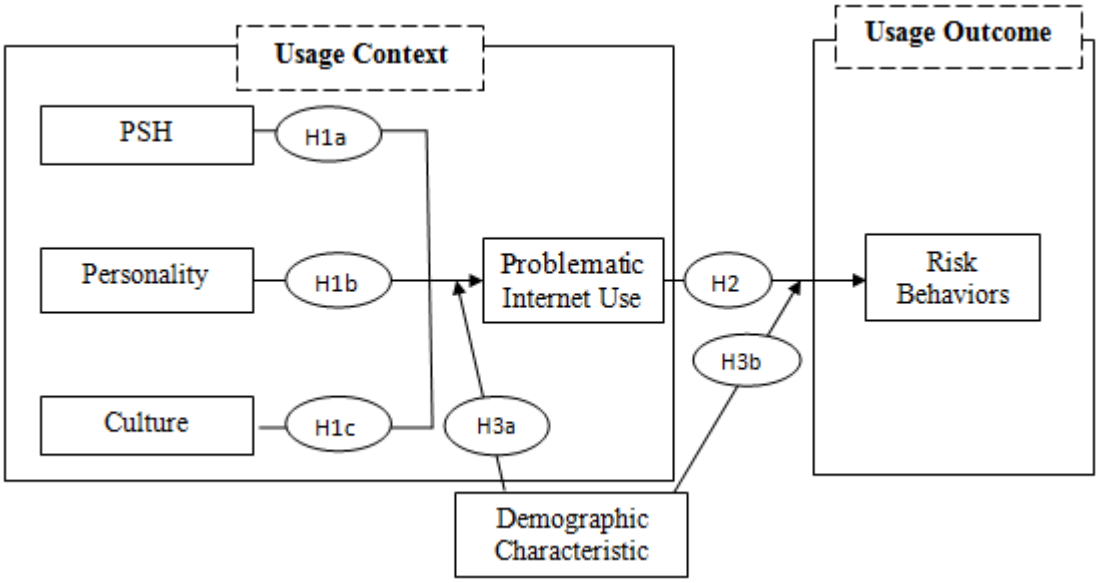


Figure 3.3: Research Model & Hypotheses of the Study 2

3.4 Research Measures and Instrument

Variables	Antecedents	Source
Motives	Information	Wolfradt and Doll, 2001
	Communication	
	Entertainment	
	Recognition	
Internet Use	Preference	Internet Connectedness Index (ICI) Jung et al.,2001; Leung, 2010
	Frequency	
	Patterns	
	Internet Dependency	
	Computer Dependency	
Psychosocial Health	Depression	Heo et. al (2015)
	Loneliness	

	Shyness	
	Social Support	
Personality	Openness	Big-Five Factor, Goldberg (1992)
	Conscientiousness	
	Extroversion	
	Agreeableness	
	Neuroticism	
Culture	Power Distance	Hofstede's Cultural Dimensions (Hofstede & Bond, 1988)
	Individualism-Collectivism	
	Uncertainty Avoidance	
	Masculinity-Femininity	
	Long-Term Orientation	
PIU	Obsession — being obsessed with Internet activities	Kelly & Gruber (2010)
	Neglect — neglecting non-Internet activities	
	Control disorder — unable stopping to use the Internet	
Risk Behaviors	Skipping Work	Global School-Based Student Health Survey (GSHS)[iii]
	Smoking	
	Drinking	

	Fighting	
	Gambling	
	Stealing	
	Risky Sexual Behaviours	
Psychological Well Being	Self-Acceptance	Psychological Well-Being Scales Ryff (1995)
	Positive Relations	
	Environmental Mastery	
	Personal Growth	
	Autonomy	
	Purpose in Life	

Table 3.3: Antecedents of Research Variables for Motives of Internet Use

Variables	**Scale Used**	**Source**
Usage Motives		
Motives	Internet Motivation Scale	Wolfradt and Doll, 2001
Usage Context		
Internet Use	Internet Connectedness Index (ICI)	Jung et al.,2001; Leung, 2010
Problematic Internet Use (PIU)	Problematic Internet Use Questionnaire (PIUQ)	Kelly & Gruber (2010)
Psychosocial Health	Geriatric Depression Scale (GDS)	(Yesavage et. al, 1982)
	R-UCLA Loneliness Scale	(Russell et al. 1980)

	Shyness Scale	Cheek & Buss (1981)
	Oslo Social Support Scale (OSSS-3)	(Kocalevent et. al, 2018)
Personality	Big-Five Factor,	Goldberg (1992)
Culture	Cultural Dimensions Scale (CDS)	Hofstede & Bond, 1988
Demographic	Age, Gender, Income, Edu, Occupation, Qualification etc	-
Usage Outcome		
Risk Behaviors	-	Global School-Based Student Health Survey (GSHS)
Psychological Well Being	Psychological Well-Being Scales	Ryff, C.D. (1995)

Table 3.4: Instruments of Research Variables for Motives of Internet Use

3.4.1 Motivation for Internet use: The Internet usage motives was measured with the help of The Internet Motivation Scale (Wolfradt and Doll, 2001) and The Web Motivation Inventory (Rodgers & Sheldon, 2002) quantifies four primary Internet motives on seven-point Likert scales where 1 = strongly disagree to 7 = strongly agree., comprising of 5 items for surfing the web (information acquisition), 5 items for chatting (communication), 4 items for playing online games/watching movies (entertainment) and 3 items for shopping motive.

Variable	Items	Scale	Source
Information Motive	IM1	I receive real news through the Internet.	The Internet Motivation Scale (Wolfradt and Doll, 2001) The Web Motivation Inventory (WMI) (Rodgers & Sheldon 2002).
	IM2	I use the Internet because of its current information.	
	IM3	The Internet updates me on new trends.	
	IM4	The Internet provides me with many things of interest that I can't access anywhere else.	
	IM5	The Internet helps me to solve practical problems.	
Interpersonal Communication Motive	ICM1	I have found new friends and acquaintances through the Internet.	
	ICM2	The Internet is to me a substitute for other social contacts.	
	ICM3	I use the Internet to express myself.	
	ICM4	The Internet makes me feel like I am close to others.	
	ICM5	The Internet helps me coping with personal problems.	
Entertainment Motive	EM1	The Internet offers more variation than other media do.	
	EM2	I distract myself from stress by using the Internet.	

	EM3	The Internet adds fun in my life	
	EM4	The Internet helps me in passing my time	
Shopping Motive	SM1	I try to purchase the stuffs I require through Internet	
	SM2	I usually do shopping though Internet	
	SM3	I only purchase through Internet that I've heard about	

Table 3.5: Research Instruments for Motives of Internet Use

3.4.2 Internet use: The pattern of Internet use were based on a recent study of Internet use among children and adolescents ages 8-18 (Rideout, Foehr& Roberts, 2010), with some adjustments to make the questions appropriate for middle-aged and Internet Connected Index used by Jung et al. (2001) and Leung (2010). Respondents were asked their preference of Internet use using 4 items for online activities, namely surfing the web (information), chatting (communication), playing online games/watching movies (entertainment) and shopping, whereas dependency on Internet was assessed with 3 items like "start or end their day by accessing the Internet", "Frequently using Internet whenever required", and "use the Internet rather than thinking of any other alternative", using a seven-point scale, where 1 = strongly disagree to 7 = strongly agree.

Variable	Items	Scale	Source
Internet usage Preference (IU1)	IU11	Surfing the web (information)	Internet Connectedness Index (ICI) Jung et al.,2001; Leung, 2010
	IU12	Chatting (communication)	
	IU13	Playing online games/watching movies (entertainment)	
	IU14	Shopping	
Internet Dependency (IU2)	IU21	Start or end their day by accessing the Internet	
	IU22	Frequently using Internet whenever required	
	IU23	Often use the Internet rather than thinking of any other alternative	

Table 3.6: Research Instruments for Internet Usage

3.4.3 Psychological Well Being: The Ryff Scale of Ryff& Keyes (1995) was used to access the PWB was based on five factors, specifically, self-acceptance, positive relations, personal growth, autonomy, and purpose in life. Each antecedent consist of 3 items making it 15 items instrument using a seven-point scale, where 1 = strongly disagree to 7 = strongly agree. Higher total scores indicate higher psychological well-being.

Variable	Items	Scale	Source
Self-Acceptance	SA1	I like most parts of my personality	Psychological Well-Being Scales Ryff, C. D., & Keyes, C. L. M. (1995)
	SA2	When I look at the story of my life, I am pleased with how things have turned out so far	
	SA3	In many ways I feel satisfied about my achievements in life	
Positive-Relations	PR1	Maintaining close relationships is easy for me.	
	PR2	People would describe me as a giving person, willing to share my time with others	
	PR3	I have warm and trusting relationships with others	
Personal-Growth	PG1	For me, life has been a continuous process of learning and growth	
	PG2	I think it is important to have new experiences	
	PG3	I always try to bring changes in my life	
Autonomy	A1	I tend to be influenced by people with strong opinions	
	A2	I have confidence in my own opinions, even if they are different from the way	

		most other people think	
	A3	I judge myself by what I think is important, not by the values of what others think is important	
Purpose in Life	PL1	Some people wander aimlessly through life, but I am not one of them	
	PL2	I believe in today and don't really think about the future	
	PL3	I sometimes feel as if I've done all there is to do in life	

Table 3.7: Research Instruments for Physical Well Being

3.4.4 Psychosocial Health: It includes Psychological health variable i.e. depression and Social well being variables i.e. loneliness and shyness. Depression was measured with the Geriatric Depression Scale (GDS) (Yesavage et. al, 1982) and measured on three items. The social well being variables of interest i.e. loneliness was measured with 3 items UCLA Loneliness Scale (Russel, Peplau, & Cutrona, 1980) and shyness was measured with 3 items Shyness Scale of Cheek & Buss (1981).

Variable	Items	Scale	Source
Depression	D1	I feel that my life is empty	Geriatric Depression Scale (GDS) (Yesavage et. al, 1982)
	D2	I feel unhappy most of the time	
	D3	I feel that my situation is hopeless	
Loneliness	L1	often I feel lack of companionship	R-UCLA Loneliness

	L2	Mostly I feel left out	Scale Russell et al. 1980)
	L3	Often I feel isolated from others	
Shyness	S1	I feel tense when I'm with people I don't know well.	Shyness Scale Cheek & Buss (1981)
	S2	I don't talk much.	
	S3	I am shyer with members of the opposite sex.	

Table 3.8: Research Instruments for Psychosocial Health

3.4.5 The Ten-Item Personality Inventory (TIPI): (Gosling et al. 2009) is a 10-item measure of the Big Five personality dimensions. Each item consists of two descriptors, separated by a comma, using the common stem (e.g.,"I see myself as extraverted, enthusiastic"). Each of the ten items was rated on a 5-point scale (1 – disagree strongly to 5 – agree strongly). The average of the two items per dimension makes up each scale.

Variable	Items	Scale	Source
Openness	O1	I love adventure	Ten-Item **Personality** Inventory (TIPI) (Gosling et al. 2009)
	O2	I am imaginative	
Conscientiousnes -s	C1	I am highly self-disciplined	
	C2	I am very organized and always prepared	
Extroversion	E1	I am the life of the party	
	E2	I am usually the one to start a conversation with someone	
Agreeableness	A1	I tend to trust people and give them the benefit of the doubt	

	A2	I am extremely empathetic	
Neuroticism	N1	I stress out easily	
	N2	I tend to be moody	

Table 3.9: Research Instruments for Personality

3.4.6 The Cultural Values Scale (CVSCALE) is a 20-item scale that has been developed by Yoo, Donthu, and Lenartowicz (2011) to capture Hofstede's (1991) five cultural dimensions at the individual level. The scale included three items for power distance, four items for Individualism-Collectivism, four items for uncertainty avoidance, five items for Masculinity-Femininity, and four items for Orientation.

Variable	Items	Scale	Source
Power-Distance	PD1	I am obedient and respect my parents.	
	PD2	I treat my elders with respect	
	PD3	My behavior toward others does not depend on their social status.	
Individualism-Collectivism	IC1	A psychologically healthy person is supposed to have no dependence on his/her family.	
	IC2	For me, collective interests prevail over individual interests.	
	IC3	In my opinion, children had better live with their parents until they get married.	
	IC4	My family's opinion is very important to me in making an important decision in life.	

Uncertainty-Avoidance	UA1	I never feel nervous or tense.	Cultural Dimensions Scale (CDS) Hofstede's (2001)
	UA2	I believe in organized and structured way of life	
	UA3	I prefer a predictable and routine life over life with unpredictable events.	
	UA4	When coming across a novel and unknown situation, I am more prudent than curious.	
Masculinity-Femininity	MF1	Women are better teachers for young children than are men.	
	MF2	In the family, the standard pattern is that the father earns and the mother cares.	
	MF3	In my ideal job, the opportunity for advancement to higher-level jobs is more important than the job security.	
	MF4	I care more about working with people who cooperate well with one another than about getting the recognition one deserves for doing a good job.	
	MF5	In my ideal job, I prefer more leisure time over more money.	
Long-term vs. Short-term Orientation	LSO1	I maintain that traditions belong to the past and no longer need to be respected.	
	LSO2	It is important to me to have unchangeable	

		beliefs and behaviors that do not depend on shifting circumstances.	
	LSO3	In my personal life. thrift (not spending more than needed) is important.	
	LSO4	Having long-term goals is of high importance to me, even at the price of present hardships.	

Table 3.10: Research Instruments for Culture

3.4.7 The Problematic Internet Use Questionnaire (PIUQ) was first published in Demetrovics, Z., Szeredi, B., &Rózsa, S. (2008) and its psychometric properties were checked in a study by Kelly & Gruber (2010) consisting of 9 items instrument i.e. 3 items for three antecedents Obsession (being obsessed with Internet activities), Neglect (neglecting non-Internet activities) and Control disorder (unable stopping to use the Internet).

Variable	Items	Scale	Source
Obsession	OB1	I feel depressed, moody, or nervous when I am not on the Internet and these feelings stop once I am back online	The Problematic Internet Use Questionnaire (PIUQ) Kelly & Gruber (2010)
	OB2	I feel tense, irritated, or stressed if I cannot use the Internet for several days	
	OB3	I feel anxious, annoyed, or worried if I am not able to use the Internet for as long as I want to	

Neglect	NG1	People in my life complain for time I spend on Internet	
	NG2	I spend time online when I would rather sleep	
	NG3	I often neglect household chores to spend more time online	
Control-disorder	CD1	I try to conceal how much time I spend on the internet	
	CD2	I seek to lessen the time I spend on the internet but tend to be unsuccessful in it	
	CD3	I should decrease the amount of time spent online	

Table 3.11: Research Instruments for Problematic Internet Use

3.4.8 Risk Behaviors: It is measured with 11 items based on the GSHS, individual risk-behaviors were delineated into three categories i.e. 3 items for substance use; 4 items for sensation-seeking and 4 items for lifestyle characteristics.

	Variable	**Items**	**Scale**	**Source**
Substance Use	Smoking	SU1	I smoke more when not able to use Internet	Global School-Based Student Health Survey (GSHS)
	Drug	SU2	I sometimes consume drugs when not able to use Internet	
	Drinking	SU3	I drink more when not able to use Internet	
Sensation-Seeking	Fighting	SS1	I often fight with others for using Internet	

	Gambling	SS2	I am involved in gambling when not able to use Internet	
	Stealing	SS3	I steal sometimes to distract myself when not able to use Internet	
	Risky Sexual Behaviours	SS4	I am involved in risky sexual behaviours	
Lifestyle-Characteristics	Sleep	LC1	I sleep less due to excessive use of Internet	
	Nutrition	LC2	I have less nutrition intake due to excessive use of Internet	
	Physical Activity	LC3	I am less involved in physical activity due to excessive use of Internet	
	Skipping Work	LC4	I am more often absent in my work due to more time spent on Internet	

Table 3.12: Research Instruments for Risk behaviors

3.5 Research Procedure

An exploratory and causal research design was adopted in this study to explore the literature for the purpose of identification of variables and their antecedents and to analyse the impact of those variables and their antecedents according to the hypothesis formulated. Secondary data collection method was adopted to review the

literature to identify various variables and their antecedents, whereas primary data collection method was adopted to collect first hand information from respondents to identify the impact of independent variable on dependent variable.

For the purpose of this study, Statistical Package for the Social Sciences (SPSS - Version 21) was adopted as analytical tool to analyse the data. The data was first checked for its validity and reliability. Validity of the instrument and the data was checked through exploratory factor analysis and reliability was checked through Cronbach's coefficient alpha. Further multiple linear regression analysis was utilized to analyse the impact of independent variable on dependent variable. Descriptive analysis was utilized to analyse various other aspects of the variables under study.

This study was conducted in two phases. The first study aimed to empirically test four types of usage motive i.e. information, communication, entertainment and shopping motives on Internet use and evaluate the mediating effect of Internet Use between Motives and Psychological Well Being among Middle Aged in Sikkim. Non-probabilistic convenience sampling technique was adopted to select the respondents. Structured questionnaires were used to collect primary data through respondents via online system. Questionnaire comprised of two sections. First section consist questions related to demographic characteristics like gender, age, profession, marital status and hours of Internet usage, whereas second section consist of 39 questions for three variables i.e. motives, Internet use and Physical Well Being. The measurements were made on 7 point Likert scale, ranging from 1 as strongly disagree to 7 as strongly agree for each statement for all variables. The link of the questionnaire in Google forms was forwarded through email/whatsapp groups to 500 residents of Sikkim. Total 408 samples were received and considered for further data analysis.

Descriptive statistics was used to analyse the data i.e. mean values to identify the extent of the presence of each variable, whereas exploratory factor analysis was used to check the validity and Cronbach's coefficient alpha to check the reliability, whereas regression was used to justify the hypothesis of the study.

The second phase of the study aimed to measure the extant of PIU amongst the Middle Aged in Sikkim and empirically test the effects of Psychosocial Health (PSH), personality and culture on Problematic Internet Use and then the effect of Problematic Internet Use on Risky Behaviours (RB). Non-probabilistic convenience sampling technique was adopted to select the respondents. Structured questionnaires were used to collect primary data through respondents via online system. Questionnaire comprised of two sections. First section consists of questions related to demographic characteristics like gender, age, profession, marital status and hours of Internet usage, whereas second section consist of 59 questions for five variables i.e. Psychosocial Health, Personality, Culture, Problematic Internet Use, and Risky Behavior. The measurements were made on 7 point Likert scale, ranging from 1 as strongly disagree to 7 as strongly agree for each statement for all variables. The link of the questionnaire in Google forms was forwarded through email/whatsapp groups to 500 residents of Sikkim. Total 394 samples were received and considered for further data analysis. Descriptive statistics was used to analyse the data i.e. mean values to identify the extent of the presence of each variable, whereas exploratory factor analysis was used to check the validity and Cronbach's coefficient alpha to check the reliability, whereas regression was used to justify the hypothesis of the study.

3.6 Sampling:

The research population consisted of middle aged (35 to 55 years) residents of the state of Sikkim. The audience selected were residents belonging to both the rural and urban pockets of the state. However, it may be taken into note that although the target group comprised of residents from all across the state, during the time of survey the researcher was able to gather their information from compararitively urban centres in the state where they had access to the internet and were able to complete the questionnaire sent to them via email.

Convenient sampling method was selected in order to establish the sample group. The merit of this method lies in selecting the individuals who can be easily contacted to get a response for the research (Cohen, Manion, & Morrison, 2007).

3.6 (1) – Study 1

A total of 408 samples were considered in the study to test the hypothesis. Out of total sample, 222 (54.4%) were male and 186 (45.6%) were female. 284 (69.6%) participants were working professionals, whereas 124 (30.4%) were businessmen. 240 (58.8%) participants were between 36 to 45 years of age as compared to 168 (41.2%) respondents between 46 to 55 years of age. Only 24 (5.9%) of respondents were unmarried and 384 (94.1%) were married. The extent of Internet use by respondents in terms of hours in a day was maximum for 4 to 6 hours i.e. 145 (35.5%) respondents followed by122 (29.9%) respondents.

3.6 (2) – Study 2

For the secong phase of the study, a total of 394 samples were considered in the study to test the hypothesis. Out of total sample, 211 (53.6%) were males and 183 (46.4%) were females. 273 (69.3%) participants were working professionals, whereas 121 (30.7%) were businessmen. 234 (59.4%) participants were between 36 to 45 years of age as compared to 160 (40.6%) respondents between 46 to 55 years of age. Only 38 (9.6%) of respondents were unmarried and 356 (90.4%) were married. The extent of Internet use by respondents in terms of hours in a day was maximum for 4 to 6 hours i.e. 140 (35.5.3%) respondents followed by129 (32.7%) respondents for 4 to 6 hours, followed by 90 (22.8%) for 2 to 4 hours.

3.7 Sampling profile of the respondents:

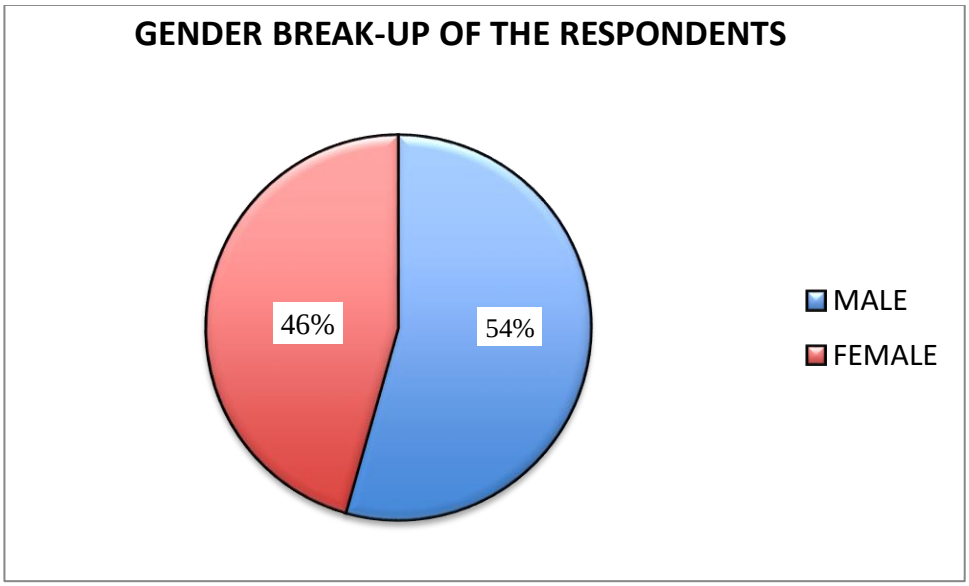


Figure 3.4: Gender Break-up of the respondents

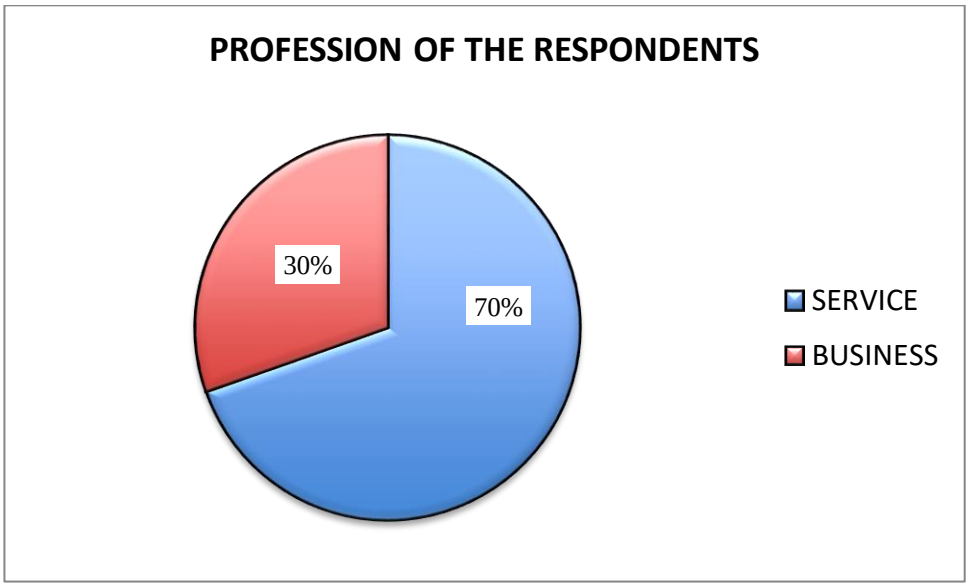


Figure 3.5: Profession of the respondents

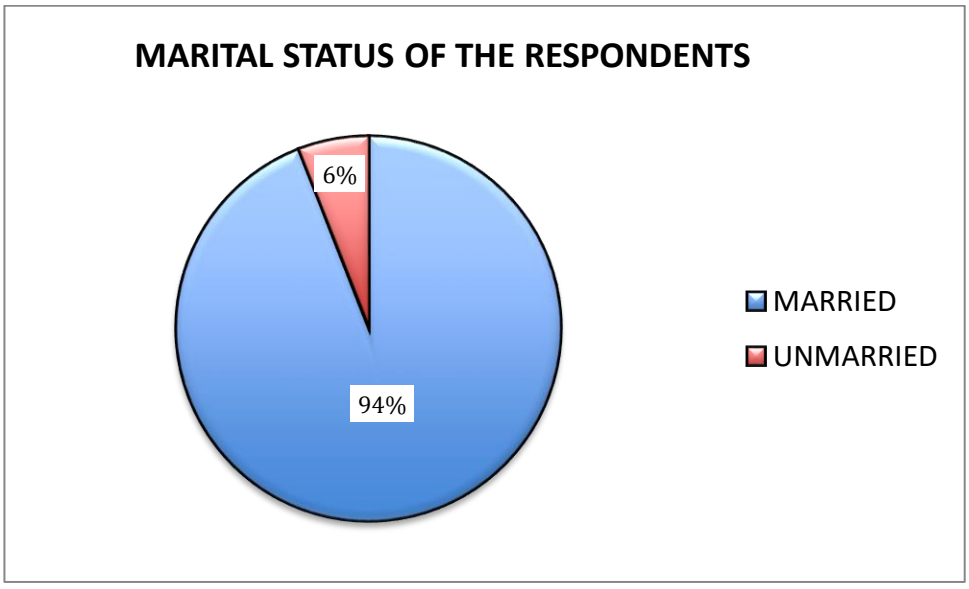


Figure 3.6: Marital status of the respondents

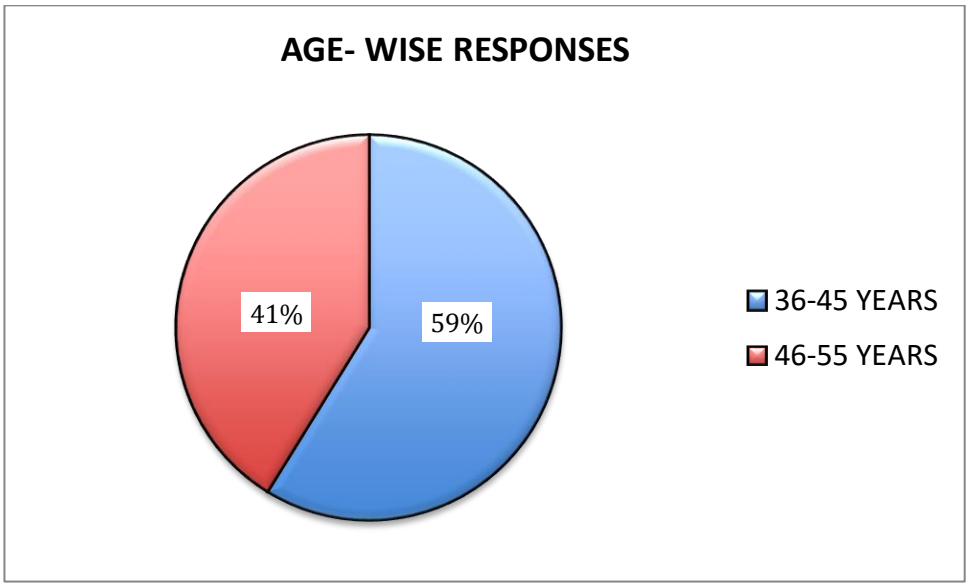


Figure 3.7: Age-wise responses

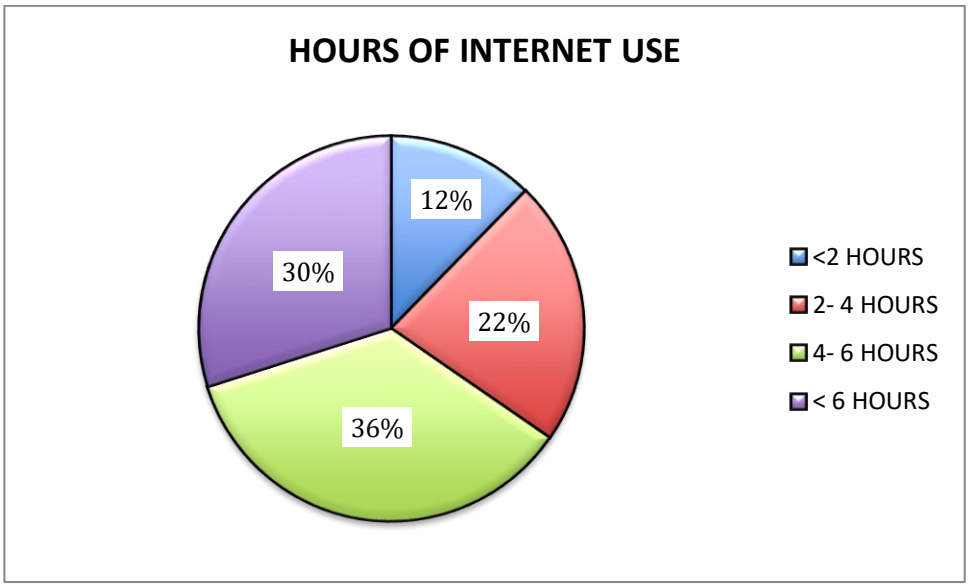


Figure 3.8: Hours of internet use

CHAPTER IV

Data Analysis and Interpretation

The data have been analyzed through the descriptive statistics and multivariate analysis technique that includes mean, standard deviation, factor analysis; cronbach's coefficient alpha; multiple regression analysis. This has been applied on the data collected from the Middle aged residents of Sikkim State of India.

4.1 Analytical Tools: The instrument of measurement used for the purpose of the study. The findings were analysed with different statistical techniques like Factor Analysis, ANOVA and multiple regression.

4.1.1 Validity and Reliability Testing

Validity and reliability are two statistical properties used to evaluate the quality of research instruments (Anastasi, 1986). Validity refers to whether or not the test measures what it claims to measure. Validity in relation to research is a judgment regarding the degree to which the components of the research reflect the theory, concept, or variable under study (Streiner and Norman. 1996). The instruments which are not measuring, what is required are reduced through factor analysis. Factor Analysis is the most common method to validate the instruments. It refers to a collection of statistical methods for reducing correlational data into a smaller number of dimensions or factors. Principal component analysis is used for factor analysis (Hair et al. 1998).

Reliability of an instrument reflects its stability and consistency within a given context. It is defined as a characteristic of an instrument that reflects the degree to

which the instrument provokes consistent responses. For example, a scale developed to measure intelligence might not be reliable for measurement of personality. Internal consistency refers to a measure of reliability that is frequently used with scales designed to assess psychosocial characteristics. Instruments can be assessed for internal consistency by calculating the alpha coefficient. Cronbach's coefficient alpha is used to evaluate the uni-dimensionality of a set of scale components. It's a measure of the extent to which all the variables in your scale are positively related to each other. The value of alpha coefficient ranges from 0 to 1.00. The values with higher coefficients indicate higher levels of reliability.

4.1.2 Multiple Regression Analysis

The Multiple Regression Analysis is a statistical technique that allows predicting someone's score on one variable on the basis of their scores on several other variables. The purpose of multiple regressions is to learn more about the relationship between several independent or predictor variables and a dependent or criterion variable. It measures the strength of relationship between a variable one tries to explain (e.g. employee satisfaction) and one or more explaining variables (e.g. satisfaction with pay or environment).

Regression analysis is also used to understand which, among the independent variables, are related to the dependent variable, and to explore the forms of these relationships. In restricted circumstances, regression analysis can be used to infer causal relationships between the independent and dependent variables.

It is a statistical tool for the investigation of relationships between variables. Usually, the investigator seeks to ascertain the causal effect of one variable upon another - the effect of a price increase upon demand, for example, or the effect of changes in the money supply upon the inflation rate. To explore such issues, the investigator assembles data on the underlying variables of interest and employs regression to estimate the quantitative effect of the causal variables upon the variable that they influence. The investigator typically assesses the "statistical significance" of the estimated relationships, that is, the degree of confidence that the true relationship is close to the estimated relationship. The test has been conducted at 95% confidence level means 5% significance level (α). Hence the probability value of significance should be less than 0.05 (α) to make a variable significant. There are various terms involved in regression analysis like:

1) **R-value:** It represents correlation between independent and dependent variables. Multiple correlation coefficient (R) is a measure of the strength of the linear relationship between dependent variable and the set of independent variables. The computed value of R is never negative. Hence, it represents a measure of how well the regression equation fits the data. When the value of R is close to zero, the regression equation barely predicts dependent variable. Value of R close to 1 indicates a very good fit. If two variables are correlated, then knowing the score on one variable will allow predicting the score on the other variable. The stronger the correlation, the closer the scores will fall to the regression line and therefore the more accurate the prediction.

2) **R-Squared (R2):** It is also known as Coefficient of Determination. It means that the proportion of variation in the dependent variable is explained by the independent variables. It is interpreted as the goodness of fit of a model. The higher the R-Squared, the better the variance that the dependent variable is explained by the independent variables. R-Squared tells how well the independent variables predict the dependent variable. Its value ranges between zero and one, with zero indicating that the proposed model does not improve prediction over the mean model and one indicating perfect prediction. The R-Squared is good, if it ranges between 0.7 to 1, it is moderate, if it ranges between 0.3 to 0.7 and it is poor, if it ranges between 0.0 to 0.3. In some fields such as psychology and the social sciences modeling human behavior, low R-Squared are common - it's not easy to predict behavior. If R-Squared is small but the result is statistically significant it means that independent variable(s) explain some of the variability in the dependent variable, and there are other factors affecting the dependent variable, which are not considered in the model.

3) **F-test:** It is a statistical test in which the test statistic has an F-distribution under the null hypothesis. It is most often used when comparing statistical models that have been fitted to a dataset, in order to identify the model that best fits the population from which the data were sampled. The F test aims to test the "global significance" of the model. Ideally, there must be high F-value, and a low corresponding p-value. The critical value is the tabular value of the F distribution, based on the chosen significance level (α) and the degrees of freedom.

The notation for the Fcritical is $F \sim F\ \alpha$, df(num),df(denom).

The research model can be justified on the basis of the following interpretation,

If Fcalculated >Fcritical, Research Hypothesis is accepted.

If Fcalculated < Fcritical, Research Hypothesis cannot be accepted.

A significant F-test indicates that the observed R-squared is reliable. Thus, the F-test determines whether the proposed relationship between the response variable and the set of predictors is statistically reliable, and can be useful to prove the research objectives.

4) **Sig. (p-value):** The term 'Sig.' refers to 'significance test' also known as 'statistical hypothesis test'. It is 'p-value' and therefore, gives result of a hypothesis test. It refers to a test of the entire model (i.e. the entire collections of independent variables) as a whole. If p-value is less than 0.05 (α), then research hypothesis can be accepted and the model applied can statistically significantly predict the outcome variable.

5) **B-Value:** B values are regression coefficients. These are the values for the regression equation for predicting the dependent variable from the independent variable. The size of the coefficient for each independent variable indicates the size of the effect that variable is having on dependent variable, and the sign on the coefficient (positive or negative) indicates the direction of the effect. In regression, with a single independent variable, the coefficient indicates how much the dependent variable is expected to increase (if the coefficient is positive) or decrease (if the coefficient is negative) when that independent variable increases by one. In regression, with multiple independent variables, the coefficient indicates how much the dependent variable is expected to increase when that independent variable increases by one, holding all the other independent variables constant.

4.2 Data Analysis - Study 1

Sr. No.	Demographics	Parameter	Count	Percentage
1	Gender	Male	222	54.4
2		Female	186	45.6
1	Profession	Service	284	69.6
2		Business	124	30.4
1	Marital Status	Unmarried	24	5.9
2		Married	384	94.1
1	Age	36-45	240	58.8
2		46-55	168	41.2
1	Hours of IU	<2	50	12.3
2		2 to 4	91	22.3
3		4 to 6	145	35.5
4		<6	122	29.9

Table 4.1: Demographic characteristics of the respondents for study 1

4.2.1 Descriptive Statistics

The extent of the presence of four types of motives, Internet usage and Physical Well Being was identified using mean values. The mean values depict the higher level of motivational level for all the four types of motives with overall mean value of 4.8 (above 4). The total mean value for Internet usage is also high i.e. 4.1 (above 4) that signifies the extent of the higher level of Internet usage among residents of Sikkim

whereas, presence of Physical Well Being is low with mean value of 3.7 (less than 4) mentioned in table 4.2.

Varia -ble	Items	N	Min	Max	Mean	Std. Deviation	Skewn -ess	Kurtosis	Antecedent Mean	Varia -ble Mean
M	IM1	408	3	6	4.46	1.349	.106	-1.793	4.4	4.8
	IM2	408	3	6	4.42	1.269	.210	-1.631		
	IM3	408	3	6	4.52	1.319	.025	-1.755		
	IM4	408	3	6	4.19	1.149	.562	-1.125		
	IM5	408	3	6	4.37	1.203	.306	-1.461		
	EM1	408	2	5	3.98	.644	-.816	1.940	5.1	
	EM2	408	2	5	3.85	.684	-.676	.936		
	EM3	408	2	5	4.09	.587	-.677	2.533		
	ICM1	408	3	6	5.11	1.163	-.838	-.913	4.0	
	ICM2	408	3	6	5.03	1.157	-.713	-1.047		
	ICM3	408	3	6	5.17	1.142	-1.002	-.589		
	ICM4	408	3	6	5.11	1.130	-.861	-.785		
	ICM5	408	3	6	5.13	1.158	-.924	-.754		
	SM1	408	4	7	5.87	.871	-.412	-.489	5.9	
	SM2	408	4	7	5.96	.772	-.283	-.463		
IU	IU11	408	3	6	4.73	1.247	-.230	-1.608	4.6	4.1
	IU12	408	3	6	4.26	1.082	.533	-.990		
	IU13	408	3	6	4.78	1.241	-.353	-1.521		
	IU14	408	3	6	4.78	1.201	-.288	-1.508		
	IU21	408	2	6	4.50	.784	.663	.243	3.6	

	IU22	408	2	6	4.49	.781	.414	.583		
	IU23	408	1	6	4.41	.778	.156	1.776		
PWB	SA1	408	1	5	3.75	.753	-.734	1.030	3.8	3.7
	SA2	408	1	5	3.88	.723	-.905	1.891		
	SA3	408	1	5	3.90	.667	-.288	.821		
	PR1	408	1	5	3.75	.766	-.721	.906	3.8	
	PR2	408	1	5	3.76	.713	-.671	1.036		
	PG1	408	2	5	4.01	.708	-.689	.967	4.0	
	PG2	408	1	5	3.98	.687	-.707	1.470		
	PG3	408	1	5	3.97	.707	-.586	.932		
	A1	408	1	5	3.58	.905	-.413	.061	3.6	
	A2	408	1	5	3.54	.875	-.442	.209		
	A3	408	2	5	3.70	.770	-.046	-.451		
	PL1	408	1	5	3.46	.926	-.430	-.201	3.5	
	PL2	408	1	5	3.49	.925	-.494	-.117		
	PL3	408	1	5	3.53	.908	-.647	.276		

Table 4.2: Descriptive Statistics of Internet Use

4.2.2 Validity & Reliability of the Instrument

Exploratory factor analysis (EFA) was conducted to test validity for 39 items instrument comprising of 17 items for 4 types of motives as independent variable, 7 items for Internet usage as mediator and 15 items for 5 antecedents of Physical Well Being as dependent variable. Principal component method of extraction was selected to extract the factors with promax rotation.

The Kaiser-Meyer-Olkin Measure of sampling adequacy is 0.852, which is considered as good degree of common variance and so it can be considered that the sample size is adequate for factor analysis. The Bartlett's test of Sphericity is highly significant ($p < 0.001$), and therefore factor analysis is appropriate and each variable correlates itself but there is no correlation with the other variable i.e. the data is free of multi-collinearity as shown in table 4.3.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.852
Bartlett's Test of Sphericity	Approx. Chi-Square	7023.592
	df	630
	Sig.	0.000

Table 4.3: KMO and Bartlett's Test Used for Motives of Internet Use

The factor analysis yielded nine components corresponding to the four components of independent variables i.e. motives, two components for mediator i.e. Internet use and five components of dependent variables i.e. Physical Well Being. The result of factor analysis shows that 2 items of motives i.e. EM4 and SM3 and 1 item of Physical Well Being i.e. PR3 were discarded due to low loading values, rest all the items were retained. Therefore, after factor analysis, 14 items were considered from four predictors of independent variables i.e. motives, 7 items were considered of two factors of mediator i.e. Internet use and 14 items for dependent variable i.e. Physical Well Being for further multivariate analysis. Variance explained (%) are mentioned for each component making it 69.44% of total variance explained by all the components. The Extraction Communality Coefficient (h^2) is also mentioned for each item in table 4.4.

	Component										
	1	2	3	4	5	6	7	8	9	10	h^2
V (%)	20.69	9.67	8.02	6.70	5.62	4.47	4.32	3.82	3.36	2.74	
IM1		.758									.589
IM2		.869									.786
IM3		.862									.702
IM4		.767									.626
IM5		.802									.700
EM1							.796				.757
EM2							.713				.653
EM3							.716				.688
ICM1			.674								.558
ICM2			.750								.600
ICM3			.878								.761
ICM4			.851								.718
ICM5			.844								.717
SM1										.833	.709
SM2										.716	.631
IU11									.585		.479
IU12									.686		.472
IU13									.647		.479
IU14									.683		.506

IU21								.757			.637
IU22								.852			.728
IU23								.775			.680
SA1	.557										.610
SA2	.850										.758
SA3	.900										.804
PR1	.843										.696
PR2	.756										.710
PG1				.899							.821
PG2				.853							.859
PG3				.874							.825
A1						.875					.787
A2						.894					.781
A3						.868					.776
PL1					.816						.745
PL2					.886						.825
PL3					.882						.825

Notes: Total variance explained (V) = 69.444%.

h^2 = Extraction Communality Coefficient.

Table 4.4: Exploratory Factor Analysis Used for Motives of Internet Use

After factor analysis total 36 items were considered comprising of independent, mediator and dependent variables, Reliability was tested by Cronbach's coefficient alpha. The resulting alpha values ranged from 0.50 to 0.90, which were above the acceptable threshold 0.70 suggested by Babbie (1992). The Cronbach alpha value for all the variables were higher than 0.70 which falls into the classification of high as shown in table 4.5.

Variables	Sample Size	Items	Mean	SD	α
IM	408	5	4.4	1.0	0.871
ICM	408	3	5.1	0.9	0.862
EM	408	5	4.0	1.1	0.816
SM	408	2	5.9	1.2	0.418
M	408	15	4.8	0.7	0.738
IU1	408	4	4.6	0.9	0.565
IU2	408	3	3.6	0.6	0.729
IU	408	7	4.1	0.5	0.529
SA & PR	408	5	3.8	0.7	0.888
PG	408	3	4.0	0.7	0.908
A	408	3	3.6	0.8	0.853
PL	408	3	3.5	0.8	0.875
PWB	408	14	3.7	0.8	0.848
SD - Standard Deviation; α – Cronbach's Alpha					

Table 4.5: Mean, SD And Cronbach's Alpha Used for Motives of Internet Use

4.2.3 Hypothesis Testing

The Statistical Package for the Social Sciences (SPSS) (Version 21) was used to facilitate the analysis. The regression analysis and Two way ANOVA was performed to evaluate three hypotheses i.e. first path of motives on Internet use, second path of Internet use on Physical Well Being and thirdly impact of control variables on both the path.

4.2.3 (1) Impact of Motives on Internet Use

Regression statistics in table 4.6 shows that correlation value R is 0.310, which depicts that there is a moderate relationship between motives and Internet use. The value of R Square is 0.096 i.e. the model explains 9.5% of independent variable and there might be other reasons for Internet use other than used in this study. The value of Durbin Watson test (1.817) depicts that the model is good as the value is near to 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.310	.096	.087	.5068	1.817
Predictors: SM, IM, ICM, EM; Dependent Variable: IU					

Table 4.6: Regression statistics Used for Motives of Internet Use

Table 4.7 reveals that motives have significant impact on Internet use as F (calculated value) (10.703) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.00 which is less than 0.05 significance level. Therefore, the research hypothesis H1 is accepted.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.994	4	2.748	10.703	.000
	Residual	103.490	403	.257		
	Total	114.484	407			
Predictors: SM, IM, ICM, EM; Dependent Variable: IU						

Table 4.7: ANOVA for Motives of Internet Use

Out of four motives, three motives i.e. IM, ICM and EM have significant impact on Internet use with p values of 0.001, 0.021 and 0.000 respectively; whereas SM does not significantly impact Internet use as p value is 0.635 which is greater than 0.05 as shown in table 4.8. Therefore, three sub-hypothesis i.e. H1a, H1b and H1c are accepted, whereas H1d is rejected.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.520	.279		16.187	.000
	IM	.088	.025	.170	3.478	.001
	ICM	.064	.028	.111	2.310	.021
	EM	.175	.047	.181	3.735	.000
	SM	.007	.015	.023	.476	.635
Predictors: SM, IM, ICM, EM; Dependent Variable: IU						

Table 4.8: Coefficients for Motives of Internet Use

The beta coefficients for the significant motives of Internet use i.e. IM, ICM and EM are 0.088, 0.064 and 0.175 respectively. It depicts that if IM is increased by 1 unit, Internet use will be increased by 0.088 units, if ICM is increased by 1 unit, Internet use will be increased by 0.064 units and if EM is increased by 1 unit, Internet use will be increased by 0.175 units as shown in figure 4.1.

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age, profession and marital status on Internet usage and also to check any interaction effect of demographic variables i.e. whether theeffect of one demographic variable on the dependent variable is the same for all values of other demographic variables as mentioned in table 4.9.

Predictors: SM, IM, ICM, EM; Dependent Variable: IU					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	79.748[a]	255	.313	1.368	.017
Intercept	86.115	1	86.115	376.824	.000
Gender	.653	1	.653	2.859	.093
Age	.169	1	.169	.739	.391
Profession	.353	1	.353	1.544	.216
MartialStatus	.076	1	.076	.333	.565
IM	2.619	15	.175	.764	.715
ICM	7.906	15	.527	2.306	.006
EM	6.440	9	.716	3.131	.002

IM * ICM	21.418	86	.249	1.090	.320
IM * EM	8.985	46	.195	.855	.728
ICM * EM	9.772	37	.264	1.156	.269
IM * ICM * EM	.572	5	.114	.501	.775
Error	34.736	152	.229		
Total	8610.837	408			
Corrected Total	114.484	407			
a. R Squared = .697 (Adjusted R Squared = .188)					

Table 4.9: Effects on Demographic Variables

The particular rows that are important for the work are the "Gender", "Age", “Profession” and "MaritalStatus" and interaction effect between them, as highlighted above in table 4.9. These rows inform us whether the demographic variables and their interaction have a statistically significant effect on the dependent variable, "Internet usage". It can be seen from the table above that there was no statistically significant difference in mean Internet usage between males and females (p = .093), between age (p = .391), between service and business (p = .216) and between unmarried and married (p = .565). Hence, the results of two-way ANOVA depicts that there is no difference in Internet usage among different demographic characteristics of middle-agedresidents of Sikkim. Therefore the hypothesis H2a is rejected.

4.2.3. (2) Impact of Internet Usage on Physical Well Being

Regression statistics in table 4.10 shows that correlation value R is 0.266, which depicts that there is a moderate relationship between Internet use and Physical Well

Being. The value of R Square is 0.071 i.e. the model explains 7% of independent variable which effect Physical Well Being and there might be other reasons for PWB other than used in this study. The value of Durbin Watson test (2.005) depicts that the model is good as the value is near to 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.266	.071	.066	.4447	2.005
Predictors: IU2, IU1; Dependent Variable: PWB					

Table 4.10: Regression statistics for Internet Usage on Physical Well Being

Table 4.11 reveals that Internet use has significant impact on Physical Well Being as F (calculated value) (15.423) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.00, which is less than 0.05 significance level. Therefore, the research hypothesis H3 is accepted.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.100	2	3.050	15.423	.000
	Residual	80.086	405	.198		
	Total	86.185	407			
Predictors: IU2, IU1; Dependent Variable: PWB						

Table 4.11: ANOVA for Internet Usage on Physical Well Being

Out of two predictors of Internet use, both predictors i.e. preference (U1) and dependency (U2) have significant impact on PWB with p values of 0.000 and 0.000 respectively. Therefore, both the sub-hypothesis i.e. H3a and H3b are accepted as mentioned in table 4.12.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.861	.204		23.837	.000
	IU1	-.105	.028	-.179	-3.746	.000
	IU2	-.130	.031	-.198	-4.128	.000
Predictors: IU2, IU1; Dependent Variable: PWB						

Table 4.12: Coefficients for Internet Usage on Physical Well Being

The beta coefficients for the significant predictors of Internet use i.e. preference (U1) and dependency (U2) are -0.105 and -0.130 respectively. It depicts that if preference (U1) is decreased by 1 unit, PWB will increase by 0.105 units and if dependency (U2) is decreased by 1 unit, PWB will increase by 0.130 units due to negative values of beta coefficients of the predictors as shown in figure 4.1.

4.2.3. (3)Impact of Demographic Characteristics

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age, profession and marital status on Internet usage and also to check any interaction effect of demographic variables i.e. whether the

effect of one demographic variables on the dependent variable is the same for all values of other demographic variables as mentioned in table 4.13.

Predictors: IU2, IU1; Dependent Variable: PWB					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	23.362[a]	86	.272	1.388	.023
Intercept	112.115	1	112.115	572.860	.000
Gender	.079	1	.079	.402	.527
Age	.205	1	.205	1.049	.307
Profession	.006	1	.006	.031	.860
MartialStatus	.109	1	.109	.557	.456
IU1	2.776	12	.231	1.182	.295
IU2	3.358	6	.560	2.860	.010
IU1 * IU2	10.790	64	.169	.861	.762
Error	62.823	321	.196		
Total	5780.908	408			
Corrected Total	86.185	407			
a. R Squared = .271 (Adjusted R Squared = .076)					

Table 4.13: Impact of Demographic Characteristics

The particular rows we are interested in are the "Gender", "Age", “Profession” and "Marital Status" rows and interaction effect between them, as highlighted above in

table 13. These rows inform us whether our demographic variables and their interaction have a statistically significant effect on the dependent variable, "Internet usage". We can see from the table above that there was no statistically significant difference in mean Internet usage between males and females (p = .527), between age (p = .307), between service and business (p = .860) and between unmarried and married (p = .456). Hence, the results of two way ANOVA depicts that there is no difference in PWB among different demographic characteristics of middle aged residents of Sikkim. Therefore, the hypothesis H2b is rejected.

4.2.3 (4) Analytical Model

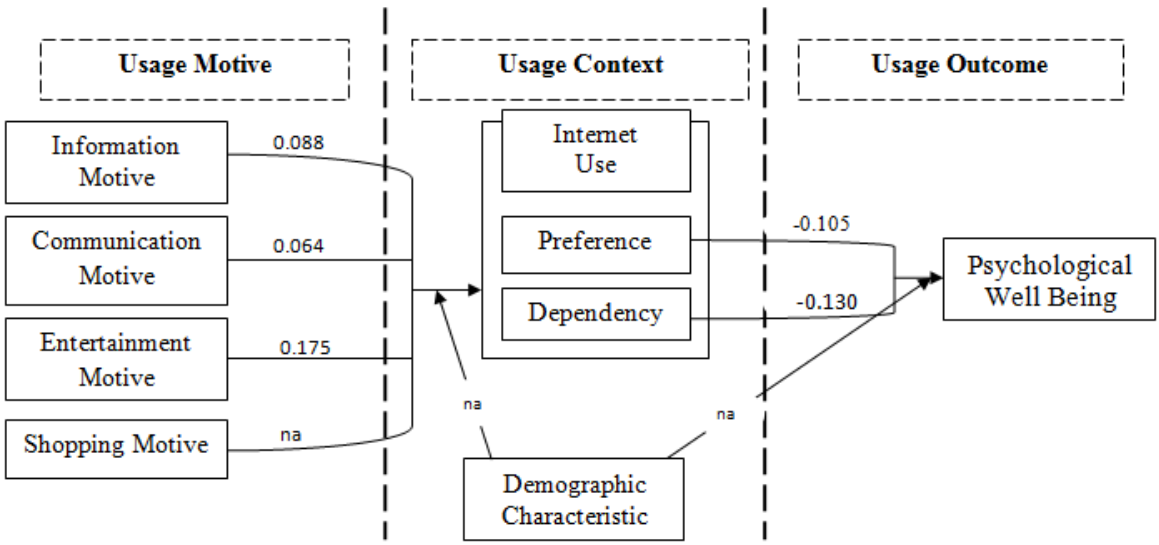


Figure 4.1: Analytical Model of Internet Use

4.3 Data Analysis - Study II

Sr. No.	Demographics	Parameter	Count	Percentage
1	Gender	Male	211	53.6
2		Female	183	46.4
1	Profession	Service	273	69.3
2		Business	121	30.7
1	Marital Status	Unmarried	38	9.6
2		Married	356	90.4
1	Age	36-45	234	59.4
2		46-55	160	40.6
1	Hours of IU	<2	35	8.9
2		2 to 4	90	22.8
3		4 to 6	140	35.5
4		<6	129	32.7

Table 4.14: Demographic characteristics of the respondents for study 2

4.3.1 Descriptive Statistics

The extent of the presence of the variables was identified using mean values. The mean values depict good Psychosocial Health of the respondents with overall mean value of 2.8 (below 4) i.e. the middle aged in Sikkim are not depressed (3.0) and does not feel lonely (2.5).

The total mean value for culture perception is less i.e. 2.6 (below 4) that signify the individual cultural dimensions i.e. low Power Distance indicates egalitarian (power distributed equally), low mean value of Individualism-Collectivism indicates collectivist (attaining group goals), low Uncertainty Avoidance score indicates comfortable with uncertainty (more relaxed, open or inclusive), low Masculinity-Femininity score indicates they are relationship oriented and focus on quality of life i.e. Sikkim is feminine society and people here manage people's focus on managing through discussion, consensus, compromise, and negotiation, low Long-Term vs. Short-Term Orientation score indicates short term orientation (short-term gains and quick results).

Overall mean value of personality is greater than average but individually greater for O and E and less for C and AN, hence, middle aged in Sikkim are open implying they enjoy to try new things, creative and extrovert meaning adventure seeking and are less organized, impulsive, stubborn but optimist, keep calm in stressful situation and worry less.

Overall mean value for Problematic Internet Use is greater than average i.e. Middle aged in Sikkim use Internet extensively i.e. it is found that the extent of Internet usage is high among residents of Sikkim but they do not show risky Behavior with low mean value of 3.8 (less than 4) as mentioned in table 4.15.

Variable	**Items**	N	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis	Antecedent Mean	Variable Mean
PSH	D1	394	1.0	5.0	3.190	1.157	-.634	-.332	3.0	2.8
	D2	394	1.0	5.0	2.835	1.225	-.332	-1.059		
	D3	394	1.0	5.0	2.952	1.231	-.294	-.912		
	L2	394	1.0	5.0	2.447	1.464	.747	-.905	2.5	
	L3	394	1.0	5.0	2.619	1.570	.531	-1.321		
Culture	PD1	394	1.0	5.0	3.0	1.1	-.178	-.818	3.0	2.6
	PD2	394	1.0	5.0	3.2	1.0	-.377	-.568		
	PD3	394	1.0	5.0	2.8	1.1	.064	-.887		
	IC1	394	1.0	5.0	1.3	0.8	1.847	1.159	1.7	
	IC2	394	1.0	5.0	1.9	1.0	1.021	.054		
	IC3	394	1.0	5.0	1.4	0.8	1.292	1.362		
	IC4	394	1.0	5.0	1.9	1.1	.838	-.369		

	UA1	394	1.0	5.0	3.3	1.1	-.275	-.910	3.4	
	UA2	394	1.0	5.0	3.1	1.2	-.183	-1.082		
	UA3	394	1.0	5.0	3.3	1.1	-.370	-.758		
	UA4	394	1.0	5.0	3.6	1.0	-.524	-.398		
	MF1	394	1.0	5.0	2.5	1.2	.563	-.667	3.4	
	MF2	394	1.0	5.0	2.6	1.1	.531	-.191		
	MF3	394	1.0	5.0	2.7	1.2	.157	-.932		
	MF4	394	1.0	5.0	2.6	1.1	.477	-.414		
	MF5	394	1.0	5.0	2.2	1.2	.686	-.418		
	LSO1	394	1.0	5.0	2.4	1.2	.502	-.572	2.5	
	LSO2	394	1.0	5.0	2.8	1.3	.283	-.984		
	LSO3	394	1.0	5.0	2.3	1.2	.680	-.466		
	LSO4	394	1.0	5.0	2.1	1.2	1.089	.518		

Personality	O1	394	4.0	7.0	6.1	0.7	-.498	.015	6.1	4.7
	O2	394	4.0	7.0	6.1	0.7	-.451	-.259		
	C1	394	1.0	6.0	2.7	1.4	.532	-.592	2.7	
	C2	394	1.0	6.0	3.1	1.3	.174	-.749		
	E1	394	4.0	7.0	5.3	0.9	.404	-.603	5.3	
	E2	394	4.0	7.0	5.4	0.9	.342	-.711		
	A1	394	1.0	5.0	3.5	1.3	-.534	-.888	3.5	
	A2	394	1.0	5.0	3.7	1.3	-.673	-.688		
	N1	394	1.0	6.0	3.4	1.6	.099	-1.267		
	N2	394	1.0	6.0	3.8	1.7	-.212	-1.271		
PIU	OB1	394	3.0	7.0	4.8	1.4	-.044	-1.535	4.6	5.0
	OB2	394	3.0	7.0	4.6	1.4	.117	-1.440		
	OB3	394	3.0	7.0	4.7	1.4	-.004	-1.565		

	NG1	394	3.0	7.0	5.3	1.5	-.587	-1.245		
	NG2	394	3.0	7.0	5.4	1.5	-.777	-.995	5.1	
	NG3	394	3.0	7.0	4.9	1.5	-.113	-1.514		
	CD1	394	1.0	7.0	5.2	1.4	-.595	-.049		
	CD2	394	1.0	7.0	5.3	1.3	-.674	-.072	5.4	
	CD3	394	1.0	7.0	5.7	1.3	-1.015	.577		
RB	SU1	394	3.0	6.0	4.4	1.2	.742	-.412		3.8
	SU2	394	2.0	5.0	3.5	1.0	-.574	-.009	4.0	
	SU3	394	3.0	6.0	4.2	1.2	.752	-.612		
	SS1	394	1.0	5.0	3.6	0.9	-.052	-.726		
	SS3	394	1.0	5.0	3.2	1.0	.204	-.791	3.3	
	SS4	394	1.0	5.0	3.1	1.1	.026	-.531		
	LC2	394	2.0	5.0	3.4	1.1	-.228	-.613	3.8	

	LC3	394	3.0	6.0	4.6	1.5	.105	-1.620		
	LC4	394	2.0	5.0	3.2	1.1	-.058	-.812		

Table 4.15: Descriptive Statistics of Internet Usage and Outcome

4.3.2 Validity & Reliability of the Instrument

Exploratory factor analysis (EFA) was conducted to test validity for 59 items in the instrument comprising of 9 items for Psychosocial Health, 10 items for personality, 20 items for Culture as independent variable, 9 items for Problematic Internet Use as mediator and 11 items for risky Behavior as dependent variable. Principal Component Analysis of extraction was selected to extract the factors with promax rotation.

The Kaiser-Meyer-Olkin Measure of sampling adequacy is 0.813, which is considered as good degree of common variance and so it can be considered that sample size is adequate for factor analysis. The Bartlett's test of Sphericity is highly significant ($p < 0.001$), and therefore factor analysis is appropriate and each variable correlates itself but there is no correlation with the other variable i.e. the data is free of multi-co-linearity as shown in table 4.16.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.837
Bartlett's Test of Sphericity	Approx. Chi-Square	12621.250
	df	1378
	Sig.	.000

Table 4.16: KMO and Bartlett's Test Used for Internet Usage and Outcome

The factor analysis yielded fifteen components corresponding to the two components for Psychosocial Health with 5 items, four Components for Personality with 10 items, five components for culture with 20 items, three components for PIU with 6 items and three components for RB with 9 items. The result of factor analysis shows that all 3

items of shyness, one item for loneliness (L1), all 3 items of Control disorder antecedent of Risky Behavior item (LC1) of Lifestyle Characteristics antecedents of Risky Behavior were discarded due to low loading values, rest all the items were retained. Therefore, after factor analysis, 9 items were discarded whereas 53 were considered comprising of 35 items for three independent variables i.e. Psychosocial Health, personality and culture, 9 items for Problematic Internet Use as mediator and 9 items for Risky Behavior as dependent variable i.e. Physical Well Being for further multivariate analysis. Variance explained (%) is mentioned for each component making it 75.87% of total variance explained by all the components. The Extraction Communality Coefficient (h^2) is also mentioned for each item in table 4.17.

	Component																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	h^2
V (%)	21.58	6.962	6.029	5.267	4.188	3.934	3.755	3.418	3.056	2.864	2.78	2.448	2.24	2.112	1.868	1.72	1.64	
D1						.829												.672
D2						.839												.581
D3						.854												.640
L2																	.815	.894
L3																	.875	.889
PD1								.934										.849
PD2								.758										.772
PD3								.740										.750
IC1					.864													.676

IC2					.793													.758
IC3					.773													.660
IC4					.849													.788
UA1		.831																.775
UA2		.769																.802
UA3		.866																.812
UA4		.833																.718
MF1	.710																	.734
MF2	.543																	.577
MF3	.876																	.782
MF4	.678																	.708
MF5	.999																	.790
LSO1			.812															.788
LSO2			.859															.725
LSO3			.885															.779
LSO4			.763															.778
O1														.820				.753
O2														.891				.788
C1											.932							.760
C2											.928							.808
E1										.977								.927
E2										.974								.926
A1				.826														.812

A2				.860														.754
N1				.634														.739
N2				.633														.729
OB1													.706					.614
OB2													.722					.706
OB3													.716					.594
NG1												.764						.581
NG2												.687						.656
NG3												.780						.512
CD1									.863									.666
CD2									.863									.644
CD3									.659									.639
SU1																.761		.684
SU2																.708		.607
SU3																.655		.609
SS1							.826											.783
SS3							.838											.777
SS4							.793											.760
LC2															.610			.644
LC3															.755			.639
LC4															.726			.684

Notes: Total variance explained (V) = 75.87%.

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization

h^2 = Extraction Communality Coefficient.

Table 4.17: Exploratory Factor Analysis Used for Internet Usage and Outcome

After factor analysis total 50 items were considered comprising of independent, mediator and dependent variables. Reliability was tested by Cronbach's coefficient alpha. The resulting alpha values ranged from 0.50 to 0.90, which were above the acceptable threshold 0.70 suggested by Babbie (1992). The Cronbach alpha value for all the variables were higher than 0.70, which falls into the classification of high as shown in table 4.18.

Variables	Sample Size	Items	Mean	SD	α
D	394	3	3.0	1.1	0.854
L	394	2	2.5	1.3	0.650
PSH	394	5	2.8	0.8	0.604
PD	394	3	3.0	0.9	0.858
IC	394	4	1.7	0.9	0.827
UA	394	4	3.4	0.9	0.915
MF	394	5	3.4	1.0	0.878
LSO	394	4	2.5	1.1	0.916
CUL	394	20	2.6	0.4	0.470

O	394	2	6.1	0.7	0.846
C	394	2	2.7	1.2	0.888
E	394	2	5.3	0.9	0.944
AN	394	4	3.5	1.3	0.879
PER	394	10	4.7	0.5	0.696
OB	394	3	4.6	1.1	0.673
NG	394	3	5.1	1.1	0.662
CD	394	3	5.4	1.2	0.791
PIU	394	9	5.0	0.7	0.613
SU	394	3	4.0	0.8	0.746
SS	394	3	3.3	0.7	0.837
LC	394	3	3.8	1.1	0.812
RB	394	9	3.8	0.4	0.412

Table 4.18: Mean, SD And Cronbach's Alpha Used for Internet Usage and Outcome

4.3.3 Hypothesis Testing

The Statistical Package for the Social Sciences (SPSS) (Version 21) was used to facilitate the analysis. The regression analysis and Two way ANOVA was performed to evaluate four hypotheses i.e. first path of Psychosocial Health on Problematic Internet Use, second path of personality on Problematic Internet Use, third path of culture on Problematic Internet Use and fourth path of Problematic Internet Use on Risky Behavior. Impact of demographic factors like gender, profession, marital status, age and hours of Internet use were also checked on both the path as control variables.

4.3.3 (1) Impact of PSH, Personality & Culture on PIU

Regression statistics in table 4.19 shows that correlation value R is 0.568, which depicts that there is a moderate relationship between PSH, personality and culture and PIU. The value of R Square is 0.323 i.e. the model explains 32.3% of dependent variable and there might be other reasons for Problematic Internet Use other than used in this study. The value of Durbin Watson test (1.964) depicts that the model is good as the value is near to 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.568	.323	.298	.5979	1.964
Predictors: AN, O, E, D, L, IC, UA, C, MF, PD, LSO; Dependent Variable: PIU					

Table 4.19: Regression statistics for Internet Usage and Outcome

Table 4.20 reveals that usage context have significant impact on Problematic Internet Useas F (calculated value) (12.7) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.00, which is less than 0.05 significance level. Therefore, the research hypothesis H1 is accepted.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.976	11	4.543	12.711	.000
	Residual	104.727	293	.357		
	Total	154.703	304			
Predictors: E, L, IC, C, UA, D, O, PD, MF, LSO; Dependent Variable: PIU						

Table 4.20: ANOVA for Internet Usage and Outcome

All three usage context i.e., Psychosocial Health, personality and culture have significant impact on PIU. One antecedent of Psychosocial Health i.e. Loneliness (L) with p value of 0.000, two antecedents of culture i.e. Power Distance (PD) and Long-term vs. Short-term Orientation (LSO) with p values of 0.012 and 0.002 respectively; two antecedents of personality i.e. Openness (O)andAgreeableness - Neuroticism (AN) with p values of 0.012 and 0.002 respectively as shown in table 4.21. Therefore, three sub-hypothesis i.e. H1a, H1b and H1c are accepted.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.298	.522		6.322	.000
	D	.005	.031	.008	.154	.878
	L	.151	.034	.222	4.395	.000
	PD	.113	.045	.154	2.530	.012
	IC	-.013	.047	-.015	-.276	.783
	UA	.024	.046	.031	.515	.607
	MF	-.058	.044	-.079	-1.329	.185
	LSO	-.137	.043	-.208	-3.184	.002
	O	.192	.058	.179	3.338	.001
	C	-.004	.032	-.007	-.123	.902
	E	.023	.039	.029	.577	.564
	AN	-.080	.037	-.144	-2.151	.032
Predictors: E, L, IC, C, UA, D, O, PD, MF, LSO; Dependent Variable: PIU						

Table 4.21: Coefficients for Internet Usage and Outcome

The beta coefficients for the significant antecedents of usage context i.e. L, PD, LSO, O, and AN are 0.151, 0.113, -0.137, 0.192 and -0.080 respectively. It depicts that if L is increased by 1 unit, PIU will be increased by 0.151 units, if PD is increased by 1 unit, PIU will be increased by 0.113 units, if LSO is increased by 1 unit, Problematic Internet Use will be decreased by 0.137 units, if O is increased by 1 unit, Problematic Internet Use will be increased by 0.192 units, and if AN is increased by 1 unit, Problematic Internet Use will be decreased by 0.080 units as shown in figure 4.2.

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age, profession and marital status on Problematic Internet Use and also to check any interaction effect of demographic variables i.e. whether the effect of one demographic variable on the dependent variable is the same for all values of other demographic variables as mentioned in table 4.22.

Predictors: PSH, CUL, Per; Dependent Variable: PIU; Covariates: Gender, Age, Profession, MartialStatus, HoursofIU					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	190.367	298	.639	12.617	.000
Intercept	18.040	1	18.040	356.293	.000
Gender	.002	1	.002	.034	.854
Age	.140	1	.140	2.769	.099
Profession	.004	1	.004	.083	.774
MartialStatus	.602	1	.602	11.897	.061
PSH	9.712	23	.422	8.340	.000

CUL	12.891	33	.391	7.715	.000
PER	4.387	15	.292	5.776	.000
PSH * CUL	10.301	17	.606	11.967	.000
PSH * PER	2.215	5	.443	8.749	.000
CUL * PER	7.451	9	.828	16.350	.000
PSH * CUL * PER	.000	0	.	.	.
Error	4.810	95	.051		
Total	10214.790	394			
Corrected Total	195.177	393			
a. R Squared = .975 (Adjusted R Squared = .898)					

Table 4.22: Effects of Demographic Factors on Marital Status and PIU

The particular issues that are interesting for the current work are the "Gender", "Age", “Profession” and "Marital Status" rows in the table and interaction effect between them, as highlighted above in table 9. These rows inform the current work whether the demographic variables and their interaction have a statistically significant effect on the dependent variable, "PIU". It can be seen from the table above that there is no statistically significant difference in mean Problematic Internet Use between males and females (p = .854), between age (p = .099), between service and business (p = .774), between unmarried and married (p = .061) for Problematic Internet Use. Hence, the results of two way ANOVA depicts that there is no difference in Problematic Internet Use among different demographic characteristics of middle aged residents of Sikkim.

4.3.3 (2) Impact of Problematic Internet Use on Risky Behaviour

Regression statistics in table 4.23 shows that correlation value R is 0.198, which depicts that there is a week relationship between Problematic Internet Use and Risky Behaviour. The value of R Square is 0.039 i.e. the model explains 4% of dependent variable which affect Risky Behaviour and there might be other reasons for Risky Behaviour other than used in this study. The value of Durbin Watson test (2.005) depicts that the model is good as the value is near to 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.198	.039	.029	.4196	2.074
Predictors: CD, OB, NG; Dependent Variable: RB					

Table 4.23: Regression statistics for Impact of Problematic Internet Use on Risky Behaviour

Table 4.24 reveals that Problematic Internet Use has significant impact on Risky Behaviour as F (calculated value) (4.074) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.007 which is less than 0.05 significance level. Therefore, the research hypothesis H2 is accepted.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.152	3	.717	4.074	.007
	Residual	52.999	301	.176		
	Total	55.151	304			
Predictors: CD, OB, NG; Dependent Variable: RB						

Table 4.24: ANOVA for Impact of Problematic Internet Use on Risky Behaviour

Out of three antecedents of Problematic Internet Use, two antecedents i.e. Neglect (NG) and Control Disorder (CD) have significant impact on Risky Behaviour with p values of 0.046 and 0.005 respectively as mentioned in table 4.25.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.250	.176		24.163	.000
	OB	.015	.023	.039	.670	.503
	NG	.045	.022	.118	2.000	.046
	CD	.058	.021	.160	2.825	.005
Predictors: CD, OB, NG; Dependent Variable: RB						

Table 4.25: Coefficients for Impact of Problematic Internet Use on Risky Behaviour

The beta coefficients for the significant antecedents of Problematic Internet Use i.e. Neglect (NG) and Control Disorder (CD) are -0.045 and -0.058 respectively. It depicts that if Neglect (NG is increased by 1 unit, Risky Behaviour will be decreased by

0.045 units and if Control Disorder (CD) is increased by 1 unit, Risky Behaviour will be decreased by 0.058 units due to negative values of beta coefficients of the antecedents shown in table 4.25.

4.3.3 (3)Impact of Demographic Characteristics

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age, profession and marital status on Risky Behaviour and also to check any interaction effect of demographic variables i.e. whether the effect of one demographic variables on the dependent variable is the same for all values of other demographic variables as mentioned in table 4.26.

Predictors: PIU; Dependent Variable: RB; Covariates: Gender, Age, Profession, MartialStatus, HoursofIU					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	12.493	36	.347	2.038	.001
Intercept	95.745	1	95.745	562.241	.000
Gender	.018	1	.018	.107	.744
Age	.873	1	.873	5.125	.064
Profession	.031	1	.031	.183	.669
MartialStatus	.038	1	.038	.224	.636
PIU	11.609	31	.374	2.199	.000
Error	60.794	357	.170		
Total	5683.043	394			
Corrected Total	73.287	393			
a. R Squared = .170 (Adjusted R Squared = .087)					

Table 4.26: Effects of Demographic Factors on Risky Behaviour

"Gender", "Age", “Profession” and "Marital Status" rows and interaction effect between them, as highlighted above in table 4.26 reveal significant observations. These rows inform whether the demographic variables and their interaction have a statistically significant effect on the dependent variable, " Risky Behaviour ". It can be seen from the table above that there was no statistically significant difference in mean PIU between males and females (p = .744), between service and business (p = .669) and between unmarried and married (p = .636), between different age (p = .064) Hence, the results of two way ANOVA depicts that there is no difference in Risky Behaviour among different demographic characteristics of middle aged residents of Sikkim.

4.3.3 (4) Analytical Model

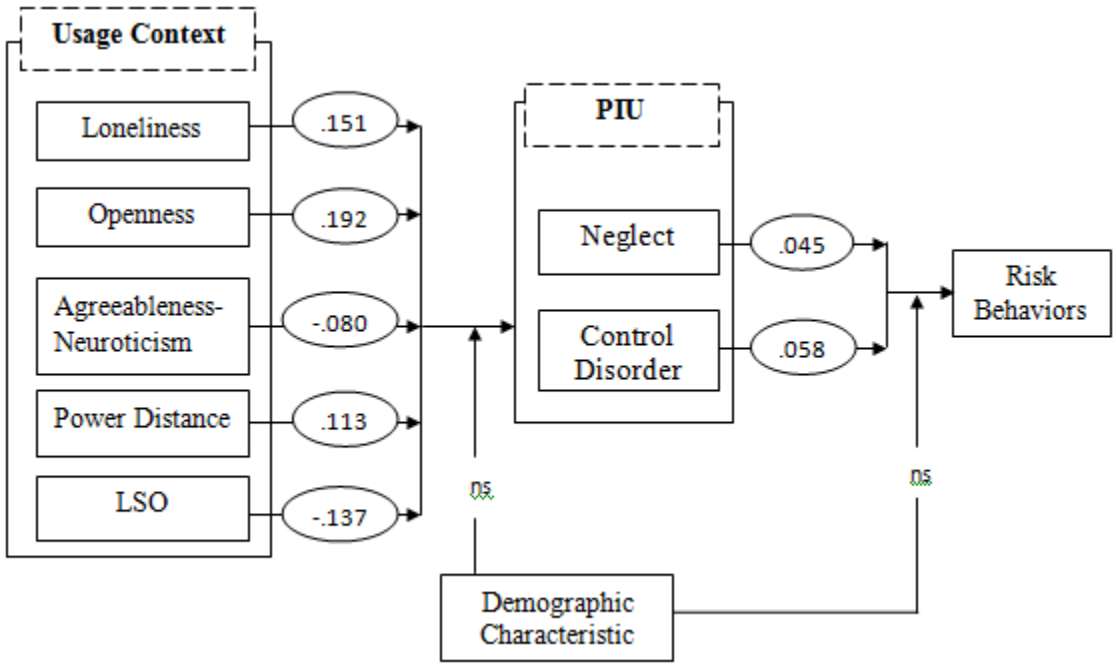


Figure 4.2: Analytical Model of Problematic Internet Use

CHAPTER V

Results of the Study

The Statistical Package for the Social Sciences (SPSS-19) was used to facilitate the analysis. The psychometric properties of the instrument were analyzed using principal component analysis with varimax rotation to determine construct validity and Cronbach's coefficient alpha to determine the scale's internal consistency reliability. Regression analysis was used to find the causal relationship between independent and dependent variables. The findings of the two studies have been discussed separately.

5.1Discussion: Study 1

The present study results revealed that how people use the Internet is as important as how much time they spend on the Internet. Most of the respondents implying around 65.5% spent more than 4 hours on Internet on a typical day. While data from this study suggest some relationship between motives and time spent on the Internet, the precise nature of that relationship is unclear and needs further inquiry. From examining four different applications of the Internet in this study (i.e., using the Internet for communication, information, entertainment, and shopping), each function was associated with usage of Internet except shopping, means residents of Sikkim do not get motivated to use Internet for shopping that is they have other offline alternatives for shopping. Using the Internet for communication with relatives and friends was specifically associated with lower levels of social loneliness.

The extent of the presence of four types of motives, Internet usage and Physical Well Being was identified using mean values. The mean values depict the higher level of motivational level for all the four types of motives with overall mean value of 4.8 (above 4). The total mean value for Internet usage is also high i.e. 4.1 (above 4) that signifies the extent of the higher level of Internet usage among residents of Sikkim, whereas, presence of Physical Well Being is low with mean value of 3.7. Results reveal that motives have significant impact on Internet use ($p < 0.05$). Therefore, the research hypothesis H1 is accepted.

Out of four motives, three motives, which are Information Motive, Interpersonal Communication Motives, and Entertainment Motives have significant impact on Internet use with p values of 0.001, 0.021 and 0.000 respectively; whereas Shopping Motives do not significantly impact Internet use as p value is 0.635. Therefore, three sub-hypothesis, H1a, H1b and H1c are accepted, whereas H1d is rejected. The beta coefficients for the significant motives of Internet use, which are IM, ICM and EM, are 0.088, 0.064 and 0.175 respectively. It depicts that if IM is increased by 1 unit, Internet use will be increased by 0.088 units, if ICM is increased by 1 unit, Internet use will be increased by 0.064 units and if EM is increased by 1 unit, Internet use will be increased by 0.175 units. For the broad range of daily activities, the most useful tool that has evolved in this knowledge economy is the Internet (Khang, Kim, & Kim, 2013; Odacı&Cıkrıkcı, 2014). The influence of the Internet leads to enhanced and better communication, increased social connection, entertainment and leisure, knowledge and information gaining and work-related activities (Shen& Williams, 2011).

Results also reveal that Internet use has significant impact on Physical Well Being ($p < 0.05$). Therefore, the research hypothesis H3 is accepted. Out of the two predictors of Internet use, both predictors which are preference (U1) and dependency (U2) have significant impact on Physical Well Being with p values of 0.000 and 0.000 respectively. Therefore, both the sub-hypothesis, i.e. H3a and H3b are accepted. The beta coefficients for the significant predictors of Internet use i.e. preference (U1) and dependency (U2) are -0.105 and -0.130 respectively. It depicts that if preference (U1) is decreased by 1 unit, Physical Well Being will be increase by 0.105 units and if dependency (U2) is decreased by 1 unit, PWB will be increase by 0.130 units due to negative values of beta coefficients of the predictors.

Many studies have discussed the relationship between Internet use and Physical Well Being (Yang et al., 2014; Scimeca et al., 2014; Lachmann, 2016). Physical Well Being is the positive and negative emotions experienced by an individual and evaluate it subjectively to the extent of a higher level of satisfaction with life (Diener&Suh, 1997). The negative aspects of Physical Well Being can be loneliness, stress, and depression, whereas positive elements can be self-acceptance, positive relations, personal growth, etc. Although, Physical Well Being level is low i.e. positive elements are low, but it is not sure that negative elements i.e. loneliness, stress or depression levels among residents of Sikkim are high. It will require further investigation in terms of psychosocial health and problematic Internet use as usage of Internet in terms of hours in a day is also high.

Increase in motives for use of Internet implying information, communication and entertainment motives will increase the Internet usage in terms of hours of Internet use as well as dependency on Internet, which further reduces the Physical Well Being

of residents of Sikkim among middle-aged as Internet usage have inverse effect on Physical Well Being and its level is also less as its mean value is below average which means residents of Sikkim have low level of Physical Well Being in terms of their self-acceptance, positive relation, personal growth, autonomy and purpose in life.

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age; profession and marital status on Internet usage and Physical Well Being and also to check any interaction effect of demographic variables which means whether the effect of one demographic variable on the dependent variable is the same for all values of other demographic variables. The results depicts that there is no difference in Internet usage and Physical Well Being among different demographic characteristics of middle-aged residents of Sikkim. Therefore, hypotheses, H2a and H2b are rejected.

The results are mixed meaning both in favour and against the previous studies for different demographic characteristic like studies indicate the use of the Internet is significantly affected by age (Dutton et al. 2009; Ewing and Thomas 2010; Dutta et al., 2017; Bugeun et al., 2018), but this study used only one age group of middle aged, which has also been divided into two groups, but even then there is no difference for Internet use. Results of this study revealed no effect of gender also, which is aligned with previous studies that demonstrated a decline in the difference of Internet usage among gender (Losh, 2009; Ewing and Thomas, 2010; Chao et al., 2020), implying male and female equally use technology and Internet, moreover, their preference also do not differ, which goes against the findings of previous studies conducted which proves that, males tend to be occupied more in almost all activities related to

communication, entertainment, leisure, and content creation than females (Dutton et al. 2009, Mihara et al., 2016). Moreover, results also reveal that profession also does not make any difference as supported by previous studies by Ewing and Thomas (2010) and Liang (2007) are significant factors having notable Internet use effects. Research suggests that individuals with higher income and education spend less time online than those with less fortunate backgrounds (Goldfarb and Prince, 2008; Mazur et al., 2012).

Hence, this study explored the dynamics of Internet use and tested the theoretical construct based on relating three interacting aspects, i.e., usage motives, usage context, and usage consequences on the basis of Cyclic Value-Context Reinforcement Model of Internet use (Doh et al., 2018). The study results supported the proposed model significantly. The results of this study uncover that perceived usefulness and perceived enjoyment towards the Internet are the significant factors in determining the intention in using the Internet. The results of this study also show that intention of residents is a key aspect of using the Internet for their information, communication and entertainment purpose. It clarifies 66% of the variance of actual usage of Internet. This finding is in accordance with the study conducted by Shen& Williams, 2011.

Although there were several significant findings in this study, it has several limitations. Firstly, the self-administered questionnaire used in this study may lead to under-reporting of the actual Internet usage by the respondents. Secondly, this study was conducted in only one state, thus did not depict the overall scenarios of other states in the country. Thirdly, that this study is a based on only one age group i.e. middle-aged, thus generalizability of the relationship cannot be established for other age groups

5.2 Discussion: Study 2

The present study results reveal how people use the Internet is as important as how much time they spend on the Internet. The extent of Internet use by respondents in terms of hours in a typical day was maximum for 4 to 6 hours for 145 (35.5%) respondents followed by 122 (29.9%). Spending more hours on Internet may or may not depict Problematic Internet Use, but various studies support the notion of significant effect of Internet use for more hours on becoming addictive or possessive towards Internet implying people may show behavioral implications for Problematic Internet Use (Beard & Wolf, 2001; Davis, 2001; Morahan-Martin & Schumacher, 2000; Sanders et al., 2000; Young, 1996, 1998). The mean values of Problematic Internet Use in this study provide evidence that the middle aged in Sikkim are addicted to Internet meaning they are obsessed with Internet activities, they neglect non-Internet activities and suffer with control disorder which means they are unable to stop using Internet, even if they are willing to stop, they are unsuccessful.

The Problematic Internet Use symptoms depict that the residents of Sikkim feel depressed and nervous when they are away from Internet; they feel tense, irritated, or stressed if they are unable to use Internet. People in their lives complain for the time they spend on Internet and they prefer spending time on Internet more rather than sleep and often they neglect household chores. They realize that they are obsessed and spend more time on Internet but they are unable to control it.

Although the Psychosocial Health, personality and culture are in favour of using Internet in controlled manner, which helped them to be able to avoid the risky Behavior even though after having the symptoms of Problematic Internet Use. The residents of Sikkim have good Psychosocial Health as the mean value is 2.8 (below 4

for depression and loneliness scale) implying the middle aged in Sikkim are not depressed ($\mu = 3.0$) and do not feel lonely ($\mu = 2.5$).

The total mean value for culture perception is less and stands at 2.6 (below 4) which signifies the individual cultural dimensions like low Power Distance (PD) indicates egalitarian (power distributed equally), low mean value of individualism-collectivism (IC) indicates collectivist (attaining group goals), low Uncertainty Avoidance (UA) score indicates comfortable with uncertainty (more relaxed, open or inclusive), low MF score indicates they are relationship oriented and focus on quality of life i.e. Sikkim is feminine society and people here manage focus through discussion, consensus, compromise, and negotiation, low Long-Short Orientation (LSO) score indicates short term orientation (short-term gains and quick results) meaning they focus on the present or past and consider them more important than the future and value tradition, the current social hierarchy and fulfilling social obligations.

Overall mean value for personality is greater than average but individually greater for openness and extraversion and less for conscientiousness (C) and agreeableness-neuroticism (AN), hence, middle aged in Sikkim are open implying they enjoy trying new things, creative and extrovert and seek adventure and are less organized, impulsive, stubborn but optimist, keep calm in stressful situation and worry less.

The middle aged in Sikkim are not depressed and lonely, culture wise they are egalitarian, collectivist, comfortable with uncertainty, feminist, short term orientated. Personality wise they are open, enjoy trying new things, creative and extrovert which means they seek adventure and are less organized, impulsive, and stubborn but optimist, keep calm in stressful situation and worry less. All the characteristics depict that overall nature, traits and culture of residents of Sikkim is healthy enough, but

they use Internet in a problematic manner and they are a little bit addicted to Internet use, moreover, the usage of Internet also takes place for long hours. Although the Problematic Internet Use is high, but the overall Risky Behaviors shown by them is low i.e. under control except for substance use antecedents like smoking and drinking behavior is shown by the residents of Sikkim and for lifestyle Characteristics they are less involved in physical activities due to more use of Internet or obsession for Internet and control disorder they face of controlling themselves to overuse of Internet.

Results reveal that that usage context have significant impact on Problematic Internet Useas F (calculated value) (12.7) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.00, which is less than 0.05 significance level. Therefore, the research hypothesis H1 is accepted. Therefore, it depicts that all the three usage contexts that are Psychosocial Health, personality and culture have significant impact on PIU.

As far as Psychosocial Health is concerned, out of the three antecedents considered, only one antecedent i.e. Loneliness (L) with p value of 0.000 has significant impact of Problematic Internet Use as supported by Pontes et. al (2014), although the mean values depict that both depression and loneliness is low, the middle aged residents of Sikkim are not depressed and do not feel lonely as also is evident from the collectivist dimension of culture, where, they emphasize the needs and goals of the group as a whole over the needs and desires of each individual. In such cultures, relationships with other members of the group and the interconnectedness between people play a central role in each person's identity.

Hence, Psychosocial Health is good enough, and although Problematic Internet Use is high but it does not lead to Risky Behavior as the mean value of Risky Behavior is less and involved in vey less disastrous Risky Behavior. Therefore, the sub-hypothesis, H1a is accepted. The beta coefficients for the significant antecedent of Psychosocial Health depicts that if Loneliness is increased by 1 unit, Problematic Internet Use will be increased by 0.151 units, implying people will be more prone using Internet in problematic manner if they feel lonely as they are oriented towards collectivist culture and they seek social attention.

As far as culture is concerned, out of five dimensions, only two dimensions of culture which are power distance (PD) and long-term vs. short-term orientation (LSO) have significant effect on Problematic Internet Use with p values of 0.012 and 0.002 respectively, although the mean values for two dimensions, low power distance and short-term orientation have low score as against the score of the India on these two dimensions as India is a country with high power distance and is long-term oriented. Sikkim is different on these two dimensions from India. Hence, residents of Sikkim believe that power is distributed equally in the society and they think focus on short term goals and this belief leads to Problematic Internet Use. All other cultural dimensions although do not affect Problematic Internet Use but are favourable enough not to lead Problematic Internet Use to Risky Behavior, which means residents of Sikkim show very less Risky Behavior, which are not dangerous, but comes under normal day-to-day behaviors. Therefore, the sub-hypothesis, H1b is accepted.

The beta coefficients for the significant antecedents of cultural dimensions depict that, if power distance is increased by 1 unit, Problematic Internet Use will be increased by 0.113 units, i.e. if their perception towards equal distribution of power increases, they

will be more prone to Internet use in problematic manner and if long-term vs. short-term orientation is increased by 1 unit, Problematic Internet Use will be decreased by 0.137 units, i.e. if short term shift towards long-term orientation, they will control using Internet use in problematic manner.

As far as personality is concerned, out of five antecedents, only two antecedents which are openness (O) and agreeableness-neuroticism (AN) with p values of 0.012 and 0.002 respectively have significant effect on Problematic Internet Use. Although, the personality traits for the significant dimension depicts that the residents of Sikkim are more open and try new things, moreover, they are low at agreeableness, which is related to lower effortful control. Therefore, an inability to regulate materialistic impulses, and with low neuroticism, materialistic tendencies may be the anxious attempt to compensate for past experiences of feelings of deprivation. These traits may lead to Problematic Internet Use, which is evident from the mean values of Problematic Internet Use, and that's why it shows a few less disastrous Risky Behavioronly like smoking, drinking and less physical activities. Therefore, the sub-hypothesis, H1c is accepted. The beta coefficients for the significant antecedents of personality traits like if openness trait is increased by 1 unit, Problematic Internet Use will be increased by 0.192 units which means if people are more open, they will be more prone to Internet use in problematic manner and if agreeableness-neuroticism traits is increased by 1 unit, Problematic Internet Use will be decreased by 0.080 units implying that lower agreeableness-neuroticism traits will increase their control behavior and hence they will control using Internet use in problematic manner.

Results also reveal that Problematic Internet Use has significant impact on RB as F (calculated value) (4.074) is greater than F (table value) (3.00), moreover, the p value (significant value) is 0.007 which is less than 0.05 significance level. Therefore, the research hypothesis H2 is accepted. Although, mean values depict that Problematic Internet Use is high among middle aged in Sikkim, they show only less dangerous Risky Behaviorreferring to only smoking, drinking and less physical activity.

Out of three antecedents of Problematic Internet Use, two antecedents i.e. neglect (NG) and control disorder (CD) have significant impact on Risky Behaviorwith p values of 0.046 and 0.005 respectively. People in Sikkim neglect their sleep and household chores to fulfil various motives of Internet use and they realize that they spend much time on Internet and they try to conceal the total amount of time they spend online. To curb this habit, they seek to reduce the amount of time on the use of Internet, but they do not succeed and therefore, show certain type of risky behavior.

The beta coefficients for the significant antecedents of Problematic Internet Use i.e. neglect (NG) and control disorder (CD) are 0.045 and 0.058 respectively. It depicts that if neglect is increased by 1 unit, Risky Behaviorwill be increased by 0.045 units, which means if neglect is high, then PIU is high and if neglect is decreased, their Problematic Internet Usewill decrease and Risky Behaviorwill be controlled. If the second antecedent, which is control disorder increases by 1 unit, RB will increase by 0.058 units i.e. if they are able to control the overuse of Internet, Problematic Internet Use will be decreased and hence it will lead to less Risky Behavior.

The two-way ANOVA was performed to compare the mean differences between demographic groups for gender, age, profession and marital status firstly, on usage context (PSH, personality, culture) and Problematic Internet Use and secondly on Problematic Internet Use and Risky Behavior. Interaction effect of demographic variables was also checked i.e. whether the effect of one demographic variable on the dependent variable is the same for all values of other demographic variables. The results reveal that there is no difference in usage context (Psychosocial Health, personality, culture) and Problematic Internet Use among different demographic characteristics of middle-aged residents of Sikkim. Therefore, hypotheses H3a and H3b are rejected.

The results show there is no statistically significant difference in mean Problematic Internet Use between males and females (p = .854), between age (p = .099), between service and business (p = .774), between unmarried and married (p = .061) for Problematic Internet Use. Hence, the results of two-way ANOVA depicts that there is no difference in Problematic Internet Use among different demographic characteristics of middle-aged residents of Sikkim. There is no statistically significant difference in mean Problematic Internet Use between males and females (p = .744), between service and business (p = .669) and between unmarried and married (p = .636), and between different age groups (p = .064) Hence, the results of two way ANOVA depicts that there is no difference in Risky Behavioramong different demographic characteristics of middle aged residents of Sikkim.

The previous studies on effect of demographics revealed different notions both in favour and against the results of this study like studies indicate the use of the Internet is significantly affected by age (Dutton et al. 2009; Ewing and Thomas 2010;

Dutta et al., 2017; Bugeun et al., 2018), but this study used only one age group which is middle aged, which has also been divided into two groups, but even then there is no difference in terms of Internet use. Results of this study revealed no effect on gender also, which is aligned with previous studies that demonstrated a decline in the difference of Internet usage among gender (Losh, 2009; Ewing and Thomas, 2010; Chao et al., 2020), which means male and female equally use technology and Internet. Moreover, results also reveal that profession also does not make any difference as supported by previous studies by Ewing and Thomas (2010) and Liang (2007) and are not significant factors for having notable Internet use effects. Research suggests that individuals with higher income and education spend less time online than those with less fortunate backgrounds (Goldfarb and Prince, 2008; Mazur et al., 2012).

Hence, this study explored the dynamics of over usage of Internet implying Problematic Internet Use and tested the theoretical construct based on relating three interacting aspects, which are Psychosocial Health, culture and personality as usage context, along with testing the over-usage consequences in terms of Risky Behavioron the basis of CVCRM of Internet use (Doh et al., 2018). The study results supported the proposed model significantly. The results of this study uncover that causes of Problematic Internet Use among the residents of Sikkim related to the prevailing culture in the society and the bundle of personality traits they posses which leads to the usage of Internet in a problematic manner. Although the bad consequences of Problematic Internet Use is not disastrous, but the elders must take care on the pattern of Internet usage and must lower down the time spent on it before the situation get worse in the coming generation of middle aged.

Although there were several significant findings in this study, it has several limitations. Firstly, the self-administered questionnaire used in this study may lead to under-reporting of the actual Internet usage by the respondents. Secondly, this study was conducted in only one state, thus does not reveal the overall scenarios of other states in the country. Thirdly, that this study is a based on only one age group, the middle-aged, thus generalisation of the relationship cannot be established for other age groups.

There are still many questions that remain unanswered about Problematic Internet Use, as relationship between Problematic Internet Use and other factors like social connectedness, individual family culture as against state or national culture, can be explored for better understanding on the causes of Problematic Internet Use to enable effective prevention and treatment options. The Problematic Internet Use should be tested more comprehensively on children and adolescents to help identify problems at an early stage to control the situation till they reach middle age, likewise gradually Problematic Internet Use can be controlled. Longitudinal studies are needed to determine the actual root cause of higher level of Problematic Internet Use among middle aged in Sikkim. It is important to find out how they can be supported in doing this in a healthy way that would not lead to problematic use. It is a question of immediate concern that has to be explored to find out the answer.

Larger epidemiological studies are needed to assess the prevalence of PIU in Sikkim. When conducting this research there was an obvious lack of publicly available information on PIU specially for middle aged in Sikkim. There is a need to increase the awareness of PIU in the community, so that support for those with PIU is more freely available. Finally, it is crucial that research continues to monitor Internet

use Behavior over time, as individuals change their Internet use as a result of the changing technology.

CHAPTER VI

Recommendations, Limitations, Directions for Future Research & Conclusion

6.1 Recommendations of the Study

The study identifies a number of broad policy options for preventing and mitigating the harmful effects of problematic Internet use in order to minimize the risky behaviours. Increasing the awareness among all the age groups for healthy Internet use is very much desired in today's technological world, where everybody in spite of any age bar is engaged extensively with the use of Internet either for official work or for personal use with an eye on entertainment or communication. Internet has harmfully engaged everybody, and therefore, its limited use is highly desirable and its harmful effects of overuse has to be made aware of in order to save the young generations in particular, otherwise its usage will exponentially increase leading to more disastrous effects.

Some of the recommendations to enhance awareness about the harmful effects of overuse and to minimize its overuse are mentioned below based on the results of this study. They include, among other things:

1) Promoting technology that protects social institutions better,
2) Stimulating tech companies to introduce products and services that better protect social institutions and Internet users;
3) Education about the Internet and its consequences;

4) Stronger social services support for Internet users: this policy option involves strengthening social services dedicated to Internet users to prevent or mitigate harmful effects such as Internet addition, antisocial online behaviour or information overload;
5) Incentivizing or requiring employers to develop policies that protect workers against harmful effects of work-related Internet use, such as information overload and the blurring of lines between public and private life;
6) Establishing governmental units and multi-stakeholder platforms to address the problems of the Internet's harmful social and cultural effects.

6.2 Limitations of the Study

The study has certain limitations that need to be taken into account while considering its contributions. However, some of these limitations can be seen as fruitful avenues for future research.

1) This study was conducted on a small size of sample though it was representative of the population. It was inappropriate and not required either in a micro research work to approach every resident of Sikkim for data collection and due to busy schedule of employees and their disinterest to respond, forced the researcher in opting for convenience sampling. Therefore, to generalize the result, the study would have to be conducted following a probability sampling method.
2) The data collection was confined to only one state of India as the research locale. The replication of the study at different regions of India would enable better generalisation of the findings of the study.
3) The sample for the present study comprised of 408 respondents belonging to Middle aged in Sikkim. Though the sample size was decided at 95% confidence level of the population which stands at 384, convenience sampling which is a non-probability

sampling technique makes the findings of the study difficult as truly representing a general trend among the all middle aged people of Sikkim. Therefore, research studies with much larger sample size in case of convenience sampling would be required to ensure appropriate generalization of the findings of the study.

4) The construct of variables under study was measured through an instrument developed by other researchers in other countries. Though the instrument shows scientific reliability and validity, yet this is the first study for which it has been adapted in India and more studies are required before it is established as an acceptable tool for redefining work environment and understanding inner self through ethical realization in modern corporate structure
5) The present study has relied largely on quantitative methodology of data collection (though qualitative methodology was used to a very limited extent) and is therefore restrictive. Therefore, more of qualitative methodology of data collection should be undertaken in future to provide wider perspective to the present study. For instance, the research design can employ case study methodology or content analysis to provide a holistic picture to the given subject.

6.3 Directions for Future Research

Although there are notable contributions from this study especially for suggesting remedies for enhancing positive outcomes and reducing the negative outcomes of Internet use, the future scope of this study need to be viewed and acknowledged in lights of its limitations. Following directions are provided for the future researchers to conduct such types of studies:

1) In order to generalize the result, the study should be conducted on a large group of population in different states of India.
2) The study should involve more participants from different age groups in order to study about the causes and consequences of Internet use in a more generalized manner.
3) Future research studies must consider much larger sample size to ensure appropriate generalization of the findings of the study.
4) The replication of the study at different regions of India would enable better generalisation of the findings of the study, as only one state of India was considered for study.
5) An obvious complement to this study is to conduct longitudinal research. Some of the arguments and findings of this study may well be a good starting point for such research. Longitudinal studies are needed to establish causal direction among the relationships investigated in this study. For example, in a longitudinal study, it may be possible to observe over time if Internet use measured at one point is associated with negative outcomes at a later point. It would provide more robust data. In addition, a longitudinal study would be able to further examine the changing motives of Internet use among different age groups.

6.4 Conclusion

Sikkim is a state where there are multiple cultures co-existing with one another. Every culture here is a reflection through the religious practices followed by the people. In a society, where culture and religion have synchronised as a single entity, Hofstede's cross-cultural dimension has been adapted to understand the finer nuances of how a society functions or has reacted to the advent of internet penetration.

The five dimensions in Hofstede's cultural dimension namely; power distance, individualism-collectivism, uncertainty avoidance, masculinity-femininity, and long-short term orientation; have been appropriated in this research to understand how different cultures have responded to the changes that may have been brought by the internet into the lives of the people. How the use of Internet has affected the people in various ways and what role has culture played in this phenomenon. The study of culture is a vital part of the research since the study location is based in Sikkim where the values of culture and tradition still apparently hold the topmost priority for the people. In the Sikkimese society, religion plays a major role in navigating the culture of the people and therefore how the people use the Internet or to what extent are they influenced to use the internet based on their religious and cultural practises have been unearthed using Hofstede's cross-cultural dimensions.

According to the study done for the purpose of research, Sikkim as a multi-cultural society has revealed itself as an equal society where the distribution of power is not in severe, meaning the society is not divided into extremes. Hence the study conducted has divulged that Power Distance in the Sikkimese society is low.

Similarly the study also reveals that the Sikkimese society is collective in nature, meaning the people in Sikkim prefer to come together when it comes to attaining any goal. They are more group oriented rather than operating as individual beings. They seek to grow together as a whole and are active participants in public events and activities. Hence, Sikkim as a multi-cultural society is highly collective and low on individualism.

With regard to uncertainty avoidance, the current study reveals that the people of Sikkim are inclusive in nature and that they are open to new ideas and challenges. The level of uncertainty avoidance is low implying that the people are much more relaxed and rarely very fazed by ambiguities that may come their way. In other words, the people in Sikkim live comfortably and do not have much reservation against what may happen in the near future. This attitude towards life could also be due to their collective nature of working together as a society despite belonging to and hailing from different cultures and a healthy maintenance of work-life balance by the people.

To address the element of masculinity versus femininity as a societal discourse in the context of larger Sikkimese society, this academic inquiry discloses that people in Sikkim tend to respond better to challenges as a whole through discussions and negotiations. This leads the society towards being feminine in nature where matters are handled through consensus and managed in a non-aggressive manner.

The research conducted further indicates that tradition holds a lot of value to the people in Sikkim. The orientation of the people in Sikkim is based on their culture and tradition. It was also found that people are more than willing to fulfil their social obligations as compared to societies that function in a competitive environment where the focus lies on individual growth without much significance towards social commitments. Additionally, the people in Sikkim tend to focus more on the present and also live in the past rather than emphasising on the future. This lifestyle approach denotes that the Sikkimese society leans towards the dimension of short-term orientation as compared to long-term orientation.

Since both culture and religion are variables taken into consideration for the purpose of research study, it is important to traverse the various cultural dimensions, hence the study has been adapted and appropriated from Hofstede's cross-cultural dimension.

For the broad range of daily activities, the most useful tool that has evolved in this knowledge economy is the Internet (Khang, Kim, & Kim, 2013; Odacı&Cıkrıkcı, 2014). The influence of the Internet leads to both positive like enhanced and better communication, increased social connection, online banking and shopping, entertainment and leisure and knowledge and information gaining and work-related activities (Shen& Williams, 2011) as well as negative consequences like risky behaviours, life dissatisfaction, low Psychosocial Health, or low Physical Well Being.

Therefore with a focus on the bad side of Internet use, this study explored the dynamics of Problematic Internet Use, evaluating both the causes and consequences and hence, presented a comprehensive framework and theoretical construct based on three interacting aspects of usage context which are Psychosocial Health, culture and personality.

The present study integrated various motive factors concerning the usage of Internet to determine its usage pattern and its consequences on Physical Well Being. Although with few limitations, this study makes some important contributions to research on the dynamics of Internet use on motives and consequences. The researcher applied a dynamic model to a large data set and found Internet use to have a sizeable effect on Physical Well Being of the middle-aged people of Sikkim. These results were found following a robust methodology and statistical inferences by sample matching across the users of Internet and the evidence supporting the causal nature of the results has been presented. These are all new contributions to the research on Internet use and its

motives and Physical Well Being of middle-aged. Researchers and those seeking to enhance the well-being of middle-aged may want to further pursue this potential pathway to determine which aspects of motives and dependency on Internet can be decreased so that Physical Well Being can be enhanced among residents of Sikkim (Cotten et al., 2013).

The study focuses on the adaptation of the CVCRM (Cyclic Value-Context Reinforcement Model) in the study and how the researcher has tried to incorporate the target of the study i.e. usage motive, usage context, and usage outcome within this model for a better understanding. The study addresses both the positive and negative outcomes of Internet use with the help of literature that is available at present for further studies. It informs the readers about the rate of current Internet penetration in India, probing further into the usage among the northeastern states of India, and finally data on the rate of Internet access in the state of Sikkim.

It has been attempted to justify the reason for the study being conducted in the state of Sikkim. The primary reason for the researcher to focus her study in this state has been to bring into focus the changes that take place in a population erstwhile known for the lack of exposure in the face of advancing modernity and consequent technology and how the very citizenry, especially the middle aged, embraces and cope up with the latest form of technology in the field of communication. Various studies have been conducted on the use of the Internet across the world and among people from all over. Studies have been done on either children, adolescents, or on the older adults. However, the missing narrative lies in the category of the middle aged. There have been very less or no research conducted in this particular age group (35-55) of people and therefore the researcher felt the need to fill the void in terms of studies being

conducted on the use of Internet and its aftermath. Furthermore, the researcher has attempted to justify her reasons as to why this category of respondents makes up for the most interesting group for the purpose of research.

The study further tries to summarise the entire study by giving the basic issues involved in the current research work. It needs to be stated that the research hypotheses for the study along with research objectives and questions were formed for a better understanding of the responses and reactions as well as the infractions of the middle aged people of the state towards the use of the new technology.The limitations of the study has been dealt with in brief, and to the study has tried to provide its readers a close look into the drawbacks of the study and also suggestions on how one could go about with further research.

In addition, the researcher tries to address the use of Internet in the state of Sikkim and why the study has been conducted in this state in particular and in the Indian subcontinent in general. It has been attempted to rationalize the need of the study being done specifically in the context of Sikkim and specifically among the middle aged people of Sikkim. The study has been able to come up with supporting observations of the middle aged in Sikkim and their Internet usage.

The reviews of the previous work endeavours to give plausible reasons for the problems faced by Internet users, particularly in regard to the mental health and the effects of Internet on the behaviours of these users. It also tackles the issue of growing societal changes that are impacting the social behaviour of Internet users.

Studies have been done on the effects of the Internet on older adults (aged 65 and above), which try to understand the effects on the mental health of the older adults as

a result of Internet usage. The studies have been taken from the American and Southeast Asian continents, where the researches have been conducted on a larger and advanced scale. It talks about the outcomes of Internet use by the older adults on their mental health, along with their changes in lifestyle and communication.

The use of Internet, which has been defined as a young habit, has had its implications on its usage by the older adults. How the Internet is being used by the younger generation and in comparison by the older generation, reflects assessment that is not very subtle in nature. While the younger generation seem to use the Internet mostly for communication, (be it either persona, public, or mass communication); the older adults seem to use it for their own generic interests. Studies have shown a shift in the habits of the older adults with the digital mediums slowly replacing the idyllic functions of television and radio.

The reviewed literature has tried to show the rise in Internet use by the people over time all across by providing with the available data and statistics that have been studied and concluded by several researchers. It tries to identify the underlying factors that enable the people to use the Internet. Studies show that with the Internet and its accessible feasibility older adults have reaped many benefits from its use, such as bringing down the territorial boundaries thus increasing contacts with family and friends (especially grandchildren), helped them in handling grief better, and made up for their physical limited mobility so on and so forth. In addition, the use of Internet has also proved to be beneficial for people in contributing towards brain health and also in combating psychological hindrances in mental health such as anxiety and depression.

The Internet has also aided inthe notion of successful aging that is explained as "maintaining an independent, positive, healthy, and meaningful quality of life". It is an on-going challenge for older adults and essential at the same time. The status of successful aging has changed perceptions from absence of disease or disability to that of being a multifaceted construct in the recent years through demonstrations by gerontology researchers.

The study has also attempted to explain the model the researcher has proposed for the purpose of this study and has strived to explain the theoretical framework of the research through the works of multiple researchers done previously. It has aimed to connect the use of the model and the framework of the study which would then make it simpler for the reader to understand the synchronization of the work done and variables used in the framework that have been discussed, along with their relationships with other variables as justified in previous studies.

For the first phase of the study, Motives of Internet Use has been considered as an independent variable, Internet Use as mediator 1, Problematic Internet Use as mediator 2, Psychosocial Health, Personality, Culture, and Demographic as moderators, whereas, Psychological Well Being and Risk Behaviours are considered as dependent variables. Furthermore, a research model has been developed for a visual understanding of the research that has been done in two phases.

On the basis of the research model, there are three research hypotheses that have been formulated in the first phase of the study i.e. study one, followed up by the next three research hypotheses that have been formulated for the second phase of the study, i.e. study two. These hypotheses have all been tested separately on all the five parameters

of personal factor, three parameters of organizational factor, and seven parameters of demographic factor.

The research hypotheses have been formulated keeping in mind the objective of the research and therefore for the first phase of the study, the hypotheses swivel around the usage motive of the Internet; demographic characteristics; and physical well being.In a similar manner, the research hypotheses of the second phase is based on the usage context; problematic Internet use and risky behaviour; and finally on the demographic factors that may or may not have an impact on the Internet using habit of the middle aged in Sikkim.

The study then moves on to explain the readers in detail, the research measures and instruments used for the purpose of conducting the study, along with visual representations for a better understanding. In order to explore the literature for the purpose of identification of variables and their antecedents, and to analyse the impact of those variables and their antecedents according to the hypothesis formulated, an exploratory and causal research design was adopted in this study.

The first phase of the study was aimed to empirically test four types of usage motive i.e. information, communication, entertainment and shopping motives on Internet use and evaluate the mediating effect of Internet Use betweenMotives and Psychological Well Being among Middle Aged in Sikkim. The second phase of the study aimed to measure the extant of Problematic Internet Use amongst the Middle Aged in Sikkim and empirically test the effects of Psychosocial Health (PSH), personality and culture on Problematic Internet Use and then the effect of PIU on Risky Behaviours (RB). While selecting the respondents for both phases of the study, non-probabilistic convenience sampling was adopted. Out of 500 questionnaires that were handed out

to the respondents through online mode, 408 respondents responded for the first phase, while for the second phase of the study, there were responses from 394 individuals.

This study demonstrated that culture and personality factors play an important role in Problematic Internet Use. It can be concluded that individuals with poor social connectedness may be at a greater risk of developing Problematic Internet Use than those with better social connectedness. It is also found that low openness which refers to people who are more introvert, high agreeableness-neuroticism, high power distance and more short-term oriented appear to be more vulnerable to Problematic Internet Use. Finally, Internet use is complex, and it does not affect people in the same way. It is important to determine the individual differences that cause some people to be more at risk of Problematic Internet Use and at different age groups.

Apart from many Internet use benefits, various drawbacks of Internet use also come out as harmful consequences apart from its positive outcomes. Therefore, this study explored the dynamics of Internet use and presented a comprehensive framework and theoretical construct based on relating three interacting aspects, which are, usage motives, usage context, and usage consequences. Various factors have been discussed and relationships have been created between factors on different theories available in the literature. The systematic review on Internet use and consequent framework justifies implications for future research for conducting empirical research on the underlying dimensions of Internet use for a better understanding of Internet use at different levels of human life.

Furthermore, this study has identified various factors pertaining to individual and social factors influencing Internet usage based on the Technology acceptance

model (TAM). Understating the dynamics of influencing nature of the identified factors may have implications on practitioners depending on how they want to utilize this information of Internet usage among a particular group. By knowing the purposes of Internet usage and being able to categorize them based on particular groups with particular purposes, practitioners will be able to utilize the right factor to influence the general public, be it the youngsters, adolescents, middle or old aged, whether male or female categorized as students, working professionals, retired person, house wives and others. The purpose of using Internet may be manifold like for the purposes of education, information, entertainment, communication, shopping and various others. This study shows that the factors affecting the purpose of Internet usage is the pattern of Internet usage like duration of use and the time of use like in the day or at night.

Further research should look into the empirical testing of the identified factors of this study on various categories of respondents and age groups. Moreover, Internet usage for social networking and online games can be studied separately both theoretically and empirically as thesehave altogether different reasons and implications as compared to usual surfing of Internet. Other studies can be conducted on problematic Internet use and its consequences. The future recommendations given above are in context to Indian settings as many of the studies of this nature have already been conducted in international settings in various countries, but studies in Indian context barely exists, which can be addressed in future studies.

References:

Aboujaoude, E. (2010). Problematic Internet use: an overview in *World Psychiatry: Official Journal of the World Psychiatric Association (WPA)*, *9(2)*, 85–90. https://doi.org/10.1002/j.2051-5545.2010.tb00278.x

Adams, D., Nelson, R..,& Todd, P. (1992). Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication. *MIS Quarterly*, *16(2)*, 227-247. https://doi:10.2307/249577

Amichai-Hamburger, Y., Wainapel, G., & Fox, S. (2002). "On the Internet, no one knows I'm an introvert": extroversion, neuroticism, and Internet interaction *Cyber Psychology & Behavior: the Impact of the Internet, Multimedia, and Virtual Reality on Behavior and Society*, *5(2)*, 125–128. https://doi.org/10.1089/109493102753770507

Amiel, T., & Sargent, S.L. (2004).Individual differences in Internet usage motives. *Computers in Human Behavior, 20(6*), 711-726.

Anolli L., Villani D., & Riva G. (2005). The personality of people using chat: an online research. *Cyberpsychology&. .Behaviour. 8*, 89–95. https://doi10.1089/cpb.2005.8.89

Apuke, O. D., &Iyendo, T. O. (2018). University students' usage of the internet resources for research and learning: forms of access and perceptions of utility. *Heliyon*, *4(12)*, 1052.

Armstrong, L., Phillips, J. G., &Saling, L. L. (2000). Potential determinants of heavier internet usage. *International Journal of Human-Computer Studies*, *53(4)*, 537-550. https://doi.org/10.1006/ijhc.2000.0400

Beard, K. W., & Wolf, E. M. (2001). Modification in the proposed diagnostic criteria for Internet addiction. *Cyberpsychology&Behavior : the Impact of the Internet,*

Multimedia and Virtual Reality on Behavior and Society, *4(3),* 377–383. https://doi.org/10.1089/109493101300210286

Błachnio, A., Przepiorka, A., Gorbaniuk, O., Benvenuti, M., Ciobanu, A. M., Senol-Durak, E., Durak, M., Giannakos, M. N., Mazzoni, E., Pappas, I. O., Popa, C., Seidman, G., Wu, A., Yu, S., & Ben-Ezra, M. (2019). Cultural Correlates of Internet Addiction. *Cyber psychology, behavior and social networking, 22(4),* 258–263. https://doi.org/10.1089/cyber.2018.0667

Brenner V. (1997). Psychology of computer use: XLVII. Parameters of Internet use, abuse and addiction: the first 90 days of the Internet Usage Survey. *Psychological reports, 80*(3 Pt 1), 879–882. https://doi.org/10.2466/pr0.1997.80.3.879

Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking websites. *Personality and Social Psychology Bulletin,34(10),* 1303 - 1314. https://doi.org/10.1177/0146167208320061

Cabral, F., Pereira, M., &Teixeira, C. M. (2018).Internet, physical activity, depression, anxiety and stress.*Psych Tech & Health Journal, 2(1),*15-27. https://doi.10.26580/PTHJ.art10-2018

Caplan, S. E. (2002). Problematic Internet use and psychosocial well-being: development of a theory-based cognitive-behavioral measurement instrument. *Computers in Human Behavior,18(5),* 553–575.

Carli V., Durkee T., Wasserman D., Hadlaczky G., Despalins R., &Kramarz E., (2013). The association between pathological Internet use and comorbid psychopathology: a systematic review. *Psychopathology, 46,* 1–13. https://doi.10.1159/000337971

Castaneda, J. A., Frias, D. M., Leiva, F. M., & Rodriguez, M. A. (2007). Extrinsic and intrinsic motivation in the use of the Internet as a tourist information source.*International Journal of Internet Marketing and Advertising*, *4(1),* 37.https://doi.10.1504/ijima.2007.014796

Chak, K., & Leung, L. (2004). Shyness and locus of control as predictors of Internet addiction and Internet use. *Cyberpsychology&Behavior : The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, *7(5),* 559–570. https://doi.org/10.1089/cpb.2004.7.559

Chang, M., & Law, S.P. (2008). Factor structure for Young's Internet Addiction Test: A Confirmatory Study. *Comput. Hum. Behav., 24*, 2597-2619.

Chao, C. M., Kao, K. Y., & Yu, T. K. (2020). Reactions to Problematic Internet Use Among Adolescents: Inappropriate Physical and Mental Health Perspectives. *Frontiers in Psychology*, 11. https://doi.10.3389/fpsyg.2020.01782

Charlton, J. P., &Danforth, I. D. W. (2007). Distinguishing addiction and high engagement in the context of online game playing. *Computers in Human Behavior*, *23(3),* 1531–1548. https://doi.org/10.1016/j.chb.2005.07.002

Cheek, J.M., & Buss, A.H. (1981).Shyness and sociability.*Journal of Personality and Social Psychology*, *41*, 330-339.

Chen, Y.W. (2017). Cultural Identifications Theory.*The International Encyclopedia of Intercultural Communication*,1-9. https://doi.10.1002/9781118783665.ieicc0210

Correa, T., Hinsley, A. W., De Zuniga, H. G. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior*, *26(2),* 247–253. https://doi.org/10.1016/j.chb.2009.09.003

Cotten, S. R., Ford, G., Ford, S., & Hale, T. M. (2014). Internet use and depression among retired older adults in the United States: a longitudinal analysis. *The journals of gerontology. Series B, Psychological sciences and social sciences*, *69(5*), 763–771. https://doi.org/10.1093/geronb/gbu018

Cunningham, N., & De Meyer-Heydenrych, C. (2021). Premium versus affordable clothing retailers: what are customer expectations for satisfaction and repurchase intentions?. *International Journal of Retail & Distribution Management*.

Davis R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behaviour, 17,* 187–195. https://doi.10.1016/S0747-5632(00)00041-8

Davis, F. D., Bagozzi, R. P., &Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace1.*Journal of Applied Social Psychology,22(14)*.https://doi.10.1111/j.1559-1816.1992.tb00945.x

Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Q., 13*, 319-340.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (2012). *Motivation, personality, and development within embedded social contexts: An overview of self-determination theory*. In R. M. Ryan (Ed.), *Oxford library of psychology. The Oxford handbook of human motivation*, 85–107. Oxford University Press.

Demetrovics, Z., Szeredi, B., &Rózsa, S. (2008). The three-factor model of Internet addiction: The development of the Problematic Internet Use Questionnaire. *Behavior Research Methods, 40*, 563-574.

Diener, E. & Ryan, K., (2009). Subjective well-being: A general overview, *South African Journal of Psychology, 39(4),* 391-406. https://doi.org/10.1177/008124630903900402

Diener, E. & Seligman, M., (2004). Toward an economy of well-being, *Psychological Science in the Public Interest 5(1),* 1-31. https://doi.org/10.1111/j.0963-7214.2004.00501001.x

Diener, E. &Suh, E., (1997). Measuring quality of life: Economics, social, and subjective indicators, *Social Indicators Research, 40(1-2),* 189-216.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale.*Journal of Personality Assessment*, *49*, 71-75.

Doh, Y. Y., Kim, B., Lee, S., &Gweon, G. (2020). The Cyclic Value-Context Reinforcement Model of Problematic Internet Use: Empirical Validation Using a Thematic Analysis of Children's Counseling Data. *Journal of Medical Internet Research, 22(7),* e17996.https://doi.org/10.2196/17996

Doh, Y. Y., Lee, S., Kim, B., &Gweon, G. (2018).*Cyclic value context reinforcement model of Internet use behavior*.http://cclab.snu.ac.kr/@publication

Douglas, A. C., Mills, J. E., Niang, M., Stepchenkova, S., Byun, S., &Ruffini, C. (2008). Internet addiction: Meta-synthesis of qualitative research for the decade 1996–2006. *Computers in Human Behavior*, *24(6),* 3027–3044.

Durak, M., &Senol-Durak, E. (2014). Which personality traits are associated with cognitions related to problematic Internet use?. *Asian Journal of Social Psychology, 17(3),* 206–218. https://doi:10.1111/ajsp.12056

Dutta, R., Ball, H., Siribaddana, S., Sumathipala, A., Samaraweera, S., McGuffin, P., &Hotopf, M. (2017). Genetic and other risk factors for suicidal ideation and the

relationship with depression. *Psychological Medicine, 47(14),* 2438-2449.https://doi:10.1017/S0033291717000940

Dutton, K., Abbas, L., Spencer, J., Brannon, C., Mowbray, C., Nikaido, M., Kelsh, R.N., and Whitfield, T.T. (2009) A zebra fish model for Waardenburg syndrome type IV reveals diverse roles for Sox10 in the exotic vesicle. *Disease models & mechanisms.2(1-2),*68-83.

Ehrenberg, A., Juckes, S., White, K. M., & Walsh, S. P. (2008). Personality and self-esteem as predictors of young people's technology use. *Cyber Psychology& Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, 11(6), 739–741.https://doi.org/10.1089/cpb.2008.0030

Faltynkova, A., Blinka, L., Sevcikova, A., &Husarova, D. (2020). The associations between family-related factors and excessive internet use in adolescents. *International Journal of Environmental Research and Public Health*, *17*(5).https://doi.org/10.3390/ijerph17051754

Fernandes, Beatriz, Maia, Berta Rodrigues, & Pontes, Halley M.. (2019). Adicaoa Internet ouusoproblematico da Internet? Qual dos termosusar?. *Psicologia USP*, *30*, e190020. Epub. https://doi.org/10.1590/0103-6564e190020

Fuchs, C. (2007). *Internet and society: Social theory in the information age*. Routledge.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure.*Psychological Assessment*, *4(1)*, 26-42. https://doi.org/10.1037/1040-3590.4.1.26

Goldfarb, A., & Prince, J. (2008). *Internet adoption and usage patterns are different: Implications for the digital divide. Information Economics and Policy*, *20(1)*, 2–15. https://doi.10.1016/j.infoecopol.2007.05.001

Gombor, A., & Vas, L. (2008). A nation- and gendered-based study about the relationship between the Big Five and motives for Internet use: A Hungarian and Israeli comparison. *Theory & Science, 10 (1).*

Griffiths, M. D., Van Rooij, A., Kardefelt-Winther, D., Starcevic, V., Kiraly, O., &Demetrovics, Z. (2015). Working towards an international consensus on criteria for assessing Internet Gaming Disorder: A critical commentary on Petry et al. (2014). *Addiction*. http://dx.doi.org/10.1111/add.13057

Grover, S., Chakraborty, K., &Basu, D. (2010). Pattern of Internet use among professionals in India: Critical look at a surprising survey result. *Industrial psychiatry journal, 19*(2), 94–100. https://doi.org/10.4103/0972-6748.90338

Guadagno, R. E., Okdie, B. M., &Eno, C. A. (2008). Who blogs? Personality predictors of blogging 1993- 2004.*Computers in Human Behavior,24(5).*https://doi.10.1016/j.chb.2007.09.001

Ha, Y.M., & Hwang, W. J. (2014).Gender Differences in Internet Addiction Associated with Psychological Health Indicators Among Adolescents Using a National Web-based Survey.*International Journal of Mental Health and Addiction,12(5),* 660–669. http://doi.org/10.1007/s11469-014-9500-7

Hamburger, Y. A., & Ben-Artzi, E. (2000).The relationship between extraversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior*, *16(4)*, 441– 449. https://doi.org/10.1016/S0747-5632(00)00017-0

Hardie, E., & Tee, M.Y. (2007). Excessive Internet use. The role of personality, loneliness and social support networks in Internet addiction. *Australian Journal of Emerging Technologies and Society,5*, 34-47.

Hendrickson, A. R., & Collins, M. R. (1996). An assessment of structure and causation of IS usage. *ACM SIGMIS Database*, *27(2),* 61–67.https://doi.10.1145/243350.243361

Heo, J., Chun, S., Lee, S., Lee, K. H., & Kim, J. (2015). Internet use and well-being in older adults. *Cyber Psychology, Behavior and Social Networking*, *18(5),* 268–272. https://doi.org/10.1089/cyber.2014.0549

Hermeking, M. (2005). Culture and Internet Consumption: Contributions from Cross-Cultural Marketing and Advertising Research. *Journal of Computer-Mediated Communication*,*11(1),*192–216. https://doi.10.1111/j.1083-6101.2006.tb00310.x

Hills, P., & Argyle, M. (2003).Uses of the Internet and their relationships with individual differences in personality. *Computers in Human Behavior, 19(1),* 59–70.

Hinds, J., &Joinson, A. (2019).Human and computer personality prediction from digital footprints. *Current Directions in Psychological Science*, *28(2),* 204-211.

Ho, R.C., Zhang, M.W., Tsang, T.Y. (2014). The association between Internet addiction and psychiatric co-morbidity: a meta-analysis. *BMC Psychiatry*. 14**,** 183.https://doi.org/10.1186/1471-244X-14-183

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Beverly Hills, CA: Sage.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Psychology and Culture, 2*.http://scholarworks.gvsu.edu/orpc/vol2/iss1/8

Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics,* 16,4-21.https://doi.org/10.1177/0894439309335115

Horvath, C. W. (2004). Measuring television addiction. *Journal of Broadcasting & Electronic Media*, 48(3), 378-398. https://doi.org/10.1207/s15506878jobem48033

https://www.statista.com/statistics/255146/number-of-internet-users-in-india/

Igbaria, M., Schiffman, S.J., &Wieckowski, T.J. (1994).The respective roles of perceived usefulness and perceived fun in the acceptance of microcomputer technology. *Behav. Inf. Technol., 13*, 349-361.

Ioannidis, K., Treder, M. S., Chamberlain, S. R., Kiraly, F., Redden, S. A., Stein, D. J., & Grant, J. E. (2018). Problematic Internet use as an age-related multifaceted problem: Evidence from a two-site survey. *Addictive Behaviors, 81,* 157–166. https://doi:10.1016/j.addbeh.2018.02.017

Iravani, M., Rajabi, M., Abbasi, M., &Jannesari, H. (2013).*A social work study on impact of gender, marital status and employment status on Internet addiction. Management Science Letters, 3*, 1019-1024.

Jahanger, A., Usman, M., Murshed, M., Mahmood, H., &Balsalobre-Lorente, D. (2022). The linkages between natural resources, human capital, globalization, economic growth, financial development, and ecological footprint: The moderating role of technological innovations. *Resources Policy,* 76, 102569.

Jones, S., & Fox, S. (2009). *Generations Online in 2009.* Pew Research Center http://www.pewInternet.org/Reports/2009/Generations-Online-in-2009.aspx

Jung, J. Y. (2017). Media Dependency Theory.*The International Encyclopedia of Media Effects,* 1-10. DOI:10.1002/9781118783764.wbieme0063

Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyber Psychology & Behavior, 1*(1), 11–17. https://doi.org/10.1089/cpb.1998.1.11

Kelley, K. J. & Gruber, E. M. (2010).Psychometric properties of the Problematic Internet Use Questionaire. *Computers in Human Behavior, 26*, 1838-1845.

Khang, H., Kim, J. K., & Kim, Y. (2013). Self-traits and motivations as antecedents of digital media flow and addiction: The Internet, mobile phones, and video games. *Computers in Human Behavior, 29(6),* 2416–2424. http://dx.doi.org/10.1016/j.chb.2013.05.027.

Kim, B., Lee, S., Doh, Y. Y., &Gweon, G. (2018). Classification of problematic Internet usage types by motives and contexts with elementary and secondary school-aged counseling clients. *Journal of Behavioral Addictions*, 7(3), 644–653. https://doi.org/10.1556/2006.7.2018.90

Kim, K.S. & Sin, S.C. J. (2011). Selecting quality sources: Bridging the gap between the perception and use of information sources. *Journal of Information Science, 37 (2),* 182– 192.

Kinde, K. (2007). *Technology and Motivation: Can the use of Technology Increase Student Motivation in the Science Classroom?*.

Ko, C. H., Yen, J. Y., Yen, C. F., Chen, C. S., & Chen, C. C. (2012). The association between Internet addiction and psychiatric disorder: a review of the literature. *European Psychiatry: The Journal of the Association of European Psychiatrists,* 27(1), 1–8. https://doi.org/10.1016/j.eurpsy.2010.04.011

Kocalevent, R. D., Berg, L., Beutel, M. E., Hinz, A., Zenger, M., Härter, M., &Brähler, E. (2018). Social support in the general population: standardization of the Oslo social support scale (OSSS-3). *BMC Psychology, 6(1),* 31.

Koo, C., Chung, N., & Nam, K. (2015). Assessing the impact of intrinsic and extrinsic motivators on smart green IT device use: Reference group perspectives.

International Journal of Information Management, 35(1), 64–79. https://doi.10.1016/j.ijinfomgt.2014.10.001

Kuss, D. J., Griffiths, M. D., Karila, L., &Billieux, J. (2014). Internet addiction: a systematic review of epidemiological research for the last decade. *Current pharmaceutical design*, *20*(25), 4026–4052. https://doi.org/10.2174/1381612811319999061 7

LaCaille, L. (2020). Theory of reasoned action. *Encyclopedia of Behavioral Medicine*, 2231-2234.https://doi.org/10.1007/978-3-030-39903-01619

Laconi, S., Vigouroux, M., Lafuente, C., &Chabrol, H. (2017). Problematic Internet use, psychopathology, personality, defense and coping. *Computers in Human Behavior, 73, 47–54.* https://doi:10.1016/j.chb.2017.03.025

Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of Internet-based learning medium: the role of extrinsic and intrinsic motivation. *Information & Management,42(8),* 1095–1104. https://doi.10.1016/j.im.2003.10.007

Liang, L., Zhou, D., Yuan, C., Shao, A., &Bian, Y. (2016). Gender differences in the relationship between Internet addiction and depression: A cross-lagged study in Chinese adolescents. *Computers in Human Behavior*, *63*, 463–470.

Loveless, M. (2008). Media Dependency: Mass Media as Sources of Information in the Democratizing Countries of Central and Eastern Europe. *Democratization, 15*, 162 - 183.

Ludford, P.J., &Terveen, L. (2003). Does an Individual's Myers-Briggs Type Indicator Preference Influence Task-Oriented Technology Use? *INTERACT*.

Mazur, L. M., McCreery, J. K. & Chen, S. (2012). Quality improvement in hospitals: 32 Identifying and understanding behaviors. *Journal of Healthcare Engineering*, 3(4), 621-648.

McCrae, R. R., &Allik, J. (Eds.). (2002). *International and cultural psychology series.The Five-Factor model of personality across cultures.* Kluwer Academic/Plenum Publishers. https://doi.org/10.1007/978-1-4615-0763-5

McElroy, J., Hendrickson, A., Townsend, A., &DeMarie, S. (2007). Dispositional Factors in Internet Use: Personality versus Cognitive Style. *MIS Quarterly, 31(4),* 809-820. https://doi.10.2307/25148821

Meerkerk, G. J., Van den Eijnden, R. J., Franken, I., &Garretsen, H. (2010). Isncompulsive Internet use related to sensitivity to reward and punishment and impulsivity? *Computers in Human Behavior,26(4),* 729–735. http://dx.doi.org/10.1016/j.chb.2010.01.009

Mihara, S., Osaki, Y., Nakayama, H., Sakuma, H., Ikeda, M., Itani, O., Kaneita, Y., Kanda, H., Ohida, T., & Higuchi, S. (2016). Internet use and problematic Internet use among adolescents in Japan: A nationwide representative survey. *Addictive Behaviors Reports, 4,* 58–64. https://doi.org/10.1016/j.abrep.2016.10.001

Mills, D. J., & Allen, J. J. (2019). Self-determination theory, Internet gaming disorder, and the mediating role of self-control.*Computers in Human Behavior*, 106- 209. https://doi.10.1016/j.chb.2019.106209

Minkov, M. (2007). *What makes us different and similar: A new interpretation of the World Values Survey and other cross-cultural data*. Sofia, Bulgaria: Klasika y Stil Publishing House, ISBN: 978-954-327-023-1, 240 https://doi.10.1177/0022022108321313

Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior, 16*(1), 13–29. https://doi.org/10.1016/S0747-5632(99)00049-7

Morahan-Martin, P., JanetSchumacher. (2003). Loneliness and social uses of the Internet.*Computers in Human Behavior,19(6),* 659–671. https://doi.org/10.1016/s0747-5632(03)00040-2

Nath, R., & Murthy, N. (2004). A Study of the Relationship Between Internet Diffusion and Culture. *Journal of International Technology and Information Management, 13*, 11.

Nelson, K. & Clark, T. (1994). Cross-cultural issues in information systems research: A research program. *Journal of Global Information Management*, *2(4*), 19-29.

Odaci, H., &Cikrikci, O. (2014). Problematic Internet use in terms of gender, attachment styles and subjective well-being in university students. *Computers in Human Behavior*, *32*, 61–66. http://dx.doi.org/10.1016/j.chb.2013.11.019

Oetting, E. R., & Beauvais, F. (1990). Orthogonal cultural identification theory: the cultural identification of minority adolescents. *The International Journal of the Addictions*, *25(5A-6A),* 655–685. https://doi.org/10.3109/10826089109077265

Orchard, L. J., &Fullwood, C. (2010).Current perspectives on personality and Internet use. *Social Science Computer Review, 28(2*), 155-169.

Oudeyer, P.-Y., Gottlieb, J., & Lopes, M. (2016). Intrinsic motivation, curiosity, and learning.*Progress in Brain Research*, 257–284. https://doi.10.1016/bs.pbr.2016.05.005

Ozer, D. J., & Benet-Martínez, V. (2006).Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57,* 401–421.https://doi.org/10.1146/annurev.psych.57.102904.190127

Pavot, W. G., &Diener, E. (1993).*Review of the Satisfaction with Life Scale*.Psychological Assessment, *5*, 164-172.

Peterka-Bonetta, J., Sindermann, C., Elhai, J. D., &Montag, C. (2019). Personality associations with smartphone and internet use disorder: A comparison study including links to impulsivity and social anxiety. *Frontiers in public health*, *7*, 127.

Piguet, C., Berchtold, A., Akre, C., &Suris, J. C. (2015). What keeps female problematic Internet users busy online?. *European Journal of Pediatrics*, *174*(8), 1053–1059. https://doi.org/10.1007/s00431-015-2503-y

Pontes, H. M., Patrao, I. M., & Griffiths, M. D. (2014). Portuguese validation of the Internet addiction test: an empirical study. *Journal of Behavioral Addictions*, *3(2),* 107-114.https://doi.org/10.1556/JBA.3.2014.2.4

Pontes, H. M., Caplan, S. E., & Griffiths, M. D. (2016).Psychometric validation of the Generalized Problematic Internet Use Scale 2 in a Portuguese sample. *Computers in Human Behavior*, *63*, 823–833. https://doi.org/10.1016/j.chb.2016.06.015

Pontes, H. M., Griffiths, M. D. &Patrao, I. M. (2014). Internet Addiction and Loneliness Among Children and Adolescents in the Education Setting: An Empirical Pilot Study. *International Gaming Research Unit, Psychology Division*, *32 (1*), 91-98.

Qiaolei Jiang, Xiuqin Huang & Ran Tao (2018).*Examining factors influencing internet addiction and adolescent risk behaviors among excessive internet users, health communication,* 33(12), 1434-1444. https://doi.10.1080/10410236.2017.1358241

Ramayah, T., Dahlan, N., Mohamad, O. &Siron, R. (2002). Technology Usage Among Owners/Managers of SME's: The Role of Demographic And Motivational Variables, *The proceedings of The 6th Annual Asian-Pacific Forum for Small*

Business on "Small and Medium Enterprises Linkages, Networking and Clustering", Kuala Lumpur, Malaysia.

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010).*Generation M2: Media in the Lives of 8-18-Year-Olds*. Menlo Park, CA: Henry J. Kaiser Family Foundation. http://www.kff.org/ entmedia/upload/8010.pdf

Rodgers, S. and Sheldon, K. M. (2002). An improved way to characterize Internet users.*Journal of Advertising Research*.42(5), 85-94.

Russell, D., Peplau, L. A., &Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39(3),* 472–480. https://doi.org/10.1037//0022-3514.39.3.472

Ryan, R. M., &Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* Guilford Press.

Ryan, T., Xenos, S. (2011). Who uses Facebook? An investigation into the relationship between the Big Five, shyness, narcissism, loneliness, and Facebook usage. *Computers in Human Behavior, 27(5),* 1658–1664. https://doi.org/10.1016/j.chb.2011.02.004

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*. 57 (6): 1069–1081. https://doi.10.1037/0022-3514.57.6.1069

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69(4),* 719.

Sanders, C. E., Field, T. M., Diego, M., & Kaplan, M. (2000).The Relationship of Internet use to depression and social isolation among adolescents. *Adolescence, 35(138),* 237–242.

Scholes-Balog, K. E., & Hemphill, S. A. (2012). Relationships Between Online Gambling, Mental Health, and Substance Use: A Review. *Cyber Psychology, Behavior, and Social Networking,* 15(12), 688–692. https://doi.10.1089/cyber.2012.0232

Scimeca, G., Bruno, A., Cava, L., Pandolfo, G., Muscatello, M. R. A., &Zoccali, R. (2014). The Relationship between Alexithymia, Anxiety, Depression, and Internet Addiction Severity in a Sample of Italian High School Students.*The Scientific World Journal*, 2014, 1–8. https://doi.10.1155/2014/504376

Seifert, T. A. (2005).*The Ryff scales of psychological well-being*. Assessment Notes

Sela, Y., Zach, M., Amichay-Hamburger, Y., Mishali, M., & Omer, H. (2019). Family environment and problematic internet use among adolescents: The mediating roles of depression and fear of missing out. *Computers in Human Behavior*, *106*, 106-226. https://doi.org/10.1016/j.chb.2019.106226

Shaffer, H. J., Hall, M. N., & Vander Bilt, J. (2000). "Computer addiction": a critical consideration. *The American Journal of Orthopsychiatry*, *70*(2), 162–168. https://doi.org/10.1037/h0087741

Shaw, M., & Black, D. W. (2008). Internet addiction: definition, assessment, epidemiology and clinical management. *CNS drugs*, *22(5)*, 353–365. https://doi.org/10.2165/00023210-200822050-00001

Sivakumar, K. & Nakata, C. (2001). The stampede toward Hofstede's framework: Avoiding the sample design pit in cross-cultural research. *Journal of International Business Studies,32(3*), 555-574.

Song, I., LaRose, R., Eastin, M. S., & Lin, C. (2004). Internet Gratification and Internet Addiction: On the Uses and Abuses of New Media. *Cyber Psychology & Behavior*, 7, 384-394.http://dx.doi.org/10.1089/cpb.2004.7.384

Spada M. M. (2014). An overview of problematic Internet use. *Addictive Behaviors, 39(1),* 3–6. https://doi.org/10.1016/j.addbeh.2013.09.007

Srite, &Karahanna. (2006). The role of Espoused national cultural values in technology acceptance.*MIS Quarterly*, 30(3), 679. DOI:10.2307/25148745

Stafford, T. F., Stafford, M .R. &Schkade L. L. (2004). Determining Uses and Gratifications for the Internet, *Decision Sciences*. *35(2*), 259-288.

Sun, Y., &Gao, F. (2019). *An investigation of the influence of intrinsic motivation on students' intention to use mobile devices in language learning*. Educational Technology Research and Development.https://doi.10.1007/s11423-019-09733-9

Teng C. I. (2008). Personality differences between online game players and nonplayers in a student sample. *Cyber Psychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, 11(2), 232–234. https://doi.org/10.1089/cpb.2007.0064

Teo, T. S. ., Lim, V. K. ., & Lai, R. Y. (1999). Intrinsic and extrinsic motivation in Internet usage.*Omega,27(1),* 25–37. https://doi.10.1016/s0305-0483(98)00028-0

Tokunaga, R. S., &Rains, S. A. (2016). A review and meta-analysis examining conceptual and operational definitions of problematic Internet use. *Human Communication Research*, *42*, 165–199.https://doi.10.1111/hcre.12075

Triandis, H. (1980). *Values, attitudes, and interpersonal behaviour.Nebraska Symposium on Motivation, 27*, 195-259.

Van der Aa, N., Overbeek, G., Engels, R. C. M. E., Scholte, R. H. J., Meerkerk, G.-J., & Van den Eijnden, R. J. J. M. (2008). Daily and Compulsive Internet Use and Well-Being in Adolescence: A Diathesis-Stress Model Based on Big Five

Personality Traits. *Journal of Youth and Adolescence*, 38(6), 765–776. https://doi.10.1007/s10964-008-9298-3

Van Everdingen, Y. M. &Waarts, E. (2003). The effect of national culture on the adoption of innovations.*Marketing Letters,* 14(3), 217-232.

Verboord, M., & Janssen, S. (2015). Internet and Culture. In: James D. Wright (editor-in-chief), *International Encyclopedia of the Social & Behavioral Sciences, 2nd edition, Vol 12*. Oxford: Elsevier. Pp. 587–592.ISBN: 9780080970868

Widyanto, L., & Griffiths, M. (2006). "Internet addiction": A critical review. *International Journal of Mental Health and Addiction, 4*(1), 31–51. https://doi.org/10.1007/s11469-006-9009-9

Wiederhold, B. K. (2018). The tenuous relationship between instagram and teen self-identity.*Cyberpsychology, Behavior and Social Networking, 21(4),* 215-216. https://doi.org/10.1089/cyber.2018.29108.bkw

Wolfradt, U., & Doll, J. (2001). Motives of adolescents to use the Internet as a function of personality traits, personal and social factors. *Journal of Educational Computing Research, 24(1*), 13–27. https://doi.org/10.2190/ANPM-LN97-AUT2-D2E J

Wong, T. Y., Yuen, K. S. L., & Li, W. O. (2015). A basic need theory approach to problematic Internet use and the mediating effect of psychological distress. *Frontiers in Psychology*, 5.https://doi.10.3389/fpsyg.2014.01562

Yang, L., Sun, L., Zhang, Z., Sun, Y., Wu, H., & Ye, D. (2014). Internet addiction, adolescent depression, and the mediating role of life events: Finding from a sample of Chinese adolescents. *International Journal of Psychology, 49(5),* 342–347. https://doi.10.1002/ijop.12063

Yesavage, J. A., Brink, T. L., Rose, T. L., Lum, O., Huang, V., Adey, M., &Leirer, V. O. (1982). Development and validation of a geriatric depression screening scale: a preliminary report. *Journal of Psychiatric Research*, 17(1), 37–49.https://doi.org/10.1016/0022-3956(82)90033-4

Yiwei Chen & Anna Persson (2002). Internet Use among Young and Older Adults: Relation to Psychological Well-Being, *Educational Gerontology*, 28:9, 731-744, DOI: 10.1080/03601270290099921

Yoo, B., Donthu, N., &Lenartowicz, T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: Development and validation of CVSCALE. *Journal of International Consumer Marketing, 23*(3-4), 193–210.

Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyber Psychology & Behavior*, *1*(3), 237–244. https://doi.org/10.1089/cpb.1998.1.237

Young, K. S., & Rogers, R. C. (1998).The relationship between depression and Internet addiction. *Cyber Psychology & Behavior*, *1*(1), 25–28. https://doi.org/10.1089/cpb.1998.1.25

Zhao, L., Lu, Y., Wang, B., & Huang, W. (2011). What makes them happy and curious online? An empirical study on high school students' Internet use from a self-determination theory perspective.*Computers & Education,56(2),* 346–356. https://doi.10.1016/j.compedu.2010.08.006

Zhong, Y., Oh, S., & Moon, H. C. (2021). Service transformation under industry 4.0: Investigating acceptance of facial recognition payment through an extended technology acceptance model. *Technology in Society*, *64*, 101-515.

ZiziPapacharissi& Alan M. Rubin (2000) Predictors of Internet Use, *Journal of Broadcasting & Electronic Media*, 44(2), 175-196, https://doi.10.1207/s15506878jobem4402

Annexure A

Study 1: Questionnaire

Motives and Outcomes of Internet Use

I, Cherrila Bhutia, PhD Research Scholar, Sikkim University, am conducting a study on "Motives and Outcomes of Internet Use among the middle aged in Sikkim" as a part of my research work. I will always be grateful to you for providing frank responses. The data will be used exclusively for academic purpose only, without disclosing your identity.

The survey will take about 15 - 20 minutes to complete. Please tick (√) your preference from scale 1 to 7 ranging from strongly disagree to strongly agree respectively. I thank you in participating in this important effort. Please give your honest opinion on each one of the statements. It is your opinion, which matters. Even though it may be hard to decide, be sure not to miss any question. Thank you.

1	**Personal Details**								
1.1	Name of Respondent (Optional)			1.2	Profession	Service		Business	
1.3	Gender	Male	Female	1.4	Martial Status	Married		Unmarried	
1.5	Age (yrs)	36-45	46-55	1.6	Hrs of Internet Use	<2	2 - 4	4 - 6	<6

Please click (√) your preferences on the scale 1 to 7 (Strongly Disagree – 1 to 3, Neutral – 4, Strongly Agree – 5 to 7)		⟷ **Strongly Disagree**			**Neutral**	⟷ **Strongly Agree**		
1. Motives								
IM1	I receive real news through the Internet.	1	2	3	4	5	6	7
IM2	I use the Internet because of its current information.	1	2	3	4	5	6	7
IM3	The Internet updates me on new trends.	1	2	3	4	5	6	7
IM4	The Internet provides me with many things of interest that I can't access anywhere else.	1	2	3	4	5	6	7
IM5	The Internet helps me to solve practical problems.	1	2	3	4	5	6	7
ICM1	I have found new friends and acquaintances through the Internet.	1	2	3	4	5	6	7
ICM2	The Internet is to me a substitute for other social contacts.	1	2	3	4	5	6	7
ICM3	I use the Internet to express myself.	1	2	3	4	5	6	7
ICM4	The Internet makes me feel like I am close to others.	1	2	3	4	5	6	7
ICM5	The Internet helps me coping with personal problems.	1	2	3	4	5	6	7
EM1	The Internet offers more variation than other media do.	1	2	3	4	5	6	7

EM2	I distract myself from stress by using the Internet.	1	2	3	4	5	6	7
EM3	The Internet adds fun in my life	1	2	3	4	5	6	7
EM4	The Internet helps me in passing my time	1	2	3	4	5	6	7
SM1	I try to purchase the stuffs I require through Internet	1	2	3	4	5	6	7
SM2	I usually do shopping though Internet	1	2	3	4	5	6	7
SM3	I only purchase a product through Internet that I've heard about	1	2	3	4	5	6	7
2. Internet Use								
IU11	I use Internet for gaining information and awareness	1	2	3	4	5	6	7
IU12	I use Internet for communicating with others	1	2	3	4	5	6	7
IU13	I use Internet for entertainment (playing online games/watching movies)	1	2	3	4	5	6	7
IU14	I use Internet for online shopping	1	2	3	4	5	6	7
IU21	I start or end my day by accessing the Internet	1	2	3	4	5	6	7
IU22	I frequently use Internet whenever required	1	2	3	4	5	6	7
IU23	I often use the Internet rather than thinking of any other alternative	1	2	3	4	5	6	7
3. Psychological Well Being								
SA1	I like most parts of my personality	1	2	3	4	5	6	7
SA2	When I look at the story of my life, I am pleased with how things have turned out so far	1	2	3	4	5	6	7
SA3	In many ways I feel satisfied about my achievements in life	1	2	3	4	5	6	7
PR1	Maintaining close relationships is easy for me.	1	2	3	4	5	6	7
PR2	People would describe me as a giving person, willing to share my time with others	1	2	3	4	5	6	7

PR3	I have warm and trusting relationships with others	1	2	3	4	5	6	7
PG1	For me, life has been a continuous process of learning and growth	1	2	3	4	5	6	7
PG2	I think it is important to have new experiences	1	2	3	4	5	6	7
PG3	I always try to bring changes in my life	1	2	3	4	5	6	7
A1	I tend to be influenced by people with strong opinions	1	2	3	4	5	6	7
A2	I have confidence in my own opinions, even if they are different from the way most other people think	1	2	3	4	5	6	7
A3	I judge myself by what I think is important, not by the values of what others think is important	1	2	3	4	5	6	7
PL1	Some people wander aimlessly through life, but I am not one of them	1	2	3	4	5	6	7
PL2	I believe in today and don't really think about the future	1	2	3	4	5	6	7
PL3	I sometimes feel as if I've done all there is to do in life	1	2	3	4	5	6	7

Study 2: Questionnaire

Causes& Consequences of Problematic Internet Use

I, Cherrila Bhutia, PhD Research Scholar, Sikkim University, am conducting a study on "A Study on Cause & Consequences of Problematic Internet Use among the middle aged in Sikkim" as a part of my research work. I will always be grateful to you for providing frank responses. The data will be used exclusively for academic purpose only, without disclosing your identity.

The survey will take about 15 - 20 minutes to complete. Please tick (√) your preference from scale 1 to 7 ranging from strongly disagree to strongly agree respectively. I thank you in participating in this important effort. Please give your honest opinion on each one of the statements. It is your opinion, which matters. Even though it may be hard to decide, be sure not to miss any question. Thank you.

1	**Personal Details**								
1.1	Name of Respondent (Optional)			1.2	Profession	Service		Business	
1.3	Gender	Male	Female	1.4	Martial Status	Married		Unmarried	
1.5	Age (yrs)	36-45	46-55	1.6	Hrs of Internet Use	<2	2 - 4	4 - 6	<6

Please click (√) your preferences on the scale 1 to 7 (Strongly Disagree – 1 to 3, Neutral – 4, Strongly Agree – 5 to 7)		⟷ **Strongly Disagree**			**Neutral**	⟷ **Strongly Agree**		
2. Psychosocial Health								
D1	I feel that my life is empty	1	2	3	4	5	6	7
D2	I feel unhappy most of the time	1	2	3	4	5	6	7
D3	I feel that my situation is hopeless	1	2	3	4	5	6	7
L1	Often I feel lack of companionship	1	2	3	4	5	6	7
L2	Mostly I feel left out	1	2	3	4	5	6	7
L3	Often I feel isolated from others	1	2	3	4	5	6	7
S1	I feel tense when I'm with people I don't know well.	1	2	3	4	5	6	7
S2	I don't talk much.	1	2	3	4	5	6	7
S3	I am more shy with members of the opposite sex.	1	2	3	4	5	6	7
3. Culture								
PD1	I am obedient and respect my parents.	1	2	3	4	5	6	7
PD2	I have a friendly relationship with my father	1	2	3	4	5	6	7

PD3	I treat my elders with respect	1	2	3	4	5	6	7
IC1	A psychologically healthy person is supposed to have no dependence on his/her family.	1	2	3	4	5	6	7
IC2	For me, collective interests prevail over individual interests.	1	2	3	4	5	6	7
IC3	In my opinion, children had better live with their parents until they get married.	1	2	3	4	5	6	7
IC4	My family's opinion is very important to me in making an important decision in life.	1	2	3	4	5	6	7
UA1	I never feel nervous or tense.	1	2	3	4	5	6	7
UA2	I believe in organized and structured way of life	1	2	3	4	5	6	7
UA3	I prefer a predictable and routine life over life with unpredictable events.	1	2	3	4	5	6	7
UA4	When coming across a novel and unknown situation, I am more prudent than curious.	1	2	3	4	5	6	7
MF1	Women are better teachers for young children than are men.	1	2	3	4	5	6	7
MF2	In the family, the standard pattern is that the father earns and the mother cares.	1	2	3	4	5	6	7
MF3	In my ideal job, the opportunity for advancement to higher-level jobs is more important than the job security.	1	2	3	4	5	6	7
MF4	I care more about working with people who cooperate well with one another than about getting the recognition one deserves for doing a good job.	1	2	3	4	5	6	7
MF5	In my ideal job, I prefer more leisure time over more money.	1	2	3	4	5	6	7
LSO1	I maintain that traditions belong to the past and no longer need to be respected.	1	2	3	4	5	6	7

LSO2	It is important to me to have unchangeable beliefs and behaviors that do not depend on shifting circumstances.	1	2	3	4	5	6	7
LSO3	I believe thrift (not spending more than needed) is important.	1	2	3	4	5	6	7
LSO4	Having long-term goals is of high importance to me, even at the price of present hardships.	1	2	3	4	5	6	7
4. Personality								
O1	I love adventure	1	2	3	4	5	6	7
O2	I am imaginative	1	2	3	4	5	6	7
C1	I am highly self-disciplined	1	2	3	4	5	6	7
C2	I am very organized and always prepared	1	2	3	4	5	6	7
E1	I am the life of the party	1	2	3	4	5	6	7
E2	I am usually the one to start a conversation with someone	1	2	3	4	5	6	7
A1	I tend to trust people and give them the benefit of the doubt	1	2	3	4	5	6	7
A2	I am extremely empathetic	1	2	3	4	5	6	7
N1	I stress out easily	1	2	3	4	5	6	7
N2	I tend to be moody	1	2	3	4	5	6	7
5. Problematic Internet Use								
OB1	I feel depressed, moody, or nervous when I am not on the Internet and these feelings stop once I am back online	1	2	3	4	5	6	7
OB2	I feel tense, irritated, or stressed if I cannot use the Internet for several days	1	2	3	4	5	6	7
OB3	I feel tense, irritated, or stressed if I cannot use the Internet for as long as I want to	1	2	3	4	5	6	7
NG1	People in my life complain for time I spend on Internet	1	2	3	4	5	6	7

NG2	I spend time online when I would rather sleep	1	2	3	4	5	6	7
NG3	I often neglect household chores to spend more time online	1	2	3	4	5	6	7
CD1	I try to conceal the amount of time spent online	1	2	3	4	5	6	7
CD2	I wish to decrease the amount of time spent online but I do not succeed	1	2	3	4	5	6	7
CD3	I should decrease the amount of time spent online	1	2	3	4	5	6	7
6. Risky Behaviors								
SU1	I smoke more when not able to use Internet	1	2	3	4	5	6	7
SU2	I sometimes consume drugs when not able to use Internet	1	2	3	4	5	6	7
SU3	I drink more when not able to use Internet	1	2	3	4	5	6	7
SS1	I often fight with others for using Internet	1	2	3	4	5	6	7
SS2	I am involved in gambling when not able to use Internet	1	2	3	4	5	6	7
SS3	I steal sometimes to distract myself when not able to use Internet	1	2	3	4	5	6	7
SS4	I am involved in risky sexual behaviours	1	2	3	4	5	6	7
LC1	I sleep less due to excessive use of Internet	1	2	3	4	5	6	7
LC2	I have less nutrition intake due to excessive use of Internet	1	2	3	4	5	6	7
LC3	I am less involved in physical activity due to excessive use of Internet	1	2	3	4	5	6	7
LC4	I am more often absent in my work due to more time spent on Internet	1	2	3	4	5	6	7

Annexure B:

F Distribution Table

F Values for $\alpha = 0.05$

	d_1								
d_2	1	2	3	4	5	6	7	8	9
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
2	18.51	19.00	19.16	19.25	19.3	19.33	19.35	19.37	19.38
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
inf	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

F Values for $\alpha = 0.05$

	d_1									
d_2	10	12	15	20	24	30	40	60	120	inf
1	241.9	243.9	245.9	248.0	249.1	250.1	251.1	252.2	253.3	254.3
2	19.4	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49	19.5
3	8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55	8.53
4	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40	4.36
6	4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70	3.67
7	3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27	3.23
8	3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97	2.93
9	3.14	3.07	3.01	2.94	2.90	2.86	2.83	2.79	2.75	2.71
10	2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58	2.54
11	2.85	2.79	2.72	2.65	2.61	2.57	2.53	2.49	2.45	2.40
12	2.75	2.69	2.62	2.54	2.51	2.47	2.43	2.38	2.34	2.30
13	2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.30	2.25	2.21
14	2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18	2.13
15	2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11	2.07
16	2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.11	2.06	2.01
17	2.45	2.38	2.31	2.23	2.19	2.15	2.10	2.06	2.01	1.96
18	2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.92
19	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.84
21	2.32	2.25	2.18	2.10	2.05	2.01	1.96	1.92	1.87	1.81
22	2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.78
23	2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.76
24	2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.73
25	2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	1.71
26	2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	1.69
27	2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	1.67
28	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	1.62
40	2.08	2.00	1.92	1.84	1.79	1.74	1.69	1.64	1.58	1.51
60	1.99	1.92	1.84	1.75	1.70	1.65	1.59	1.53	1.47	1.39
120	1.91	1.83	1.75	1.66	1.10	1.55	1.50	1.43	1.35	1.25
inf	1.83	1.75	1.67	1.57	1.52	1.46	1.39	1.32	1.22	1.00

End Note

i https://www.statista.com/topics/1145/Internet-use-worldwide/
ii https://www.statista.com/statistics/272365/age-distribution-of-Internet-users-worldwide/
iiiWorld Health Organization (WHO).Global School-Based Student Health Survey (GSHS). Available online: http://www.who.int/chp/gshs/en/ (accessed on 12 December 2015)