Engineering Social Media to Combat the Fear of Missing Out (FoMO)

Aarif Alutaybi

Bournemouth University

A thesis submitted in partial fulfilment of the requirements of Bournemouth University for the degree of Doctor of Philosophy

[March] 2020

Copyright

Abstract

The fear of missing out (FoMO) in relation to social media is an emerging issue that is expected to become more widespread with the increasing availability of online facilities for social interaction. Researchers have recently begun to explore the negative consequences of FoMO that are faced by social media users. Investigations suggest that those experiencing what could be called digital addiction may also display a range of psychological disorders ranging from depression and negative feelings to lack of sleep and insomnia, eating disorders, reduced life competency, emotional tension, negative effects on physical well-being, anxiety, and a lack of emotional control. Despite clear indicators of the effect of FoMO on users' well-being, engineering principles and tools that allow them or their carers to manage their FoMO are still unavailable.

This thesis argues that software itself can be used as an effective solution to the management of social media related FoMO, and develops a method for managing digital usage that utilises existing features of social media and proposes others that could be added in the future. The method also includes an educational element that raises awareness of how social media related FoMO occurs and how it can be dealt with. It is hoped that this might build the user's digital resilience and help them to cope with certain kinds of FoMO as they are triggered. The method is intended to enable people to regulate their use of social media, and in particular to manage their FoMO.

To achieve the goal of the thesis, several empirical studies with end-users were conducted. These helped with the conceptualisation of various aspects of social media related FoMO, including how it happens, the social media features that act as triggers, and the technical countermeasures that can be used in its management. The results of these studies were exploited to devise the FoMO management method. The method was evaluated in terms of usefulness, clarity, coherence, completeness, engagement, acceptance and effectiveness. The evaluation results showed the method was accepted by the participants and helped them to manage their FoMO.

Table of Contents

List of Figures

List of Tables

Acknowledgements

1.   CHAPTER 1: INTRODUCTION

Cyberspace today is utilised by approximately 4 billion people around the world (InternetWorldStats, 2019) and increasingly for the purpose of participating in email and social media such as Facebook, Twitter, and Instagram. Social media allows individuals to create their own profile and share their own information, photos and videos. They can also maintain long-distance friendships and keep informed about ongoing events (Kuss and Griffiths, 2011). Previous studies have revealed various motives for cyberspace communication, such as satisfying social needs, regulating negative emotions, and the receipt of positive impressions from others (Krämer and Winter, 2008). The need to belong and the need for self-presentation are two basic social needs related to the use of Facebook (Nadkarni and Hofmann, 2012). Other social factors that seem to be further motives for engaging in social media include collective self-esteem, group identification and staying in contact with friends (Kuss and Griffiths, 2011). These motives have an important influence on social media use and may be integrated into Uses and Gratification Theory (Rubin, 2009). Additionally, it has been seen that feelings of isolation, shyness and anxiety experienced during offline interaction are positively related to spending time on social media (Ryan and Xenos, 2011). Affected people find social media to be an easy means of gratifying their social needs online; something preferable to engaging in offline interaction. However, there are also negative consequences for everyday life which may be related to excessive usage of social media.

Digital addiction (hereafter DA) is an emerging phenomenon and is defined as "the excessive use of certain software-mediated operations to reach certain requirements. This includes cases when the use itself is compulsive or impulsive and also cases when the user cannot switch to other available alternatives to reach the same requirements without good reason" (Alrobai et al., 2014). The excessiveness of, and obsession with, internet use may result in social and well-being problems such as poor academic performance, reduced social and recreational activities, relationship break-ups, limited involvement in real-life communities, poor parenting, depression and a lack of sleep. Fear of Missing Out (hereafter FoMO) is associated with symptoms of addiction such as salience in which individuals are preoccupied with using social networks due to the fact that they fear social exclusion or others having rewarding experiences from which they are absent.

FoMO is defined as a "pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski et al., 2013). Also, it is characterised by the desire to stay continually informed about what others are doing. In this thesis, FoMO typically refers to a preoccupation with gaining more interaction opportunities and a loss of ability when social media users are offline or unable to connect and communicate on demand. Social media as a tool provides diverse information in real time about events, conversations and activities. This real time information enables people to keep in touch with up-to-date information. However, up-to-date information, among other things, may facilitate FoMO because affected individuals check their social media accounts frequently or stay online continuously to avoid missing this information.

Cheever et al. (2014) found evidence of negative influences such as anxiety when people could not access the internet. Anxiety is a significant result of FoMO which is operationally defined as "the fears, worries and anxiety people may have in relation to being in (or out of) touch with events, experiences and conversations happening across their extended social circles" (Przybylski et al., 2013). In addition, Fox and Moreland found that FoMO is the reason why people feel pressured to continue using Facebook (Fox and Moreland, 2015).

Most research into social media addiction and FoMO used offline data collection methods. Thus, these methods are subject to recall bias and limitations in terms of ecological validity. For example, questionnaires (Abel et al., 2016a, Buglass et al., 2017, Elhai et al., 2016, Przybylski et al., 2013, Beyens et al., 2016, Hetz et al., 2015, Alt, 2015, Oberst et al., 2017, Alt, 2018, Stead and Bibby, 2017, Wegmann et al., 2017, Baker et al., 2016, Lai et al., 2016), focus group (Hetz et al., 2015, Fox and Moreland, 2015) and interview (Przybylski et al., 2013, Adams et al., 2017). The limitations of the ways in which FoMO related data have been previously collected motivated the current research. This research utilises a research method which allows a fuller explanation and more lived experience data to be gathered such as diary study (Iida et al., 2012), in an iterative style

The relatively limited research on FoMO has focused mainly on users' psychology. These studies have shown a correlation between social media designs, psychological factors such as depression, and FoMO. Consequently, more research is needed into software design practices such as user experience (UX), requirements engineering and human computer interaction (HCI), particularly in the area of intervention systems for FoMO. Alutaybi et al. (2018)

proposed that countermeasures should be embedded into social media, and techniques such as filtering, recap and advanced versions of the autoreply shall be introduced.

1.1 TWO ILLUSTRATIVE SCENARIOS

The following scenarios explain some of the situations in which FoMO happens with regard to social media and how it is experienced by sufferers.

1.1.1 FIRST SCENARIO

Jacqui works in the marketing department of a bank in the UK. She works hard and last year made some great deals that helped the bank. The bank rewarded her for her achievements with a free flight to California and hotel accommodation. Once she had arrived in California, she took pictures so that she could share the moment with her friends on Instagram and expected to receive a good many responses, including Likes and comments. However, she was hesitant to post them because she feared her friends may perceive her to be showing off, which would affect her reputation. After a while, she decided to share her posts with a group of friends as a way to open a discussion about fascinating places in California. Since her posts were attractive, she thought this would generate interaction and she would receive many comments. Unfortunately, she did not provoke as much interaction as she expected and this affected her mood and enthusiasm for sharing this lovely moment with her friends. As a result, Jacqui fears that her friends have ignored her posts.

The previous scenario shows the state of individuals when they fail in terms of self-regulation. Jacqui could not regulate her thoughts and feelings because she wanted to know why her colleagues had not interacted with her as she expected. This situation exposed her to two kinds of FoMO, namely, fear of missing the ability to be popular and fear of missing the ability to be interesting. These types of FoMO will be explained in Chapter 4.

1.1.2 SECOND SCENARIO

The Human Resources department of an organisation has recently seen an increase in stress-related leave, in part because of increasing numbers of emails and peer pressure online. Alexander is one of these cases. He often feels pressured to give responses upon receiving an urgent and highly important email. He then does so in a hasty and erratic manner and feels bad later. He sometimes uses his smart phone to reply and feels unable to wait until he has

access to a personal computer from which to write a proper reply. He fears that a slow response will adversely affect his popularity and image among his colleagues.

This scenario demonstrates how peer pressure can create a FoMO for people. In this situation, Alexander wants to maintain his image and he fears a loss of popularity among his colleagues. The scenario also shows the influence of peer pressure on Alexander and how this drives him to increase the amount of time he spends checking, and thinking about work, due to the fact that he does not want to miss the opportunity to make a quick response.

Despite indicators of the effect of FoMO on individuals' well-being that may be facilitated by the features of social media, countermeasures have not yet been developed that allow individuals to manage their FoMO and minimise any potential harm. In fact, the ability and effectiveness of software can propose solutions to contribute to managing the FoMO.

1.2   RESEARCH AIM

The aim of this research is to understand how FoMO occurs on social media, the role of the social media design in triggering it and also mitigating it, and to use that knowledge in proposing a method to combat FoMO.

1.3   RESEARCH QUESTIONS

Based on the aim of the research, the following research questions were derived:

- RQ1: What is the lived experience of FoMO in relation to social media use?
- RQ2: What are the features of social media that may contribute triggering FoMO?
- RQ3: What would be the contextual factors that situated these features when facilitating FoMO?
- RQ4: What features could future social media provide to help users manage their FoMO?
- RQ5: What would be the best method of raising awareness of FoMO and how can FoMO be managed?

1.4   RESEARCH OBJECTIVES

In order to achieve the aim of this thesis, the research sets out to realise the following objectives:

Objective 1: A literature based exploration of FoMO with regard to social media

In order to achieve the goal of this thesis, a comprehensive understanding of numerous fields is important; they include FoMO, digital addiction, and behaviour change, from both psychological and computing perspectives. This understanding will inform the subsequent exploratory studies and provide a foundation for the thesis solution.

Objective 2: Exploring the lived experience of FoMO with regard to social media (types and current coping strategies)

This exploration is intended to inform the research with regard to the nuances of FoMO and how FoMO happens with regard to social media, and it will be conducted using a Mixed Methods Approach (Sequential Exploratory Design). Ultimately, five classifications of FoMO, each of which has subcategories, will be developed. Furthermore, current strategies used to mitigate certain kinds of FoMO are identified that may be either healthy or unhealthy (see Chapter 4). This classification of FoMO could be used as a basis for the future design of social media that combats FoMO. It could enable users to become more informed about how FoMO happens, and how to identify FoMO in their own social media usage.

Objective 3: Exploring the lived experience of FoMO with regard to social media (triggers and potential countermeasures)

This exploration is built on the result of the second objective. This objective informs the research regarding the features of social media that may contribute in triggering a certain kinds of FoMO and the potential countermeasures for reducing those FoMO. An empirical study, following a Mixed Methods Approach (Sequential Exploratory Design), is conducted in order to better achieve the aim of this objective. Ultimately, the development of a taxonomy that demonstrates the link between the features of social media and certain kinds of FoMO is realised. Moreover, a list of features is derived that can be embedded in social media to help individuals manage a certain kinds of FoMO (see Chapter 5).

Objective 4: Developing a method to help people manage their FoMO (FoMO-Reduction method (FoMO-R))

To achieve this objective, the researcher will attempt to develop a method for managing digital usage utilising features that already exist in social media and proposing features that could be added to future social media. The intention is to enable people to manage their FoMO and to

reduce the harm of digital addiction. This method will involve elements from expectation management, anxiety management, compulsive behaviour control, impulse control, uncertainty avoidance, self-talk and self-control theory.

Objective 5: Evaluation and refinement of FoMO-R

The purpose of this objective is to evaluate and refine the FoMO-R derived in Objective 4, based on a case study. The evaluation will involve people who experience FoMO in connection with social media. The FoMO-R will be evaluated based on a set of aspects, namely: usefulness, clarity, coherence, completeness and effectiveness.

Table 1 provides an overview of the objectives, linking them to the research questions and the related thesis chapters.

TABLE 1: MAPPING THE RESEARCH QUESTIONS TO THE OBJECTIVES AND CHAPTERS

Research questions	Research objectives	Chapters
RQ1: How people on social media experience FoMO?	Obj.1: Conducting a literature review on FoMO and its related topics Obj.2: Exploring the lived experience of FoMO on social media	Chapters 2, 4, & 6
RQ2: What are the features of social media that may contribute to triggering FoMO?	Obj.3: Exploring features of social media that contribute to trigger a certain kind of FoMO	Chapter 5
RQ3: What are features could future social media design have to help users manage their FoMO?	Obj.3: Exploring features that can be embedded on social media to combat a certain kinds of FoMO	Chapters 5 & 7

RQ4: What would be the best method that gives awareness raising induction regarding how a certain kind of FoMO happens and how this can be managed?	Obj.4: Developing a method to help people managing their FoMO (FoMO-R) Obj.5: Evaluating FoMO-R in terms of potential and acceptance	Chapter 8 Chapter 9

1.5 METHODOLOGY OVERVIEW

This section briefly explains the adopted methods that will be employed to achieve each objective as follow:

Objective 1: The research reviews the literature concerning DA and FoMO from the perspectives of both psychology and computing. In addition, behavioural change theories are reviewed.

Objective 2: To achieve this objective, a Mixed Methods Approach (Sequential Exploratory Design) will be followed (see Chapter 3, Section 3.6). This will include three studies; two qualitative and one quantitative. **The first exploratory qualitative study** will consist of two focus group sessions and a diary study, and its purpose is to gauge opinion concerning the experience of FoMO in relation to social media usage. Focus groups, as a data collection method, allow participants to discuss their opinions and will allow them to suggest countermeasures that might help them to manage FoMO. The second study will utilise a diary methodology to minimise recall issues and to gather information on how FoMO is experienced as lived. **The second qualitative study** will consist of interviews, diary study and two focus group sessions, and will further elaborate on the findings extracted from the first study.

The aim of the quantitative study will be to validate the existence, and to assess the strength, of the different kinds of FoMO in relation to social media that were identified during the qualitative study. As means of data collection, surveys will be disseminated in two ways, firstly as online and secondly as paper-based surveys. The purpose of using a paper-based survey is to reach a wider number of participants.

Objective 3: To achieve Objective 3, a Mixed Methods Approach (Sequential Exploratory Design) will be followed (see Chapter 3, Section 3.6). This will include three studies; two qualitative and one quantitative. The aim of the first qualitative study is to gauge the opinions of people in relation to FoMO and how it may be managed, and to elicit the features of social media that contribute in triggering FoMO. Furthermore, this study aims to derive countermeasures that will help people to manage their FoMO. In terms of data collection, this study will use a focus group to allow participants to discuss their opinions and to suggest countermeasures to reduce FoMO, and a diary methodology to minimise recall issues and to deepen our understanding of how features of social media trigger FoMO. The second qualitative study is a refining study and it will consist of interviews, diary study and two focus group sessions. It will further elaborate on the findings extracted from the first study.

The function of the quantitative study will be to gauge the acceptance of FoMO countermeasures that were suggested in the qualitative studies. Data will be collected using surveys disseminated in two ways: firstly online and secondly paper-based. Paper-based surveys are used to reach a wider number of participants.

Objective 4: The researcher will develop a method to assist people who seek help in managing their FoMO. This method will involve elements from expectation management, anxiety management, compulsive behaviour control, impulse control, uncertainty avoidance, self-talk, digital resilience, self-control theory and technical countermeasures. The method will be made available to those who seek help, and will take the form of educational materials that should enable them to recognise their particular kind(s) of FoMO and tell them how to manage it (them).

1.6 THESIS STRUCTURES

This thesis is structured (see Figure 1) as follows. **Chapter 2** utilises the empirical literature concerning topics related to FoMO in connection with social media, digital addiction and behavioural change theories. **Chapter 3** explains the research methodology adopted to achieve the research aim and objectives. It provides a full survey of the different research approaches, research designs and analysis techniques and provides supporting arguments for the research approach, design, and methods used in this study. **Chapter 4** describes the two-staged empirical study that was conducted from the users' perspective to identify the various nuances of FoMO and to determine how it occurs. **Chapter 5** explains the findings of an exploratory

study that demonstrates the features of social media that trigger certain kinds of FoMO, and provides a list of countermeasures that could be embedded into social media to combat a certain kinds of FoMO. **Chapters 6 and 7** report the quantitative findings. **Chapter 8** presents the FoMO reduction method (FoMO-R) that will be meant to help people to manage their FoMO. **Chapter 9** discusses the methodology adopted to evaluate the proposed method, followed by a description of the evaluation processes and results. **Chapter 10** provides a summary of the thesis conclusions, limitations, contributions and suggestions for future work.

1.7 PUBLICATIONS ARISING FROM THIS THESIS

- Alutaybi, A., McAlaney, J., Arden-Close, E., Stefanidis, A., Phalp, K. and Ali, R., 2019. Fear of Missing Out (FoMO) as Really Lived: Five Classifications and one Ecology. The 6th International Conference on Behavioral, Economic, and Socio-Cultural Computing in Beijing, China. DOI: 10.1109/BESC48373.2019.8963027
- Alutaybi, A., Arden-Close, E., McAlaney, J., Stefanidis, A., Phalp, K. and Ali, R., 2019, October. How Can Social Networks Design Trigger Fear of Missing Out? In 2019 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2019), 6-9 October 2019, Bari, Italy. DOI: 10.1109/SMC.2019.8914672 (pp. 3758-3765).
- Aarif Alutaybi, John Mcalaney, Angelos Stefanidis, Keith Phalp, and Raian Ali, "Designing Social Networks to Combat Fear of Missing Out," Proceedings of the 32nd International BCS Human Computer Interaction Conference (HCI) in Belfast, UK. DOI:10.14236/ewic/hci2018.80, 2018, vol. 18, p. 1.

1.7.1 DECLARATION OF AUTHOR'S CONTRIBUTION

The author of this thesis was the first author of all the resulting publications. The part played by the first author was as follows:

- Planning and explaining the idea and the aim of each paper.
- Establishing the appropriate methodology to be adopted in each paper 'for example', following a qualitative approach.
- Designing and implementing the empirical investigations presented in each paper 'for example', recruiting participants, and gathering the data.

- Analysing and interpreting the gathered data and drawing the conclusions 'for example', qualitative analyses.
- Describing the findings and writing each paper in full.

The contribution that the co-authors made to the papers was that they helped to validate and verify the findings by ensuring that they truly reflected the responses given by the participants. In addition, they offered valuable feedback and advice regarding the composition of the message being conveyed by the paper. They also provided insight into the selected methodology and advised on the quality of the writing, with suggestions for improvements to the text also offered. Moreover, the co-authors ensured that appropriate terminologies were utilised, particularly those concerned with where the papers were to be published.

1.8   SUMMARY

This chapter has given an introduction to the context and domain of the work and discussed the rationale for the thesis. It also introduced the aim, research questions, objectives and scope. It sets out the list of publications that have so far resulted from this research and explains the author's contributions to these documents. The next chapter presents a review of the research topics and domains related to this work.

Chapter 1: Introduction		
Research Scope and Context	Research Aim	Research Objectives and Methods

Chapter 2: Literature Review
Formulate Areas of Research in relation to FoMO with rgard to Social Media, Digital Addiction and Behaviour Change

Chapter 3: Research Methodology		
Adopted Research Approach	Adopted Research Design	Adopted Research Methods

Chapter 4: Exploring the lived Experience of FoMO on Social Media	
Five Classifications of FoMO (Interview and Diary Study)	Current Mitigation Strategies Used for Managing FoMo (Diary Study)

Chapter 5: Exploring Social Media Features in Triggering FoMo and in Manaing FoMO	
Demonstration of How Social Media Features Trigger Certain Kinds of FoMO	Demonstration of a List of Countermeasures for Managing FoMO

Chapter 6: The Validity of FoMO Classifications
Demonstration of the Descriptive Analysis of FoMO Calssifications and the Strength of FoMO Varieties

Chapter 7: The Validity of FoMO-Reduction Countermeasures
Demonstration of the Descriptive Analysis of FoMO Reduction Countermeasures and their Strength

Chapter 8: Proposing a FoMO Reduction Method (FoMO-R)
Presenting FoMo-R for Managing Digital Usage Utlising Features that Already Exist on Social Media and Proposed Features that can be Produced by Future Social Media

Chapter 9: Evaluation and Refinement of FoMO-R
Presenting the Procedure Used in the Evaluation and Explanation of the Results

Chapter 10: Contribution, Conclusions and Future Work		
Contributions List	Explanation the Results of the Thesis	Possible Future Extensions

FIGURE 1: THESIS CHAPTERS AND RESEARCH ROADMAP

2.   CHAPTER 2: LITERATURE REVIEW

FoMO is a multidisciplinary problem combining elements from software design and psychology. This chapter aims to provide an overview of FoMO in relation to social media, digital addiction, its psychological foundation and the design perspectives. Digital addiction is reviewed because FoMO can be the symptom that associates in certain components of addiction: salience, withdrawal, tolerance and relapse. For example, in the tolerance component, individuals may increase their time of connectivity on social media in order not to miss information or interactions. In addition, this section reviews the mechanisms of behavioural change with a special focus on the use of persuasive technology for this purpose. In this chapter a review of the research and domains related to FoMO and digital addiction in relation to the use of social media is presented. It is hoped that the literature review will provide a grounding for this research and clear boundaries for this thesis and for other researchers who share the need to engineer countermeasures that minimise FoMO.

2.1   DIGITAL ADDICTION

Digital Addiction (DA) implies a problematic usage of smart devices and sufferers are characterised as compulsive, impulsive, excessive and hasty. There are negative behaviours associated with DA such as anxiety, depression, distraction, lack of sleep and a decline in social skills. Although some software products can facilitate pleasure and compensate for a lack of some social skills, they may also in some ways negatively affect social and psychological health (Ha et al., 2006).

Although DA has no agreed definition, it has been argued that it consists of various sub-types, including internet addiction, gaming addiction, cyber-relationship addiction, and information overload (Young and De Abreu, 2010). Whilst it has not been diagnosed as a mental disorder in the 5th and most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) (Association, 2013), the DSM diagnoses pathological gaming as a growing phenomenon and likely disorder which is in need of further research. Hence, the situation is vague, but the DSM view reflects the ongoing debate on whether extensive cyberspace use is a problem worthy of concern (Yellowlees and Marks, 2007), or just a new lifestyle that people depend upon (Young and Rodgers, 1998). Regardless of its clinical status, however, DA is a global phenomenon that requires effective and accessible methods of health intervention, even if only in the form of self-regulation (Fenger, 2015).

The wealth of information and digital connectivity is a merit of the modern lifestyle. However, its excessive and obsessive use (i.e. DA) may cause serious social and mental well-being issues. The negative effects that are associated with DA include poor academic performance, reduced social and recreational activities, relationship break-ups, low involvement in real-life communities, poor parenting, depression and lack of sleep (Young, 1999, Enrique, 2010). DA has psychological features and, along with dependency, individuals can experience withdrawal symptoms (e.g. depression, cravings, insomnia, irritability and fear of missing out).

2.1.1   DIGITAL ADDICTION DEFINITIONS

In the literature, DA has four definitions. Problematic Internet Use *(Caplan, 2005)*; Generalised Pathological Internet Use *(Davies, 2011)*; Internet Addiction (Ha et al., 2006) and Technological Addiction (Griffiths, 1996b). It can be seen that the various terms describe the object of addiction, for example, internet and technology. Moreover, various terms are utilised to describe behaviour, such as addiction, generalised pathological use, problematic, and compulsive. They are used either interchangeably or based on the focus and emphasis of the studies.

- **Definition one:** *"Problematic Internet Use is a multidimensional syndrome consisting of cognitive and behavioural symptoms that result in negative social, academic, or professional consequences"* (Caplan, 2005).

- **Definition two:** "*Generalised Pathological Internet Use is conceptualised as a multidimensional overuse of the Internet itself that results in negative personal and professional consequences"* (Davies, 2011).

- **Definition three:** *"Internet Addiction is the inability of individuals to control their Internet use, resulting in marked distress and/or functional impairment in daily life"* (Ha et al., 2006).

- **Definition four:** "*Technological Addiction is operationally defined as non-chemical (behavioural) addictions that involve human–machine interaction"* (Griffiths, 2000).

- **Definition five:** "*the excessive use of certain software-mediated operations to reach certain requirements. This includes the case when the use itself is compulsive or impulsive and also the case when the user cannot switch to other available alternatives to reach the same requirements without a good reason*"(Ali et al., 2015).

- **Definition six:** "*DA can be defined as impulse which leads to going on using digital tools although it is known that overusing such tools will create physical, emotional, mental, and social problems for an individual*"(Kesici and Tunç, 2018)

2.1.2 ADDICTIVE BEHAVIOUR COMPONENTS

DA can be seen as a subset of addictive behaviour (Marks, 1990) and manifests core components of addiction that were first proposed by Brown (1993) and adjusted by Griffiths (1996a); these are salience, mood modification, tolerance, withdrawal, conflict and relapse, each of which is described in more detail below:

- **Salience:** This happens when using the internet becomes the most important activity in an individual's life and dominates their thinking (preoccupation), feelings (craving) and behaviour. For instance, if the individual is unable to interact or connect as wish they are preoccupied with missing information and interactions.

- **Withdrawal symptoms:** These are the unpleasant feeling states and/or physical effects that happen when people are not able to connect and interact as they wish internet is disconnected or unavailable (for example, irritability and depression).

- **Conflict:** This refers to a conflict between users of the internet and their interpersonal activities or within themselves such as subjective feelings of losing control. These conflicts are concerned with spending too much time engaged in using the internet.

- **Relapse:** This occurs when users of the internet revert back to their earlier habits of internet use, reviving the most extreme behaviour that was typical at the height of their excessive internet use after a period of abstinence or control.

- **Tolerance:** This occurs when individuals increase the amount of time spent on the internet due to a need to satisfy their desires.

- **Mood modification:** This happens when individuals engage in cyberspace in order to modify a negative emotion and escape their real life.

2.2   FEAR OF MISSING OUT

People are driven to understand the behaviour and attitudes of those around them, known as attributions. This motivation is a reflection of the fact that humans are a fundamentally social species, whose survival and success is determined in part by how well they can predict and navigate their social world. As Allport (1968)notes, humans are influenced by the real, implied or imagined presence of others. With the rise of social media and use of smartphones the 'presence' of others has become ubiquitous. This has brought about a fundamental change in the locus of control for how people interact with their social group. Before smart devices, individuals may have attributed the frequency of interactions with their social group, or lack thereof, to the constraints of not being physically together. As such there would be extended periods of time, for example, where individuals would not easily be able to communicate with each other, and importantly, would be aware that those within their social group had the same understanding of the situation. With the development of smart devices and social media it is now almost always possible for people to communicate and interact with their social group. Thus, the locus of control for social communication and interaction has altered from being partly externally determined to largely internally determined. However, the increased social interaction opportunities and the easy access to social media may make individuals experience FoMO, which is a preoccupation with what is occurring online and how others are reacting, either positively or negatively, to someone's online presence and interactions.

2.2.1   FEAR OF MISSING OUT LITERATURE REVIEW

In most literature, FoMO is defined as "a pervasive apprehension that others might be having rewarding experiences from which one is absent and is characterised by the desire to stay continually connected with what others are doing" (Przybylski et al., 2013). In addition, FoMO is defined as a form of social anxiety, a compulsive concern that one might miss an opportunity for social interaction or another satisfying event (Naren et al., 2015). To date, FoMO has not had a reliable definition in relation to social media.

Social media provides diverse information in real time about events, conversations and activities, and it allows individuals to be informed about new developments. This may lead individuals to experience FoMO by compelling them to check their social media activities

frequently or stay online continuously to avoid missing out. FoMO explains the desire of people who experience chronic deficits of psychological satisfaction to constantly engage with social media, even when this happens in unsuitable or dangerous situations such as while attending lectures (Przybylski et al., 2013), or driving (Alt, 2015, Turkle, 2017). It is important to note that as with many psychological processes the core motivation is not inherently problematic. Humans are a social species, and have evolved to exist within social groups that reinforce their group identity through the sharing of social information (Dunbar and Dunbar, 1998). Instead the issue is when this preoccupation with sharing and receiving social information grows to such an extent that it interferes with normal daily functioning or causes distress to the individual.

Researchers have recently begun to explore the negative FoMO consequences that are faced by social media users (Beyens et al., 2016, Alt, 2015, Elhai et al., 2016, Hetz et al., 2015). The investigations suggest that those experiencing what could be called DA may also display a range of psychological disorders including depression and negative feelings (Baker et al., 2016); insomnia and eating disorders (Beyens et al., 2016); low life competency (Elhai et al., 2016); emotional tensions (James et al., 2017, Lai et al., 2016); negative effects on physical well-being (Alt, 2015); anxiety (Oberst et al., 2017); lack of emotional control (Wolniewicz et al., 2018); and insufficient sleep (Adams et al., 2017). Additionally, further researches considered FoMO as one of triggers to the problematic attachment to social media (Altuwairiqi et al., 2019c) and procrastination on social media (Alblwi et al., 2019b).

Individuals can experience negative emotions such as anxiety, when they are unable to connect to social media or to receive an expected interaction, as demonstrated by Cheever et al. (2014). In addition, Fox and Moreland state that FoMO is a main reason why people use Facebook extensively and feel pressure to do so (Fox and Moreland, 2015). People experience anxiety when they are preoccupied with being available at the right time to interact with others (Altuwairiqi et al., 2019a). Also, a problematic attachment to social media may lead to tendency to increase popularity and reputation and, then, feeling anxiety when unable to interact as wished (Altuwairiqi et al., 2019b). Additionally, people may experience FoMO when they feel the urge to be online to avoid missing temporarily content. This may lead them to excessively monitor their contacts' status and posts which could lead them to experience procrastination and delaying other priority tasks (Alblwi et al., 2020). While the underlying

reasons for this could be diverse, social media and technology could still be designed in a way which helps people to stay in control of their experience (Ali et al., 2015).

Empirical literature from the social sciences relevant to FoMO has shown a correlation between social media design, psychological factors such as depression, and FoMO. In these studies, data were collected using interviews, focus groups and surveys which would mean that FoMO experience had to be recalled, and this would introduce reporting bias and incompleteness; that is, they have limited ecological validity (see Table 2). Abel et al. (2016b) used a survey to explore the measurement of FoMO. In a study by Buglass et al. (2017), the relationships between the utilisation of social network sites, FoMO, self-promoting behaviour, online vulnerability, and psychological well-being were investigated through extensive online surveys. In Elhai et al. (2016) used an online survey to explain problematic smartphone use in relation to FoMO. Przybylski et al. (2013) conducted three studies in an attempt to understand FoMO and they used online survey and interviews. A paper-and-pencil survey was used by Beyens et al. (2016) to examine the relationship between adolescents' FoMO and their perceived stress in relation to the use of Facebook. An online survey was used to investigate the association between social network sites use, FoMO and a broad range of clinically relevant health outcomes in a paper by Baker et al. (2016). Survey and focus group methods were used by Hetz et al. (2015) to understand the experience of FoMO when people study abroad, whilst a focus group was used by Fox and Moreland (2015) to uncover negative psychological and relational experiences, such as FoMO, associated with social network sites. Alt (2015) used survey to investigate the link between FoMO, SNS engagement and three motivational constructs.

TABLE 2: THE VARIOUS STUDIES AND THE FORM OF DATA COLLECTED

Title of research	Data collection method
Social media and the fear of missing out: scale development and assessment (Abel et al., 2016a)	This research used a survey to achieve its goal which was to explore the measurement of FoMO. The survey was distributed randomly via email and various social media platforms.
Motivators of online vulnerability: The impact of social network site use and FoMO (Buglass et al., 2017)	Extensive online surveys were used to explore the relationship between the use of SNS, FoMO, self-promoting behaviours, online vulnerability, and psychological well-being. The sample was recruited from school-aged adolescents, undergraduate students and online adult users.

Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use (Elhai et al., 2016)	<u>An online survey</u> was used in this research to test the hypotheses that explain problematic smartphone use, such as FoMO. Participants were recruited from Amazon's Mechanical Turk labour market for this study.
Motivational, emotional, and behavioural correlates of fear of missing out (Przybylski et al., 2013)	This research conducted three studies. **The first study** used an <u>HTML questionnaire</u> to create a robust scale of FoMO. Diverse international participants were recruited online through Amazon's Mechanical Turk worker system. **The second study** examined how FoMO relates to demographics, people differences, and social media engagement. It also sought to understand how people related differences in terms of need satisfaction and well-being relate to social media engagement. <u>An online interview and survey</u> with participants from the Harris Poll panel of Great Britain were used as a form of data collection to achieve the goal of the second study. **The third study** investigated the role that FoMO plays in the lives of first year university students. The measures of FoMO, and questions about Facebook engagement, ambivalent emotional experiences, distracted learning and distracted driving were included in <u>a survey</u> to collect data from participants.
I don't want to miss a thing: adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook-related stress (Beyens et al., 2016)	This research used a <u>paper-and-pencil survey</u> to gather data on the mediating role of FoMO with regard to adolescents' need to belong and need for Facebook popularity. It also examined the relationship between adolescent FoMO and perceived stress in relation to Facebook.
Social media use and the fear of missing out (FoMO) while studying abroad (Hetz et al., 2015)	This pilot research study was conducted to understand whether students experience FoMO when studying abroad. For data collection purposes, a <u>survey and focus group</u> were used with twenty-two students who studied abroad.
The dark side of social networking sites: an exploration of the relational and psychological stressors associated with Facebook use and affordances (Fox and Moreland, 2015)	This research uncovered people's negative psychological and relational experiences associated with social network sites, such as FoMO. <u>Focus groups</u> were used for data collection purposes with university students.

The young and the restless: socializing trumps sleep, fear of missing out, and technological distractions in first-year college students (Adams et al., 2017)	This research investigated the factors that affect the sleep of students. Semi-structured interviews were conducted with fifteen first-year undergraduates.
College students' academic motivation, media engagement and fear of missing out (Alt, 2015)	This research examined the link between FoMO, social media engagement and three motivational constructs. For data collection purposes, a questionnaire was administered to undergraduate students.
Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out (Oberst et al., 2017)	This research sought to determine whether adolescents with psychological problems experience negative consequences when using SNS and whether these consequences are mediated by FoMO and the intensity of using SNS. To realise this aim, the research used an online questionnaire which was administered in several Spanish-speaking Latin-American countries.
Students' well-being, Fear of Missing out, and Social Media Engagement for Leisure in Higher Education Learning Environments (Alt, 2018)	This research assessed the hypothesis that maladjustment could lead toward a general sensitivity to FoMO and higher levels of social media engagement. To realise its aim, the research used questionnaires.
Personality, fear of missing out and problematic internet use and their relationship to subjective well-being (Stead and Bibby, 2017)	This research aimed to provide empirical evidence relating personality, FoMO and problematic internet use to subjective well-being. An online questionnaire was conducted to achieve the aim.
Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder (Wegmann et al., 2017)	This research used an online survey to contribute to a better comprehension of Internet-communication disorder; a specific type of Internet-use disorder.
Fear of Missing Out: Relationships With Depression, Mindfulness, and Physical Symptoms (Baker et al., 2016)	This research used a survey to investigate whether and how FoMO is associated with depressive symptoms, mindful attention, and physical symptoms.
Fear of missing out (FoMO) is associated with activation of the right middle temporal gyrus during inclusion social cue (Lai et al., 2016)	The intention of this research was to examine the neurobiological correlates of fear of missing out in response to the social exclusion and social inclusion cue by using questionnaires.

The limitations of the ways in which FoMo related data have been previously collected (see Table 2) motivated the current research. This research utilises a research method which allows a comprehensive explanation and more lived experience data to be gathered, in an iterative style.

2.3   SELF-DETERMINATION THEORY AND FOMO

Self-determination theory is motivational theory and explains that individuals are sensitive to FoMO when engaging in social behaviour due to deficits in psychological needs (Ryan and Deci, 2000a). It has been argued that this fear could drive individuals towards social media because they assume that social media provides them with a self-regulation tool that they can use to satisfy their psychological needs (Przybylski et al., 2013). This need to have contact with social media owing to FoMO may be one of the factors explaining why research proposes that Facebook can induce stress among adolescents (Fox and Moreland, 2015). As Beyens and colleagues note, a vicious circle may develop whereby FoMO compels individuals to use social media which then fuels their FoMO (Beyens et al., 2016). This is demonstrated by a study which noted that some adolescents keep their smartphones under their pillow when sleeping in order to avoid missing any messages (Lenhart et al., 2010). This behaviour could be one of the causative factors in the development of sleep disorders among youth (Beyens et al., 2016).

In self-determination theory, Ryan and Deci (2000b) differentiate between kinds of motivation based upon the various reasons or goals which give rise to an action. The most basic difference is between intrinsic and extrinsic motivation. Intrinsic motivation is defined as doing something due to the fact that it is associated with enjoyment and is interesting. Extrinsic motivation is defined as doing something owing to the fact that it brings about a separable outcome. FoMO is one of the extrinsic motivations that encourage people to use social media because they seek connectedness and avoid social isolation (Alt, 2015).

2.4   USE AND GRATIFICATION THEORY AND FOMO

Use and gratification theory is an approach that aims to demonstrate, explore and understand the essential psychological needs that motivate people to select a certain social medium (Rubin, 2009). The theory concentrates on what individuals do with media rather than what media does to individuals. It means that individuals take an active role in explaining and integrating social networks into their own lives. The approach proposes that individuals are aware of their needs and they select a certain SNS to gratify those needs. The use and gratification typology of needs

are split into four main categories: diversion (escape, emotional release, entertainment), personal relationships (peers, social utility), personal identity (personal reference, reality exploration) and surveillance (acquiring information). In the context of FoMO, the importance of this theory lies in understanding what motivates people to take part in certain social networks and what needs a certain behaviour may fulfil.

2.5 FOMO AND SOCIAL NEEDS

2.5.1 THE NEED TO BELONG

Individuals have an inherent desire to form and maintain strong and stable interpersonal relationships (Baumeister et al., 1994). Belonging to a group of people is important for individuals who prefer social media. This could explain why those individuals like to use social media. The reason behind using social media is that individuals seek to gratify their social needs, especially the need to belong. However, the cost of this need is a fear of missing out on friends' interactions about which individuals feel anxious due to the fact that they do not feel that they belong to their peers. This can be observed when using social media, for example, not being invited by friends to an event that is publicised on social media(Beyens et al., 2016).

2.5.2 THE NEED FOR POPULARITY

Although individuals seek to increase their sense of belonging through social media, they also wish to increase their popularity by doing things that are specifically intended to achieve that end (Beyens et al., 2016). However, when individuals feel that they are unpopular among their friends on social media (for example, receiving no or few Likes on a Facebook post), they experience stress and anxiety, and this feeling may adversely affect their self-esteem. This feeling of stress stems from being ostracised from friends' interactions (Przybylski et al., 2013) and is also created when individuals fear missing events or information (Vorderer et al., 2016). Due to the fear of being ostracised from friends' interactions and missing opportunities, individuals may fail to self-regulate (Wang et al., 2015), and thus they may increase their use of the internet in a manner that drives them to become addicted to social media.

2.6 FOMO RELATED PSYCHOLOGY

2.6.1 OSTRACISM

Ostracism is defined as being ignored and excluded from family, friends or society (Williams et al., 2000). Individuals inherently seek to raise their sense of belonging and improve their self-esteem. However, being ostracised threatens these needs by making them weaker and thus it causes negative moods and anxiety. Williams et al. (2000) reported that a state of ostracism could occur in social media. For instance, groups of individuals may exclude a member due to the fact that they have broken the group's norms or delayed their reply. In fact, because individuals fear being excluded, ignored or rejected, they conform, comply, obey, ingratiate, improve their appearance and manage the impression they make on others in order to feel that they belong or are popular (Baumeister and Leary, 1995).

2.6.2   PEER GROUP

Becoming a member of a peer group is one of the vital tasks that young people set themselves in order to satisfy their needs (Coleman, 2011, Erikson, 1994). The reason for doing so is to increase their sense of belonging (Santor et al., 2000). However, the cost of this is peer pressure which requires people to conform to the norms of the group and show their commitment and loyalty to other members (Newman and Newman, 1976). Peer pressure can perhaps also occur in cyber social networks where people expect to be connected with their peers, or else excluded. The pressure from friends, colleagues and relatives in social networks may create a fear of missing out which causes people to sign into those networks frequently, not only to avoid FoMO, but also to maintain social relationships (Fox and Moreland, 2015). Individuals may, for instance, feel pressure to comment immediately on friends' posts for fear of being ostracised by their friends. Thus, peer pressure may create a FoMO that can increase time spent using and thinking about social media.

2.6.3   SOCIAL NORMS

Social norms are defined as the behaviour of a certain group which suggest that rules are created by groups of people (Detel, 2008). Another definition of social norms is that they are traditional rules that control our behaviour with others (Bicchieri and Mercier, 2014). There are two important types of social norm: descriptive and injunctive (McAlaney et al., 2011). Descriptive norms are an individual's beliefs about how their peers actually behave, whereas injunctive

norms are an individual's beliefs about what behaviours are acceptable or unacceptable in certain social contexts.

Some rules may drive individuals towards negative consequences due to misperceptions but the social norm approach aims to correct this. Social norm theory characterises two misperceptions:

- Pluralistic ignorance is the situation in which individuals mistakenly believe the behaviours of their peers or society to be different from their behaviours while they may be the same (Toch & Klofas, 1984). For example, students in college may perceive that their peers consume more alcohol than themselves when in fact this is not the case (Lewis et al., 2007).
- False consensus arises when an individual falsely perceives that their behaviour is like that of others (Berkowitz, 2004). For instance, excessive users of the internet may incorrectly think that their peers are also excessive users.

In the context of FoMO, interactions among individuals on a certain social media follow norms and expectations that are created by individuals. These norms and expectations may drive individuals to experience FoMO. For instance, individuals expect that they should interact with group conversations because if they do not, the other group members may exclude them in future.

2.7   SOCIAL MEDIA ADDICTION

Social network sites are defined as platforms that enable individuals to communicate with people in different ways, such as posting information, comments, messages and images to build a public or semi-public profile (Boyd and Ellison, 2007). These interactions are performed in less restrictive environments leading to more self-disclosure (Al-Deen and Hendricks, 2011). Additionally, social networks are described as the new means of participating and communicating that depend on collaboration, remixed texts and self-publishing (Lankshear and Knobel, 2011). Users of social media provide individuals with real time information regarding activities, events and conversations occurring across different social media (Przybylski et al., 2013). These uses enable individuals to identify a network of people with whom they want to share access to different forms of content such as profile information, news or status updates (Steinfield et al., 2013). Previous studies of social networks have concentrated on the effect that those networks have on attitudes and behaviours that reinforce an individual's social

capital. For instance, social networks have been linked to significant levels of emotional support from peers (Putnam, 2000).

However, the use of social network sites may lead individuals to become compelled to maintain their relationships in a manner that involves using social network sites excessively. It can be seen that individuals who use social network sites excessively may experience traditional addiction symptoms such as salience (preoccupation with SNS use), tolerance (increasing use of SNS over time), withdrawal symptoms (unpleasant feelings when SNS use is restricted or stopped), conflict (interpersonal and intrapsychic issues occur due to social network sites use), and relapse (excessive users quickly revert back to excessive social network sites use after a period of abstinence) (Attrill, 2015: 190).

2.8 PSYCHOLOGICAL THEORIES DRAWN FROM EARLIER STUDIES ON ADDICTION

There are diverse psychological theories and models that may contribute to the explanation of FoMO, including cognitive theories, personality or identity theories, and social psychology theories. The following subsections give a brief summary of those theories that are considered to underlie FoMO in relation to social media usage.

2.8.1 SELF-EFFICACY THEORY

Self-efficacy theory was proposed by Bandura and is defined as "the degree to which an individual feels confident and capable of performing certain behaviour in specific situational contexts" (Bandura, 1977). Bandura identified four main aspects affecting self-efficacy:

1) Performance accomplishment: motivates modification by reminding people about prior success
2) Vicarious experiences: these represent a person's knowledge in relation to their abilities, and may be influenced by their social environment
3) Verbal persuasion: concentrates on a person's analysis of self-efficacy through, for instance, convincing self-talk
4) Psychological and emotional arousal: defined as activities that point out a person's vulnerability or dysfunction; for example, self-talk techniques to mitigate anxious thoughts.

In the context of social media, when individuals believe in their capabilities and skills for maintaining social media connections and creating new relationships, this illustrates a manifestation of self-efficacy in social media interactions.

2.8.2   SELF-PRESENTATION THEORY

Goffman (2002) conceptualised self-presentation theory, which is the process by which people represent themselves in the social universe. This process happens on both conscious and unconscious levels and is commonly motivated by the desire to satisfy others or to meet the needs of the self. Self-presentation may be utilised as a method of regulating others' impressions of themselves. When individuals endeavour to create a desired image or elicit a desired response from others, this can lead to strategic or tactical self-presentation (Goffman, 2002).

This can occur on social media when people share their daily lives with peers and receive feedback from them in the form of Likes or comments. Some people may have unpleasant feelings if they achieve no, or limited, interaction with others. This may result in low self-esteem and a high dependence on the feedback of others, leaving the service user feeling unworthy or uninteresting. People attribute this form of fear to various causes. In addition, when unable to interact or connect to social media, they may be preoccupied with having failed to make a timely interaction, worried that others will feel ignored, and concerned about giving negative impressions as the other parties in the peer group are accustomed to receiving an immediate response from them. Personal factors and aspirations seem to be elements that can affect the existence and degree of FoMO. This includes the perceived need for social recognition in which individuals seek to be important to their social group on certain social media; for example, leaders, helpers or influencers. This need often comes together with a high demand or preoccupation about impression management in which individuals strive to cultivate a certain social identity; or in other words, the way in which they wish to be seen by their social group (see Chapter 4).

2.8.3   SOCIAL EXCHANGE THEORY

Social exchange theory is a way of showing a community as a series of interactions relying on anticipated rewards and punishments (Homans, 1958). The assumption of social exchange theory is that such rewards and punishments determine an individual's interactions; that they

will be predisposed to interact through actions that elicit acceptance from others rather than through actions that elicit refusal.

Excessive use of social media has multiplied due to the perceived rewards. For instance, individuals may use social media to maintain or increase their followers and also to improve their reputation. If those individuals are satisfied by making their social media profile constantly active, they will attribute this reward to social media, thus reinforcing their excessive behaviour. These individuals will continue to interact on social media because they fear missing out on rewards; rewards such as increased follower numbers.

2.8.4 RECIPROCITY THEORY

Reciprocity is where rewards are given for kind actions and punishments for unkind actions (Fehr and Gächter, 2000). Reciprocity theory evaluates kind works by emphasising the need to think about the intentions behind an action. Participants consider which is more useful, the guaranteed rewards or the cost involved. Reciprocity is a significant behaviour determinant, and this theory emphasises the kinds of bonds, symbolism and obligations that are central to giving and exchange.

Reciprocity theory is the main to realize interactions that occur on social media owing to its important role in online behaviour. For instance, when people start a conversation on social media with their peers, the discussion may lead to further inquiries and questions. The reward of a person's idea being attributed importance through discussion results in that person following up the conversation, and maybe being unable to end it, as they fear the loss of that reward; thus, it can become addictive.

2.8.5 SOCIAL CAPITAL THEORY

Social capital widely refers to the elements that function in social groups that contain things such as values, shared norms, and realizations, that reinforce group collaboration (Burt, 2000). There are three essential shapes of social capital (Lollo, 2012):

1) The bonds that arise between people having a similar identification to other people such as family members, colleagues and friends
2) The connections formed among persons who have a similar sense of identity such as peers

3) The links which guarantee that persons can be connected up or down their social networks

Based on this theory, the experience of FoMO in relation to social media may be created by the networks acquired through social media and being online. Individuals maintain their social relationships by frequently updating their profile, commenting on friends' posts and chatting. Moreover, social media facilitates the maintenance of close social relationships with those who live outside our geographic social circle. The desire to maintain our various relationships, or gratification involved in doing so, can intensify an individual's experience of FoMO. The mitigation of being online on social media can result in lost long-distance friendships, likely leading to a fear of missing out on popularity or loss of a sense of relatedness.

2.9 THE FEATURE OF SOCIAL MEDIA

The honeycomb framework was introduced as an explanation of social media functions (Kietzmann et al., 2011). Seven functional blocks comprise the framework: "Groups (the extent to which individuals can create their own groups); Sharing (the extent to which people exchange, distribute, receive and share their photos, audio and video); Reputation (the extent to which people can recognise other people's level or themselves regarding their reputation through their status, friends list and shared content); Conversation (the extent to which people communicate with other people in social networks such as sending messages, comments and chatting); Identity (the extent to which people disclose their identity on social networks, such as their name, gender, age, qualifications and hobbies); Presence (allows individuals to be aware of the existence of other individuals from their profile and status); Relationships (the extent to which individuals belong to other individuals)" (Kietzmann et al., 2011). The honeycomb framework will be taken as a template to define the social media features that contribute in triggering FoMO.

2.10 BEHAVIOURAL CHANGE THEORIES AND METHODS

Behavioural change theories bridge the gap between attitudes and behaviours. Their aim is to minimise the discrepancies between the two conceptual constructs; for example, the gap between the purpose of changing a behaviour and the act of actually doing so (Webb et al., 2010). This is done by stimulating people to make a plan to achieve the intended behaviour. This section lists theories and models that illustrate the main dynamics of behavioural change.

It can be argued that each theory and model focuses on particular aspects, but they can still complement each other to provide a more holistic picture of human behaviours.

2.10.1   THE THEORY OF PLANNED BEHAVIOUR

Ajzen (1991) proposed the Theory of Planned Behaviour (TPB) that is a social cognition model and affirms the role of the intention to anticipate actions (Webb et al., 2010). This theory offers the intention itself is a result of three factors:

- Personal attitude toward the behaviour which is influenced by expectation and the desired outcomes.

- Social factors (for example, social pressure and norms) which are determined by the expectation of peers and individual motivation to comply with their beliefs.

- The perceived capacity to achieve the behaviour.

This theory developed gradually from the Theory of Reasoned Action (Bagozzi, 1986) by inserting the third factor that expresses the same sense of self-efficacy (Terry and O'Leary, 1995). Such factors can be used to create an exploratory framework that aims to predict people's behaviours (Riekert et al., 2013).

The TPB may be appropriate for determining what to change (which factors), but not for proposing suggestions for change (Hardeman et al., 2002). Moreover, the constructs of the theory can be mapped to some of the processes of the Transtheoretical Model proposed by Prochaska (2013), the processes of consciousness raising, environmental re-evaluation, dramatic relief, and self-liberation. Self-liberation, for example, is about belief in the ability to change (perceived behavioural control according to the theory of planned behaviour). In addition, it can be used to determine which intervention methods to utilize. For example, normative influence as a persuasive principle (Torning and Oinas-Kukkonen, 2009) may produce better results if the problem stems from an incorrect perception, such as "no one can reduce digital usage".

2.10.2   SOCIAL COGNITIVE THEORY

Social Cognitive Theory (SCT), proposed by Albert (1986), is a social cognition model which says that an individual's actions can be predicted from their intentions. This theory shares the main principle of the Theory of Planned Behaviour but concentrates on self-efficacy (Webb et al., 2010). In addition, individuals might improve their positive rewards by observing others in

similar situations performing actions and gaining the desired results, thus developing motivation and raising the chances of behavioural change. This reflects the social learning principle amongst the persuasive techniques listed by Torning and Oinas-Kukkonen (2009). It can be concluded that these theories complement each other as means of providing more efficient and sustainable behavioural change.

2.10.3 THE CONTROL THEORY

The Control Theory is "a general approach to understanding the self-regulating systems" (Carver and Scheier, 1982). A goal is required as a 'reference value' in order to compare it against the current rate of a particular behaviour. This theory may be seen as a class of feedback loop model, although it is infrequently used as a baseline for intervention systems for addictive behaviour. As a form of behavioural monitoring it is widely utilized in self-regulation systems. The impediment of having to set a goal is the problem with this theory in relation to addictive behaviour (Webb et al., 2010). However, it can be a helpful and effective framework for combining other processes and theories of self-regulation such as Goal Setting Theory and the Health Belief Model (Webb et al., 2010). When software-assisted monitoring and feedback are in place it provides new potential for Control Theory to be used in the monitoring and treatment of DA.

The impediment of a setting "standards" (i.e. goals) could interfere with behavioural change (Vohs and Baumeister, 2016). The impediment stems from distorted standers, e.g. alcohol improves mood. Vohs and Baumeister (2016) also affirmed the conflicting goals, e.g. living healthy and enjoying the moment.

2.10.4 TRANSTHEORETICAL MODEL

Prochaska and DiClemente (1983) proposed the Transtheoretical Model (TTM) which is one of the main models in the field of behavioural change and is widely utilised by researchers. TTM describes how individuals can obtain positive, or alter their problem, behaviours. The Stages of Change are the main construct of TTM. TMM suggests mapping people to one of five main stages, namely, pre-contemplation, contemplation, preparation, action, and maintenance (see Table 3). Furthermore, it tries to combine the main processes of behavioural change (for example, consciousness-raising, counter-conditioning, and stimulus control) and links them to the stages of TTM (Sutton, 2001). This model will be used as a template to

propose a method that is meant to enable people to regulate their usage of social media and, in particular, to manage FoMO, as will be explained in Chapter 8.

TABLE 3: TRANSTHEORETICAL MODEL STAGES

Stages of change	Description
Pre-contemplation	No plan to take action within the next six months
Contemplation	Plans to take action within the next six months
Preparation	Plans to take action within the next 30 days and has taken some behavioural steps in this direction
Action	The behaviour has been modified for less than six months
Maintenance	The behaviour has been modified for more than six months

2.10.5   THE HEALTH BELIEF MODEL (HBM)

Janz and Becker (1984) proposed this model in 1950 and the core notion of it is that people "must feel personally vulnerable to a health threat", as protective countermeasures may be executed. Achieving a particular behaviour relies on four factors that are specific to an individual's perception and perceived risks. The notion of self-efficacy is supported by HBM as its theoretical basis.

HBM may not be appropriate for treating addiction in people who deny their addictive tendencies in spite of the emergence of relevant symptoms. In cases that need clear protection, such as AIDS risks or cancer screening, HBM is utilized widely, but there is no published scientific research that has used HBM for addiction intervention. Despite this fact, however, it might be an effective model for digital or social media addiction. Wang et al. (2016) have explored some elements of the HBM, such as the perceived benefits and barriers that might be risk elements for digital addiction.

The apparent barriers, the apparent benefits, self-efficacy and cue to action. It is assumed by the HBM model that if adolescents do not experience a sense of being threatened by DA with perceptions of low severity and susceptibility, they believe that reducing their use of the Internet will have negative implications (the apparent barriers), they believe that using the Internet is beneficial (anticipated benefits), they experience difficulty when attempting to

reduce their use of the Internet (limited self-efficacy), and rarely, if ever, is it suggested to them by others that they curtail their use of the Internet (no cue to action). According to the theory, such people are disproportionately likely to develop DA but this theory has not previously been applied to appreciate DA across a sample of adolescents and adults.

2.10.6   GOAL SETTING THEORY

Goal Setting Theory proposes that goal setting may have a positive effect on performance (Locke and Latham, 1990). The two fundamental factors of this theory are:

- **Specificity** (determining a 'reference point'), the intention to reach a particular goal is more efficient than 'do-your-best'.
- **Difficulty** which revolves around the perceived ability to fulfil the goals. Difficulty is related to the concept of self-efficacy.

Goal Setting is used in the field of addictive behaviours, where the difficulty of reaching the goal is expected to be outside the subject`s comfort zone if they are to recover from their addiction (Webb et al., 2010). The issue of deciding who sets the goals is still a research problem; should they for example be self-set, provider-set, or set up by a recommendation system (Strecher et al., 1995)? Goal setting is fundamental to the monitoring process and making it more helpful. There are three significant aspects to defining a goal, as summarized Glanz et al. (2008):

- Intention is a main component.
- A goal has to be formulated with consideration for the proximity of the results (distal or proximal goals).
- Goals should be built depending on planned and incremental steps to promote self-efficacy.

The relationships between the collective goals and between the members of the group are core factors that bind individuals together and promote the sustainability of the project. Proposed goals that are not interesting to members can have a great impact on group sustainability. Consequently, there should be a "S.M.A.R.T" way of setting goals (Doran, 1981).

2.10.7   CIALDINI'S PRINCIPLES

Cialdini (2009) set out a list of persuasive principles that influence the behaviour of individuals. They offer an understanding of the psychology of persuasion, and are as follows:

- **Reciprocity:** can be applied in two various forms: i) the social commitment to give back a favour, and ii) "the reject then retreat" in which a person is given exaggerated information (for example, a price), then offered an acceptable alternative to enable them to compare the offers and accept the alternative.

- **Consistency and commitment:** concentrates on personal alignment (for instance, attempting to be consistent when committing to an action).

- **Social proof:** people are affected by what others do (for example, social norms). It may be related to the concept of the sense of belonging, and can also be an outcome of attempting to avoid punishment.

- **Liking:** people feel compelled by those they like. Liking can stem from various sources such as trust, similarity, and attractiveness.

- **Authority:** people feel compelled to follow those with authoritative roles, such as parents, managers and the police.

- **Scarcity:** people tend to avoid loss and likely regret. Examples include temporarily available content such as stories and feeds on social media.

2.10.8   FOGG'S MODEL

Fogg's Behaviour Model (FBM) is guidance for persuasive design (Fogg, 2009), a framework that helps designers to identify the barriers that could prevent particular behaviours. The model lists three significant factors that affect the performance of an action:

- **Sufficient motivation:** motivation can be described as dependent upon 'pleasure vs. pain', 'hope vs. fear', and 'social acceptance vs. rejection'.

- **Sufficient ability:** the aim of the design is to facilitate behaviour so that it can be easily performed. If it is necessary to teach the user how to avoid a perceived difficulty, this may cause resistance.

- **Adequate triggers, which can take three forms:** a spark, to target those with low motivation (for example, social support); a facilitator, to target those with low ability (for example, one click to get things done); and a signal to target those with high ability and motivation (for example, reminders).

The design of social media utilises several persuasive principles to keep user interaction active and increase retention. Examples include temporarily available content such as stories and feed (scarcity), and timed context-sensitive and personalised feed news (personalisation and suggestion persuasion principles). The grouping feature, which can connect two or more individuals privately online, is another example of using persuasive principles, mainly relatedness in self-determination theory (SDT), social proof, and surveillance. Social media is designed to use these features to create a sense of belonging and popularity; that is, to boost relatedness. However, the desire to belong can turn into FoMO when people are unable to connect with others and do not receive the interaction and reactions to their posts they expect; they fear that they will lose popularity and that the reasons for their unexpected lack of online social interaction will be misunderstood. The tagging feature on social media also creates peer pressure to interact. This exploits the normative influence principle and the need to conform and prove responsiveness and empathy.

2.11   TECHNOLOGY-ASSISTED BEHAVIOURAL CHANGE

Behavioural change technology, known as E-health, consists of software-based tools that provide a variety of services for holistic health care, particularly for individuals who have limited health care access. Such services range from basic reminder and monitoring utilities to complex management and intervention systems (Bennett et al., 2010).

2.11.1   THE ADOPTION OF TECHNOLOGY IN HEALTH CARE

The mental health system requires alternative methods of health intervention due to the fact that psychological resources are limited (Leigh and Flatt, 2015). However, information technology is able to provide powerful solutions for health care management by generating technological innovations that may help to remove these obstructions. E-health is a novel technology for behavioural change that provides professional interventions and an increase in health and well-being.

E-health technology for behavioural change has been used widely in the field of addiction, for example, to motivate responsible drinking, an E-health intervention is used for alcohol addiction (Bewick et al., 2008). The rapid developments of information technology and Web 2.0 have generated a modern range of intelligent, context-aware, constant and social online interventions. The use of smartphone applications that alter behaviours such as smoking has

increased (Bricker et al., 2014), and there is also software that tackles fitness and eating disorders (Pagoto et al., 2013).

2.11.2   E-HEALTH TECHNOLOGY AND SOCIAL MEDIA ADDICTION

Social media addiction has been studied widely from the social science perspective (Ryan et al., 2014) and includes work by Çam and Isbulan (2012). The goal of most social media research into addiction is to develop a measurement scale, similar to those produced by Andreassen et al. (2012) and Elphinston and Noller (2011). Thus, more research is needed in software design practices such as UX, requirements engineering and HCI, particularly in the area of intervention system for social media addiction (Ryan et al., 2014) .

One such intervention system, for combatting digital addiction, was developed by Su et al. (2011), and it offered a tailored online plan based upon participants' usage. The results of using this system showed that their weekly online usage decreased.

Another intervention system was developed by Lee et al. (2014), and it was composed of four main functions, namely, monitoring, data archive, data analysis, and intervention and treatment. The intervention in this system was provided through monitoring and analysis of smart devices usage.

After that, a study was conducted by Ko et al. (2015) which looked at 41 smartphone intervention apps and then classified them according to four themes as follows:

1) Smartphone addiction diagnosing
2) Overuse intervention
3) Children use monitoring
4) Task distraction elimination

A variety of persuasive techniques was embedded in each app, including self-monitoring, usage tracking and apps locking features. In order to reduce the use of smart devices, Ko et al. (2015) recommended that self-regulation techniques should be based on social cognitive theory (social comparison and surveillance). This strategy consists of three elements: self-monitoring, goal-setting and social learning and competition.

Recently, studies that address addiction to social media have increased and they highlight that addicts' own agency in behaviour change. For instance, Ali et al. (2015) suggested the

inclusion of interactive warning labels using timers and avatars in such systems to address internet addiction

These solutions, however, are mainly concerned with managing technology usage time and avoiding excessive and unconscious usage. They are typically time and usage management tools, and the user's preoccupation with FoMO is left to the user themselves to manage. In this thesis, a number of software-assisted mechanisms that can combat different types of FoMO and can also be added to social media designs will be proposed.

2.12   THE HUMAN COMPUTER INTERACTION (HCI) ASPECT

HCI is defined as "a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them" (Hewett et al., 1992). The important goal of HCI is to enhance the interactions between individuals and computers.

User experience (UX) is the main element of HCI. It is defined as "a person's perceptions and responses that result from the use or anticipated use of a product, system or service" (The ISO on Ergonomics of Human System interaction). The state of user experience is constantly changing due to the fact that an individual's interactions with the system alter over time because of elements such as their familiarity with the software, competitive technology, and peer reviews. Because of these changes, UX requires long term follow-up, and examination of experiential alteration over time would facilitate the recording of these elements (Vermeeren et al., 2010). Efficient research into wanted characteristics could occur when individuals' values (their comfort, respect and health) are taken into consideration.

With regard to an individual's satisfaction and evaluation approaches, there is a conceptual overlap between Usability and UX that needs to be considered. A more comprehensive overview of individuals' needs and anticipations is taken by UX, which takes into consideration of obstacles to a positive long-term experience. Usability begins by adopting mission performance (efficiency and effectiveness) as an evaluative method, while UX uses usability tests side by side with subjective qualities such as motivation and anticipation (Vermeeren et al., 2010). Several investigations have explored the possibility that an individual's experience in not negatively influenced by the fact that social software such as Facebook, Instagram, and YouTube do not comply with usability principles (Hart et al., 2008). Because Usability ignores

"felt experience" such as "pleasure, curiosity, and self- expression" in digital usage, UX takes a more comprehensive approach.

To date, most of the research in FoMO has been conducted from a social science perspective. More research is needed into software design practices such as UX, requirements engineering and HCI, particularly in the area of intervention systems for FoMO. Alutaybi et al. (2018) proposed that countermeasures should be embedded into social media, and techniques such as filtering, recap and advanced versions of the autoreply shall be introduced. However, the authors conclude that for the better design of such techniques, an understanding of the various classifications and situations of usage in which FoMO occurs is still needed.

2.13   SUMMARY

Although FoMO in relation to social media use affects people, it is still overlooked by software engineers. Software engineers have seemingly not taken responsibility for mitigating the effects of FoMO. Also, the previous research studies considering FoMO are limited to considering how FoMO happens on social media and how to mitigate it. Furthermore, it can be noted that there are a number of applications that may help people to manage their usage of social media. However, the user's preoccupation with FoMO is left to themselves to manage. There is a need to study FoMO in depth using a live method to extract FoMO behaviour in the real time and different contexts. For example, a diary study can be used in order to help users record their feelings about FoMO once it happens. This can provide the research with greater insight not only about FoMO but also how the design of social media facilitates FoMO. This chapter has presented a review of the state of the art in relation to digital addiction and FoMO. Psychology theories in relation to FoMO and DA were reviewed. It has also reviewed behaviour change and approaches which could potentially inform the development of tools, methods and frameworks that could be used to propose a method of regulating FoMO. The next chapter will present the thesis methodology, assumptions and choices made to achieve the research objectives.

3.   CHAPTER 3: RESEARCH METHODOLOGY

This chapter sets out the design of the research and identifies the particular methods of data collection, analysis, and interpretation used. Additionally, it discusses the methods, firstly analysing the importance of various views and then detailing the methodology chosen. Thus, it provides a plan for the research and verifies the validity of the results.

3.1   THE THREE MAIN APPROACHES TO RESEARCH

Research approaches are plans and processes that follow a number of steps, from a broad assumption to the detailed methods of data collection, analysis, and interpretation. The plan consists of a number of choices that need to be considered in order to fulfil the objectives and answer the research questions. The kind of research problem, concerns focused upon, skills of the individual(s) involved, and participants in the study influence the determination of a research approach. In this section, the various approaches to research and their definitions are discussed, as are their main characteristics, and potential downsides. Finally, the choice of a particular approach for this research is discussed.

3.1.1   QUALITATIVE RESEARCH APPROACH

Qualitative Research is principally exploratory research (Berg, 2004). It is utilised to obtain an understanding of main reasons, views, and motivation regarding a research area or problem. It provides a deep understanding around the problem and aids to promote ideas, conclusions or hypotheses for possible quantitative research. The purpose of qualitative research is to detect a target individual's range of behaviour and the beliefs that drive them with reference to specific topics or problems. It utilizes in-depth studies of small groups of individuals to guide and support the construction of hypotheses. The outcomes of qualitative research are descriptive rather than predictive.

Qualitative research is mainly characterized by: 1) an intention to study real-word situations as they develop gradually without impacts; 2) researchers who are open to whatever ideas arise (they lack pre-set constraints on findings); 3) researchers who avoid rigid designs that prevent them responding to opportunities to look for new paths or findings as they arise; 4) selection of cases (people, cultures, organisations, communities) that provide useful insight into the topic of interest, and thus, sampling aimed at insight regarding the topic, and not experimental

generalizations derived from a sample and applied to a population (Creswell and Creswell, 2017).

The potential weaknesses of using qualitative methods to study research problems in the social sciences are (Berg, 2004): 1) it is possible to drift away from the main objectives of the research in response to the altering context under which the study is conducted; 2) they can arrive at various conclusions based on the same information dependent upon the personal knowledge and characteristics of the researcher; 3) the collection of data and analysis is frequently time consuming or expensive; 4) the data collection and analysis may be subject to researcher bias; 5) the researcher needs a high level of experience in order to gain the required information from the participants.

3.1.2   QUANTITATIVE RESEARCH APPROACH

Quantitative research is utilised to measure a problem by generating numerical data or data that can be transformed into usable statistics. It is utilized to measure attitudes, opinions, behaviours, and other determined variables, and to generalize results across a large sample population or to explain a specific phenomenon. Measurable data is utilized by quantitative research in order to formulate facts and uncover patterns in research (Creswell and Creswell, 2017).

The essential features of quantitative research are (Kitchenham et al., 2002): 1) the data is commonly collected by structured research tools; 2) the results of data analysis are dependent on larger number of samples that are representative of the population; 3) the researcher has an obviously determined research question to which objective answers are sought; 4) before data is gathered all aspects of the study are accurately designed; 5) the form of data is numbers and statistics and they are frequently arranged in tables, charts, figures, or other non-textual formats; 6) the research can be utilised to generalize concepts widely, predict future results, or examine implicit relationships.

The results of quantitative research may be statistically important but are frequently humanly inapt. The use of quantitative research to study problems in the social sciences can be associated with the following disadvantages (Berg, 2004): 1) a lack of contextual detail in the quantitative data; 2) the obtained results provide less detail on behaviour, attitude, and motivation, so how people feel about a particular topic or problem may not be fully understood, and in some cases,

the result will be the closest match to the predefined hypothesis; 3) the obtained results provide numerical descriptions and thus lack explanations of human opinion; 4) the research is frequently conducted in an artificial environment so that a level of control may be applied to the exercise, leading to lab results, rather than realistic results that may be applied in the real world.

3.1.3 MIXED METHODS RESEARCH APPROACH

Finally, the Mixed Method Research is an approach that comprises the collection of both qualitative and quantitative data, combines the two styles of data, and utilises distinct designs that may involve hypothetical assumptions and theoretical structures. By encompassing both qualitative and quantitative approaches, designs and methods, the researcher obtains in depth of understanding and validation, while offsetting the weakness integrated to utilising each approach by itself. However, the implementation sequence of gathering data methods must be made a decision (Creswell and Creswell, 2017).

Mixed methods research is an appropriate when the researcher needs to 1) verify the results gained from other methods; 2) expand, clarify, or build on findings from other methods; 3) look at a research question from different perspectives and explain unforeseen findings and/or possible contraindications; or 4) generalize findings from qualitative research (Creswell and Creswell, 2017).

There are, however, a number of drawbacks associated with using a mixed methods approach, as follows: 1) the complexity and high cost of the research design; 2) the time and number of resources required to design and conduct this kind of research; 3) the difficulty of planning and linking methods based on the results gained from preceding methods; 4) it may not be obvious how to fix the conflicts that arise during the analysis and interpretation of the findings (Creswell and Creswell, 2017).

There are various types of mixed methods design, four of which are defined by Creswell and Clark (2017) namely Triangulation, Embedded, Sequential Explanatory, and Sequential Exploratory. Since, due to the nature of the research and the available resources, the Sequential Explanatory and Sequential Exploratory Designs are appropriate candidates for this thesis, they are reviewed below. The following two sections present the major features of each design as well as the strengths and weaknesses of each.

3.2   THE ADOPTED RESEARCH APPROACH

A mixed method approach was chosen for this research. As FoMO is an emerging topic in relation to social media and there was no solid background in the literature about this subject to base the research upon, an in-depth exploration of people's perspectives regarding their behaviour, knowledge, and personal experience, and also their issues and concerns, was needed. Another reason for choosing this approach was to study what people require from social media in order to alleviate FoMO. To confirm and clarify the qualitative findings, quantitative study was conducted with large sample of people.

3.3   RESEARCH DESIGN

This section will explain the research design and why the selected design was chosen.

3.3.1   QUALITATIVE RESEARCH DESIGN

There are five main the research designs, as follows (Creswell and Poth, 2017, Lazar et al., 2017).

- **Narrative:** a strategy of inquiry in which the lives of people are studied and one or more persons are asked to tell stories regarding their lives. Then, the researcher frequently retold or restored into a narrative chronology. Eventually, the narrative integrates views from the life of the audience with those of the researcher's life in a collaborative narrative.

- **Ethnography:** a strategy of inquiry in which an intact culture group is studied in its natural condition over a prolonged period of time by collecting, mainly, observational and interview data. The process of the research is malleable and typically develops contextually in response to the lived realities faced in the field setting.

- **Grounded theory:** a strategy of inquiry in which a general, abstract theory of a process, action, or interaction is derived from the perspective of participants. Multiple stages of data gathering and refinement and interrelationship of categories of information are involved in this strategy. There are two main features of this design, which are the constant comparison of data with emerging categories and theoretical sampling of various groups to increase similarities and variety of information.

- **Case study:** a strategy of inquiry in which a program, event, activity, process, or one or more persons is examined in depth. Cases are restricted by time and activity, and

researchers gather detailed information utilizing a difference of data gathering methods over a sustained period of time.

- **Phenomenological research:** a strategy of inquiry in which the fundamentals of individuals' experience regarding a phenomenon are identified as described by participants. The knowledge of the lived experience defines phenomenology as a philosophy as well as a method. Additionally, the process involves studying a small number of individuals over extensive and prolonged engagement to evolve patterns and relationships of meaning. In this procedure, the researcher's experience is bracketed by the researcher in order to understand those who participate in the study.

3.3.2 QUANTITATIVE RESEARCH DESIGN

There are two main research designs as follows (Creswell and Poth, 2017, Lazar et al., 2017):

- **Survey Research:** A process whereby a sample of people are studied in order to provide a quantitative interpretation of prevailing trends, opinions or attitudes. This could take the form of a longitudinal or cross-sectional approach typically based on structured interviews or questionnaires to accumulate the required information with the purpose of generalising the results for the sample to wider society.

- **Experimental Research:** A process that is undertaken to clarify whether or not a particular treatment influences the outcome. This is determined by giving one group of people the treatment whilst withholding it from another group and recording each group's subsequent results. Such experiments are referred to as 'true experiments' if subjects are randomly assigned to treatment conditions or 'quasi-experiments' if the subjects are not randomly assigned. Quasi-experiments also include single-subject designs.

3.3.3 MIXED METHOD RESEARCH DESIGN

There are various types of mixed methods design, four of which are defined by Creswell and Clark (2017) namely Triangulation, Embedded, Sequential Explanatory, and Sequential Exploratory. Since**,** due to the nature of the research and the available resources, the Sequential Explanatory and Sequential Exploratory Designs are appropriate candidates for this thesis, they are reviewed below. The following two sections present the major features of each design as well as the strengths and weaknesses of each.

3.3.3.1 *THE SEQUENTIAL EXPLORATORY DESIGN*

The sequential explanatory design consists of a two-phase mixed methods approach. The first phase involves collection and analysis of quantitative data while the next phase collects and analyses qualitative data (Creswell et al., 2003). Figure 2 shows the steps in this design. The quantitative phase is given priority, and the quantitative and qualitative phases are integrated in the interpretation phase of the results (Creswell et al., 2003)

FIGURE 2: EXPLANATORY DESIGN, ADOPTED FROM (CRESWELL AND CLARK 2011)
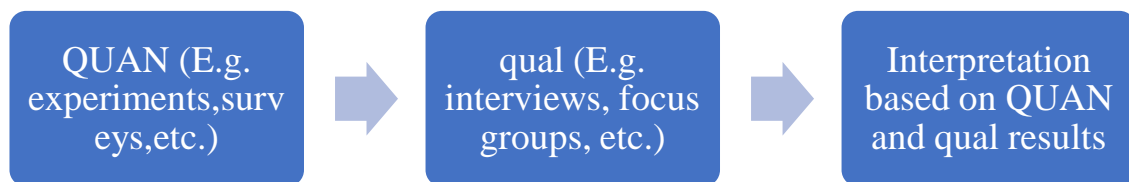
The overall aim of sequential explanatory design is to utilise the qualitative results to assist in explaining and elaborating on the initial result of the quantitative study (Creswell et al., 2003). This approach may be useful when, for instance, unpredictable results in the quantitative phase need to be examined in greater detail and explained (Morse, 1991). The qualitative data is a way to understand and investigate these unpredictable results.

The simplicity with regard to the effort needed to conduct it (for example, the second part might be simple when there are few surprising or unexpected results) is the core strength of sequential explanatory design, while the possibility of missing important information due to the quantitative nature of the first stage, which might restrict and limit participants to certain answers, is the core weakness of this design.

3.3.3.2 *THE SEQUENTIAL EXPLORATORY DESIGN*

Sequential exploratory design is a two-phase mixed methods approach. The first phase consists of the collection and analysis of qualitative data while the next phase involves the collection and analysis of quantitative data. The results of the qualitative phase are utilised to develop the instruments of the second quantitative phase (Creswell and Clark, 2017).

Creswell et al. (2003) indicated that "the purpose of this design is to use quantitative data and results to assist in the interpretation of qualitative findings". This design is useful when investigating elements of an emergent theory and when generalizing qualitative results to populations (Johnson and Onwuegbuzie, 2004). The steps illustrated in Figure 3.
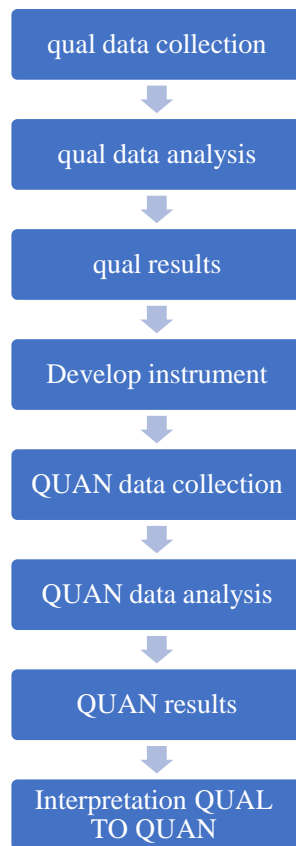
FIGURE3: EXPLORATORY DESIGN: INSTRUMENT DEVELOPMENT MODEL, ADOPTED FROM (CRESWELL AND CLARK 2011).

A qualitative approach is used at the beginning of the sequential exploratory design to investigate and obtain insights into the phenomenon. A second quantitative phase is then built to aid interpret the findings of the first phase. In this design, initially the researcher studies and explores the research phenomenon qualitatively with a small sample, then the qualitative result (themes and codes) drives the development of a quantitative survey instrument. The qualitative and quantitative designs can be combined through the development of the survey instrument (Creswell et al., 2003).

The Exploratory Design has benefits due to its two-phase development and the fact that only one type of data is collected and analysed at a time. Notable advantages of this design are:

- The two separate phases make it straightforward to use.
- The embeddedness of the quantitative phase increases the acceptability of the qualitative approach in quantitative-biased communities (Creswell and Clark, 2017).

However, there are several challenges in relation to the use of this design, as follows:

- The two-phase approach takes a long time to complete. Researchers should take this into account and allow enough time in their study plan.

- Researchers have to decide whether the same people will be recruited as participants in both the qualitative and quantitative phases.

- A decision has to be made about the data to be utilised from the qualitative phase to develop the quantitative phase and how that data will be used to generate quantitative measures.

3.4   THE ADOPTED RESEARCH DESIGN

The Sequential Exploratory Design is an appropriate candidate for this thesis. The exploratory emphasis of this design is a suitable fit for the problem investigated by the study. This is because there are few studies on this topic which made it hard for the researcher to make assumptions about what is relevant to individuals and about their perception of the experience of FoMO in relation to the use of social media. Beginning the study qualitatively allowed the research to explore and obtain sufficient insight into how individuals behave and interact when they are online and offline. Adding a quantitative phase, which takes more emphasis than the qualitative phase, would make it possible to assess the interpretation of the qualitative findings and to consider which results to generalize to the targeted population The two stages of the design were clearly integrated: the quantitative survey built upon the results of the qualitative phase, leading to discussion of the overall results.

In the qualitative stage, Grounded Theory was selected as an appropriate approach for this research. It is an inductive approach, which means that it allows the researcher to explore, as far as possible, the differences in individuals' behaviours, issues and concerns regarding the problem, in order to generate new theories from data instead of depending on previous hypotheses (Lazar et al., 2017).

As an approach it is therefore defined as a systematic generation of theory from systematic research. It is a combination of rigorous research processes that drive the emergence of conceptual categories. These concepts/categories are related to each other as a theoretical explanation of the action(s) that continually resolve the main concern of the subjects in a substantive area.

The four stages of Ground Theory analysis will be used in this research. Once the data is gathered, a set of Codes will be generated from this data (participant quotations or observations

by the researcher) in order to allow the key points of the data to be collected. Similar Codes will be grouped into Concepts to make the data meaningful and workable. Eventually, broad groups of similar concepts will be gathered together under categories that will be utilised to generate theory which is a set of explanations that explain the subject of the research.

This research design was particularly appropriate for this topic due to the fact that it was a 'green area' where research ideas were still developing gradually and being considered from various perspectives. Thus there was no solid literature to build upon or from which to obtain hypotheses. Better understanding and greater explanation were needed to generate ideas that might guide and narrow down the research, and to provide data regarding the behaviours and concerns of individuals that would assist the proposal of a set of countermeasures to alleviate FoMO. In quantitative stage, survey was selected as an appropriate approach for this stage to get quantitative and numeric description of attitude and opinions

3.5 ADOPTED DATA COLLECTION METHODS

This section will explain the adopted data collection methods and why the selected methods were chosen.

3.5.1 FOCUS GROUP METHOD

The focus group method is an organised discussion that needs a facilitator to control and lead the session to achieve its goal.

A group interview is a style of focus group where an immediate discussion with a group of individuals is fulfilled to gather responses from a larger sample size (normally between four and eight, but up to 12 individuals (Saunders, 2011, Robson and McCartan, 2016) at one time). Individuals are often selected utilising a non-probability method, "often with a specific purpose in mind"; they may, for example, have suitable experience and knowledge of the topic (Saunders, 2011).

The focus group method concentrates on emotional constructs such as attitude and preferences. Additionally, it can be performance oriented. The issues that face the researcher when applying this method include conflicts, prolonged discussion on a particular topic or task, talkative individuals and the need to motivate all participants to speak up.

This thesis used this method in Chapters 4 and 5 to give participants an opportunity to immerse themselves in the issue, discuss their opinions and provide suggestions that may help them to contribute to managing their FoMO as a part of Objective 3. It was, also, used in Chapter 5 to understand different modalities of applying countermeasures. More details and the implementation of the focus group method will be described in **Section 3.8**.

Also, this method was used in Chapter 9 and was specifically designed to give participants an opportunity to immerse themselves in the issue, discuss their opinions about how FoMO occurs on social media and be instructed on how to use the FoMO-R. More details and the implementation of the focus group method will be described in **Section 9.3**.**2.**

3.5.2   DIARY STUDIES METHOD

Diary studies are studies of a "document created by an individual who maintains regular recordings about events in their life at the time those events occur". This method is appropriate for answering questions in a naturalistic setting about 'how' and 'why' technology is used. Furthermore, it can work well as a means of gathering 'fluid' data about mood, emotions and perceptions (Lazar et al., 2017).

There are three essential diary protocols, as highlighted by Bolger et al. (2003):

- **Interval-based diaries** in which individuals' experiences should be entered at predetermined intervals. The form of this protocol can be fixed- or random-based. The entry times are expected and can also be accommodated by the subject's schedule. However, the desired event may not happen during the certain intervals.
- **Event-based diaries** in which individuals make an entry in their diaries when a predetermined event is triggered. Essential to this protocol is the definition of the predetermined events. It should concentrate on one class of the phenomenon to decrease the number of events and remove any ambiguity.
- **Signal-based diaries** in which an individual is signalled to begin entering their experience.

There is a customised form of the event-based protocol that was proposed by Newman (2004). It allows the subjects to plan and prioritise their next day objectives, and then write down their notes regarding the impediments they encountered in order to explain them in subsequent interviews.

The interval-based diary protocol was utilised in Chapter 4 to capture individuals' experience of FoMO in relation to the use of social media, and their opinion on how to alleviate their FoMO which is part of Objective 2 and 3.

Diary study was selected by the author of this thesis as a main qualitative data collection method in order to add ecological validity to the research. It was intended to collect data about the experience of FoMO in relation to social media from a natural context. More details and information about the implementation of the diary study method will be given in **Section 3.8**.

Diary study was used in Chapter 9 in order to ask the participants whether they had encountered issues or difficulties when they were applying the proposed method. More details and information about the implementation of the diary study method will be given in **Section 9.3.3**.

3.5.3   INTERVIEW METHOD

Interview is one of the qualitative data collection methods, and involves one-to-one conversations with the subjects of the research in order to define their opinions about certain issues or situations (Saunders et al., 2003). This method has three different styles:

1) **Structured interviews:** these involve questions that are pre-prepared. The collected data tends to be easier to work with in the analysis stage because various answers to the same question can be compared and contrasted.

2) **Unstructured interviews:** from the research perspective, unstructured interviews are the least reliable, due to the fact that the questions are not pre-prepared and the collected data is informal. Consequently, there may be strong biases and evaluation of the answers provided by subjects can be challenging due to the variation in constructs in the questions.

3) **Semi-structured interviews:** this style of interview combines both structured and unstructured interviews because the interviewer pre-prepares a list of questions, but extra questions can be asked during the interview in order to elaborate or expand on specific problems.

Since this thesis adopted a qualitative method which was concerned with exploring and understanding FoMO in depth, the interview method was utilised to help the researcher to elaborate on the findings at the refinement stage.

3.5.4   SURVEY

The survey method of data collection is used to give the researcher more control over the research procedure. Data generalisability can be enhanced if a suitable sampling method is used (Saunders et al., 2009). This thesis used this method in Chapters 6 and 7 to obtain further support for the findings and to gather more insight from the comments provided by the large sized sample. Another reason for using the survey method is that it tends to be utilised for exploratory and descriptive research, and the findings can be generalised with minimum effort when a large and sufficient sample is utilised (Saunders et al., 2009). The online survey method was used because of the need for a large number of participants.

3.6   ANALYSIS METHOD AND TOOLS

In this section two primary qualitative data analysis methods will be explained, namely, content analysis and thematic analysis (Vaismoradi et al., 2013, Joffe and Yardley, 2004). Additionally, the definition and utilization of both methods will be discussed. Then the choice of thematic method will be explained.

3.6.1   THEMATIC ANALYSIS

Thematic analysis has been seen as a poorly branded technique (Vaismoradi et al., 2013). It does not seem to exist as a named technique of analysis in the same way that content analysis does. Thematic analysis, as an independent qualitative descriptive method, is often defined as "a method for identifying, analysing and reporting patterns (themes) within data" (Braun and Clarke, 2006).

However, an important question that needs to be answered in terms of coding is, What is considered a pattern/theme? The answer is "A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set". Themes or patterns within data can be referred to in one of two essential ways in thematic analysis: in an inductive or 'bottom up' way, or in a theoretical or deductive or 'top down' way (Boyatzis, 1998, Fereday and Muir-Cochrane, 2006).

On one hand, the meaning of an inductive technique is that the identified themes are connected to the data themselves (as such, this style of thematic analysis bears similarity to grounded theory). The process of inductive analysis is coding the data without attempting to fit it into a

pre-existing coding frame (Braun and Clarke, 2006), or the researcher's analytic preconceptions. It means that this style of thematic analysis is data driven.

On the other hand, a 'theoretical' thematic analysis possibly is driven by the researcher's theoretical or analytic interest in the area, and also is explicitly analyst-driven. This style of thematic analysis tends to give a less rich characterization of the data overall, and a more detailed analysis of some side of the data.

The merits of using thematic analysis include: 1) the large margin of flexibility for the researcher; 2) it is a beneficial technique for working within participatory research model, with samplings as collaborators; 3) it is a useful technique for summarising key features of large volumes of data; 4) it can be used by researchers with little or no experience of qualitative research; 5) it can show similarities and differences across the data set (Braun and Clarke, 2006)

3.6.2   CONTENT ANALYSIS

There is no specific definition for content analysis. However, Stemler (2001) recapping on previous work, defined it as "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding". This definition is narrow since it restricts content analysis to the textual data domain. Holsti (1969) broadly defined it as "any technique for making inferences by objectively and systematically identifying specific characteristics of messages". Based on this definition, content analysis data can come in different sorts such as books, pictures, ideas, music or videos.

"Content analysis is normally an in depth analysis that searches for theoretical interpretations that may generate new knowledge" (Lazar et al., 2017). It indicates to a data analysis method utilised in both qualitative and quantitative research. This method assists the researcher to determine what is significant amongst the data corpus. The objective of the researcher is to analyse the content of each data element. Mostly, researchers utilize coding systems to determine and categorize different data elements in the content analysis.

Content and thematic analysis are the two most common types of analyses utilised in research. Occasionally, the distinction between them is not obvious since they involve a painstaking scrutiny of the data to determine patterns and themes. However, the main difference between them is that in content analysis, the researcher can concentrate on the frequency of occurrence

of diverse categories, whereas thematic analysis determines themes, and structures the analysis in a systematic and consistent way.

There are a number of practical utilizations of content analysis, which are as follows: 1) identifying authorship by gathering a list of suspected authors, investigating their previous writings, and linking the frequency of nouns or function words to assist building a case for the possibility of each individual's authorship of the data of interest; 2) it is beneficial for investigating trends and patterns in documents; 3) providing an empirical foundation for monitoring shifts in the views of audiences (Stemler, 2001).

3.6.3   THE ADOPTED ANALYSIS METHOD

This research is based on excellent data corpuses and data sets. This may be judged by specific criteria about what, why, and how they were gathered, and present rich, precise interpretations of the research topic. An excellent data do not provide a little overview of the research of interest, or easily repeat a common-sense interpretation.

In this research, studies' participants were individuals who potentially experience FoMO in their daily lives. This research utilized the 'bottom-up' technique in thematic data analysis since there were no preconceived opinions regarding the depth and standard of data that the sampling was going to give and thus analysis was entirely data-driven.

In this research, thematic analysis was an appropriate method with which to analyse the gathered data due to the fact that it had a margin for flexibility (Braun and Clarke, 2006). Additionally, the results of this research introduced new concepts, categories and engineering methods to the area. This developed gradually over the stages of studies that were done though this research, and thus it was important to utilise an analytical method that would offer rich explanations emphasizing context to assist term the new concept and provide novel methods.

3.6.4   AXIAL CODING (QUALITATIVE)

Axial coding is a qualitative analysis method which links the collected data together with the objective of revealing codes, categories, and subcategories that emerge from the participants' voices. This type of analysis is related to grounded theory which is one of the qualitative frameworks that compare emergent themes within a data set to suggest theories about an individuals' communicative behaviour. The procedure of inductively results of linkages

amongst the data (known as coding), that may occur in various forms such as settings, meanings, relationships, consequences, conditions, behaviours, events, participation, activities, strategies and states (Strauss and Corbin, 1998).

Axial coding involves associating factors, or codes, of data with each other. It determines the relationships among open codes when deductive and inductive reasoning are used. Basically, it attempts to classify central (axial) phenomena in an individual's data, and in addition, is an ultimate stage method for analysis concerning the combination of categories and subcategories, particularly those that exhibit themes, new categories, or new subcategories. This approach can be applied to short textual portions or segments. During the coding procedure, the hypothetical associations that appear to emerge are constantly checked in the light of new data to ensure that reliable claims can be made (Allen, 2017). This method was used in Chapter 4 and 5.

3.6.5   STATISTICAL ANALYSIS

Descriptive statistical analysis was utilised in Chapters 6, 7 and 9 to describe the main elements of data collected in a research study. The descriptive statistical analysis gives easy inferences about the measures and participants, and collectively, doing an easy illustration of a graphics analysis, it starts with a virtual basis for every quantitative analysis of the data involved. In descriptive statistics analysis, this thesis explains what the data refers to. Also, it is thereby able to display quantitative interpretations in a manageable style. Also, inferential analysis including a paired samples t-test was used in Chapter 9.

3.6.6   QUALITATIVE RESEARCH ANALYSIS TOOL

"NVivo is software that supports qualitative and mixed methods research. It's designed to help researchers organize, analyse and find insights in unstructured or qualitative data like: interviews, open-ended survey responses, articles, social media and web content." (International Copyright © 1999-2014)

The advantage of using software tools to analyse qualitative data is that it saves time, and they are easy to manage and easy to work with. Without the support of these tools it would be difficult to identify links in the data and to find new insights.

NVivo allows researchers to ask questions of their data in an effective manner. For instance, it provides tools that can be utilized in coding comparison to compare the level of agreement and disagreement between the analytical content of two researchers.

3.6.7 FUNCTION OF SOCIAL MEDIA FRAMEWORK

The honeycomb framework was introduced as an explanation of social network sites functions (Kietzmann et al., 2011). Seven functional blocks comprise the framework: Groups (the extent to which individuals can create their own groups), Sharing (the extent to which people exchange, distribute, receive and share their photos, audio and video), Reputation (the extent to which people can recognise other people's level or themselves in terms of their reputation through their status, friends list and shared content), Conversation (the extent to which people communicate with other people in social networks such as sending messages, comments and chatting), Identity (the extent to which people disclose their identity on social networks such as their name, gender, age, qualifications and hobbies), Presence (allows individuals to know the existence of other individuals from their profile and status), Relationships (the extent to which individuals belong to other individuals). The Honeycomb framework was taken as a starting point for understanding the features of social media that trigger a certain kind of FoMO. This framework was used in Chapter 5.

3.7 SAMPLING

There are two basic kinds of sampling: probability sampling and non-probability sampling. In the former, each individual of the society involved has a non-zero chance of participation in the study, and a random chance of selection is central to the method, while non-probability sampling is non-random and hence only specific members of the society are chosen to participate in the research (Lazar et al., 2017). Selection of the relevant sampling method for a research study is based on the purpose and the nature of the research. The current study used a non-probability sampling method because it:

- Is less time-consuming and more cost-effective than probability sampling
- Is less complex than probability sampling
- Does not require an estimation of the population

There are several techniques for non-probability sampling, as follows:

1) **Convenience sampling:**

   Convenience sampling concerns the choice of study participants who can be reached easily. It is widely used but is a weak strategy, because the researcher has less control over the sample's representatives. It can also induce biased results (Gravetter and Forzano, 2011). However, for exploratory research studies, the purpose of which can be to make inferences, as in the current study, this method may be adequate (Sue et al., 2007). Furthermore, it is likely to increase the sample's representatives to make sure that the sample is adequate to give viable results via an assurance that the sample's inherited characteristics are similar to those of other populations.

2) **Judgmental sampling:**

   The selection approach in this sampling method depends on the judgement and knowledge of the researcher. This occurs in terms of most representative aspects of a target population.

3) **Quota sampling:**

   This technique depends on the equality in its selection approach; for example, women and men in equal numbers (Gravetter and Forzano, 2011). Although this technique has the essential attributes of probability sampling, it is non-probabilistic due to the fact that the selection is based on judgement, not on a random basis.

4) **Snowball sampling:**

   This method is used to reach research participants. The first participant gives the researcher information about another participant, who in turn gives information about another participant, and so on (Vogt and Statistics, 1999). This technique can be used as an 'informal' method of accessing a target population. If the goal of the research is primarily exploratory, qualitative and descriptive, this sampling method can provide practical advantages (Hendriks et al., 1992).

3.8   IMPLEMENTATION OF THE ADOPTED DATA COLLECTION METHODS AND STRATEGIES

To achieve objectives 2 and 3, the study of the live experience of FoMO in relation to social media was divided into two qualitative studies (see Figure 4). The results of these studies will be given in **Chapters 4 and 5**. The following sections explain the procedures used in these three studies.

```
Literature Review and Research Design

                    Recruiting 20 Participants Via Convince Sampling
                                      Technique                          First Study: Exploring
                                                                                FoMO

                                                    Three Focus
                                                    Group Sessions

                           Thematic
                           Analysis

                                                    14 Days Diary
                                                    Study Via
                                                    Evernote app

              Initial Findings: -
              FoMO
              Classifications –
              Social Media
              Features -
              Countermeasures

                                                                        Second Study: Refining
                                                                         First Study Results
                                      Recruiting 18 Participants
                                      Via Convince Sampling
                                      Technique
                                                                         Findings, - FoMO
   Initial Findings                                                      Classifications – Current
                           Interview    14 Days Diary    Three Focus     Mitigation Strategies -
                                        Study Via E-mail  Group Sessions Social Media Features -
                                                                         Countermeasures
```

FIGURE 4: OVERVIEW OF ADOPTED QUALITATIVE STUDIES

3.8.1 PARTICIPANTS RECRUITMENT

In both qualitative studies, participants were recruited via an open call to a student forum, where individuals could self-nominate to participate. All participants self-identified, via a pre-selection survey, as FoMO sufferers in relation to their social media usage (see Appendix 12.2). Participants received a consent form and details of the purpose of the study (see Appendix 12.3) via email in advance to give them adequate time to ask for further information (if required). Then they completed a short pre-selection survey which was used to gather their demographic data (age and gender) and identify whether they had any previous experience of FoMO in relation to the use of social media; examples were, tracking what friends were doing on social media or feeling that they spent too much time on social media because they feared missing social events.

The experience of FoMO was measured against 12 variables that were taken from various empirical studies (Przybylski et al., 2013, Wang et al., 2015, Santor et al., 2000). The items of the pre-selection survey used in this study were adapted from the empirical literature. The pre-

selection survey began with a series of 15 statements generated by the researcher. Of these, six were chosen to assess the experience of FoMO, two to measure addiction behaviour in relation to social media, five items to assess thought frequency and two items to assess whether or not the participants were interested in seeking popularity in relation to social media. Based on the information participants provided, they were either invited to join the study or rejected.

In the first study, the total number of participants who responded to the survey was twenty-five, but three of them were not selected due to the fact that they did not meet the selection criteria. The total number of participants selected was eighteen. Based on the information participants provided, a decision was made whether to invite them to the focus group session. The total number of participants was twenty, with two on a waiting list, ready to join the sample if needed.

In the second study, the total number of participants who responded to the survey was thirty but ten were not selected due to the fact that they did not meet the selection criteria. The total number of participants selected was twenty. However, four withdrew in the middle of the second phase (diary study). The total number of participants who took part in the second study was sixteen.

Each participant was rewarded with £30 upon successful completion of the studies.

3.8.2   FIRST QUALITATIVE STUDY: EXPLORING FOMO

This study aimed to obtain a comprehensive understanding of FoMO in relation to the use of social media. An exploratory study was conducted with people who use social media and frequently experience FoMO. In addition, it aimed to address the following questions:

Q1: How does FoMO happen on social media?

Q2: What are the features of social media that could potentially trigger FoMO?

Q3: What are the countermeasures that could potentially mitigate FoMO?

To achieve this, two kinds of data collection method were used. Table 4 explains briefly the methods used in this study.

Phase	Method used	Brief Explanation
1	Three focus group sessions	- With 18 participants - Scenario-based sessions - Viewing opinions - Preparing for the diary phase
2	Diary study	- To gather experiences of FoMO as lived - With the same participants as the 1st phase - Daily basis - Evernote App used for questions/reminders - Recording personal stories

3.8.2.1   FIRST PHASE: FOCUS GROUP SESSIONS

The first phase consisted of three gender-balanced focus group sessions featuring twenty participants. Focus group sessions were used to give participants an opportunity to immerse themselves in the issue, discuss their opinions, and provide suggestions that may contribute to managing their FoMO. Each session included five to eight participants, aged between twenty and thirty years. Recruitment of the participants was done by placing an open call to a student forum, where individuals could self-nominate themselves to participate. All participants in both studies self-declared, in a pre-selection survey, that they suffered from FoMO with regard to their usage of social media. Each group was given six scenarios, with a set of prompts, and a notepad to write down their ideas on what actions might be appropriate for managing FoMO in each scenario (see Appendix 12.4).

3.8.2.2   SECOND PHASE: DIARY STUDY

The second phase consisted of a diary study with twenty of the participants who took part in the focus group sessions. The diary study was the core method in this stage. As part of this study, participants were asked to record their thoughts and feelings at least three times a day for two weeks (morning, afternoon and evening) as they experienced FoMO. The justification for making multiple diary entries throughout the day stems from the fact that different social media is often used during the day and in different contexts, each of which may lead to FoMO occurring in different ways and to different degrees. On the next seven days, alongside recording their thoughts and feelings, participants were provided with a list of countermeasures to select from or asked to suggest suitable countermeasures which could reduce their FoMO. Diary studies were also chosen because they minimize recall bias and provide the ability to provide in-play data which are more expressive and contextualized. Participants were given a

link to the diary form (see Appendix 12.5) via the Evernote app[1] (see Appendix 12.6), and they were reminded to record in their diary by text messages.

3.8.2.3   STUDY PROTOCOL

1. A pilot study was conducted to assess the study design.
2. A pre-selection survey was filled in by each participant.
3. Each participant received a consent form and a participant information sheet, via email, describing the aim of the study (see Appendices A4 and A5), and what would be expected of them.
4. All of the participants were invited to attend one of three introductory focus group sessions to describe the study procedure. Each session included between five and eight participants and was intended to familiarize them with the study procedures and purpose. Also, participants were provided with examples of how to complete their diaries via the Evernote application. Participants had the opportunity to discuss their experience in relation to FoMO and issues requiring clarification.
5. The participants created a log by completing online diaries using the Evernote application over the course of fourteen days.
6. Participants received reminders via email and the Evernote application to encourage them to update their notes daily.
7. Each participant was rewarded with £30 upon the successful completion of their diary study.

3.8.3   SECOND QUALITATIVE STUDY: REFINING FIRST STUDY RESULTS

This study aimed to investigate whether there might be new categories of FoMO in relation to the use of social networks that could be added to the categories extracted from the first study, or whether any of these categories could be refined to create more distinct categories. In addition, it set out to find more evidence regarding the association between the features of social media and the classifications of FoMO, and also to gather evidence regarding the need for countermeasures or to explore new FoMO countermeasures.

To achieve this, the study comprised three phases; introductory interviews, diary study and focus groups. Table 5 outlines the data collection methods used in this second study.

---

[1] https://evernote.com/

Phase	Method used	Brief Explanation
1	Interview	- With 16 participants - Familiarizing them with the issue - Familiarizing them with the FoMO classification concluded from the analysis of the 1st study - Extract opinions and suggestions - 40 minutes for each interviewee
2	Diary study	- With the participants from the 1st -phase - Daily basis - Recording personal stories - Investigating new categories of FoMO
3	Two focus group sessions	- With 10 participants from the 1st and 2nd phases - Scenario based sessions - To discuss their diary and elaborate upon their entries - To suggest further countermeasures

3.8.3.1   INTERVIEW

The first phase consisted of an introductory interview with sixteen participants, aged between 18 and thirty years. Similar to the first study, recruitment of the participants was done by placing an open call to a student forum, where individuals could self-nominate themselves to participate. After that, participants were given a brief description regarding FoMO to engage them with the issue. This was followed by a presentation providing a summary of the findings of the exploration phase; exploring FoMO, and an explanation of how these findings were obtained. They were also issued with instructions detailing how to complete the second phase of study including a practice diary form. Participants were given the printed copy of the diary template in order to familiarize themselves with the proposed classification of FoMO.

3.8.3.2   DIARY STUDY

The second phase consisted of a diary study with the same sixteen participants who had been interviewed. The diary study was the core method in this stage. To complete the diary, participants received a template via email every day over two weeks and were asked to fill in the diary as soon as possible after their FoMO occurred. When doing so, they were reminded of the different FoMO categories, which were provided on the template (see Appendix 12.7); they were asked to reflect on the categories based upon their personal experience. Participants were asked to suggest new categories if they could not find an existing category that they felt captured their experience. Also, they were asked to feel free to annotate them, adding or rephrasing concepts. For the next seven days, along with recording their thoughts and feelings, participants were provided with a list of countermeasures from which to select, and if none was

appropriate were asked to suggest suitable countermeasures which might reduce their FoMO. They were reminded by text message and email if they failed to send their diary.

3.8.3.3 *FOCUS GROUP SESSIONS*

The third phase consisted of two focus group sessions with ten participants and was intended to elaborate upon their personal stories from the second phase (the diary study) and also to suggest further countermeasures for managing FoMO. Each of the focus groups consisted of five members. Each group was given five scenarios with a set of useful questions and a notepad on which to write comments that might be appropriate for each scenario (see Appendix 12.8).

3.8.4 THEMATIC ANALYSIS

The diary data was subject to a thematic analysis based on the principles and approach of Braun and Clarke (2006), using NVivo software to aid the analysis and speed up the process. In general, thematic analysis is the most commonly utilized approach in qualitative research (Thomas & Harden 2008; Guest, MacQueen & Namey 2011) and is utilized for identifying, analysing, and reporting (themes) within data (Braun & Clarke 2006). The analytical approach ought to be driven by both theoretical assumptions and the research question. Thematic analysis provides a flexible approach to data analysis and allows researchers with different methodological backgrounds to engage in this kind of analysis. This method was used to investigate FoMO concepts, to support the construction of FoMO, and also to investigate the initial countermeasures for its management.

This study encompassed a thematic analysis relying on the principles set out by Braun and Clarke (2006), following their six-phase structure of coding and analysing the data. Table 6 is an illustration of the six-phase structure set out by Braun and Clarke (2006), and reviewed in Clarke and Braun (2013), along with an explanation of each of the stages.

TABLE 6: ANALYTICAL PROCESS (ADOPTED FROM BRAUN AND CLARKE, 2006)

Phase	Description of the phase	Description of phase used in this research
Familiarising yourself with the data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.	In this phase, the researcher re-read the data four times to gain

		an initial understanding of FoMO.
Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.	The researcher spent two weeks open coding using NVivo. Themes in relation to FoMO experience and countermeasures were starting to emerge such as fear of missing the ability to be popular and recap.
Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.	This phase took one and a half weeks to achieve. The researcher faced the challenge of bringing together similar coding under themes.
Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.	In this phase the researcher spent one week with a colleague reviewing the coding, putting it under proper theme names.
Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.	This phase involved extrapolating more in-depth names for themes over a one week period. This stage was also reviewed by a colleague who is conducting

		research in the same domain.
Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.	Producing the final report took a further two weeks. The researcher reviewed the final analysis and linked it to the literature on FoMO and the research question.

3.8.5 FOMO TYPES AND COUNTERMEASURES: CONFIRMATION STUDY

The aim of this study was to validate the results that were extracted from the first and second qualitative studies. The survey method was selected as the data collection approach for this study and was used in two ways. The first was an online survey. A link to the survey was posted on a number of different social media sites and also emailed to a large number of contacts.

The second was a paper survey. The aim of this method was to reach a wider number of participants. The survey was distributed among Bournemouth University and Bournemouth International College students who were invited to take part by registering their willingness to participate at a stall set up in the canteen. This discrete method was utilised to avoid interrupting people while they were eating or otherwise engaged. More details and information on the implementation of the survey will be given in **Chapters 6 and 7.**

3.8.6 RESEARCH ETHICS

There are a number of main expressions that explain the system of ethical protections that were made to attempt to protect better the rights of the research samplings (Orb et al., 2001). The principle of voluntary participation demands that individuals should not be obliged to participate in research. Additionally, the idea of voluntary participation is the requirement for informed consent, which means that possible research participants have to be informed

precisely regarding the procedures and risks involved in research and have to give their consent to participate. Ethical standards require the researcher not to put participants in a situation where they may face risk of harm due to their participation (Berg, 2004). Harm can be both physical and psychological. Two standards protect the privacy of research participants. Researchers guarantee participants' confidentiality; access to identifying information will not be given to anyone who is not involved in the research team. The rigorous standard of anonymity ensures that participants will remain anonymous throughout the study. This is clearly the stricter guarantee of privacy.

Although such obvious ethical standards and principles exist, there will be times when the need to conduct precise research runs up against the rights of possible participants. No number of standards can anticipate every ethical situation. Moreover, there needs to be a procedure that confirms that researchers will take into account all relevant ethical problems when formulating research plans. To address these needs, a number of institutions and organizations have formulated an Institutional Review Board (IRB), a panel of individuals who check award proposals in terms of ethical implications and decide whether more action is needed to guarantee the safety and rights of participants. By checking proposals for research, IRBs also help to protect both organizations and researchers against the possible legal implications of failure to address important ethical issues with regard to participants.

In this research, two submissions were made to Bournemouth University Research Ethics Committee (UREC). The first dealt with the focus group and diary studies with end-users, while the second had to do with the interview, focus group and diary studies. Both were approved by UREC.

The two main documents were submitted with ethics checklists. The first document was the participant agreement form that was utilized to gain the participants' signed consent to take part in the study. The second document was the participant information sheet which explained the topic to participants, informed them about the aim of the study, clarified why they had been chosen, explained what taking part involved, and what were the potential pros and cons, or risks of participation. Also, it explained the kind of information that was needed from them. Samples of both documents are available in Appendix 12.1.

4. CHAPTER 4: FIVE CLASSIFICATIONS OF FOMO AND CURRENT MITIGATION STRATEGIES

Social media such as Facebook, WhatsApp, Instagram, and Snapchat are meant to facilitate online interaction between people. They are designed to make online communication and interaction easier and, in some contexts, more attractive. However, such continuous connectivity combined with the speed and scale of social interaction and their spontaneous untimed nature can facilitate FoMO. FoMO refers to a preoccupation of people who use social networks regarding the deprivation of gain opportunity when they are unable to interact on social media as wished due to technical or context related reasons.

Despite recognition of the concept, there is a lack of research relating to FoMO and previous research has used only offline data collection techniques such as interviews, focus groups and surveys. This has led to a limited understanding of the lived FoMO experience and a rather simplified and coarse-grained view of the phenomenon. To address this lack of ecological validity, an exploratory study was conducted. Thus, to fulfil the second objective of this thesis, the focus of this chapter is to understand how FoMO occurs on social media as lived. This study was carried out at an early stage since it was believed that it would provide guidelines for the rest of the research, as well as a basis for the second part of the thesis which considers how social media can embed a number of tools to help individuals combat certain kinds of FoMO.

4.1 RESEARCH OVERVIEW

Qualitative research has always been imperative to social science and management studies (Brandler and Roman, 2007). Additionally, it has been argued that qualitative methodology tends to concentrate on a "smaller number of instances or examples aiming to achieve 'depth' rather than 'breadth'" (Blaxter and Hughes, 1996). Thus, this study has delved into the details and nuances of FoMO by conducting a multi-stage qualitative research study, including live diary studies, to elaborate upon the concept and determine its various manifestations and classification. Diary studies were also chosen as they minimize recall bias and provide the ability to provide in-play data which are more expressive and contextualized. The previous chapter (Sections 3.6.2 and 3.6.3) gives further details regarding the methods that were used in this research to investigate FoMO.

This chapter presents and discusses the findings of the studies which identify five classifications of FoMO. Furthermore, during the analysis, current mitigation strategies were discovered that has been used to minimise certain kinds of FoMo.

4.2   STUDY GOAL

The aim of this research was to investigate how FoMO in relation to social media happens as a lived experience. Moreover, the study explores how individuals behave when they experience FoMO, in order to mitigate the effects.

4.3   STUDY FINDINGS

This section presents and discusses the findings of the studies which identify five classifications of FoMO (Alutaybi et al., 2019b). Furthermore, the current mitigation strategies that have been used to minimise a certain kind of FoMO are explained.

4.3.1   CLASSIFICATION 1: FOMO WHEN OTHERS DO NOT INTERACT AS EXPECTED

The diverse expectation of interactions on social media among different parities may increase the level of FoMO and lead to spending increasing amounts of time checking and expecting certain interactions from others on social networks such as getting Likes, comments or replies. When the actual experience does not meet the individuals' expectations of interactions they may seek answers for why others did not interact with them, why interaction is lacking, or why the style of interaction may not seem sufficiently comprehensive. Hence, they may experience one or more kinds of FoMO as shown in Table 7:

TABLE 7: FOMO WHEN OTHERS DO NOT INTERACT AS EXPECTED

Classification 1: FoMO when others do not interact as expected		
Kinds of FoMO	**Preoccupied with**	**Current mitigation strategy**
Fear of missing the ability to be popular	- Lack of participation - Missing prior interactions - Loss of reputation	-Cyberstalking and confrontation -Review prior interactions history -Send the same message - Validate with other peers

Fear of missing the ability to be interesting	- Post is not appealing enough - Profile less active - Living outside the geographic social circle	- Replication of the content to another SNS - Peak time on SNSs - Increase activity on SNSs - Alternative means - Comparison - Using more filters - Seeking suitable audiences
Fear of missing the ability to get the right interpretation	- Whether the message is delivered - Whether the message has been understood	- Validate with people individually - Validate with other peers

4.3.1.1   FEAR OF MISSING THE ABILITY TO BE POPULAR

One of the gratifications that people are interested in when using social media is seeking popularity(Allport, 1968) . Therefore, people attempt to maintain their popularity among peers on SNSs by taking into consideration the norms of the group such as frequent participations or immediate responses.

However, if an individual experiences this kind of FoMO they may be preoccupied with various interpretations that drive them towards healthy or unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to *"the lack of their participation on a certain SNS and, thus, the need to spend more effort to restore or increase their popularity."* Another noticeable characteristic is missing prior interactions with significant others (e.g. *I had written on a group chat and my friends had read it but nobody replied as expected. I was thinking why they had ignored me so I feared missing some messages from them before that needed me to reply).*

Additionally, the loss of reputation may be related to the various interpretations that people may be preoccupied with when individuals send messages to friends on group chat but they

have not interacted as expected, thereby, individuals *"feel embarrassed and less popular in front of group members."*

4.3.1.2   *FEAR OF MISSING THE ABILITY TO BE INTERESTING*

SNSs rely on what people post and share. Therefore, people are motivated in sharing their daily lives with peers and getting feedback from them in terms of Likes or comments. Some people may have unpleasant feelings if they get no or limited interactions from others. It is expected that this may result in low self-esteem and high dependence on others' feedback and these people may feel unworthy or uninteresting. People tend to attribute this form of fear to various reasons.

One of these interpretations is that people may be preoccupied with whether or not their post is appealing enough (e.g. *"I posted my picture and I feel like it's really interesting and I expect to receive a number of Likes but none of my friends commented on that post so I feared missing the ability to make my post interesting"*).

Another noticeable characteristic in term of this kind of FoMO is that *"the use of SNSs occasionally may make the profile less active and less popular among peers."* Living outside the geographical social circle may be attributed to the fear of missing the ability to be interesting. For example, one foreign student stated that *"Since I have studied in the UK, I could not be active on Facebook with my relatives. This could affect my popularity among them and thus they may not interact with me as expected."*

There are, however, number of techniques that people typically use to mitigate the previously mentioned kinds of FoMO when they are unable to interact or connect as they would like. Some coping strategies result in further complications, while others might be better. Descriptions of these mitigation strategies are presented in the list below.

- **Cyberstalking:** Defined as "the utilisation of different social media or other electronic methods to stalk or harass an individual". People tend to use this strategy commonly when they fear missing out on the ability to be popular. As evidence of use of cyberstalking as a mitigation strategy, one male participant from the computing department stated: "*I sent a message to my friend on Facebook and the message was delivered but she didn't answer for a long time, so I feared missing out on the ability to be popular as I had not contacted her*

for a period of time. To relieve this fear, I attempted to monitor her on different social media until I found her online on WhatsApp and then I confronted her by sending a text and she replied back to me." This demonstrates that individuals may spend a long time thinking about and interpreting certain fears and consume even more time flicking between different social media to find the people they want.

- **Checking prior interactions:** This is used when a person has not received an expected interaction from another person or group so they think they have missed a previous interaction. To alleviate their FoMO, they then check the history of interaction between themselves and that person or group on various social media to find out whether their message has been missed.

- **Sending the same message:** This is a common mitigation strategy used to alleviate fear of missing out on the ability to be popular and to make sure a person's level of popularity is not affected among their peers. This strategy involves sending the same message to the same person on different social media. However, this may distract the recipient, and indeed constitute a cause of FoMO for them.

- **Validate with others peers:** Involves checking *"whether or not a particular person has interacted with their peers recently.*" This strategy is utilised by people who fear missing out on the ability to be popular.

- **Replication of content on another social media:** Individuals remove shared content from a certain social media due to low or no interaction and then post it on another social media in order to minimise their fear of missing out on the ability to be interesting (e.g. "*I posted some pictures on Snapchat but even after half an hour I hadn't received any comments from my friends. This instilled in me the fear that I might be losing my ability to be interesting. As a result of this fear, I posted them on Facebook to test whether they were interesting or not.*")

- **Peak time:** Used to mitigate the fear of missing out on the ability to be interesting. It involves waiting for peak times when most of an individuals' peers are active on a certain social media (e.g. "*I posted a photo on Instagram and it did not receive as many Likes as anticipated, so I deleted and reposted it a few hours later, in the evening, when more people would be active, to ensure it got more Likes*").

- **Increasing activity on social media**: Users think they need to increase their participation time on a certain social media to motivate others to interact with their posts (e.g. "*I fear missing out on the ability to make my photos interesting so I need to be more active on Instagram and start liking more notifications from friends as it will keep me alive and popular among fans*").

- **Alternative means:** Using other means, such as making calls or sending texts, to inform people about a post is one of the strategies that individuals tend to use in order to mitigate fear of missing the ability to be interesting. This strategy is used by a minority of people.

- **Comparison:** Comparing the number of interactions received with the number received by one's peers can be used as a technique to alleviate fear of missing the ability to be interesting: (e.g. "*I put an idea on Twitter and I thought it would attract attention but I only got a few comments while I expected more, so I feared missing out on something that would make my posts more interesting. As a result of this, I compared my post's Likes with the number of comments that my friend got and it was close, then I calmed down*"). This technique may, however, increase the level of FoMO when the result of a comparison is unsatisfactory.

- **Filter:** Achieved by adding filters to make the picture more attractive.

- **Suitable audiences:** A number of individuals also tried to alleviate fear of missing the ability to be interesting by "*seeking out peers who are interested in certain posts to get more comments*", and may become time-consuming if individuals read the profiles of others to find suitable audiences.

- **Messaging people individually:** when people have not received interactions from friends as expected and experience this fear of missing the ability to get the right interpretation they tend to message those friends individually. This mitigation technique works when individuals usually deal with group chat or number of contacts at the same time for example, emails with distribution lists.

- **Contacting other peers:** Users "*check whether a particular person has interacted with other friends recently*" can be another technique that people use to address this form of fear of missing the ability to get right interpretation.

4.3.2 CLASSIFICATION 2: FOMO WHEN UNABLE TO INTERACT OR CONNECT AS WISHED

Interactions via SNSs are occasionally limited due to the fact that individuals in certain circumstances (such as when they are busy or have no internet access etc.) may be unable to interact or connect to SNSs as they would like and thus they may experience impulsive behaviour because of their limited ability to postpone their gratification. FoMO may be experienced when individuals enforced this classification (Cheever et al., 2014) in various forms as summarised in Table (8):

TABLE 8: FOMO WHEN UNABLE TO INTERACT OR CONECT AS WISHED

Classification 2 : FoMO when unable to interact or connect as wished		
Kinds of FoMo	**Preoccupied with**	**Current mitigation strategies**
Fear of missing information due to large volume	- Missing a particular post - Reaching the necessary information	-Increase connectivity time
Fear of missing the ability to deal with different social networks	- Locating an important message - Prioritising the response	-Validate with friends -Using multiple smart devices
Fear of missing temporally available information	- Removed by person or naturally disappeared - Missing the source of influence - Frustration with speed versus temporal availability information - Frustration with limited data usage versus temporal availability information	-Validate with people who post regarding their post -Validate with friends regarding the interaction on a certain SNS
Fear of missing a timely interaction	- Immediate response - Misunderstanding (friends feel they are ignored) - Give negative impressions - Missing people availability rarely on SNS	- Set a status - SMS messaging
Fear of missing participating in popular interactions	- Missing involvement in the current discussion - Missing supporting or defending (friends, teams, opinions) - Inability to talk regarding the missing	- Silent mode

	online discussion (when people are offline)	
Fear of missing the ability to avoid a communication backlog	- How to access to prevent a backlog of messages	A current mitigation strategy for this kind of FoMO has not been identified through the analysis of the data collected through the studies
Fear of missing important information due to frequent alerts	- Missing plan (e.g. going out with friends) - Urgent matters	- Silent mode
Fear of missing the ability to keep followers	- Increase participation on SNSs - Need to update the profile frequently	- Compensation
Fear of missing information/events due to multi following	- Missing post from a certain person (celebrities)	- Making two accounts for a certain SNS - Unfollow any that are irrelevant - Scroll down
Fear of missing information/events due to design issues	- Need to reinstall the app	- Checking with others if the problem is general

4.3.2.1 *FEAR OF MISSING INFORMATION DUE TO LARGE VOLUMES*

Information overload is when people receive lots of information and interactions from friends and feel frustrated because they want to respond or interact but cannot do for some reasons. Therefore, they may be preoccupied with different interpretations that lead them to exhibit healthy or unhealthy behaviour. One of these interpretations may be missing a particular post which means when individuals desire to see particular posts but they might not find it easy to do so owing to a large number of posts and they might be unable to look at them one by one to pick a particular post (e.g. *"I finally got Wi-Fi at a restaurant we went to so I was able to get messages on my social media. However, I experienced FoMo because the Wi-Fi wasn't very good and we were going to go home soon so I had only very limited time. I was looking*

for posts on Facebook from my university among a high volume of posts from others so I feared missing them as I had not enough time so I could not go through all of them to see it").

Another noticeable characteristic is that people may be wondering how they reach necessary or useful information when they encounter large volumes of information in this classification and thus they fear missing it. In light of analysing the data, this scenario has been found because one male student said that "*today was a due date for an assignment so my friends used a group chat on Facebook to ask each other questions. There were a lot of questions and many people commented on the chat so it was difficult to keep up with the volume of information. I feared I was going to miss useful information as I did not have time to read all of the comments and find helpful answers.*"

4.3.2.2   *FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL MEDIA*

Most individuals participate in more than one SNS and this may lead them to experience this kind of FoMO when they receive multiple messages from various SNSs at the same time and they cannot interact with them at the same time in a proper way. In this kind of FoMO, individuals may be preoccupied with wondering which message is most important for them (e.g. "*My mum and sister kept sending me a lot of messages and photos today on WhatsApp of the snow back home and a group chat of my friends were talking about the weather and being unable to travel etc. on Facebook messenger. As stated above, I have been trying to do some university work today and have been unable to properly check each app and find important messages regarding the weather. This made me have a fear that I was missing out on important information that my friends and family were all aware of*").

Additionally, people may be thinking of whom to first respond to when they receive multiple messages from different friends and different SNS. The reason behind this thought is that the first response to a certain friend is determined the level of the relationship. Hence, this can in somehow affect their relationship with other friends (e.g. "*In such a hurry to reply back so when I am unable to interact or connect as I wish, I cannot decide whom to text back first so I really fear missing to deal with those messages that came from Facebook and WhatsApp*").

4.3.2.3   *FEAR OF MISSING TEMPORALLY AVAILABLE INFORMATION*

Temporarily available information is information that has a specific time and then expires or is removed such as stories on Snapchat or status on WhatsApp. Some individuals may be eager

not to miss this type of information. However, when they are prevented from connecting to this kind of information due to certain circumstances, they may be preoccupied with missing a source of influence such as celebrities or shop advertisements. For example, one male student stated that *"I was busy all day and could not check Snapchat. I felt like I missed out on some celebrities' advice and product reviews."* Alternatively, it may be removed by the person themselves or naturally disappear (*e.g.* *"I met up with my friend and then left my phone at her house. I had to use my mum's phone to contact her but she was out so I couldn't get my phone back until the evening, I feared that I would miss out on the Snapchats because they were nearly going to disappear. I also missed out on peoples' Instagram stories as people can remove them at any time"*).

Furthermore, frustration with speed versus temporal availability information may be attributed to this kind of FoMO. This means that the speed of connectivity does not match the temporal information (e.*g. "I have bad internet connection which means I could not see stories on Snapchat and Instagram. I fear missing them as stories take ages to be downloaded"*). Another noticeable aspect is the frustration of limited connectivity versus temporally available information which means that the availability of resources like data usage is insufficient to access to this kind of information or people want to economise their online usage but they fear missing temporally available information.

4.3.2.4   *FEAR OF MISSING TIMELY INTERACTION*

Timely interaction means the interactions that individuals need to take action without delay. Nowadays, people have become reliant on SNSs to make plans or invite friends over. Hence, when people are unable to interact or connect as they wish and they experience this kind of FoMO, they may be preoccupied with immediate responses, i.e. when there are some messages that need to be replied to without delay such as confirming a social gathering or invitation. For example, one female student said that "*I was at a friend's place for Easter and didn't have any internet connection. I couldn't enjoy the party as I kept thinking if somebody important would be messaging me and I couldn't reply back to them immediately.*"

Moreover, individuals may attribute fear of missing timely interaction to *"not making other parties feel they are being ignored or to not give negative impressions as other parties are accustomed to immediate responses from them."* Another noticeable aspect of this kind of FoMO is missing people who are rarely available on SNS that means that when individuals

want to respond instantly to people who are rarely available online *(e.g. "When I am at work I fear missing the ability to reply instantly which is really frustrating, especially when I know I have a message. I feel like I have missed the time when someone is online. However, this is irrational as most of my friends reply throughout the day and have their phones on them all the time").*

4.3.2.5   FEAR OF MISSING PARTICIPATION IN POPULAR INTERACTIONS

When individuals expect or know there are interesting interactions on certain SNSs that individuals are eager to participate in but are prevented by certain circumstances from participating, they may experience this kind of FoMO and feel a limited ability to postpone their gratification. If an individual experiences this kind of FoMO they may be preoccupied with various interpretations that could drive them to engage in healthy or unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to *"not missing involvement in the current online discussion within its timeframe."* Hence, people may think that they also miss supporting others or their opinions or defending their favourite team (e.g. *"Last week there was a match between two famous football clubs that I was not able to watch with my friends and I could not talk to them through WhatsApp regarding the football so I experienced this fear as I was thinking of missing supporting my favourite team during the discussion on WhatsApp").*

Additionally, an inability to talk regarding missing online interactions at the time of a social gathering may be attributed to the fear of missing participating in popular interactions:

"I faced this fear of missing out as I could see a whole bunch of messages on the choir group and I know I miss out on important discussions because when people get together to talk about something and allude to it, I don't have a clue what they're referring to and I realise they're speaking about some conversation that transpired on the group."

4.3.2.6   FEAR OF MISSING THE ABILITY TO AVOID A COMMUNICATION BACKLOG

Individuals may experience this kind of FoMO when they cannot connect to a certain SNS. Consequently, they fear having to encounter accumulated messages or emails when they cannot check. If an individual experiences this kind of FoMO, they may be preoccupied with an interpretation that might be: "how can I find a way to access a certain SNS to prevent the communication backlog before it happens" (e.g. *"Due to my busy schedule today of shopping*

for the house and cleaning it, I didn't have time to check my emails continuously. Because of this, there was a fear that all my emails would pile up together and I might miss some very important email or the chance to sort them into different categories").

4.3.2.7 FEAR OF MISSING INFORMATION DUE TO FREQUENT ALERTS

Frequent message alerts indicated either by tone or vibration may lead individuals to think there is important information that needs them to interact, and these alerts can distract them from performing an important task such as attending a lecture. However, when individuals are unable to check this information immediately, they could become preoccupied with missing messages that may contain important information such as plans for social gatherings or urgent matters, as evidence by participants who mentioned that frequent alert lead them to fear of missing important information. One participant stated that "*I was busy with my work in the lab and suddenly frequent messages started coming through. It made me fear that I will miss out on important information.*"

4.3.2.8 FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS

Keeping and increasing number of followers on SNSs may be interesting to some individuals. However, if those people cannot be on a certain SNS frequently or occasionally as there is a circumstance that prevents them from being there, they may become preoccupied with various interpretations and one of these interpretations is that individuals may attribute this FoMO to "*the need to increase participation on SNSs in order to keep their followers interested*" or "*the need to update their profile frequently in order not to lose the interest in their profile.*"

4.3.2.9 FEAR OF MISSING INFORMATION/EVENTS DUE TO MULTI FOLLOWING

People on SNSs are interested in following a number of accounts (following) in order to gratify their needs. However, multi followings can make people experience this kind of FoMO when they find huge numbers of posts and they cannot check all of them. Hence, they may be "*preoccupied with missing posts from a certain account such as celebrities or an association.*"

4.3.2.10 FEAR OF MISSING INFORMATION/EVENTS DUE TO DESIGN ISSUES

Design issues of SNSs naturally occur in different forms. Furthermore, when design issues occur, people may fear of missing information or events. Therefore, they may be preoccupied with "*wondering do they need to reinstall the application or not fix the issue.*"

There are, however, a number of techniques that people typically use to mitigate these kinds of FoMO when they are unable to interact or connect as they would like. Some coping strategies result in further complications, while others might be better. Descriptions of these mitigation strategies are presented in the following list.

- **Increasing connectivity time:** Used to avoid missing out on information and, widely used by those who fear missing out due to large interaction volumes. Users tend to increase their connectivity time to prevent large volumes building up (e.g. "*I fear missing important posts due to large volumes of post, so I need to increase my time checking this information in order to keep me up to date and to minimise the information overload*").

- **Validation by friends:** This is another strategy for minimising FoMOs such as the fear of missing out on the ability to deal with different social networks or the fear of missing temporally available information. It can be achieved by using other communication methods instead of social media; for example, making a telephone call or having a face-to-face chat to ask individuals about their posts, or messages, events, or social media interactions that happened when they were unable to interact or connect as they would like. This strategy is commonly used when people fear missing temporally available information (e.g. "*I have a bad internet connection which means I could not see stories on Snapchat and Instagram. I fear missing them as stories take ages to download. To minimise FoMo, I could ask friends to keep me updated if they see anything interesting*").

- **Multiple smart devices:** This strategy plays an important role in mitigating the fear of missing the ability to deal with different social networks, even when it may distract people. This may happen when people "*use two smart devices and view different social media platforms on each one*".

- **Set a status:** People make clear their current situation by adding pictures to, or typing words on, their profile to inform others of their status. This strategy is used when people fear of missing a timely interaction and are concerned that this will make the other party feel ignored. As evidence of use of this strategy, one male participant stated: "*When at a meal, I knew I wasn't going to be able to answer messages immediately, which made me fearful of missing a timely interaction. However, I dealt with this by*

letting people know I was going for a meal and posted a picture of the restaurant telling people where I was going as a subtle hint that I would be busy for some time."

- **SMS messaging:** This is not commonly used but a minority of people prefer to "*send SMS messages to inform people when they are unable to connect to a certain social media*". People prefer to use this strategy in work when they are unable to access email and are preoccupied with immediate responses, in order to signal that others should not expect an immediate response from them.

- **Silent mode:** Utilised when people know that frequent alerts trigger their FoMO; particularly "*fear of missing important information such as about a social gathering and, thus, people tend to turn their phone to silent mode to avoid this feeling*".

- **Compensation:** This conceals or offsets a lack of interaction on a particular social media through means such as posting frequently, commenting and liking others' posts or engaging in more conversations. This strategy is noticeably used when people are able to connect to social media in order to compensate for their previous lack of connectivity and also to mitigate their fear of missing out on the ability to keep their followers: "*As I was browsing through Instagram this morning, I noticed that some of my friends had a lot of Likes on their photos despite, to me, them not even seeming like great photos. This is probably because, although in my opinion certain photos were not worthy of this many Likes, these people are very active at uploading photos daily and so have become popular with their followers and almost built a kind of 'fan base'. This then leads me to think that I should be more active at posting on Instagram to keep my followers because this will reduce my fear of missing out on the ability to keep my followers.*"

- **Making two accounts for a certain social media:** This strategy is commonly used when people are preoccupied with missing information or events because they follow so many. Thus, "*they tend to create two accounts for a certain social media dedicate one to important following and the other to entertainment.*"

- **Irrelevant contacts:** This strategy is based on decreasing the number of irrelevant followings in order to reduce the large volume of undesirable information received. This strategy may mitigate preoccupation with missing posts from a certain person or

missing useful information. For example, one participant said "*I do feel it is difficult to keep up with everyone I am interested in when I follow a lot of people on social media, especially as most posts on social networks are no longer ordered in time order. So important posts may be missed or disappear from your timeline, whereas other posts that I find unimportant may end up being at the top of the timeline so I will see these first and, hence, maybe miss out on more important opportunities. To reduce my FoMO, it is better to unfollow irrelevant people/groups/pages. Cutting out the unimportant things will make it easier to not miss important posts.*"

- **Check the problem:** This strategy is used when people are unable to connect to a certain SNS and fear missing information or events because they think there is a design issue. In order to mitigate their FoMO, "*people tend to ask others who use the same application about the problem to check if it is a general issue or not*".

4.3.3 CLASSIFICATION 3: FOMO WHEN UNWILLING TO ENGAGE IN SOCIAL INTERACTIONS

Interactions through social media are occasionally either interesting or uninteresting, depending on people's opinions or interests. Individuals may be unwilling to engage in social interaction, particularly in group chat, because they think the interaction may not be useful but *"they feel compelled to do so."* Thus, when this classification arises, individuals may experience one or more of the following kinds of FoMO, summarised in Table (9):

TABLE 9: FOMO WHEN UNWILLING TO ENGAGE IN SOCIAL INTERACTION

Classification 3 : FoMO when unwilling to engage in social interaction		
Kinds of FoMo	**Preoccupied with**	**Current mitigation strategies**
Fear of missing valuable information	- Ad hoc requests - Lose the benefits of the group	-Validation with friends -Delete the source of concern

Fear of missing the ability to defend your popularity	- Not responding to me in the future - Misunderstanding (i.e. ignoring friends - Missing relationships and reputations with others - Not involvement in the future discussion	- Sending emoji -Starting conversations

4.3.3.1   FEAR OF MISSING VALUABLE INFORMATION

When an individual experiences this kind of FoMO within this classification, they may be preoccupied with various interpretations that could drive them to exhibit unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to *"ad hoc requests that need them to respond immediately."*

 Another noticeable aspect is missing the benefits of the group (e.g. "*There was a conversation in my friend group chat. I was meeting up with my friends on the weekend and all I was interested in was the arrangements for this. There was a lot of irrelevant information where they had started discussing something else. I did not want to read about this but I was thinking I might miss something important when they were talking about our plans."*

4.3.3.2   FEAR OF MISSING THE ABILITY TO DEFEND POPULARITY

One of the gratifications for people interested in using social media is seeking popularity (Allport, 1968). Therefore, people attempt to maintain the level of their popularity and connectedness to an acceptable level. However, if an individual experiences this kind of FoMO, they may be preoccupied with various interpretations that may drive them to exhibit unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to *"misunderstanding that peers think that they are ignored and they may do the same in the future."*

Furthermore, another interpretation is that individuals may be preoccupied with missing the social relationship and reputation with peers when they do not engage frequently with them on SNS (e.g. "*I often find myself replying to things I don't need to, but I do it in order to maintain a relationship with people and benefit me in the future"*).

Additionally, the fear of not being involved in future interactions could be related to the various interpretations that people may be preoccupied with it when they receive interactions but are unwilling to engage in these interactions. Therefore, people may feel concerned about their popularity because they think that if they interact with received interactions, this could affect

their popularity among friends: "*I always find myself engaging in conversation that doesn't necessarily interest me just to remain popular; else I feel I won't be involved in future conversations.*"

However, when unwilling to engage in social interactions, people typically attempt to mitigate the previous kinds of FoMO by following certain behaviours that might either be useful or increase the level of FoMO. A description of these mitigation strategies is presented in the next section.

- **Validation by friends:** This is achieved by using other communication means than social media, such as making a telephone call or having a face-to-face chat in order to ask individuals about their posts, messages, events or interactions that took place on group chat, when they were unwilling to engage in social interaction: (e.g. "*I received a large number of WhatsApp messages when I was out and I did not want to read them one by one as I knew they were probably pointless messages but I feared missing important things. To reduce my FoMO, I asked my friend who had read them if I had missed anything or if there was anything important so that I would not have to read them all and would have no fear of missing information*").

- **Delete the source of concern:** This is used by individuals who think some interactions on social media are a source of concern or disturbance, and so delete the source (e.g. online groups or contacts), and find new ones that gratify their needs in a convenient way. For example, one participant who suffered from multiple messages that came from a group of friends said: "*I often wake up to 20+ messages and having read some of them, it is all incredibly dull conversation about unrelated matters between a lot of the members. So, I sometimes skim through all the conversations to ensure I haven't missed any information with regard to social events in HK. Every time I have done this, I've noticed that the content is incredibly unrelated to the purpose of the group. I am strongly considering deleting this chat but my fear of missing out on valuable information has stopped me from doing so. My idea to cope with this is to perhaps just delete it and go back to my old ways of receiving information.*"

- **Sending emoji**: This strategy is commonly used, particularly when people want to maintain their popularity and connectedness at an acceptable level. It is achieved by

sending a emoji such as tears of joy or a heart in order to make group members aware of the reader's presence: (e.g. "*Even though I was not interested in this WhatsApp conversation and the topics of discussion didn't really involve me, I still responded with a laughing emoji just so I could be involved with the group and show that I had read the messages, and so was up-to-date on what was going on*").

- **Starting a conversation:** This is a compensatory strategy that conceals or offsets a lack of interaction in an online group: (e.g. "*When I am unwilling to engage in an interaction but I have to do it, I become anxious and frustrated. Fear of missing an opportunity to become popular always urges me to start a new conversation*").

4.3.4   CLASSIFICATION 4: FOMO WHEN HAVING TO OR FEELING A NEED TO ENGAGE IN CONTINUOUS UNTIMED INTERACTIONS

Interactions through social media occasionally encourage individuals to stay online and these interactions may not be bound by time which means they can occur at any time. Hence, people tend to be online because they may experience one or more kinds of FoMO summarised in Table (10)

TABLE 10: FOMO WHEN HAVING TO OR FEELING A NEED TO ENGAGE IN CONTINUOUS UNTIMED INTERACTIONS

Classification 4: FoMO when having to or feeling a need to engage in continuous untimed interactions		
Kinds of FoMo	**Preoccupied with**	**Current mitigation strategies**
Fear of missing empathy and leaving a good impression	- Not interested in the conversation - Missing self-image (rude) - Missing empathy - Making others think there is something wrong - Hurting others' feelings (e.g. affect others' self-esteem) - Missing social relationships	- Keep replying - Keep checking
Fear of missing the opportunity to know others' impressions	- Need to reply - Need for appreciation - Need to delete the post if negative comments are given - Doing something wrong before knowing others' impressions (making wrong decisions)	- Keep checking - Pull to refresh
Fear of losing popularity	- Reply immediately - Not letting people feel ignored - Reciprocity	- Engaging in different conversations

Fear of missing a valuable opportunity	- Missing commercials - Missing employment opportunities	- Keep checking
Fear of missing the sense of relatedness	- Ad hoc requests - Missing what is going on in others' lives	- Keep checking
Fear of missing spontaneous responses	- More information needed from the sender	- Keep checking - Pull to refresh

4.3.4.1   FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION

On social media, individuals are willing to maintain their self-image in front of others such as friends or colleagues when they want to leave the conversation without making those people start to have misinterpretations. However, individuals are keeping the chat active because they are preoccupied with different interpretations. One of these interpretations is that individuals may attribute this kind of FoMO to *"making people think they are not interested in the interactions with them."*

Another noticeable aspect is missing empathy (e.g. "*This happens sometimes as I start engaging in a conversation on social media but people misunderstand some of the things and then it escalates. Therefore, I cannot always stop the conversation with my friend who always complains about his family as I fear of missing empathy"*).

Additionally, missing self-image may be related to the various interpretations that people may be preoccupied with when individuals fear missing empathy and leaving a good impression. Therefore, *"individuals do not want to be impolite in front of group members or friends."*

Negative effect on others' self-image could be another aspect that individuals are preoccupied with. For example, one female student said that "*this happens to me a lot. I sometimes chat with someone and then I feel like if I do not carry on the conversation I might hurt feelings of the person I am chatting with."*

Furthermore, people want to maintain their social relationship to a strong level. Hence, when they experience this kind of FoMO, they are preoccupied with *"missing their social relationship."*

When people feel a need to stop continuous interactions such as conversations, they fear missing empathy and leaving a good impression because they are preoccupied with the *"fear*

of making others think they are doing something wrong that makes individuals leave the conversation."

4.3.4.2 FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' IMPRESSIONS

Social media relies on what people post and share. Therefore, people are interested in sharing their daily lives with others and getting feedback from them in terms of Likes or comments. Because these interactions are not bonded with time, people tend to stay online in order not to miss the opportunity to know others' impressions. Hence, when people experience this kind of FoMO, they may be preoccupied with various interpretations that drive them to exhibit unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to *"the need to appreciate people who comment on their posts, otherwise they may think they are impolite."*

Another noticeable aspect is the need to remove their post if it receives negative comments before increasing the number of such comments: *"I check the post continuously until around 48 hours have passed when people normally stop seeing it. If I don't do this, I fear I will miss comments from people indicating what they thought, especially receiving negative ones. I would either want to remove it straight away or delete the post before more people see it").*

Fear of making the wrong decision may be another aspect that people are preoccupied with. It means that people tend to use social media to ask others about important things such as shopping or studying and they want to know their impression before taking action. Thus, they stay online in order not to miss these impressions (e.g. *"I sent my friend photos of my outfits before going out to know what they thought as I have a fear that I might be wearing the wrong thing; so I kept checking as I feared missing their impression before going out and wearing the outfit").*

4.3.4.3 FEAR OF LOSING POPULARITY

In this classification, this is when people are having to or feeling a need to engage in continuous untimed interactions because popularity is one the gratifications that people may be seeking on SNS and they want to maintain it. However, a fear of missing popularity may be making people are preoccupied with the need to reply immediately (e.g. *"I kept checking the responses and updates so that I could comment and respond to each one as I feared that if I did not reply or react immediately I would miss my popularity").*

Additionally, people may be preoccupied with "*misunderstanding that peers think they are ignored and they may do the same in the future.*"

4.3.4.4   FEAR OF MISSING A VALUABLE OPPORTUNITY

One of the services provided by social media is valuable opportunities that people can benefit from. When people experience this kind of FoMO, they may stay online if they are preoccupied with missing a commercial (e.g. "*I follow a holiday page on Facebook which uploads new discounted holidays most days and its sort of first-come-first-served so I fear that if I don't check frequently, I will miss offers*") or missing employment opportunities could be one of aspects that people are preoccupied with.

4.3.4.5   FEAR OF MISSING THE SENSE OF RELATEDNESS

One of the gratifications that people interested in using SNSs are seeking is belonging (Allport, 1968). Therefore, people attempt to maintain the level of their belonging and connectedness to an acceptable level. However, if an individual experiences this kind of FoMO, they could be preoccupied with various interpretations that may drive them to exhibit unhealthy behaviours. One of these interpretations is that individuals may attribute this FoMO *to "not miss what is going on in others' lives."* Another aspect is that people are preoccupied with *"ad hoc requests that require them to respond immediately."*

4.3.4.6   FEAR OF MISSING A SPONTANEOUS RESPONSE

Sending message is one the services provided by SNSs. Sending a message to someone for some purpose and waiting for a spontaneous response from the recipient can make people preoccupied: "*more information may be needed immediately from them when the receiver has replied. Hence, they may have to stay online.*"

People may attempt to mitigate the effects of these kinds of FoMO by adopting certain behaviours, whether healthy or unhealthy. Descriptions of these mitigation strategies are presented in the list below.

- **Keep checking:** This is a common mitigation strategy that is used by individuals to reduce various kinds of FoMO when they have or feel a need to engage in continuous untimed interaction: "*Regarding many of my friends and people I know who have gone on the university ski trip today, I am feeling a huge sense of FoMO and a great deal of anxiety to try to keep up with all of their updates on social media such as Snapchat and*

Instagram stories. I think because I have a fear of missing out on the trip itself, I really don't want to miss out on all the content they post each day because I have this need to see what is going on there, even though it heightens my feelings of FoMO and jealousy. It is difficult not to look at my phone for a while and to stop checking Snapchat and Instagram as I just want to keep checking it straight away in case I miss something funny or valuable in some way."

- **Keep replying:** This is a mitigation strategy that individuals use to reduce their fear of missing out on empathy and to leave a good impression. It is achieved by making the chat active (e.g. "*I was not interested in a WhatsApp conversation with the people that I go to placement with today but I felt like I had to make a good impression in front of them by continuing to reply politely even though I did not want to*").

- **The pull to refresh:** This is a noticeable mechanism used to mitigate some kinds of fear, such as the fear of missing an opportunity to find out others' impressions or the fear of missing a spontaneous response. However, it can be unhealthy behaviour because it is a kind of distraction (e.g. "*I posted a picture on Snapchat so I constantly refreshed my Snapchat because of the fear of missing what my friends had to say and the possible need to respond*").

- **Engaging in different conversations:** People may both engage in and start numerous online conversations due to their fear of losing popularity. This makes them feel that they are active on social media but leads them to increase the length of time they stay connected, which may be an undesirable behaviour: "*I commented on a post on Facebook and I was continuously checking and waiting to see if the person or another person would Like or reply to the comment, otherwise I feared I might feel like I was unpopular to others if people didn't respond to me. I tried to reduce this fear of losing popularity by engaging in a different conversation on a group chat on WhatsApp to remind me that I was still popular within my friends group.*"

4.3.5   CLASSIFICATION 5: FOMO WHEN AN ONLINE SOCIAL GATHERING IS EXPECTED

Social gatherings are defined as "interactions among a diversity of individuals of all abilities in small or large groups for social and community purposes." This can occur through SNSs such as a WhatsApp group for family or students. Individuals may prefer to be *"members of*

groups that are beneficial to them in order to feel a sense of belonging." However, if individuals expect a certain online interaction on SNSs, they may experience one or more of the following kinds of FoMO (see Table 11):

TABLE 11: FOMO WHEN AN ONLINE SOCIAL GATHERING IS EXPECTED

Classification 5 : FoMO when an online social gathering is expected		
Kinds of FoMo	**Preoccupied with**	**Current mitigation strategies**
Fear of missing the opportunity to attend an online event	- Missing the live chat	- Keep checking - Reminder
Fear of missing the sense of relatedness	- Missing peoples' availability on SNS - Name is mentioned	- Keep checking - Keep the phone close
Fear of missing the ability to be popular	Missing social rank	- Keep the phone close

4.3.5.1   FEAR OF MISSING THE OPPORTUNITY TO ATTEND AN ONLINE EVENT

A number of events such as football matches or Ted talk are shown on SNSs. Consequently, individuals like to watch these events on SNSs and try not to them. Hence, when people experience this kind of FoMO, they expect the event may make them preoccupied with missing the live chat: *"TED TALKS was presented on Facebook at the time I had a meeting. My fear is not to miss the video because I am able to watch it later but I would miss being able to respond on the live chat."*

4.3.5.2   FEAR OF MISSING THE SENSE OF RELATEDNESS

One of the gratifications that people are interested in when using SNSs is seeking a sense of belonging. Therefore, people attempt to maintain their level of belonging and connectedness to an acceptable level. Additionally, people may strongly need to feel a sense of relatedness when they live abroad. However, if individuals experience this kind of FoMO, they could become preoccupied with various interpretations that may drive them to exhibit unhealthy behaviour. One of these interpretations is that individuals may attribute this FoMO to ad hoc requests *(e.g. "I have a group chat on WhatsApp and every night members start to talk about*

their day. I like to be there in order to feel the sense of belonging but if I do not check I am thinking that may name may be mentioned by members").

Another noticeable aspect to this kind of FoMO is missing peoples' availability on SNS. It means that "*individuals do not want to miss the chance to respond and chat immediately with people who are online in a group chat in order to feel the sense of relatedness.*"

4.3.5.3   FEAR OF MISSING THE ABILITY TO BE POPULAR

One of the gratifications that people are interested in when using SNSs is seeking popularity. Therefore, people attempt to maintain their popularity among peers on SNSs by taking into consideration the norms of the group such as frequent participations or immediate responses. However, when people experience this kind of FoMO when they expect an online social gathering they are preoccupied with *"missing social rank among peers or family"*

Conversely, people typically attempt to mitigate the previous kinds of FoMO, in the context of an expected online social gathering, through certain behaviours that might be either healthy or unhealthy. A description of these mitigation strategies is presented in the list below.

- **Keep checking:** A common mitigation strategy that can be used by individuals to reduce various kinds of FoMO when having, or feeling a need, to engage in continuous untimed interactions: "*I had an online event on Facebook coming up and I was constantly checking my phone to see if it had started as I feared missing it and not being able to get involved.*"

- **Reminder:** This is one of the mitigation strategies that may be healthy and does not affect people's well-being. Individuals "*tend to set up reminders (time and date) to not miss an online social gathering*".

- **Keep your phone close:** This strategy may be helpful for individuals who experience FoMO generally, although it may also be an indicator of digital addiction. For example, one participant who experienced FoMO and could not be away from his phone said: "*I always keep my smart phone close to me as I think and feel that a certain group that I have on WhatsApp will be active at this time of day. I like to be there in order to not miss the feeling of relatedness.*"

In this section, we abstract the findings in Section 4.3 and create an ecology to describe FoMO (see Figure 5). FoMO is the interplay of different factors that create a situation in which people become more susceptible to that apprehension about their online persona. A kind of FoMO could exist in different classifications, i.e. the fear of missing the ability to be popular exists in Classifications 1 and 5. Additionally, some triggers and worries in FoMO seems to also be part of different classifications. For example, ad hoc requests can trigger the fear of missing valuable information and the fear of missing the sense of relatedness. This section is meant to give an upper ecology of the phenomenon in terms of its core ingredients and their role in FoMO experience. It is also meant to act as a reference model when discussing FoMO and designing solutions to combat it.

One factor in FoMO experience is the innate desire and urge for people to attempt and *gain* or *explore* a valuable *opportunity* online and, also, *defend* their current stand and position which may be affected if they are not connected as needed, or thought to be needed, or as desired. Another factor relates to the *social pressure* which leads individuals to behave in a way that conforms to the norms of their social cycle, e.g. their *commitment* to interact on a certain SNS as considered to be sufficient to *conform to the group norms* in terms of responding on time and providing support to others. In line with such a need to belong and relatedness comes the pressure that some may feel to maintain a certain level of *popularity* on SNSs and maintaining it over time.

Furthermore, *personal factors* and aspirations seemed to be one of those key factors that can affect the existence and degree of FoMO. This includes the perceived need for *social recognition* in which individuals seek to be important for their social group in a certain SNS, e.g. leaders, helpful or influencers. This need comes often together with a high demand or preoccupation about *impression management* in which individuals strive to cultivate a certain social identity; or in other words, the way in which they wish to be seen by their social group (Goffman, 1959). Social media greatly enhances the ability of individuals to engage in impression management, through for example enabling them to carefully select which images they want to share or giving them time to consider a response that might particularly sound witty. In addition, *normative social influence* can be noticed Classifications 3, 4, 5 in which people retain a sense of belonging to the online group, and would be preoccupied about their

communication online aiming to maintain the desired level of perceived popularity and connectedness (Forsyth, 2018).

FoMO results in individuals constantly checking their SNS account or worrying about them in order to be highly in control of their online presence and profile and the mental model others form about them. When escalated to a higher degree, this worry can translate to a *compulsive behaviour* that can be seen clearly in Classification 4. Even when the worry and salience about the online space is low, such a worry can lead to habitual or *impulsive behaviours*, i.e. done without thinking of the rationale and need for it, e.g. checking social media in an opportunistic approach and being receptive to what may come from there. Almost all of our study participants faced a situation where they did not have much to say about the reasons why they check their SNS accounts despite the fear they would feel when they are unable to connect as wished or get others to interact with them as expected and wished.

The way online *interactions constraints* are designed and managed in SNSs, can be another factor in triggering and feeding FoMO. Participants were highly concerned of the fact that control over conversation online is different from those in person, e.g. when the other party's response is not received or known. *Misinterpretation* of social interaction can trigger FoMO in which people are unable to interpret the lack of responses, including the Likes and comments, from others. They fear of missing the ability to get the right interpretation and may increase their online presence to get it, e.g. posting through another account and trying to track the contact's recent responses. Another form of interaction constraints which may trigger FoMO is the *temporal availability* of some interactions and content, e.g. a post only available for 1 hour and the time-sensitive and personalized feed news. This exploits the scarcity principle of influence (Cialdini, 2001a). *Technical* factors can also trigger FoMO through affecting the ability to interact in terms connectivity, speed and volume. This is exacerbated when people are in doubt of the ability of others to be connected, creating again certain undesired behaviours such as cyber stalking and spying to work out reasons for lack of communication and whether it is *social* or technical, i.e. people are unable or unwilling to communicate for personal reasons or technical connectivity constraints.

Overall, FoMO refers to a preoccupation that drives people to consume time in using or thinking about SNS. Hence, FoMO is associated with a symptom of behavioural addiction that is called *salience* in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (Association, 2013). In the case of SNS salience, individuals are preoccupied with using social

networks due to the fact that they fear social exclusion or others having rewarding experiences from which they are absent. Furthermore, FoMO may be a main reason for the so-called *digital addiction*, which is defined as "the excessive use of certain software-mediated operations to reach certain requirements. This includes cases when the use itself is compulsive or impulsive and also cases when the user cannot switch to other available alternatives to reach the same requirements without good reason." (Alrobai et al., 2014). Some participants declared that maintaining their social stand rather than the joy of socialization online is a main reason why they use social networks in an obsessive style and experience FoMO.
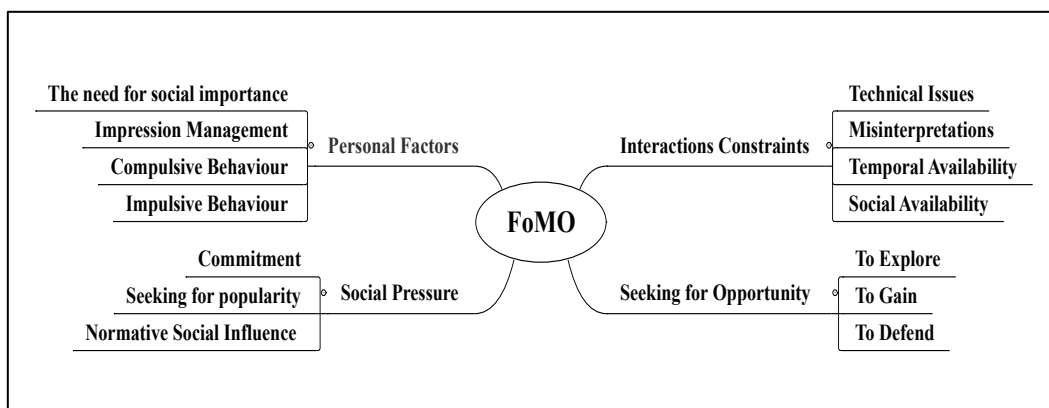
FIGURE 5: FOMO ECOLOGY

4.5 SUMMARY

In this chapter, the experience of FoMO in relation to social media was studied in depth and as lived. The study explored five classifications of how people face FoMO with regards to social media and how they mitigate that fear. Each classification was elaborated upon in terms of sub-categories and concerns. These classifications can be used as a basis for the next chapter which looks at how social media in future could be designed with a better understanding of FoMO to provide healthy tools that help users to combat its effects. Additionally, the author of this thesis reported on a number of factors affect FoMO and created an ecology for the concept to facilitate discussions around it. This means that the findings were abstracted and created an ecology to describe FoMO.

5. CHAPTER 5: THE ROLE OF SOCIAL MEDIA DESIGN IN FOMO: TRIGGERS AND COUNTERMEASURES

Social media are defined as platforms that enable individuals to communicate with people in different manners, such as posting information, comments, messages and images, to build a public or semi-public profile (Boyd and Ellison, 2007). Platforms can compel individuals to maintain their relationships in a manner that results in excessive use of social media. It can be seen that individuals who use social media excessively may experience traditional addiction symptoms such as salience (i.e. preoccupation with social media use), tolerance (i.e. increasing use of social media over time), withdrawal symptoms (i.e. unpleasant feelings when social media use is restricted or stopped), conflict (i.e. interpersonal and intrapsychic issues occur due to social media use), and relapse (i.e. excessive users quickly revert back to excessive social media use after a period of abstinence) (Attrill, 2015).

The honeycomb framework was introduced as an identification of social media functions (Kietzmann et al., 2011). Seven functional blocks comprise the framework: Groups (the extent to which individuals can create their own groups), Sharing (the extent to which people exchange, distribute, receive and share their photos, audio and video), Reputation (the extent to which people can recognise other peoples' level or themselves regarding their reputation through their status, friends list and shared content), Conversation (the extent to which people communicate with other people in social networks such as sending messages, comments and chatting), Identity (the extent to which people disclose their identity on social networks such as their name, gender, age, qualifications and hobbies), Presence (allows individuals to know the existence of other individuals from their profile and status), and Relationships (the extent to which individuals belong to other individuals). To fulfil the third objective of the current thesis, this chapter presents an empirical study following multiple stages of a qualitative approach to explore the social media features that may trigger certain types of FOMO as well as the features that can mitigate it.

5.1 RESEARCH OVERVIEW

Since there are a number of kinds of FoMO (see Chapter 4) and various features of social media, FoMO can be triggered in a number of ways. To understand how the features of social media can trigger certain kinds of FoMO a multi-stage qualitative research study was conducted, including live diary studies. Sections 3.6.2. and 3.6.3 of Chapter 3 provide further

details of the methods that were used in this research to extract such features. At the stage of analysis, the honeycomb framework taken as an initial template for the analysis, and the different situations in which FoMO takes place. The analysis of the data presented in this chapter is about the features of social media that could facilitate a certain kinds of FoMO. The analysis used the Honeycomb classification of social media features proposed in (Kietzmann et al., 2011) as an initial template. Additional families of features were revealed; for example, temporarily available content and impression features.

5.2   STUDY GOAL

The aim of this research was to investigate how features of social media can contribute in triggering a certain kinds of FoMO. The study further aimed to explore the software-assisted mechanisms that could be embedded to help individuals manage and minimise various kinds of FoMO when they occur.

5.3   STUDY FINDINGS

This section presents and discusses the findings of the studies which demonstrate that several kinds of social media features can trigger FoMO. Various kinds of countermeasure that can be embedded in social media to mitigate certain kinds of FoMO are explained (Alutaybi et al., 2019a).

5.3.1   SOCIAL MEDIA FEATURES: CONVERSATION

Conversation feature represents the facilities which enable people to communicate with each other on social media by exchanging messages, comments or chatting. This feature can trigger a number of FoMO cases but in different situations as presented in Table 12. Conversation features, especially spontaneous, may motivate individuals to change their online behaviour and be online to mitigate their FoMO.

TABLE 12: CONVERSATION-RELATED FOMO VS. SOCIAL MEDIA USAGE CONTEXT

Conversation-related FoMO	Social media Usage Context
Fear of missing information due to the large volume of information	Unable to interact or connect as wished
Fear of missing the ability to deal with different social networks	Unable to interact or connect as wished

Fear of missing a timely interaction	Unable to interact or connect as wished
Fear of missing participating in popular interactions	Unable to interact or connect as wished
Fear of missing empathy and leaving a good impression	Having to or feeling a need to engage in continuous untimed interactions
Fear of missing the opportunity to know others' impressions	Having to or feeling a need to engage in continuous untimed interactions
Fear of losing popularity	Having to or feeling a need to engage in continuous untimed interactions
Fear of missing a spontaneous response	Having to or feeling a need to engage in continuous untimed interactions
Fear of missing the ability to be popular	Online social gathering is expected
Fear of missing the opportunity to attend an online event	Online social gathering is expected

5.3.1.1 FEAR OF MISSING INFORMATION DUE TO LARGE VOLUMES OF INFORMATION

This kind of FoMO may be triggered by conversation features when the amount of conversations is high, and people cannot access or respond to it. Hence, people become preoccupied with missing or reaching an important post or message, as opposed to the case when few messages from the same conversation channel are received. One participant in our study commented: "*There was a debate going on Twitter about a harassment accusation an actress had made against another actor and the actor denied all accusations. Twitter was full of comments. I was driving and could read only few so I was afraid that I might miss some new development.*"

This kind of FoMO can be mitigated by the following features:

- **Filter:** A technique that only shows the information that people are interested in; e.g. individuals are able to classify messages and notifications according to the topics and

contacts involved, so that they can easily estimate their subject. Filters could be applied when people fear that they will miss out on information that is buried in large volumes of other information (e.g. "*I am unable to use my phone at work. I have a break for 30 mins but cannot read everything that has happened on Twitter because of the large volume of news. So I fear missing out on the necessary and on most interactions with my friends. A useful way of getting over this is filtering which shows me the news that is relevant to me*").

- **Priority list:** A technique to allow people to specify the level of importance and priority of the various online activities in which they engage. When individuals are unable to interact, they can apply this particular technique to alleviate some feelings of this kind of FoMO. When participants experienced this kind of FoMO "*they preferred to set a level of importance and relevance to topics and contacts so that they were able to prioritize better*".

5.3.1.2   FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL NETWORKS

This kind of FoMO is triggered by the conversation features occurring when individuals encounter multiple conversations on different SNSs. Thus, they find it difficult to interact with all of them at the same time leading to the fear of missing something important or interesting. One participant commented "*I have to reply to messages that came from Facebook and WhatsApp but I was thinking who to reply first to, so I really feared of having to deal with those messages at the same time.*"

Although this kind of FoMO can be triggered by this feature it can be managed by:

- **Auto-status:** A setting that is switched on automatically based on an individuals' availability; for example, Twitter automatically sets individuals to busy when they are using WhatsApp but users can activate or deactivate the setting: "*when an individual is engaging in interactions on a certain social media the status will be set to let friends know that they are busy with an interaction on a certain social media*".
- **Set status:** It is a technique that allows people to set their current status and calendar availability. Participants "*tend to set a status manually on social media when they are busy on other social media platforms in order to make their contacts aware of their situation so that they do not feel ignored*".

5.3.1.3   FEAR OF MISSING TIMELY INTERACTIONS

Conversation can trigger the fear of missing a timely interaction when individuals feel persuaded to respond to a certain message and are unable to do so. From the participant's point of view, fear of missing timely interaction occurs *"when individuals could not check their SNS in order to see if anyone is messaged them. Thus*, *"they fear of missing interactions that need them to interact instantly. This happens when individuals do not know whether friends know they are unable to interact or connect."*

When this kind of FoMO is triggered and experienced it can be managed and mitigated by using the following countermeasures:

- **Auto-reply:** A technique that informs others that a person is away and that they should not expect an immediate response from them. Individuals can set an auto-reply that sends an automatic response to messages and informs messaging contacts that they cannot respond immediately. This technique is useful for people who are preoccupied with missing timely interactions and are unable to connect to a certain social media and interact with their contacts (e.g. "*When I was at the university, attending classes, I feared missing messages from WhatsApp that needed an immediate response. I hope to cope with this by setting auto-reply to make people aware of my situation*"). Alblwi et al. (2019a) found that Auto-reply can be helpful in managing sender and recipient expectations of each other well in terms of response time.

- **Set status:** A technique that allows people to set their current status and calendar availability. People may be unable to interact or connect to social media and social groups as they would like and can fear missing timely interaction. However, setting status and time may alleviate the level of this kind of FoMO. As evidence that set status is a useful technique one participant said: "*I feared I was missing timely interaction as I was unable to respond to several messages immediately on my social media as I have no Wi-Fi. However, if I can set up a status to say I was unable to respond as I did not have internet this will reduce my FoMO and friends' FoMO as well, and also not make people think I am rude*". This example suggests that setting status could be mutually beneficial as it can reduce this kind of FoMO for both contacts who are involved in an online social interaction.

5.3.1.4   FEAR OF MISSING PARTICIPATING IN POPULAR INTERACTIONS

Conversation can facilitate this kind of FoMO which occurs when *"there are important events such as football match happening, and people cannot be involved in for some reason such as driving or studying. As a result, they may be concerned about missing something important that friends or followers were discussing during the event."*

5.3.1.5   FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION

Conversation features could trigger this kind of FoMO when someone is unable to reply or terminates a conversation. Thus, fear manifests itself as a fear of missing empathy, fear of not leaving with a good impression, or fear of missing important messages which are part of a long conversation. For example, one participant commented: *"My friend was talking to me about a personal matter and I could not stop using WhatsApp as I feared my friend would think I did not want to listen to him."* This reflects the social psychological concept of the persuasive norm of reciprocity, in which people feel obligated to return the effort that others have put into helping us (Cialdini, 2009).

When this kind of FoMO is facilitated by the conversation feature, on the other hand it can be reduced and managed by embedding the following features:

- **Self-expression**: Involves viewing a page of information regarding the style of a person's interactions on a given social medium in order to learn how that person interacts on that platform. Social media can embed this feature to allow people to provide details about themselves to their contacts in advance, before they interact with them. These can include topics of interest, the maximum time available for their conversation, and the style of their responsiveness, and the platform can make this page clearly visible to their contacts. This approach would possibly manage this kind of FoMO before it is triggered, as evidenced by participants who mentioned that: "*self-expression may alleviate fear of missing out on empathy and leaving with a good impression and helps people not to stay online for too long as others are aware of the style of their interactions.*"

- **Set status:** In addition to the self-expression feature, participants suggested that they can also "*set status on their social media so that their contacts can see in advance that they have other activities or have only a given amount of time to stay online, amongst other things.*"

5.3.1.6 FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' FEEDBACK

Occasionally people tend to send a message through SNSs to get feedback from others and thus stay online in order to get their response. Conversation features in SNS can be subtle including the implicit mutual interaction such as the reciprocal likes and comments. For example "*I posted picture on Instagram and I was checking my phone regularly throughout the day as I fear of missing my friend's comments that may need me to reply*". These concerns relate to impression management, in which we are driven to manage how we are perceived by others and to monitor our success in achieving our desired social image (Goffman, 1949). As such we are driven to track whether we have been successful in our attempt to manipulate how we are seen by others, and to perform quick, corrective actions if their response suggests that we have failed in our goal.

Although this FoMO is triggered and people find it difficult to stop checking social media even when they are doing some other activity such as driving or attending a lecture, it can be managed and self-regulated by using the following countermeasures:

- **Priority list:** A technique that allows people to specify the level of importance and priority of the various online activities in which they engage. *"Participants would like social media to add this feature to enable them to set the level of importance of contacts so that they receive feedback from only relevant posts. This might reduce their fear and time spent checking"*.
- **Diverse notifications:** A technique that allows people to set different notification styles for events of interest, such as different tones and volumes for important events.

5.3.1.7 FEAR OF LOSING POPULARITY

Conversation features design in SNSs may facilitate the fear of missing popularity. A conversation feature could motivate people to be online in order to reply to the messages. The reason behind this is that people may perceive that responding immediately to the message may protect their popularity and increase or maintain it. For instance, one participant who strongly feels the urge to provide prompt responses said "*I keep checking my WhatsApp continuously to see if I have any message as I have a habit of replying immediately in order not to lose my popularity and also I do not want anyone to feel that I ignore them.*"

However, the feeling of fear of losing popularity and the length of time spent online could be reduced if the following features were used:

- **Alternative notification:** This allows people to receive notifications without having to directly access social media, through SMS or vibration on their smartwatch. This technique may be useful for reducing the compulsive behaviour of checking the notifications on a smartphone and then checking other things. This technique can be used by individuals to avoid the fear of missing out on popularity by connecting a particular platform with their smartwatch or SMS: (e.g. "*I was checking continuously to see if anyone had commented on the photo, for me to be able to respond quickly. It might seem rude of me to not respond to people in a timely manner. I wouldn't want to lose my popularity/status within my friendship groups, or for it to be damaged on social media as a whole by people perceiving me as rude/ungrateful for their comments because I haven't responded to them. If there is a technique by which I could receive alternative notifications SMS might alleviate the fear of losing popularity and the number of times I check a certain app*").

- **Set status:** Allows people to set their current status and calendar availability: "*Participants would like to set a status which can be seen in advance so that it can be seen that they are currently busy. Hence, they can maintain their level of popularity.*"

5.3.1.8 FEAR OF MISSING A SPONTANEOUS RESPONSE

Occasionally, communication via SNSs is not bound by time so when people send a message to someone they do not know when they will receive a response. Hence, such messages could persuade people to continually check in order not to miss the spontaneous response as they think that they have to respond (e.g. *I had to meet my friend regarding the assignment that was due today, but they didn't tell me at what time they'll meet me, so I kept checking my WhatsApp as I fear of missing spontaneous responses from him.*)

Although the interaction on social media is not scheduled so that people in the conversation stay online to avoid missing a response, social media can help them to self-regulate using the following countermeasures:

- **Diverse notification:** One participant commented: A technique that allows people to set different notification styles for events of interest, such as different tones and volumes for important events. Particiapnts suggested this techniqe to mange this kind

of FoMO (e.g. *At the moment, I am waiting on an important WhatsApp message, which I believe should have come through already but there is no set day or time. This means that I feel anxious about missing the message, so I am on my phone continuously refreshing my WhatsApp throughout the day in order to receive the message as quickly as possible and not miss it. I could cope with this if there was a different tone that I could set for this contact or for messages that I am expecting. It would help me to reduce my FoMO and reduce the number of times I check.*)

- **Alternative notification:** In addition to diverse notification participants would like to "*use alternative notification e.g., receiving SMS or vibration on their smartwatch if someone sends/responds to them.*"

5.3.1.9   FEAR OF MISSING THE OPPORTUNITY TO ATTEND AN ONLINE EVENT

When people experience this kind of FoMO they fear of missing the live chat. This can occur when a certain online event on a certain SNSs allows people to chat during the event. Live chat could facilitate this kind of FoMO by "*someone's inability to be part of live chat.*"

This kind of FoMO is facilitated by the conversation feature, but on the other hand it can be reduced and managed by embedding the following features:

- **Calendar event reminder:** A facility that issues reminders regarding events. This technique can be applied by certain social media that show the event. In the light of the analysis, this is highly recommended to alleviate fear of missing an opportunity to attend an online event. It is achieved by "*sending a notification to remind people when an event will take place*".

- **Recap:** A tool that gives people a summary of long stories or messages. Participants would like to see this feature on social media to give them a "*summary of what has been discussed in live chat*".

5.3.2   SOCIAL MEDIA FEATURES: GROUPING

A grouping feature is a facility that can connect two or more individuals privately online. This feature can trigger a number of FoMO types but in different situations as presented in Table 13, and drive people to accept the norms of the online group in order to feel the sense of relatedness and popularity. Table 13 presents the association between this feature and certain kinds of FoMO.

TABLE 13: GROUPING-RELATED FOMO VS. SOCIAL MEDIA USAGE CONTEXT

Grouping-related FOMO	Social Media Usage Context
Fear of missing valuable information/ Fear of missing the ability to defend your popularity	Unwilling to engage in social interaction
Fear of missing the sense of relatedness	An online social gathering is expected
	Having to or feeling a need to engage in continuous untimed interactions

5.3.2.1   FEAR OF MISSING VALUABLE INFORMATION

Individuals participate in the group to get benefits from it such as news or times of social gatherings. However, the group setting may facilitate FoMO by making people fear of missing valuable information when the group is active while they are unwilling to participate in its activities. For instance, one participant commented: *"due to Easter holidays the group on WhatsApp was active as everybody wants to catch up with each other. I was not interested in interaction with the group, but I feared that if I do not interact, I might lose [*a chance for a group*] party or dinner."*

However, this kind of FoMO can be mitigated by the following features:

- **Terms and conditions:** This is a technique that allows group members on a certain to set up a protocol for interaction, for example for time of post, type of post, preventing personal chat and so on. People sometimes create a group on social media for a particular purpose – maybe a group of students who need to focus their attention on studying for an exam. This protocol could be called the group's terms and conditions. Some group members may be tempted to violate the purpose of the group, sending messages about other things and instilling fear in other members that if they do not interact they may miss out on important information. If the group members can set up their terms and conditions it will mitigate against this kind of FoMO. For instance, "*a group may collectively agree on the terms and conditions and all agree not to violate the protocol; those that do will be removed from the group*".

- **Recap:** A tool that provides users with a summary of the long messages. People usually encounter FoMO when a group is very active and produces long messages whilst they

are unable or unwilling to interact; they then fear missing valuable information. A recap can alleviate this kind of FoMO when countermeasure is set up unilaterally. One student who faces this FoMO said: "*my friends knew I was free today but they did not check what time. So they texted me in the group 4 in the morning. By the time I woke up, there were a number of long messages on the group, and I did not want to read them all but I feared missing out on any important information. I hope I would cope better if there is a technique that could provide me with a summary of long stories or messages, such as a recap.*"

5.3.2.2   FEAR OF MISSING THE SENSE OF RELATEDNESS

Individuals participate in the group to satisfy their needs to belong and, hence maintain their popularity. However, the timing of the group gathering may facilitate FoMO when it is unknown. *"This could drive people to be online in order not to miss group gathering that makes them feel more related to the group."*

However, this kind of FoMO can be mitigated by the following features:

- **Colour indication:** it is technique that is based on colour. This can be achieved when individuals' interests has mentioned on group chat the edges of the screen have a special color such as green. Colour indication can "*alleviate the fear of missing the sense of relatedness as people continually check the groups chat in order not to miss ad hoc request.*"
- **Terms and conditions:** An arrangement that informs group members on a given social media platform about the manner of interaction; time of online gathering, time of post and so on. This protocol could be known as the group's terms and conditions. Hence, "*group members could set up their conditions and terms regarding the online time gathering and this would be useful to mitigate the fear of missing the sense of relatedness.*"

5.3.2.3   FEAR OF MISSING THE ABILITY TO DEFEND POPULARITY

Individuals tend to be active members in a certain group to satisfy their need to maintain their popularity. However, the group setting may facilitate FoMO by driving people to continually engage with the group's activities when they do not wish to in order to maintain their loyalty and popularity in the group. For instance, participants mentioned that if they do not participate in the group their need to feel popular within the group cannot be satisfied, a clear example of

fear of missing something. Within the group dynamics (Forsyth, 2018), there is a motivation to conform to the norms of the group (normative behavior) in order to retain a sense of belonging to the group, and to maintain the desired level of perceived popularity and connectedness. For instance, one participant commented *"I got so stressed because my friends wrote dozens of messages on WhatsApp group, but they did not say anything important. I do not have time to engage and I'm also not in the mood to interact but I fear that I will becoming less popular amongst them."*

However, this kind of FoMO can be mitigated by the following features:

- **Set status:** Participants would like to set their status in advance on social media so that their contacts can view such things as their activities and the amount of time they will be available online. This would help them to maintain their acceptance and level of popularity.
- **Terms and conditions:** An arrangement that informs "*group members on a given platform regarding the manner of interaction, such as agreed time for posting, tolerance of lack of response, topic of interest, etc.*".

5.3.2.4   FEAR OF MISSING THE SENSE OF RELATEDNESS

Individuals prefer to be a member in group to feel a sense of relatedness. However, the group may facilitate this kind of FoMO by driving people to continually check the group's activity in order to gather knowledge about members and involve them when it is needed. One of the techniques that support the need of relatedness in SDT is dependability through showing availability in case of need. Participants mentioned that if they do not check their online group, that may affect the satisfaction of the need of relatedness. For instance, one participant commented *"I kept on checking WhatsApp groups to see what my friends are doing and involve when they need help."*

However, this kind of FoMO can be mitigated by the following feature:

- **Contextual awareness:** A property in the smart device that accesses both calendar and location and then updates the current situation. As evidence of the need for this feature, one of the participants commented: "*I have to be online on WhatsApp groups to see what my friends are doing, and involved when they need help, but if there was a feature that could update my situation based on my availability and location, this would help me to manage the time I spend online.*"

5.3.3 SOCIAL MEDIA FEATURES: PRESENCE

Presence features allow people to express their existence and availability on the social network to other individuals and their status, e.g. online but for urgent matters only. This feature can trigger number of types of FoMO as presented in Table 14, and persuade people to stalk or even annoy others in order to reduce their FoMO.

TABLE 14: PRESENCE-RELATED FOMO VS. SOCIAL MEDIA USAGE CONTEXT

Presence-related FoMO	Social media Usage Context
Fear of missing the ability to be popular	Others do not interact as expected
Fear of missing the ability to get the right interpretation	

5.3.3.1 FEAR OF MISSING THE ABILITY TO BE POPULAR

Presence features could contribute to triggering this kind of FoMO in which individuals are conscious of the presence of others on a certain SNS, but do not receive expected interactions from them. For example, one participant commented: *"I was in a holiday, so I thought about catching up with my friends. I sent WhatsApp to some of them expecting a reply from those who were online, but I did not receive any. I got really anxious about missing any interacting with them before so they might ignore me deliberately"*.

Although this kind of may be triggered by presence features it can be mitigated by:

- **Auto-reply:** A technique that informs others that a certain person is away, suggesting not to expect an immediate response or acknowledgement. This countermeasure can be applied by a person who may be required to interact with his/her friends by letting them know the time of response or interaction in order to allow them to manage their FoMO. For instance, one participant who was preoccupied with missing interacting with previous messages from his friend said: "*I sent a funny post to my friend but she did not reply as expected even though she was online at the time. Hence, I feared of missing her text message before so she may do the same. As a countermeasure, if my friend set an auto-reply to let me know when she could interact with me my thoughts and fears would be reduced.*" This technique may, however, have a side effect that can influence

one's social relationships. For instance, when a person has received an auto-reply from their friend, informing them that they are unable to interact now, but after a while sees that that same friend has interacted with someone else, they may think the person does not want to interact with them, and the level of FoMO may increase.

- **Set status:** A technique that allows people to set their current status and calendar availability. This could be used by both parties involved in an interaction. One Computing student said: "*It has been more than 5-6 hours since I uploaded my last post, but up to now, my friends have not Liked it or commented on it while I predicted nice comments from them. I cannot figure out if they are ignoring me or they are busy. To minimise my FoMO, it would help if my friends could set their status accordingly to let me know that they are busy.*"

5.3.3.2   FEAR   OF   MISSING   THE   ABILITY   TO   GET   THE   RIGHT INTERPRETATION

This kind of FoMO could be triggered by the presence feature. This can occur when people do not receive the expected interaction and reactions from others. Hence, they may become anxious due to the inability to get the right interpretation and become confused about the situation. For example, one participant who was wondering about not receiving interactions from his friends said that "*I posted expecting good comments. However, I did not receive anything from some of my friends who were online. So, I thought that they were not commenting on my post because they may not find the subject that I was tweeting about interesting so may have ignored it. On the other hand, it could be that they did not understand what I was talking about and chose not to interact.*" Users can try to satisfy that curiosity by checking SNS even more to see whether their contacts are responsive elsewhere in the SNSs.

However, this kind of FoMO can be managed by the following:

- **Set status:** A technique that allows people to set their current status and calendar availability. This can be applied by both parties involved in an interaction. For instance; one Computing student said "*It has been more than 5-6 hours since I upload my last post, but until now, my friends have not liked it or commented on it while I predicted nice comments from them. I cannot figure out if they are ignoring me or they are busy. To minimise my FoMO, it would help if my friends could set their status accordingly to let me know that they are busy.*"

5.3.4 SOCIAL MEDIA FEATURES: SHARING

Sharing feature is the feature which allows people to exchange, distributes, receive, and share information including text, photos, audio and video. This feature can persuade a number of types of FoMO (see Table 15) and motivate people to change their online behaviour, i.e. increase the time of connectivity to SNSs.

TABLE 15: SHARING-RELATED FOMO VS. SOCIAL MEDIA CONTEXT

Sharing-related FoMO	Social media Usage Context
Fear of missing information due to the large volume of information	Unable to interact or connect as wished
Fear of missing information/events due to multi following	Unable to interact or connect as wished
Fear of missing a valuable opportunity	Having to or feeling a need to engage in continuous untimed interactions

5.3.4.1 FEAR OF MISSING INFORMATION DUE TO LARGE VOLUME

When the amount of shares that people post on SNSs is abundant, it may facilitate this kind of FoMO as individuals may be unable to interact with it. Such kind of FoMO can arise *"when individuals could not interact to a certain SNSs due to a certain circumstance and also large volume of posts such as stories in Snapchat and Instagram, it is difficult to scroll through them and pick out the ones that individuals really want to see, which means that they may fear of missing an important post."*

However, this kind of FoMO can be managed and people can self-regulate by using the following countermeasures:

- **Filter:** A technique that only shows the information that people are interested in, e.g. individuals are able to classify messages and notifications according to the topics and contacts involved, so that they can easily estimate their subject. Filter could be applied when people fear of missing information due to the existence of large volumes of it. For instance; one participant said *"I am unable to use my phone as my work. I have a break for 5 minutes but could not check every post has been shared on Facebook because of the large volume of posts. So, I fear of missing the necessary and most posts. A useful way of getting over this is filtering which shows me the relevant post to me."*

- **Priority list:** A technique to allow people to specify the level of importance and priority of the various online activities in which they engage. When participants experienced this kind of FoMO "*they preferred to set a level of importance and relevance to posts and contacts so that they are better able to prioritize.*"

Filtering, however, may not reduce the large volume of information if an individual has many interests, although this side effect could be resolved by combining the filter technique with priority listing (e.g. "*I think a filter technique would be a good way of helping to control the fear of not being able to keep up with these messages. By sorting them out depending on their level of importance and reducing the amount you have to respond to, you are more able to keep up with them*"). The information would be filtered depending on the priority list.

5.3.4.2 FEAR OF MISSING INFORMATION/EVENTS DUE TO MULTI FOLLOWING

This can occur when the volume of sharing is huge, and people are unable to interact with it due to the numerous following that they have and the shares coming from them. For instance, one participant stated that "*I follow many people on Instagram, many of which post multiple times a day, it is hard to keep up with all of the new information I worry I will miss important posts.*"

However, this kind of FoMO can be mitigated by the following features:

- **Priority list:** A technique to allow people to specify the level of importance and priority of the various online activities in which they engage. When individuals are unable to interact, this particular technique can be applied by them and may alleviate some feelings of this kind of FoMO. When participants experience this kind of FoMO "*they would like social media to enable them to prioritize what they follow and connect to, e.g., pages, channels and profiles.*"
- **Filter:** Participants would also like to see filter techniques on social media to "*be able to classify what they follow and connect to.*"

5.3.4.3 FEAR OF MISSING A VALUABLE OPPORTUNITY

In this study, sharing appears to trigger this kind of FOMO. This can occur when the content of a share can be valuable, and thus people tend to be online in order not to miss such an opportunity. For example, one participant commented that: "*There was a rumour about the ticket opening of a Football match in the stadium and it was really deciding match between*

two rivals. So I was keeping check the latest updates of tickets available on the Facebook page in order to not miss valuable opportunity. "

Although this kind of FoMO can be triggered by this feature it can be managed by:

- **Diverse notification:** Occasionally, the interaction on SNSs is not restricted by time and thus people tend to be online to avoid missing a valuable opportunity or missing the spontaneous response. However, diverse notification may help people to overcome this kind of FoMO. For example, one participant commented: ("*At the moment I am on my phone continuously, refreshing my Facebook and Instagram throughout the day in order to get a discount code. I would be able to cope with this better if there was a different tone that I could set for the contact that I am expecting. It would help to reduce my FoMO and reduce the number of times I check*").

- **Alternative notification:** In addition to diverse notification, participants would like to "*use alternative notification e.g., receiving SMS or vibrations on their smartwatch if a company shares valuable things*".

5.3.5 SOCIAL MEDIA FEATURES: IMPRESSION

Impression feature is the feature that informs people how many individuals react to their social media shares, such as the number of 'Likes' or 'Retweets'. This feature can trigger several kinds of FoMO (see Table 16), and thus people may change their online behaviour in order to get a good impression, i.e. people may be preoccupied how to make their online photo interesting to get the acceptable impression.

TABLE 16: IMPRESSION-RELATED FOMO VS. SOCIAL MEDIA USAGE CONTEXT

Impression-related FoMO	Social media Usage context
Fear of missing the ability to be interesting	Others do not interact as expected
Fear of missing the ability to be popular	Others do not interact as expected
Fear of missing the ability to keep followers	Unable to interact or connect as wished
Fear of missing the opportunity to know others' impressions	Having to or feeling a need to engage in continuous untimed interactions

5.3.5.1 FEAR OF MISSING THE ABILITY TO BE INTERESTING

Impression feature can give individuals the extent of others' interest in their content and messages. However, this feature may trigger this kind of FoMO in which people *"monitor the number of reactions but if they did not receive the expected reactions they fear that their post is not interesting enough to make others interact with it"*.

However, fear of missing the ability to be interesting can be managed and minimised by the following countermeasures:

- **Auto view:** A technique that informs people about who has seen their post regardless of any interaction: ("*I posted a tweet today that I thought was really interesting but I did not receive the anticipated attention. It only got a few Likes although I thought that my friends might at least comment or retweet it. This made me think that my post was not interesting or people did not understand the meaning of it. However, if Twitter showed me who had read or clicked on my tweet, and I could see how many views it had had, my FoMO might be minimised.*")

- **Set status:** A technique that allows people to set their current status and calendar availability. This can be applied by both parties involved in an interaction. For instance; one Computing student said: "*It has been more than 5-6 hours since I uploaded my birthday party pictures, but up to now my friends have not Liked or commented on them while I predicted nice comments from them. I fear that my pictures were not appealing enough or they have not checked them yet. To minimize my FoMO, it would help if my friends could set their status accordingly to let me know that they are busy.*"

5.3.5.2 FEAR OF MISSING THE ABILITY TO BE POPULAR

Participants in the diary study and focus group sessions highlighted the importance of the impression feature in measuring their popularity among peers especially when they do not see the expected reactions from them on their actions. For example: *"I did not receive 'Likes' on photos from a number of my friends as I expected. This made me anxious as I feared I missed some interaction with them recently which led to them ignoring me."* These concerns relate strongly to impression management, in which we are driven to manage how others perceive us and to monitor our success in achieving our desired social image (Goffman, 1949).

Although this kind of may be triggered by impression feature it can be mitigated by:

- **Auto-reply:** A technique that informs others that a person is away, suggesting not to expect an immediate response or acknowledgement. This countermeasure can be applied by a person who may be required to interact with his/her friends, letting them know the time of response or interaction in order to allow them to manage their FoMO. One participant who was preoccupied about missing previous messages from his friend said: "*I posted holiday pictures on Facebook a few times and expected to receive some Likes from friends but I did not receive any. Thus, I feared I may be becoming less popular among them. As a countermeasure, if my friends set an auto-reply to let me know when they could interact with me my thoughts and fears would be reduced.*" This technique may, however, have a side effect that can influence one's social relationships. For instance, when a person has received an auto-reply from their friend, informing them that they are unable to interact now, but after a while sees that that same friend has interacted with someone else, they may think the person does not want to interact with them, and the level of FoMO may increase.

- **Set status:** A technique that allows people to set their current status and calendar availability. This countermeasure may alleviate this kind of FoMO. In doing so, this can be applied by both parties involved in a certain interactions. For instance; one Computing student said "*It has been more than 5-6 hours since I upload my last post, but until now, my friends have not liked it or commented on it while I predicted nice comments from them. I cannot figure out if they are ignoring me or they are busy. To minimise my FoMO, it would help if my friends could set their status accordingly to let me know that they are busy.*"

5.3.5.3   *FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS*

Impression feature can trigger the fear of missing the ability to keep followers when "*individuals do not receive impressions from their followers regarding their post. As a result of not getting the impression, they attribute this to the lack of their activity on SNSs which makes the followers uninterested in their profile.*"

Although this kind of may be triggered by impression feature it can be mitigated by:

- **Contextual awareness:** A property of smart devices that accesses the calendar and location and then updates the current situation for reference by social media contacts. Some people are interested in maintaining or increasing their followers and want to make their profile more attractive. However, they are sometimes unable to do that

because of their current situation – maybe they are busy, away, driving or in a different time zone. Contextual awareness can minimise the fear of being unable to keep followers and make them aware of the current situation. One participant who lived in the UK and rarely has interesting things to post on Instagram said: "*I often don't have anything interesting to post on Instagram while I am in the UK. Because of this I often feel my feed is not maintaining its appeal to my followers. In Hong Kong, I am able to post lots of things on Instagram because I have a lot of pictures/experiences with friends. However, here, my lifestyle is different and I often don't feel any of it is sufficiently interesting to go on my feed. I really fear missing out on keeping my followers engaged and interested. My countermeasure for my situation is contextual awareness; letting my followers and friends know that I am unable to find interesting things to post and also I am busy with my studies.*"

- **Set status:** In addition to contextual awareness, a user wishing to make their followers aware of their situation can set status manually. One participant said: "*I am busy most of the time and I cannot make my profile as active on Instagram and interact with others' posts so I fear I will lose followers. However, if I could set a status to let everyone know I am busy this would minimise my fear.*"

5.3.5.4 FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' IMPRESSIONS

Participants highlighted the importance of impression features in motivating them to be online in order to know what others think of them. The impression feature possibly triggers this kind of FoMO when people are having to or feeling a need to engage in continuous untimed interactions, fearful of leaving a negative impression by failing to respond to feedback from others. For example*: "I posted a picture on snapchat so I constantly refresh my snapchat because of the fear of missing what my friends say and it may need me to respond and appreciate them for their impression."*

However, this kind of FoMO can be mitigated by the following features:

- **Priority list:** A feature to allow people to specify the level of importance and priority of the various online activities in which they engage. "*Participants would like social media to add this feature to enable them to set the level of importance of contacts that they would like to know their feedback to their post and this may reduce their fear and time of checking.*"

- **Diverse notifications:** A feature that allows people to set different notification styles for an interesting event, such as different tones and volumes for important contacts.

5.3.6 SOCIAL MEDIA FEATURES: DELIVERY REPORT

It is a feature which confirms that a message is delivered and seen by the recipients. Such receipt could be in the forms of checkmarks or colour changed. For example, in WhatsApp, when the message is delivered two checkmarks come under the message. <u>Fear of missing the ability to be popular</u> can be triggered by this feature when individuals have seen "*their message is delivered to a certain person or group and is read, but has not received interactions from them*". Delivery reports are designed in a basic form that does not tell whether the message was accidentally checked and whether the person is a busy or planning to reply later. Such lack of context sensitivity leads to make such reports subject to misinterpretation and FoMO.

Although this kind of FoMO may be triggered by delivery report feature it can be mitigated by:

- **Auto reply:** A technique that informs others that a person is away, suggesting not to expect an immediate response or acknowledgement. This countermeasure can be adopted by a person who may be required to interact with their friends, letting them know the time of response or interaction in order to allow them to manage their FoMO. For instance, one participant who was preoccupied with missing interacting with previous messages from his friend said: "*I sent a funny post to my friend but she did not reply as expected even though she was online at the time. Hence, I feared of missing her text message before so she may do the same. As a countermeasure, if my friend set an auto reply to let me know when she could interact with me my thoughts and fears would be reduced.*" This technique may, however, have a side effect that can influence one's social relationships. For instance, when a person has received an auto-reply from their friend, informing them that they are unable to interact now, but after a while sees that that same friend has interacted with someone else, they may think the person does not want to interact with them, and the level of FoMO may increase.
- **Set status:** A technique that allows people to set their current status and calendar availability. This countermeasure may alleviate this kind of FoMO. In doing so, this can be applied by both parties involved in a certain interactions. For instance; one Computing student said "*It has been more than 5-6 hours since I upload my last post,*

but until now, my friends have not liked it or commented on it while I predicted nice comments from them. I cannot figure out if they are ignoring me or they are busy. To minimise my FoMO, it would help if my friends could set their status accordingly to let me know that they are busy."

5.3.7 SOCIAL MEDIA FEATURES: TEMPORARILY AVAILABLE CONTENT

This is defined as content which is available for a specific period of time and then expires or is removed. This feature is new functionality, and explored in term of the functionality of SNSs. It may facilitate the triggering of <u>fear of missing temporarily available information</u>, as evidenced by participants who mentioned that temporarily post could motivate them to be online in order not to miss this information. A participant stated that *"I do not have any 3G at the moment, so when I was on my break from work I could not check social media, this led to the fear of missing my friends' snapchat or missing stories on Instagram as these are time-limited"*. This exploits the scarcity principle of influence (Cialdini, 2001b). When this situation arises individuals may be trigger to follow a deviant and undesired social interaction, e.g. validating with friends via a phone call about such interaction in order to mitigate this kind of FoMO.

However, this kind of FoMO can be mitigated by the following features:

- **Event and content recorder:** A facility that records events while a person is offline to be viewed when they are online again. This facility can be helpful when people are unable to connect to a certain platform and fear missing temporarily available information, such as stories on Instagram or Snapchat. For example, one participant said: "*I had an important task to do and couldn't check Instagram, so I worried about missing my friends' stories because postings are deleted after a while. Perhaps I would cope better if I could record the event.*"
- **Diverse notification:** A technique that allows people to set different notification styles, such as tones and volumes, for interesting or important events. Occasionally, a person's circumstances mean that they are unable to check their interactions on social media although some are only temporary. They may prefer to "*set a different notification for these interactions and will be notified when such interactions are close to expiration.*"

5.3.8 SOCIAL MEDIA FEATURES: LENGTH OF MESSAGES

This feature shows the length of an audio message. This feature is a new functionality, and is explored in term of the functionality of SNSs. Such a feature may facilitate the triggering of <u>Fear of Missing the timely interaction</u> when people are unable to interact or connect as wish, as evidenced by participants who mentioned that temporal events trigger this kind of FoMO. A participant stated that "*I received a voice message on WhatsApp from my sister, along one of 1.44 minutes but unfortunately I was in a lecture. However, due to the length of it, I was concerned it was something important and thus I feared of missing it.*"

5.3.9 SOCIAL MEDIA FEATURES: NOTIFICATION

This is defined as the action of notifying people when a message comes to them by a different tone. Frequent notification can trigger <u>Fear of Missing important information</u> due to being unable to check this notification (*e.g. I got a frequent notification when i was busy. As these notifications, I feared that my friends thought I was being rude by not responding. I also feared I may miss something.*)

However, this kind of FoMO can be mitigated by the following feature:

- **Diverse notification:** Some users are unable to check every notification and frequent notifications can put them under pressure and also distract them from other tasks. Diverse notifications help them to "*check important notifications and alleviate fear of missing important information due to frequent alerts*".

5.3.10 SOCIAL MEDIA FEATURES: TAGGING

 Tags are defined as a feature that allows social media users to engage an individual, business or any entity with a social profile when they mention them in a post or comment. In Facebook and Instagram, tagging notifies the recipient and hyperlinks to the tagged profile. This feature may contribute in triggering the <u>Fear of Missing the ability to defend popularity</u> by making people experience this kind of FoMO when they are not interested to be online. This kind of FoMO can arise when a peer '*tags'* his/her friend on a certain SNSs. Although the friend may be unwilling to interact, this situation can act peer pressure on this friend and leading him/her to experiencing this kind of FoMO, as the following participant stated *"An old friend tagged me in a tweet today but I was unwilling to respond. After a couple of hours later I thought it might make me look bad to other people who may have seen the tweet if I did not respond so I*

fear of missing my popularity." This reflects the normative influence principle, in which we feel pressure from peers to interact on a certain SNSs when we are unwilling to interact.

However, this kind of FoMO can be mitigated by the following features:

- **Set status:** Participants "*would like to set their status on social media in advance to alert their contacts to things such as their activity and the amount of time they have available online, so that they can maintain their popularity and level of acceptance.*"
- **Terms and conditions:** An arrangement that informs "*group members on a certain platform about the manner of interaction, including agreed time for posting, toleration of lack of response, and topics of interest.*" This protocol could be called terms and conditions.

5.4   SUMMARY

Software design can play a key role in facilitating certain kinds of FoMO. Certain social media features can trigger preoccupation and an escalation of commitment and tendencies to increase connectivity time to a chosen task, e.g. replying to comments on Twitter in order not to fear missing the ability to defend popularity. Other features can trigger the fear of missing temporarily events that may be removed at some point; e.g. stories on Snapchat when people are unable to connect or interact as they wish. At the same time, this thesis argues that the design of software has the capability to embed features to manage FoMO that has been reported in this chapter such as auto-reply, priority lists and event records.

Since the participants were given a reward in return for their participation in this study that was conducted, this may have influenced their feedback or answers and affected the trustworthiness of the data. However, rewards are commonly utilised in research and participants were asked to provide their own opinions even when those opinions were negative. Also, the researcher did not reveal what he expected from the studies. It is therefore unlikely that the giving of rewards actually affected the participants' answers.

This chapter has demonstrated the ways in which the functionalities of social media can contribute to FoMO in certain contexts. While social media features may not be deliberately designed to trigger FoMO and encourage greater interaction with social media, they may inadvertently, and under certain circumstances, be part of the cause. The chapter also presented various countermeasures that are already a part of or could be embedded in social media to reduce each kind of FoMO.

6.   CHAPTER 6: EXPOSURE TO FOMO: QUANTITATIVE STUDY

In this thesis, FoMO refers to the anxiety people feel when they are unable to connect to social media as they wish, either due to a technical issue (e.g. being without the internet) or due to the situation they are in (e.g. driving or working). FoMO can also be experienced when contacts are not communicating as expected and the reasons for this are unknown. This chapter presents a follow-up quantitative investigation to Chapter 4. It adopts a survey method to investigate the existence of the various types of FoMO that were explored in Chapter 4. This chapter reports on the stated study goal, study design, analysis, the results and then draws a discussion.

6.1   STUDY GOAL

The aim of this study was to validate the existence of different FoMO kinds in relation to the use of social media that were extracted from the exploratory study (see Chapter 4).

6.2   SURVEY MATERIAL

A web-based questionnaire was utilised to gather responses from participants which saves time in distributing the survey to them. It also saves time in manually entering data. Moreover, it simplifies the process for participants to answer the survey. However, a paper survey was also used here in order to reach a wider number of participants as well as ensuring that the same participants completed the survey.

The questionnaire contains fifty one questions in total and is divided into five main sections. (see Appendix 12.9 for the questionnaire).

1. FoMO Experience (Q1)

Participants were asked to rate their experience of FoMO in relation to the use of social media among frequently and rarely. The intention of this question is to take people who really suffer from FoMO and frequently experience it.

2. Demographic (Q2)

The second section of the questionnaire asks participants regarding their age and gender. The intention of the age question is to take participants who are over 18. The third question is intended to determine the gender that will aid in finding if there is a link between the gender and the different types of FoMO.

3. Personality Traits (Q3—Q12)

The purpose of this section is to explore what kind of personality each participant has. The responses collected from this section are useful in discovering the link between the personality traits and FoMO kinds. Participants encountered ten sentences and were asked to scale (from strongly agree to strongly disagree) each statement is based on personality. The questions constructed in this section are based on Big Five Personality Inventory (Rammstedt, 2007)

4. Experience of FoMO in regards to FoMO kinds (Q13—Q33)

This section was constructed based on the finding of the second objective which is briefly five main classifications of FoMO, with each consisting of several subcategories. The aim of this section is to evaluate the categories of FoMO to see whether people are familiar with them. In doing so, participants were asked to scale (from strongly agree to disagree strongly) each kind of FoMO based on their experience in relation to the use of social media.

At the end of the questionnaire, one open question where participants could comment on their concerns about the FoMO was utilised.

5. FoMO countermeasures (Q34—Q53)

This section was created based on the finding of the third objective which is briefly a number of countermeasures that can aid people to manage their FoMO. The intention of this section is to find a preferable countermeasure for each kind of FoMO as well as a link between personality traits and countermeasures. In doing so, participants were asked to select one, two or suggest new countermeasures for each kind of FoMO.

6.3   PILOT TEST

A Pilot study was conducted with twenty participants and a number of the questions were redrafted. The first and last versions of the survey are shown in the Appendix 9.

6.4   PROCEDURE

This survey was conducted in two ways. The first way was an online survey. The link of survey was posted on a number of different social media sites and also emailed to a large number of contacts. On the first page of each survey, participants were introduced to an explanation of the survey's goal and rewards as well as the FoMO definition in relation to social media. At

the end of this page, participants were asked to declare their experience of FoMO from two options that will be explained in the next section. Participants were encouraged to fill in each survey by getting one ticket per survey, so it maximises the chance of completing the three surveys.

The second way was a paper survey. The target of this method was to reach a wider number of participants as well as ensuring that the same participants completed the survey. The survey was distributed among Bournemouth University and Bournemouth International College students who were invited to take part by registering their willingness to participate at a stall set up in the canteen. This discrete method was utilised so as not to interrupt people while they were eating or otherwise engaged. Authorisation from the college administration to distribute the survey was obtained (see Appendix 12.10). Each participant was rewarded with a hot drink voucher.

6.5   THE RESULT OF THE SURVEY

The survey investigated the views of people who frequently experienced FoMO in relation to the use of social media. Descriptive statistical analysis was utilised for each variable/statement independently to give a summarisation and describe the large volume of data which was collected. Personality trait results were not used in the thesis because they require a lot of psychological interpretations. Thus, this mechanism to characterise people suffering from FOMO could provide a future research topic. Also, future work will discover the link between personality traits and FoMO kinds. The following section will describe demographic information about participants. After that, the descriptive analysis of FoMO classifications will be presented.

6.5.1   SAMPLE

276 responses to the survey were received (see Figure 6 and Appendix 12.11). However, 218 responses expressed that they experience FoMO frequently while 58 responses stated that they rarely experience FoMO so they were not allowed to be entered into the survey. Thus, 218 people were eligible to participate, however, some of those were excluded either because they did not complete the survey or responded in too fast a time. After this filtration, the total number of responses which were utilised in the analysis was 183. Therefore, 82 men and 101 women (n=183), ranging in age from 18 to 54 years (M=24.36, SD=6.64) took part. The recruitment of participants was achieved using two methods. The first method involved distributing the link

for the survey via social media, whereas the second method involved asking university students to complete a paper survey instead of online.
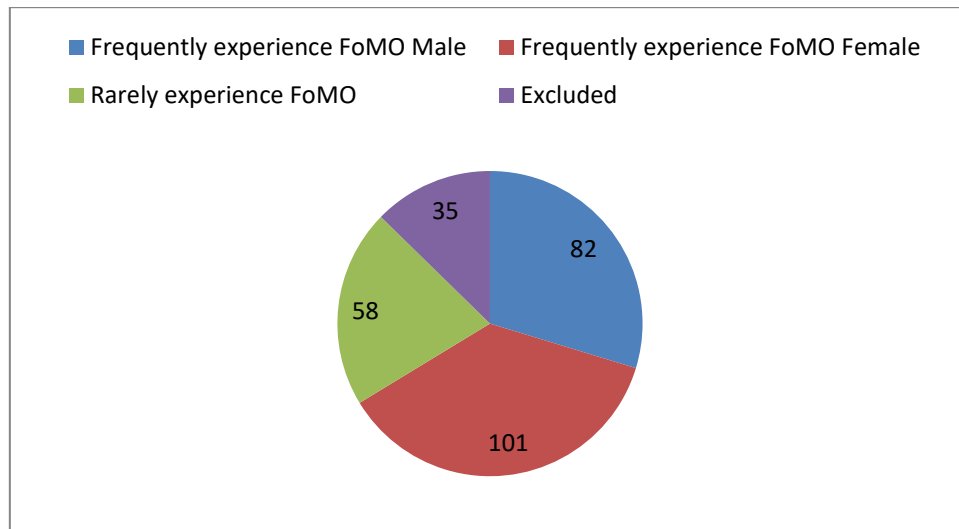
FIGURE 6: NUMBER OF RESPONDENTS TO THE SURVEY

6.5.2   DESCRIPTIVE ANALYSIS OF FOMO CONTEXTS

To obtain descriptive statistics for continuous variables, descriptive procedure was used(Pallant, 2013). Also, this kind of data was treated as categorical data in order to see the distribution of answer, for example, whether most people chose 'Neither agree nor disagree' or if half chose 'strongly agree' and half chose 'strongly disagree'. Table 17 shows the frequency of the responses of the participants for each kind of FoMO, using 5 possible Likert-types (1 = Strongly Agree, 2 = Agree, 3 = Neither agree nor disagree, 4 = Disagree, 5 = Strongly Disagree). This type of scale was used to get a wider range of possible scores, and raise the statistical analysis that is available for the research (Pallant, 2013). The results in table 17 indicate a low deviation within the data set, the standard deviation is lower than the mean. This implies a positive trend in the data and shows there is not much scatter within the data set. Further analysis in table 17- classification four "Fear of missing a valuable opportunity" yields a strong indication between the mean and the standard deviation as the delta is 1.036, this implies that participants in this study are keen to not miss an opportunity. From the results in table 17 it can be concluded participants agree or strongly agree for each kind of FoMo.

	Strongly agree	Agree	Neither agree nor	Disagree	Strongly disagree	Mean	Std.Dev
FoMO when others do not interact as expected							
Fear of missing the ability to be popular	(n=18) 9.8%	(n=78) 42.6%	(n=31) 16.9%	(n=35) 19.1%	(n=21) 11.5%	2.8	1.199
Fear of missing the ability to be interesting	(n=36) 19.7%	(n=99) 54.1%	(n=18) 9.8%	(n=21) 11.5%	(n=9) 4.9%	2.28	1.061
FoMO when unable to interact or connect as wished							
Fear of missing important information due to frequent alerts	(n=29) 15.8%	(n=88) 48.1%	(n=23) 12.6%	(n=33) 18%	(n=10) 5.5%	2.49	1.124
Fear of missing information due to large volume of information	(n=26) 14.2%	(n=93) 50.8%	(n=26) 14.2%	(n=34) 18.6%	(n=4) 2.2%	2.44	1.019
Fear of missing the ability to deal with different social media	(n=24) 13.1%	(n=83) 45.4%	(n=28) 15.3%	(n=38) 20.8%	(n=10) 5.5%	2.6	1.119
Fear of missing temporally available information, e.g. Stories on snapchat, urgent messages or news feed, etc which disappear after a while	(n=19) 10.4%	(n=80) 43.7%	(n=28) 15.3%	(n=44) 24%	(n=12) 6.6%	2.73	1.135
Fear of missing a timely interaction e.g. responding to friends' messages to accept an invite to a dinner party	(n=34) 18.6%	(n=84) 45.9%	(n=22) 12%	(n=31) 16.9%	(n=12) 6.6	2.47	1.166
Fear of missing the ability to keep followers	(n=21) 11.5%	(n=54) 29.5%	(n=35) 19.1%	(n=56) 30.6	(n=17) 9.3%	2.97	1.199
Fear of missing information/events due to multi following	(n=23) 12.6%	(n=71) 38.8%	(n=31) 16.9%	(n=47) 25.7%	(n=11) 6%	2.74	1.152
Fear of missing participating in popular interactions	(n=40) 21.9%	(n=93) 50.8%	(n=18) 9.8%	(n=20) 10.9%	(n=12) 6.6%	2.3	1.124
FoMO when unwilling to engage in social interaction							
Fear of missing valuable information	(n=21) 11.5%	(n=87) 47.5%	(n=34) 18.6%	(n=34) 18.6%	(n=7) 3.8%	2.56	1.041
Fear of missing the ability to defend your popularity	(n=22) 12%	(n=84) 45.9%	(n=24) 13.1%	(n=41) 22.4%	(n=12) 6.6%	2.66	1.147
FoMO when having to or feeling a need to engage in continuous and untimed interactions							
Fear of missing empathy and leaving a good impression	(n=50) 27.3%	(n=87) 47.5%	(n=16) 8.7%	(n=21) 11.5%	(n=9) 4.9%	2.19	1.11
Fear of missing the opportunity to know others' impressions	(n=28) 15.3%	(n=86) 47%	(n=20) 10.9%	(n=42) 23%	(n=7) 3.8%	2.53	1.118
Fear of losing popularity	(n=29) 15.8%	(n=73) 39.9%	(n=32) 17.5	(n=41) 22.4%	(n=8) 4.4%	2.6	1.129
Fear of missing spontaneous responses	(n=14) 7.7%	(n=74) 40.4	(n=38) 20.8%	(n=46) 25.1%	(n=11) 6%	2.81	1.084
Fear of missing a valuable opportunity	(n=56) 30.6%	(n=76) 41.5%	(n=17) 9.3%	(n=23) 12.6%	(n=11) 6.0%	2.22	1.184
Fear of missing the sense of relatedness	(n=25) 13.7%	(n=53) 29%	(n=36) 19.7%	(n=45) 24.6%	(n=24) 13.1%	2.95	1.27
FoMO when an online social gathering is expected							
Fear of missing the opportunity to attend an online event	(n=33) 18%	(n=80) 43.7%	(n=34) 18.6%	(n=34) 18.6	(n=2) 1.1%	2.41	1.022
Fear of missing the sense of relatedness	(n=29) 15.8%	(n=97) 53%	(n=32) 17.5%	(n=25) 13.7%	(n=0) 0%	2.29	.895
Fear of missing the ability to be popular	(n=32) 17.5%	(n=79) 43.2%	(n=39) 21.3%	(n=27) 14.8%	(n=6) 3.3%	2.43	1.045

6.5.3 FOMO WHEN OTHERS DO NOT INTERACT AS EXPECTED

The different expectations among people in relation to the interactions through social media may create different kinds of FoMO (see Chapter 4 for more details). The following explains the statistical analysis for those different kinds of FoMO in this context.

6.5.3.1 *FEAR OF MISSING THE ABILITY TO BE POPULAR*

One of the gratifications that people seek on social media is maintaining their popularity and not to miss certain interactions that may affect their popularity. When analysing the data of this kind of FoMO (see Appendix 12) it can be seen that the largest percentage group agreed that they fear of missing the ability to be popular, with 42.6% agreeing with this statement. It can also be noted that only a few people had a strong reaction either positively or negatively with just 9.8% agreeing strongly and 11.5% the contrary. 19.1% of those asked, disagreed with this statement. 16.9% of the participants expressed a neutral opinion on this FoMO.

Fear of missing the ability to be interesting

FIGURE 7:THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE ABILITY TO BE INTERESTING

6.5.3.2 *FEAR OF MISSING THE ABILITY TO BE INTERESTING:*

People are motivated in sharing their daily lives with peers and rewarded by obtaining expected feedback from them in a form of Likes or comments. However, when this feedback does not

meet their expectations this may result in low self-esteem and feeling unworthy. Statistical analysis to this kind of FoMO (see Figure 7) indicates that the largest percentage of participants agreed that they fear of missing the ability to be interesting when they receive no or limited interactions from others, with 54.1% agreeing with this kind of FoMO. Furthermore, it can be seen that only a few respondents expressed that they did not have a strong reaction either positively or negatively with just 19.7% agreeing strongly and 4.9% the opposite. 11.5% of those asked disagreed with this kind of FoMO. 16.9% of the responses presented a neutral opinion on this FoMO.

6.5.4 FOMO WHEN UNABLE TO INTERACT OR CONNECT AS WISHED

Diverse FoMOs can be experienced when people are prevented from connecting to social media or to engage with certain interactions due to circumstances such as when they are busy or have no internet access etc. (see Chapter 4 for more details). These were witnessed in people who experience FoMO and their feedback was analysed as follows:

6.5.4.1 *FEAR OF MISSING IMPORTANT INFORMATION DUE TO FREQUENT ALERTS*

When individuals receive frequent alerts such as notification tones or vibrations and are unable to check them immediately, they may be preoccupied with missing these social interactions that may contain important information as a matter of urgency. The analysis of this kind of FoMO quantitatively (see Appendix 12) shows that most participants agreed with this experience, with 48.1% agreeing with this statement compared to 18% of people who disagreed. In addition, it can be noted that there is an ensuing trend in the percentage between people who expressed they had a strong reaction either positively or negatively as with previous and some subsequent questions, with just 15.8% agreeing strongly on the occurrence of this FoMO and 5.5% the opposite. A neutral opinion on this kind of FoMO was represented by 16.9% of the participants. The data also indicates that the mean response was 2.49 and a low standard deviation of 1.124 shows that this is close to the mean.

Fear of missing information due to large volume of information
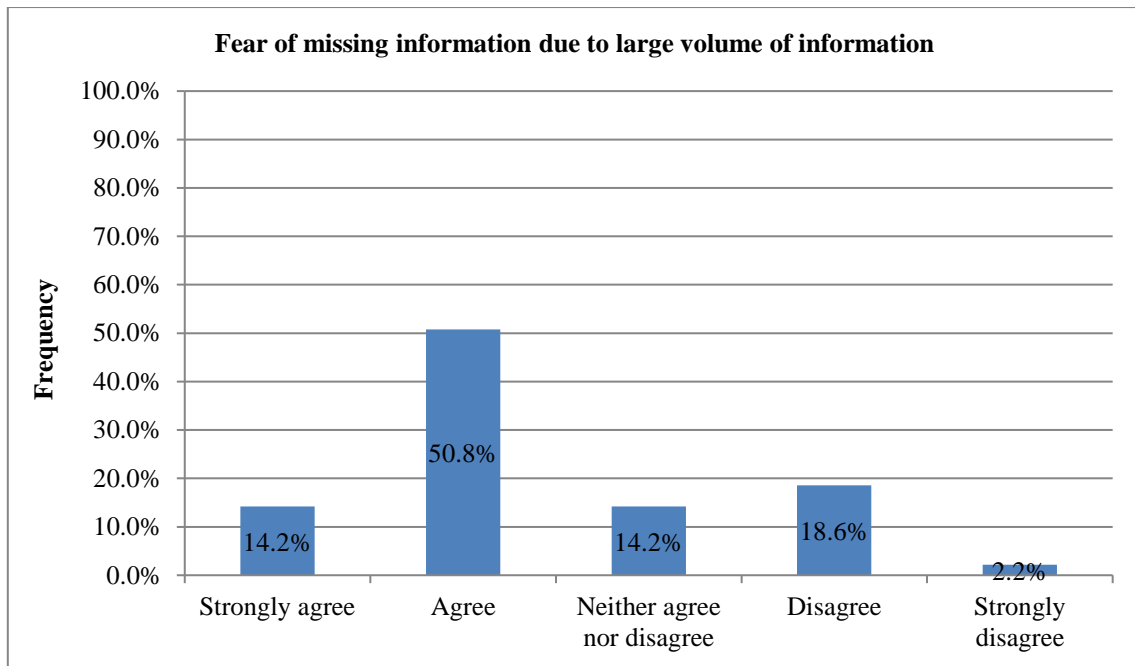
FIGURE 8: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING INFORMATION DUE TO LARGE VOLUME OF INFORMATION

6.5.4.2   *FEAR OF MISSING INFORMATION DUE TO LARGE VOLUME OF INFORMATION*

Information overload is when people obtain a lot of information and interactions via social media and feel frustrated because they want to interact or respond but cannot do so. This kind of FoMO may arise when people desire to see particular interactions but do not readily achieve this, because of the numerous interactions, or inability to look at interactions one by one to pick a particular post. From the survey participants' point of view, most of them agreed with this FoMO experience (see Figure 8), with 50.8% agreeing with it. As with the previous results, it can also be noted that only a few people had a strong negative reaction with just 2.2 % disagreeing strongly on this FoMO while 14.2% the contrary. 14.2% of participants expressed a neutral opinion on this FoMO.

Fear of missing the ability to deal with different social media
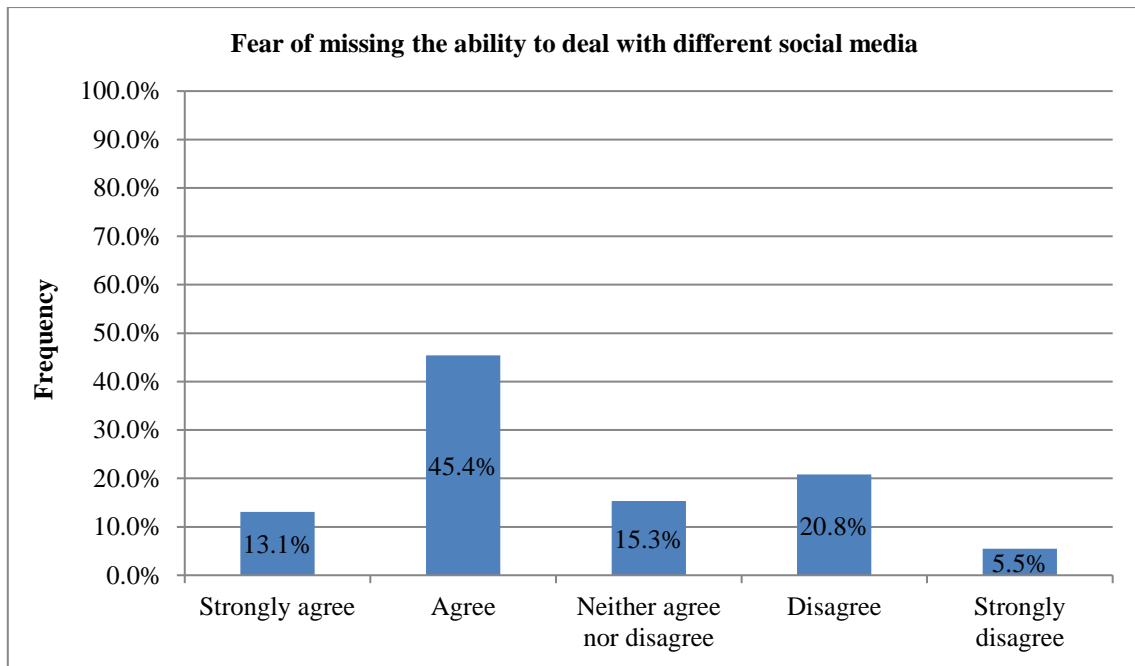
FIGURE 9: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL MEDIA

6.5.4.3 *FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL MEDIA*

Receiving multiple interactions from different social media sites when individuals are unable to interact with them at the same time can make people experience this kind of FoMO. Thus, they may be preoccupied with deciding about the messages that are most important for them or whom to first respond to. The data shows (see Figure 9) that the majority of participants agreed that they feared missing the ability to deal with different social media, with 45.4% agreeing on this kind of FoMO. It can also be observed that only a few respondents had a strong negative answer with just 5.5% disagreeing strongly with this FoMO and 13.1.5% the contrary. 20.8% of those asked, disagreed with the experience of this FoMO kind and 15.3% of the participants expressed a neutral opinion.

Fear of missing temporally available information

FIGURE 10: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING TEMPORALLY AVAILABLE INFORMATION

6.5.4.4   FEAR OF MISSING TEMPORARILY AVAILABLE INFORMATION

Temporarily available information means information that exists for a limited period of time on social media and then disappears such as stories on Snapchat or status on WhatsApp. When analysing the data of this kind of FoMO (see Figure 10) it can be seen that the largest percentage group agreed that they fear of missing temporarily available information, with 43.7% agreeing with this FoMO. It can also be mentioned that only a few people had a strong reaction either positively or negatively with just 10.4% agreeing strongly and 6.6% the contrary. 24% of those asked disagreed with this FoMO and 15.3% of the participants expressed a neutral opinion to this FoMO.
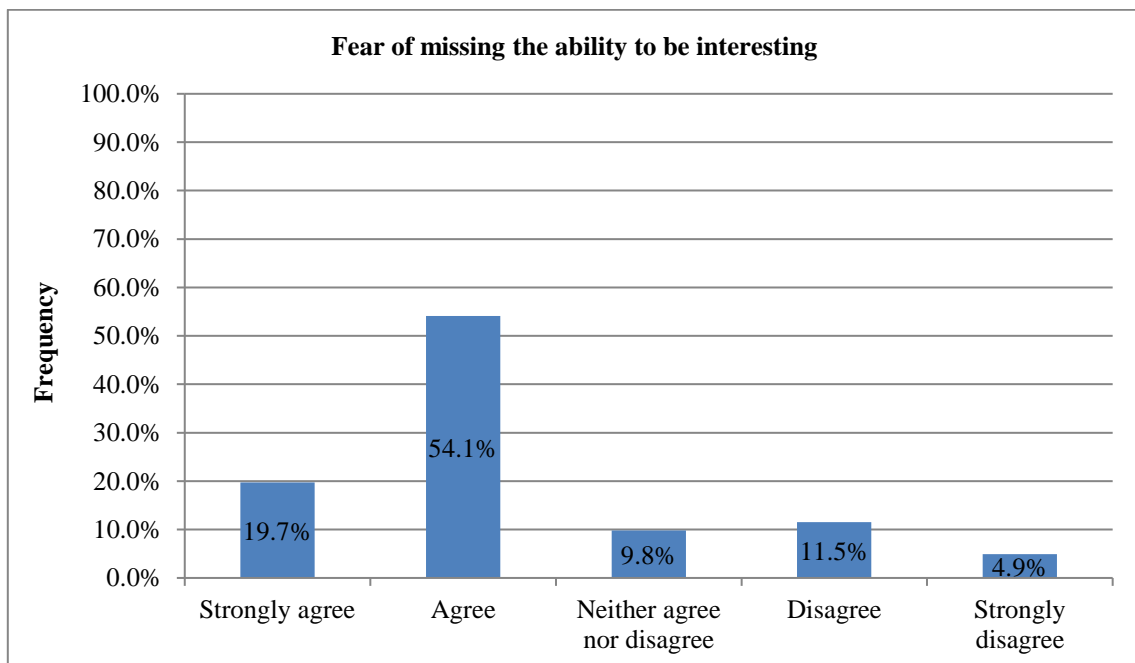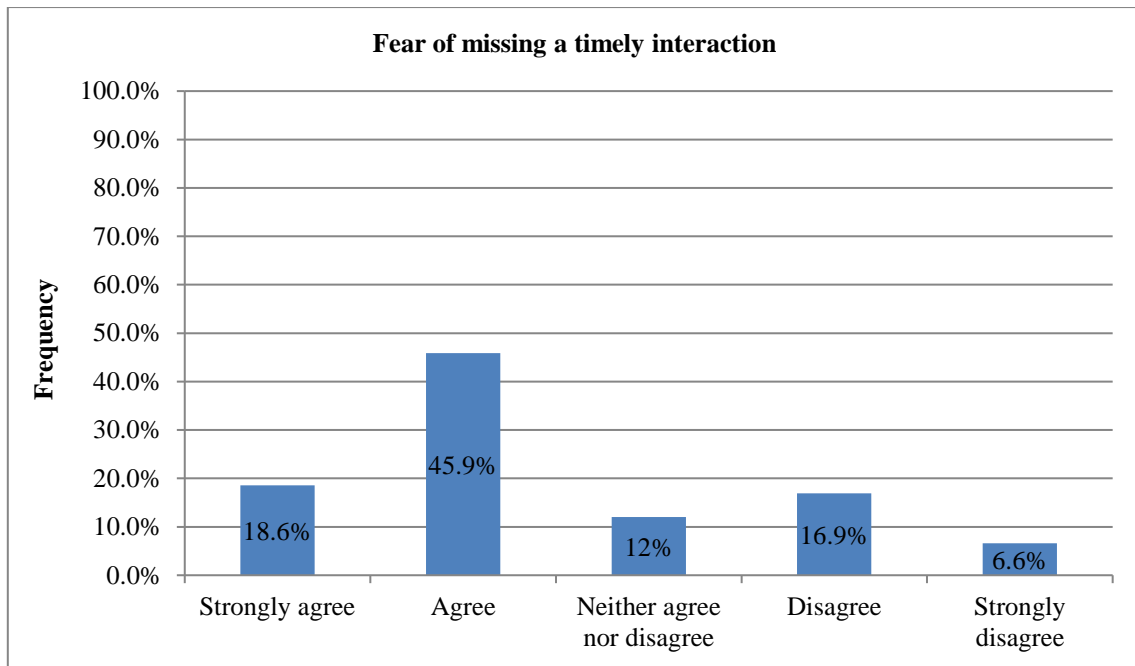
FIGURE 11: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING A TIMELY INTERACTION

6.5.4.5   *FEAR OF MISSING A TIMELY INTERACTION*

A timely interaction means that interaction demands a reaction immediately. This FoMO can arise when there are some messages that need to be replied to instantly such as confirming an invitation or passing on essential information which then requires an action. When participants asked to scale this FoMO based on their experience most of them agreed (see Figure 11), with 45.9% agreeing with the existence of this FoMO. It can be noted that a few people had a negative strong reaction with just 6.6% disagreeing strongly while a positive strong reaction received a better percentage of 18.6% agreeing strongly. 11.5% of those asked disagreed with this kind of FoMO and 12% of the responses conveyed a neutral opinion on this FoMO.
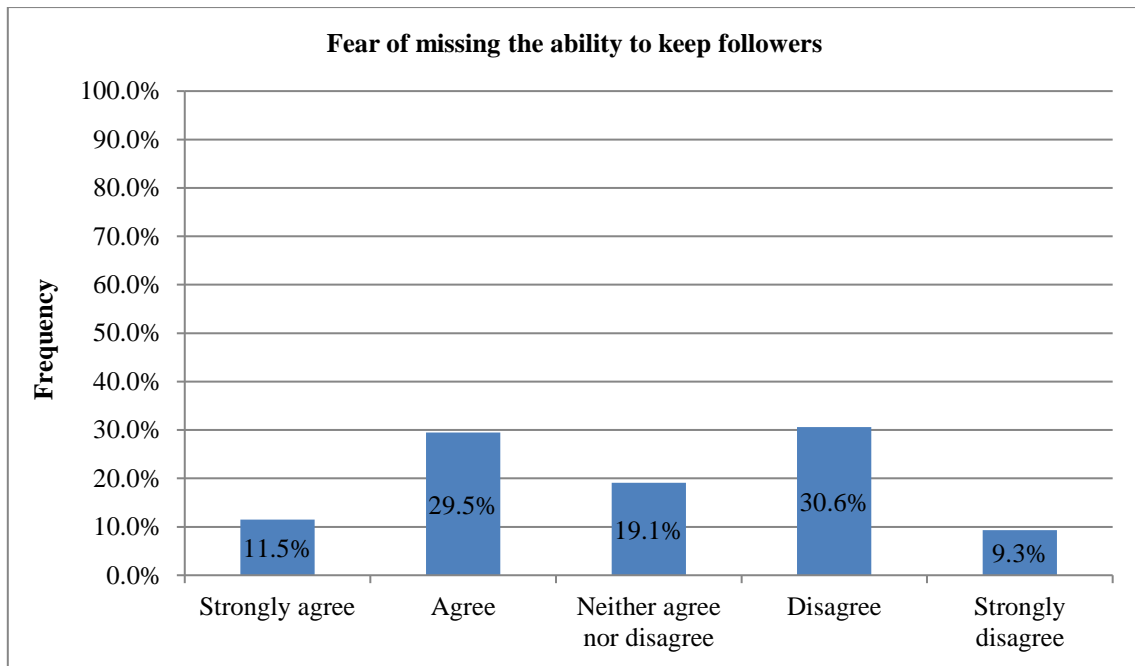
FIGURE 12: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS

6.5.4.6   FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS

Maintaining and raising the number of followers on social media can be a need for some people. However, if those people cannot be active on a certain social media site frequently enough this FoMO may occur. When analysing the data of this kind of FoMO (see Figure 12) it can be noted that there is a convergent percentage between positive and negative reaction with 29.5% agreeing and 30.6% the opposite. This type of distribution, unlike the other graphs, shows the participants polarised views and that neither opinion was stronger than the other, whereas it can be seen with all the preceding and subsequent graphs that people overwhelmingly tended to either agree or disagree with the statement. Furthermore, it can be noticed that only a few participants had a strong reaction either positively or negatively with just 11.5% agreeing strongly and 9.3% the contrary. The natural opinion of this kind of FoMO represented 19.1%.

6.5.4.7   FEAR OF MISSING INFORMATION/EVENTS DUE TO MULTI FOLLOWING

Individuals on social media sites typically follow others or befriend them in order to gratify their social needs such as relatedness and belonging. However, a high number of active followings can make those individuals experience this kind of FoMO when they find they have more posts than they can check. Statistical analysis for this kind of FoMO (see Appendix 12) indicates that the largest percentage group agreed that they fear of missing information/events

due to multi following, with 38.8% agreeing with this kind of FoMO. Regarding the strong reaction either positively or negatively, quite a few people expressed a strong reaction, with 6% disagreeing strongly while 12.6% of participants had agreed strongly. 16.9% of the participants represented a neutral opinion on this FoMO.
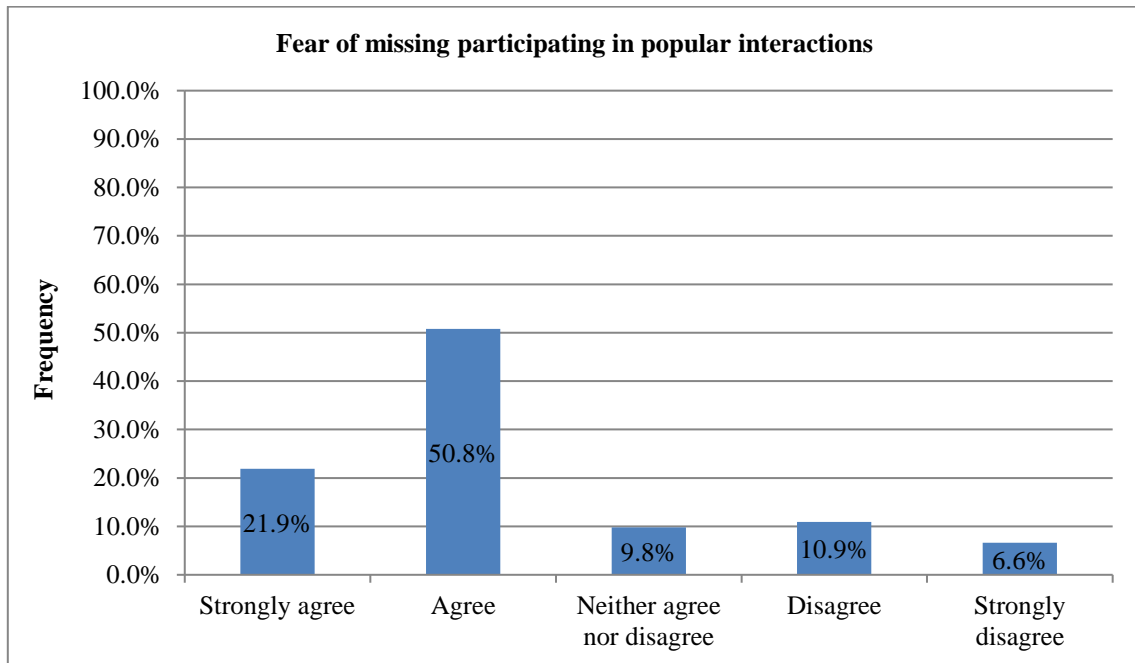
FIGURE 13: THE CONFIRMATION OF PARTICIPANTS ON THE FOR FEAR OF MISSING PARTICIPATING IN POPULAR INTERACTIONS

6.5.4.8   FEAR OF MISSING PARTICIPATING IN POPULAR INTERACTIONS

When individuals know there are interesting interactions on certain social media sites and are unable to participate, this kind of FoMO may accrue. When analysing the data in relation to this kind of FoMO (see Figure 13 half of participants agreed with this FoMO occurring, with 50.8% agreeing. In addition, it can be seen that few participants had a negative reaction with just 6.6% disagreeing strongly and 10.9% disagreeing. 9.8% represented the participants who had a neutral opinion regarding this FoMO.

6.5.5   FOMO WHEN UNWILLING TO ENGAGE IN SOCIAL INTERACTIONS

When people do not have the willingness to interact on social media because of no interest in the topic they may experience different kinds of FoMO (see Chapter 4 for more details). The following explains the statistical analysis for those different kinds of FoMO under this context.
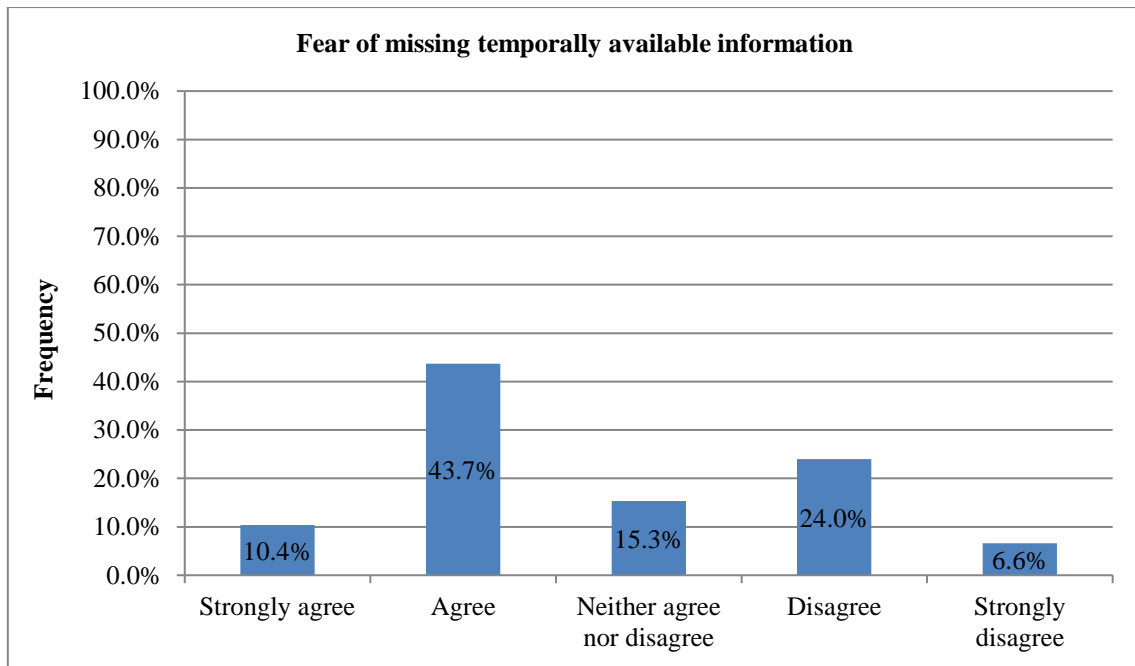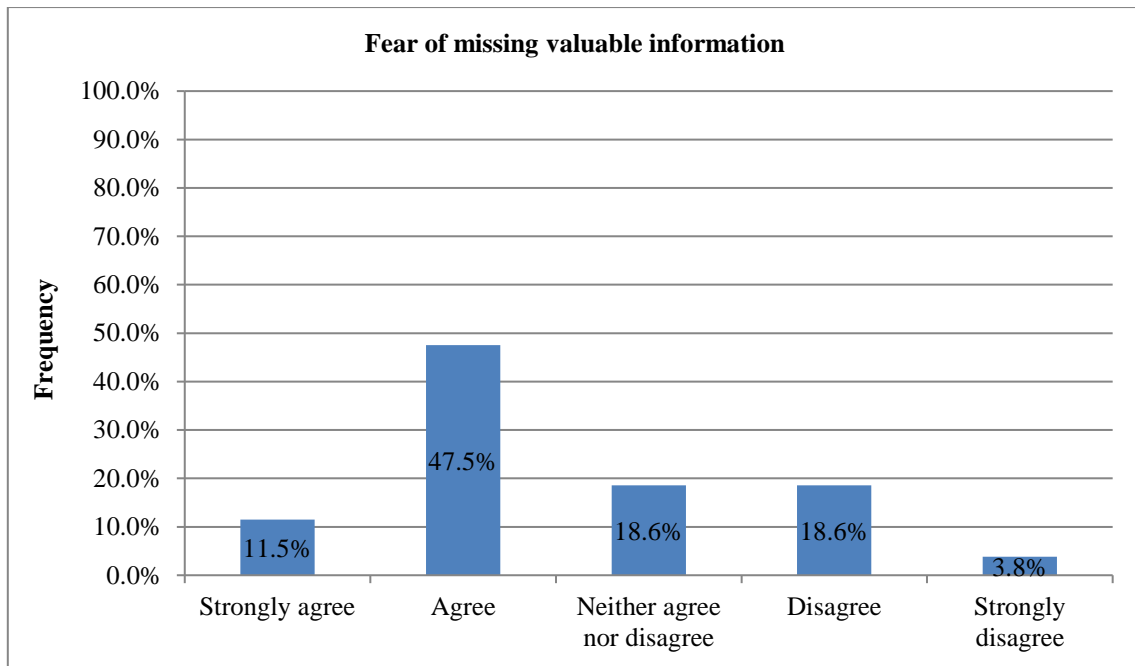
FIGURE 14: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING VALUABLE INFORMATION

6.5.5.1 *FEAR OF MISSING VALUABLE INFORMATION:*

This FoMO may occur when individuals may be preoccupied with the important content of the message and they are unwilling to open the messages but still fear missing something potentially important. When analysing the reactions to this FoMO (see Figure 14) the vast majority of participants had a positive attitude in relation to the experience of this FoMO with 47.5% agreeing with this FoMO. It can also be noted that very small percentage of participants had a strong negative reaction which was represented by 3.8% while the opposite was 11.5%. Furthermore, there was a similarity in the percentages between neutral and negative opinions that was represented as 18.6%.

Fear of missing the ability to defend popularity
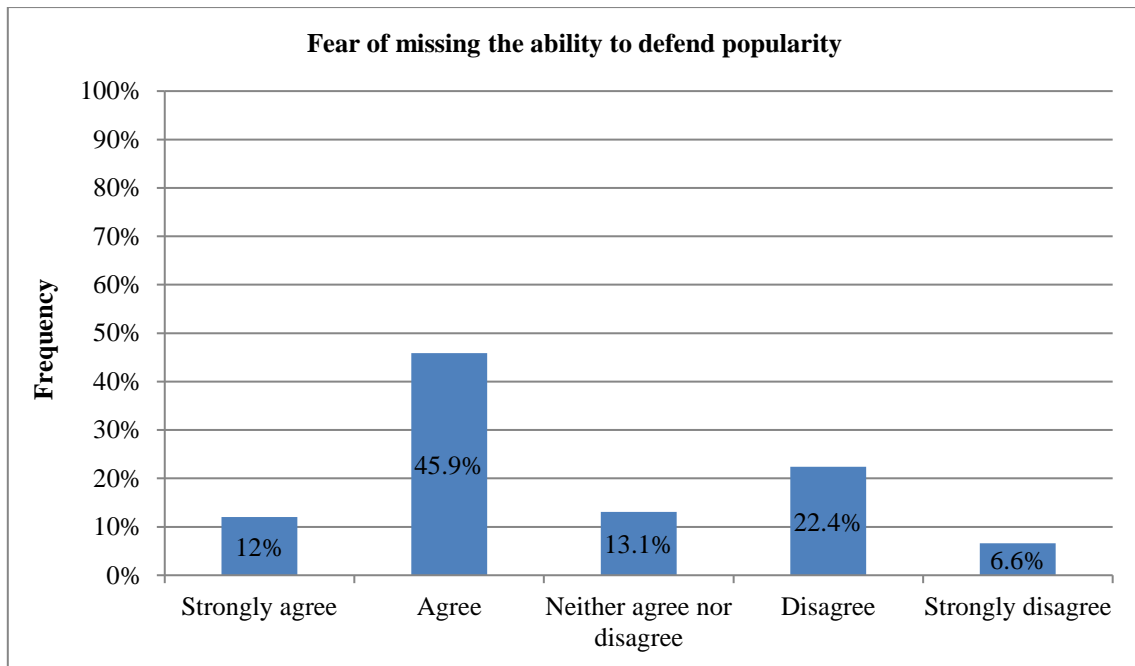
FIGURE 15: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE ABILITY TO DEFEND POPULARITY

6.5.5.2   *FEAR OF MISSING THE ABILITY TO DEFEND POPULARITY*

An individual may experience this kind of FoMO, i.e. the unwillingness to engage and respond, when they are preoccupied with missing the social relationship and reputation with peers if they do not engage frequently enough with them on social media. When the responses were analysed (see Figure 15) most respondents experience this kind of FoMO with 45.9% agreeing. It can be seen that a small group of participants had a negative strong reaction with 6.6% disagreeing strongly compared to 12% of participants agreeing strongly. 22.4% of those asked disagreed with this kind of FoMO. 13.1% of the responses submitted a neutral opinion about this FoMO.

6.5.6   FOMO WHEN HAVING OR FEELING A NEED TO ENGAGE IN CONTINUOUS AND UNTIMED INTERACTIONS

People stay online to avoid missing interactions that may not be bound by time which means they can arise at any time and last for an unknown period of time. Hence, people tend to remain online because they could experience different types of FoMO (see Chapter 4 for more details). The following explains the statistical analysis for those different kinds of FoMO under this classification.
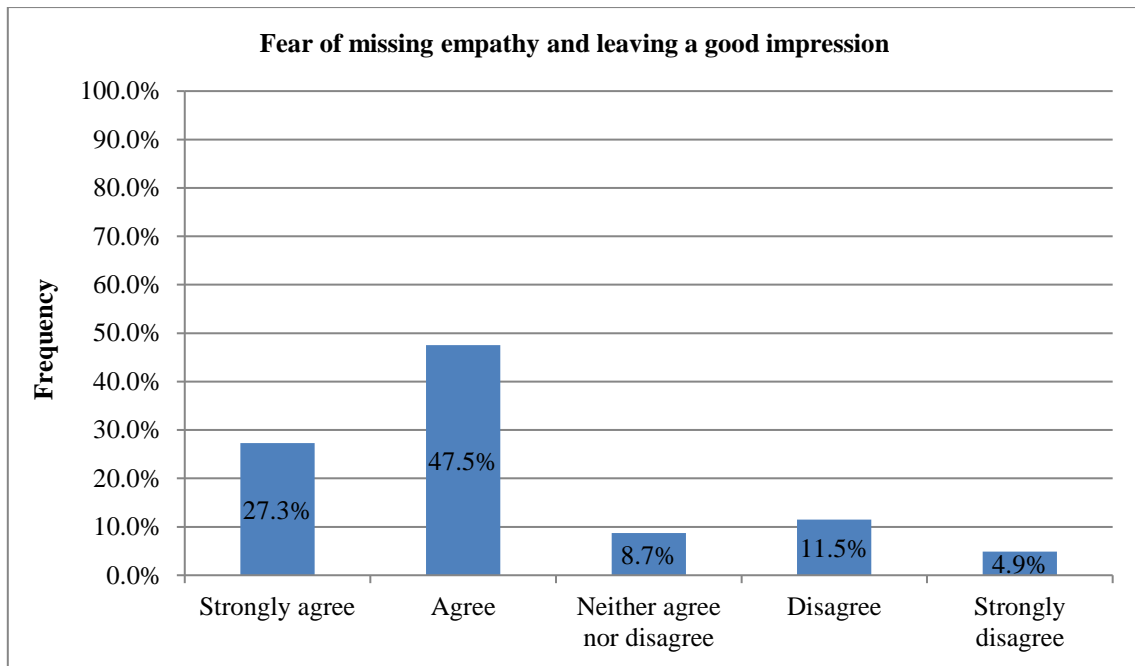
FIGURE 16: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION

6.5.6.1   *FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION*

People tend to keep their image and social standing amongst others, such as peers or colleagues, via social media sites. This can apply pressure on them when they want to leave a spontaneous and untimed conversation. However, individuals tend to be active on the chat because they are preoccupied with the negative effect it may have on others opinion of their self-image or missing their level of social relationship. When statistical analysis was done for this FoMO (see Figure 16), a vast majority of participants agreed with this happening and it was expressed by 47.5% of respondents. In addition, a very small group of people who represented 4.9% of participants disagreed strongly with this kind of FoMO compared to 27.3% of participants who agreed strongly. 11.5% of those asked disagreed with this FoMO. 8.7% of the participants expressed a neutral opinion about this FoMO.
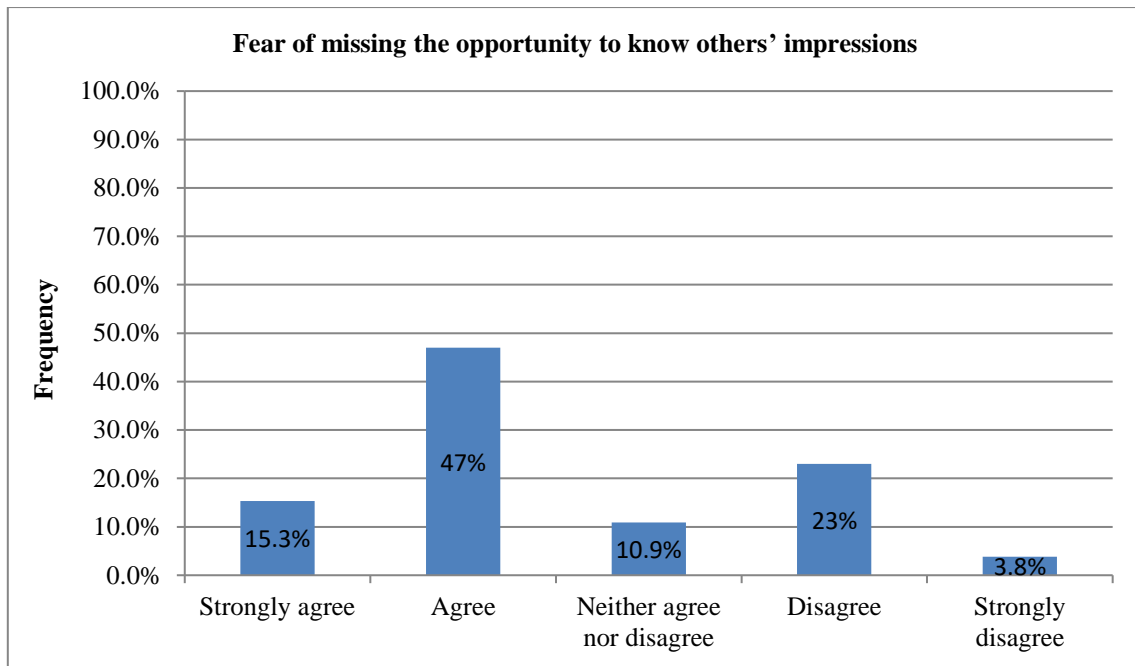
FIGURE 17: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' IMPRESSIONS

6.5.6.2 FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' IMPRESSIONS

Social media depends on individuals' posting and sharing information about their daily lives. Since these interactions are not bound by time, people tend to be online continuously in order not to miss others' feedback on their posts. When analysing the data in relation to this kind of FoMO (see Figure 17) the largest number of participants who represented 47% of respondents agreed with the occurrence of this FoMO. It can be noticed that a few partakers had a strong negative reaction toward the occurrence of this FoMO with 3.8% disagreeing strongly. The rest of the percentages were distributed among a strong positive reaction, negative reaction and a neutral reaction with 15.3%, 23% and 10.9% respectively.

6.5.6.3 FEAR OF LOSING POPULARITY

A fear of losing popularity may cause people to become preoccupied with the need to reply immediately. Hence, people feel a need to engage in continuous untimed interactions. When analysing the data for this kind of FoMO was done (see Appendix 12) a large proportion of participants had a positive reaction with 39.9% agreeing. It can also be noticed that a few respondents who represented 4.4% of participants strongly disagreed with this kind of FoMO. 22.4% of those asked disagreed with this FoMO. 17.5% of the participants expressed a neutral opinion on this FoMO.
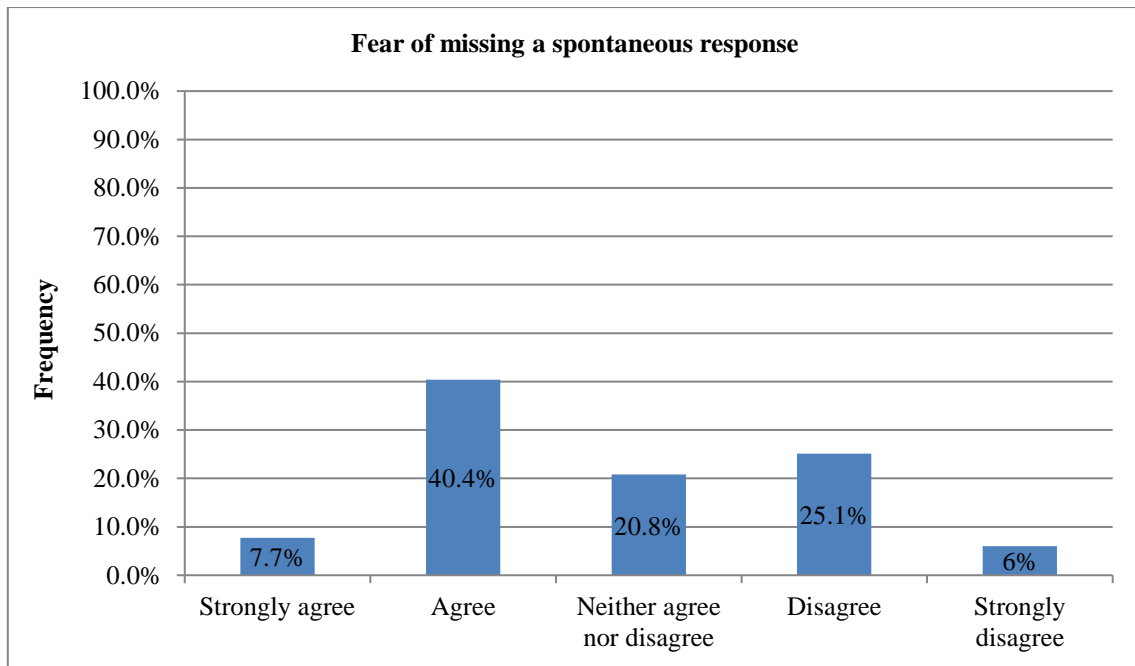
FIGURE 18: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING A SPONTANEOUS
RESPONSE

6.5.6.4   FEAR OF MISSING A SPONTANEOUS RESPONSE

Sending a purposeful message to someone and waiting for a spontaneous response from the recipient can make people preoccupied as more information may be needed immediately from the contact when they reply to the first messages, hence the need to check and stay online to get it and also follow up if needed increases. The statistical analysis of this kind of FoMO (see Figure 18) shows that the majority of responses indicated the occurrence of this kind of FoMO with 40.4% agreeing. Furthermore, it can be noted that only a few participants had a strong reaction either positively or negatively with just 7.7% agreeing strongly and 6% to the contrary. 25.1% of those asked disagreed with this statement. 20.8% of the participants expressed a neutral opinion on this FoMO.

Fear of missing valuable opportunity
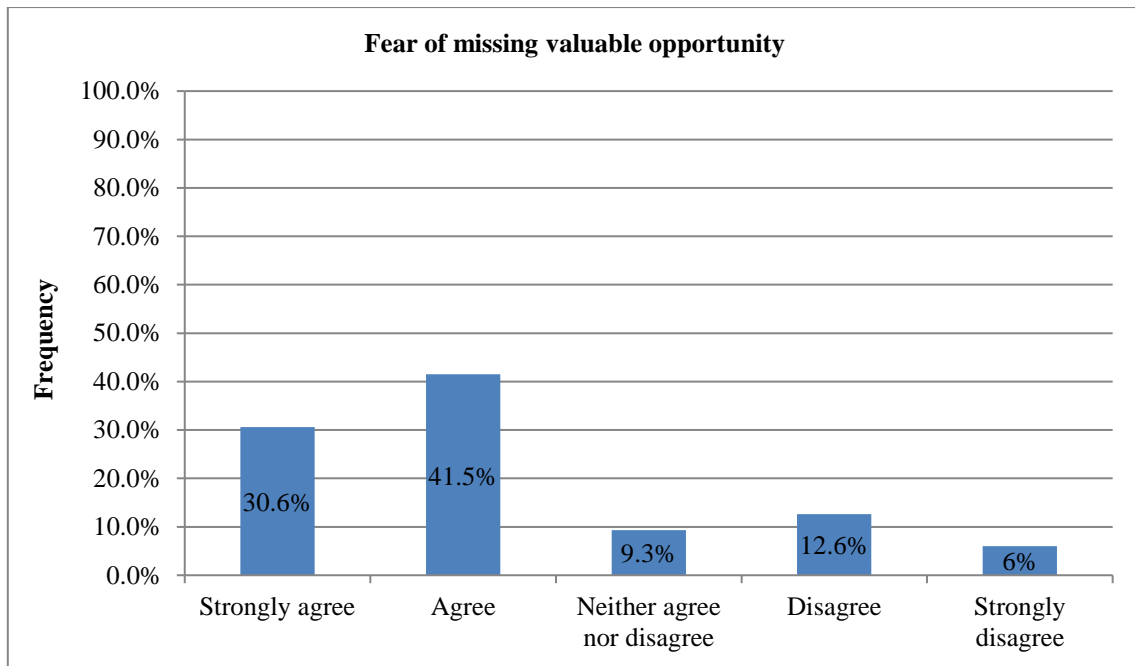
FIGURE 19: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING VALUABLE OPPORTUNITY

6.5.6.5   *FEAR OF MISSING VALUABLE OPPORTUNITY*

One of the services provided by social media sites are valuable opportunities that people can benefit from such as discounts, career opportunities and advice. Hence, people may tend to be online in order not to miss such an opportunity. When analysing the data for this kind of FoMO (see Figure 19) it can be seen that the largest percentage of respondents agreed that they fear missing a valuable opportunity, with 41.5% agreeing with this statement. It can also be noted that only a few participants had a strong negative reaction with just 6% disagreeing strongly. Furthermore, 30.6% of those asked agreed strongly with this statement. 9.3% of the participants expressed a neutral opinion on this FoMO.
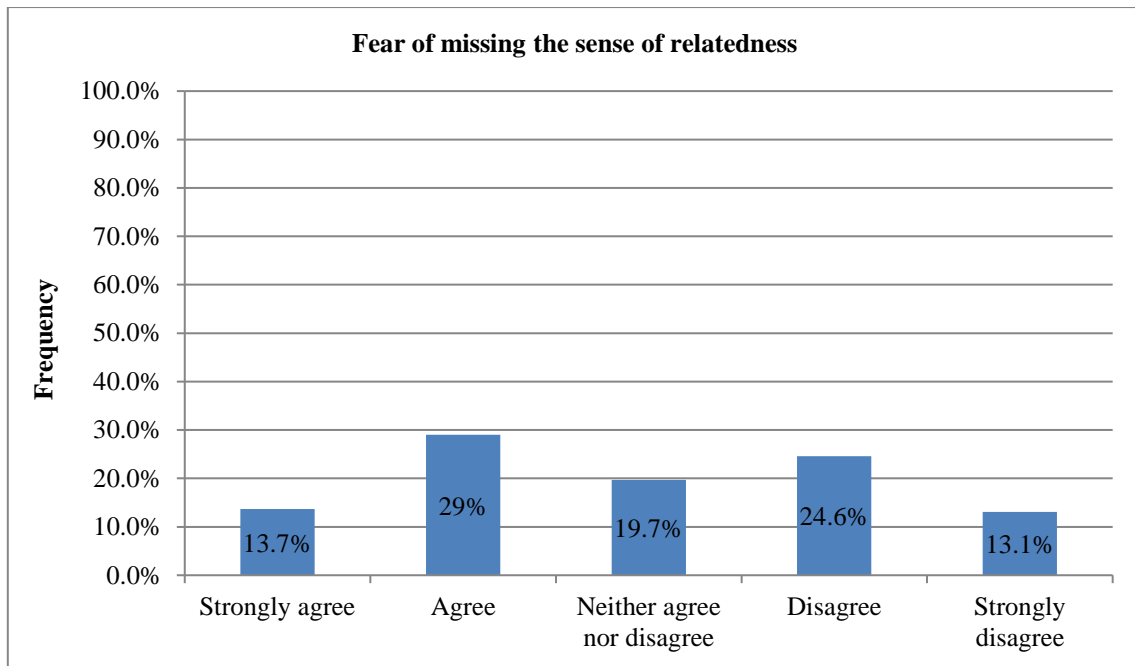
FIGURE 20: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE SENSE OF RELATEDNESS

6.5.6.6   *FEAR OF MISSING THE SENSE OF RELATEDNESS*

People attempt to maintain the level of their belonging and connectedness to an acceptable level. However, if an individual has experienced this kind of FoMO, they may attribute their preoccupation and compulsive checking to not miss what is going on in others' lives. From the point of view of participants who partook in this survey, most of them agreed with the experience of this FoMO (see Figure 20), with 29% agreeing. In addition, it can be noted that there is a very close percentage amongst a strong positive and negative reactions with 13.7 % agreeing strongly while 13.1% to the contrary. 24.6% of those surveyed disagreed with this statement. 19.7% of the participants expressed a neutral opinion on this FoMO.

6.5.7   FOMO WHEN AN ONLINE SOCIAL GATHERING IS EXPECTED

Social gatherings are defined as interactions among a range of individuals of all abilities in small or large groups for social and community purposes. This can occur through social media sites such as a WhatsApp group, Facebook group, etc. Individuals may prefer to be members of groups that are beneficial to them in order to feel a sense of belonging. However, if people anticipate a certain online interaction on a social media site they may experience a number of FoMO's based on their needs (see Chapter 4 for more details). Those kinds of FoMO's are presented to people who experience FoMO and their feedback was analysed as follows:

6.5.7.1   *FEAR OF MISSING THE OPPORTUNITY TO ATTEND AN ONLINE EVENT*

People like to watch online events on social media sites such as football matches, which are live, streamed on social media where people can create a chat room or a forum to comment so that they do not miss them due to the social value they add. When the analysing of data for this kind of FoMO was done (see Appendix 12) a large proportion of participants had a positive reaction with 43.7% agreeing. Furthermore, it can be seen that there is a very similar percentage amongst the negative reactions and the strong positive responses with 18.6 % disagreeing and 18% agreeing strongly. It can also be noted that the fewest responses which represented 1.1% of participants strongly disagreed of the occurrence of this kind of FoMO. The neutral opinion in relation to this kind of FoMO represented 18.6% of participants.
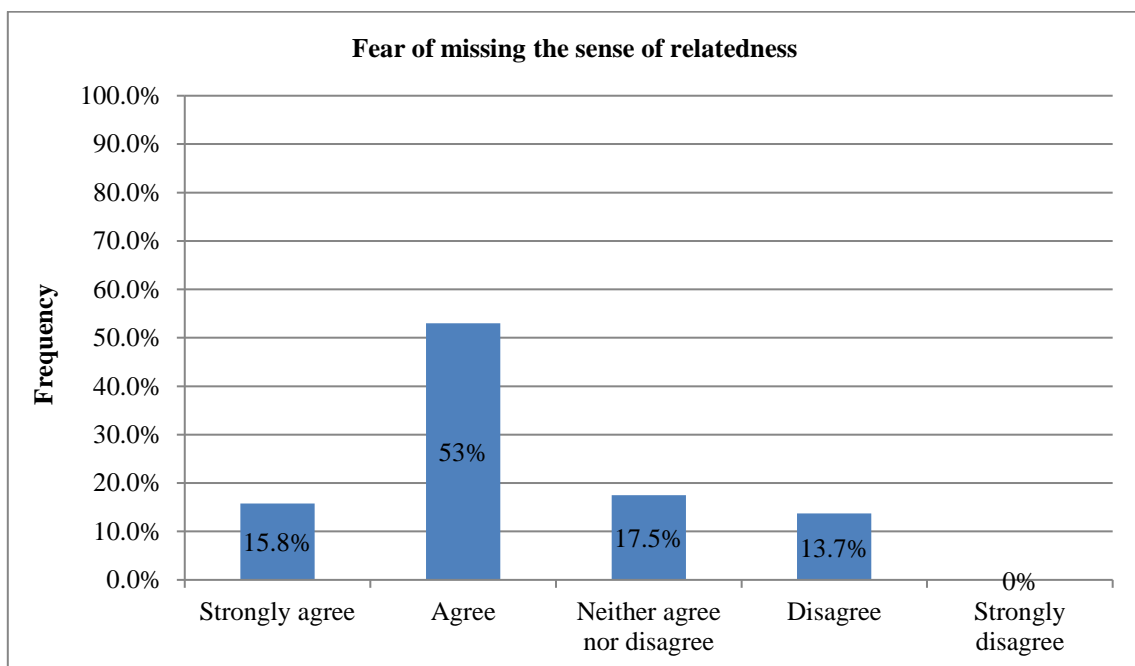
FIGURE 21: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE SENSE OF RELATEDNESS

6.5.7.2   *FEAR OF MISSING THE SENSE OF RELATEDNESS*

People may become preoccupied with various interpretations that may drive them when they experience this kind of FoMO. One of these interpretations is that individuals may attribute this FoMO to untimed and spontaneous interactions. Statistical analysis to this kind of FoMO (see Figure 21) indicates that the largest percentage of participants agreed that they experience this kind of FoMO, with 53% agreeing. It can be also noted that not one participant had a strong negative reaction. 17.5% expressed a negative opinion on this FoMO. 17.5% of the participants expressed a neutral opinion on this FoMO.
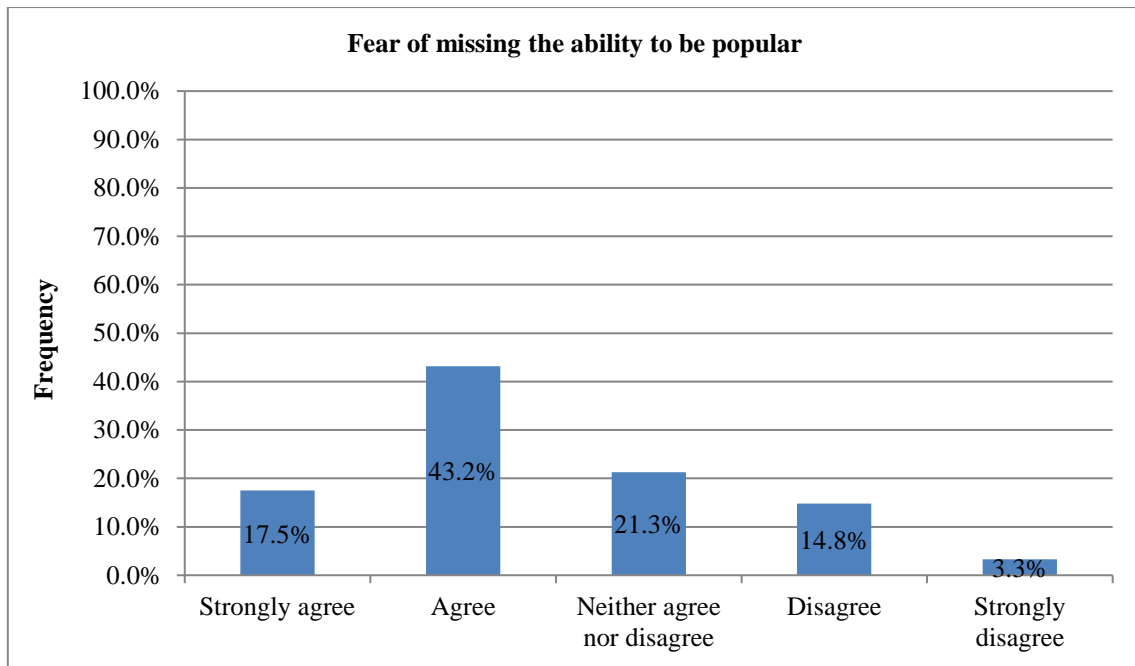
FIGURE 22: THE CONFIRMATION OF PARTICIPANTS ON THE FEAR OF MISSING THE ABILITY TO BE POPULAR

6.5.7.3   FEAR OF MISSING THE ABILITY TO BE POPULAR

When people could not interact with an online group as expected they may become preoccupied with missing this social ranking among peers or family. When the analysing of data for this kind of FoMO was carried out (see Figure 22) a large proportion of partakers had a positive reaction with 43.2% agreeing. Furthermore, it can be seen that a small percentage of participants had a strong negative reaction with 3.3% disagreeing strongly. The neutral opinion in relation to this kind of FoMO expressed the views of 21.3% of participants. The data also shows that the mean response was 2.43and a low standard deviation of 1.04 shows that this is close to the mean

6.5.8   DISCUSSION

In this chapter the existence of different kinds of FoMO in relation to the use of social media that were extracted from the exploratory study (see Chapter 4) are validated. This validation was achieved by completing either an online or paper survey. The total number of responses that were received for the analysis was 183. Participants were asked to scale (from 'strongly agree' to 'disagree strongly') each kind of FoMO based on their experience in relation to their use of social media. The analysis was conducted using descriptive analysis for each statement independently to give a summarisation and describe of the large volume of data that was collected. The results emphasise the occurrence of FoMO by different forms of social media.

Hence, this may reflect the validity of the findings of the exploratory study in this thesis which presented various kinds of FoMO. Most of the results indicate that a significant percentage of the respondents demonstrate a positive attitude about each of the various kinds of FoMO. However, the result for the fear of missing the ability to keep followers was unlike the other results. It shows the participants' polarised views and that neither opinion was stronger than the other. In contrast, it can be seen in all of the preceding and subsequent graphs that people overwhelmingly tended to either agree or disagree with the statement.

The last question of the survey was optional and asked the participants to feel free to write any comments and opinion that they had about FoMO. Although there was a reasonable number of participants who responded to the survey, only very few provided additional comments. There was an interesting comment that "*social media should be required to help people manage their FoMO and anxiety instead of making the situation worse*". This supports one of the arguments of this thesis which is that social media has the ability to embed features to minimise the experience of FoMO and give people effective tools to manage their FoMO. A list of those features has been proposed in this thesis as countermeasures to manage FoMO (see Chapter 5). In addition, the comments show that posts on social media may increase the experience of FoMO if people expect to receive feedback from others in the form of Likes or Retweets and this situation encourages them to stay online. However, a number of individuals may tend to reduce their participation on social media in order not to experience FoMO when they post and do not receive feedback as expected. Fear of missing temporarily available content was mentioned in the comments. For example, one respondent said that *"I feel I have most anxiety involving Snapchat; not just about responding to messages but also to check streaks are still going and a timer gives very high anxiety as don't want to lose it."*

Although the principles in conducting a quantitative approach were considered, this study may still have two main threats in terms of its validity. One of the problems when designing a survey is to know whether the questions were clearly understood by all of the participants as intended. The researcher somehow addressed this threat by conducting a pilot test with typical respondents who met the criteria of this study and, thus, some questions were revised and modified. The second problem is that sample size for this study was 183 participants and this may be considered suitable. However, a larger sample of participants would generate findings

that are likely to be more generalisable and more types of FoMO may emerge. In future studies, further investigation may be conducted with a larger sample of people.

7. CHAPTER 7: ACCEPTANCE OF FOMO COUNTERMEASURES: A QUANTITATIVE STUDY

In this thesis, FoMO refers to the anxiety people experience when unable to connect to social media as they wish, either due to technical issues (e.g. being without the internet) or due to the situation they are in (e.g. driving or working). FoMO can also be experienced when contacts are not communicating as expected and the reasons for this are unknown. However, social media has the ability to embed features that could minimise the experience of FoMO and provides people with tools to manage their FoMO. In this thesis, several countermeasures from a qualitative study were found that could help people to manage different kinds of FoMO (see Chapter 5 for further details). This chapter presents a follow-up quantitative investigation to Chapter 5. It adopts a survey method to gauge the acceptance of the countermeasures proposed in Chapter 5. This chapter reports on the study goal, study design, analysis, the result and then presents a discussion.

7.1 STUDY GOAL

The aim of this study is to gauge the acceptance of FoMO countermeasures that were found from the qualitative study (see Chapter 5). The survey which was designed to examine how social media can reduce FoMO by investigated the view of people who frequently experience FoMO in relation to the use of social media based on proposed countermeasures.

7.2 SURVEY MATERIAL

A web-based questionnaire to gather responses from participants saves time in distributing the survey to participants. It also reduces the amount of time needed in manually entering data. Moreover, it simplifies the process for participants to answer the survey. However, a paper survey was used here in order to reach a wider number of participants as well as ensuring that the same participants completed the survey.

The questionnaire contains fifty one questions in total and is divided into five main sections (see Appendix 12.9 for the questionnaire).

1. FoMO Experience (Q1)

Participants were asked to rate their experience of FoMO in relation to the use of social media from frequently and rarely. The intention of this question is to take people who actually suffer from FoMO and frequently experience it.

2. Demographic (Q2)

The second section of the questionnaire asks participants regarding their age and gender. The intention of this question is to only include participants who are over 18. The third question is intended to determine the gender that will aid in determining whether there is a link between gender and the different types of FoMO.

3. Personality Traits (Q3—Q12)

The intention of this section is to explore what kind of personality each participant has. The responses collected from this section are useful in establishing a link between the personality traits and FoMO kinds. Participants encountered ten sentences and were asked to scale, from strongly agree to strongly disagree, each statement based on their personality. The questions constructed in this section are based on the Big Five Personality Inventory (Rammstedt et al., 2007)

4. Experience of FoMO in regards to FoMO kinds (Q13—Q33)

This section was constructed based on the findings of the second objective which is briefly five main classifications of FoMO, with each consisting of several subcategories. The aim of this section is to evaluate the categories of FoMO to see whether people are familiar with them. As with the previous section, participants were asked to scale their agreement or disagreement with each kind of FoMO based on their experience in relation to the use of social media.

At the end of the questionnaire, one open question (Q32) was added so participants could comment on their concerns about the FoMO.

5. FoMO countermeasures (Q34—Q53)

This section was constructed based on the finding of the third objective which is briefly a number of countermeasures that can aid people to manage their FoMO (see Chapter 5). The intention of this section is to find a preferable countermeasure for each kind of FoMO as well as a link between personality traits and countermeasures. In doing so, participants were asked to select one or two countermeasures for each kind of FoMO, or also suggest a new countermeasure.

7.3   PILOT TEST

A Pilot study was conducted with twenty participants and a number of questions were redrafted. The first and last versions of the survey are shown in the Appendix 9. The responses of pilot study do not subject to the analysis

7.4   PROCEDURE

This survey was conducted in two ways. The first way was an online survey. The procedure of it was that the survey was divided into two in order not to make participants feel pressurised into taking part or bored. Each survey contains different questions about the countermeasures. The link for both surveys were posted together on different social media sites and also emailed to a high number of contacts. On the first page of each survey, participants were introduced to an explanation of the survey's goal and rewards as well as the definition of FoMO in relation to social media. At the end of the page, participants were asked to declare their experience of FoMO through two options that will be explained in the next section. Participants were encouraged to fill in each survey by being rewarded with one ticket per survey so maximises the chance by completing the three surveys.

The second way was a paper survey. The target of this method was to reach a wider number of participants as well as ensuring that the same participants completed the survey. The survey was distributed among Bournemouth University and Bournemouth International College students who were invited to take part by registering their willingness to participate at a stall set up in the canteen. This discrete method was utilised so as not to interrupt people while they were eating or otherwise engaged. Authorisation from the college administration to distribute the survey was obtained (see Appendix 10). Each participant was rewarded with a hot drink voucher.

7.5   TASK

The survey asks participants to read the question, imagine themselves in the same situation and then select a countermeasure that they perceive to be helpful to reduce their FoMO. Participants were free to select more than one option. The main task asked participants to answer the online questionnaire, which took approximately 12 minutes.

7.6   DESCRIPTIVE STATISTICAL ANALYSIS

Descriptive statistical analysis was utilized for each variable/statement independently to give a summary and to describe the large volume of data which was collected. The following section describes the demographic information about participants. After that, the descriptive analysis of FoMO countermeasures is presented.

7.7   SAMPLE

The total number of responses to both surveys around FoMO countermeasures was 427 responses (see Figure 23 and Appendix 12.11). However, 303 responses expressed they experience FoMO frequently while 124 responses expressed that they rarely experience FoMO so they were discounted from the analysis. Thus, 303 people were allowed to participate in the survey. However, some of those were excluded either because they did not complete the survey, responded in a fast time or did not complete both surveys. After this filtration, the total number of responses subjected to analysis was from 121 participants. Of these participants 53 were men and 68 female (n=121), ranging in age from 18 to 40 years old (M=22.3, SD=4.63). The recruitment of participants was achieved using two methods. The first method involved distributing the link for the survey via social media, whereas the second method involved asking university students to complete a paper survey instead of online.
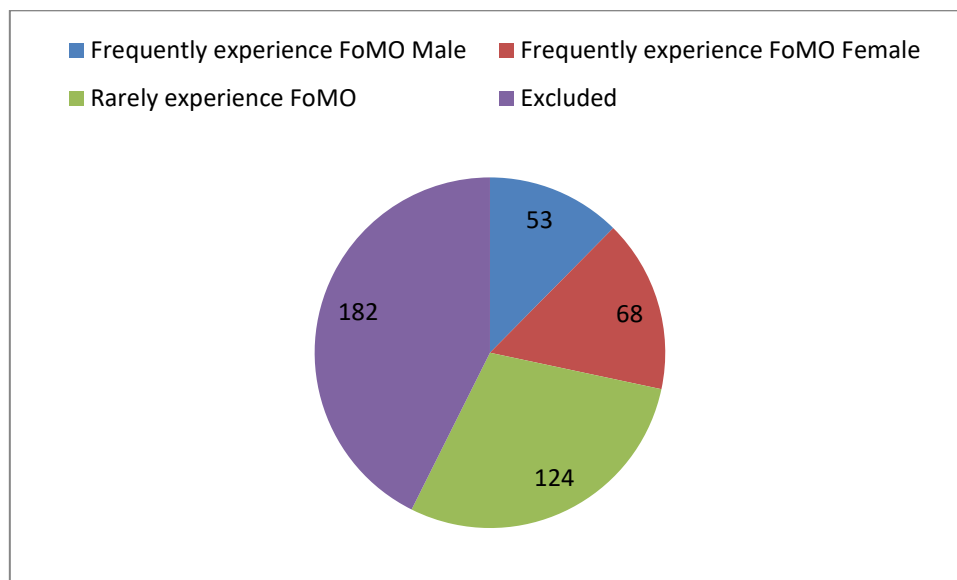
FIGURE 23: RESPONSES TO THE SURVEY

7.8 DESCRIPTIVE ANALYSIS OF FOMO COUNTERMEASURES RESULTS

To obtain descriptive statistics for categorical variable, frequencies procedure was used (Pallant, 2013). Table 18 shows the frequency of the participants' selections in terms of the countermeasures they would like to see on future social media sites designed to manage their FoMO. The majority of the participants selected the proposed countermeasures which means that the proposed countermeasures are suitably comprehensive and deemed useful and could be included in future designs of social media, albeit that there was a small percentage of participants who did not select the proposed countermeasures. This indicates that further research is required to investigate possible countermeasures that this minority of people would consider suitable.

7.8.1 FOMO WHEN OTHERS DO NOT INTERACT AS EXPECTED

The different expectations among people in relation to the interactions through social media may contribute to different kinds of FoMO (see Chapter 4 for more details). The following explains the statistical analysis for countermeasures that could help people to manage those different kinds of FoMO in this classification.

	Countermeasure	Yes	No
FoMO when others do not interact as expected			
Fear of missing the ability to be popular	Auto-reply	42.1%	57.9%
	Set status	60.3%	39.7%
	Other with at least one countermeasure	4.1%	90.1%
	Only other	5.8%	
One countermeasure selection 86%, Two countermeasures selection 8.3%.			
Fear of missing the ability to be interesting	Set status	21.5%	78.5%
	Auto views	80.2%	19.8%
	Other with at least one countermeasure	6.6%	91.7%
	Only other	1.7%	
One countermeasure selection 95%, Two countermeasures selection 3.3%			
FoMO when unable to interact or connect as wished			
Fear of missing information due to large volume of information	Filter	47.1%	52.9%
	Priority list	70.2%	29.8%
	Other with at least one countermeasure	5.8%	93.4%
	Only other	0.8%	
One countermeasure selection 81%, Two countermeasures selection 18.2%			
Fear of missing temporally available information	Event and content recorder	47.9%	52.1%
	Diverse notification	59.5%	40.5%
	Other with at least one countermeasure	5%	90.9%
	Only other	4.1%	
One countermeasure selection 84.3%, Two countermeasures selection 11.6%			
Fear of missing a timely interaction	Auto-reply	50.4%	49.6%
	Set status	60.3%	39.7%
	Other with at least one countermeasure	3.3%	92.6%
	Only other	4.1%	
One countermeasure selection 81% , Two countermeasures selection 14.9%			
Fear of missing the ability to keep followers	Set status	41.3%	58.7%
	Contextual Awareness	63.6%	36.4%
	Other with at least one countermeasure	0.8%	95.0%
	Only other	(n=5) 4.1%	
One countermeasure selection 86.8%, Two countermeasures selection 9.1%			
Fear of missing information/events due to multi following	Priority list	71.9%	28.1%
	Filter	50.4%	49.6
	Other with at least one countermeasure	3.3%	96.7%
	Only other	0%	
One countermeasure selection 77.7%, Two countermeasures selection 22.3%			
Fear of missing the ability to deal with different social media	Auto-status	57.9%	42.1%
	Set status	41.3%	58.7%
	Other with at least one countermeasure	1.6%	90.9%
	Only other	7.4%	
One countermeasure selection 86%, Two countermeasures selection 6.6%			
FoMO when unwilling to engage in social interaction			
Fear of missing valuable information	Terms and conditions	27.3%	72.7%
	Recap	77.7%	22.3%
	Other with at least one countermeasure	9.9%	90.1%
	Only other	0%	
One countermeasure selection 95%, Two countermeasures selection 5%			
Fear of missing the ability to defend popularity	Self-expression	47.1%	52.9%
	Set status	56.2%	43.8%
	Other with at least one countermeasure	4.1%	92.6%
	Only other	3.3%	
One countermeasure selection 90.1%, Two countermeasures selection 6.6%			
FoMO when having to or feeling a need to engage in continuous and untimed interactions			
Fear of missing empathy and leaving a good impression	Self-expression	47.1%	52.9%
	Set status	54.5%	45.5%
	Other with at least one countermeasure	4.1%	88.4%
	Only other	7.4%	
One countermeasure selection 83.5%, Two countermeasures selection 9.1%			
Fear of missing the opportunity to know others' impressions	Priority list	49.6%	50.4%
	Diverse notifications	64.5%	(n=43) 35.5
	Other with at least one countermeasure	3.3%	95%
	Only other	1.7%	
One countermeasure selection 82.6%, Two countermeasures selection 15.7%			
Fear of missing valuable opportunity	Diverse notifications	50.4%	49.6%
	Alternative notification	64.5%	35.5%
	Other with at least one countermeasure	3.3%	95%
	Only other	1.7%	
One countermeasure selection 81.8%, Two countermeasures selection 16.5%			
Fear of missing the sense of relatedness	Color indication	70.2%	29.8%
	Contextual Awareness	38.8%	61.2
	Other with at least one countermeasure	5%	93.4%
	Only other	1.7%	
One countermeasure selection 87.6%, Two countermeasures selection 10.7%			
Fear of missing a spontaneous response	Diverse notification	56.2%	43.8%
	Alternative notification	50.4%	49.6%
	Other with at least one countermeasure	1.7%	94.2%
	Only other	4.1%	
One countermeasure selection 85.1%, Two countermeasures selection 10.7%			
Fear of losing popularity	Set status	57.9%	42.1%
	Alternative notification	52.1%	47.9%
	Other with at least one countermeasure	3.3%	92.6%
	Only other	4.1%	
One countermeasure selection 81.8%, Two countermeasures selection 14%			
FoMO when an online social gathering is expected			
Fear of missing the opportunity to attend an online event	Calendar event reminder	53.7%	46.3%
	Recap	58.7%	41.3%
	Other with at least one countermeasure	2.5%	97.5%
	Only other	0%	
One countermeasure selection 81.3%, Two countermeasures chose 18.7%			
Fear of missing the sense of relatedness	Terms and conditions	30.6%	69.4%
	Color indication	81%	19%
	Other with at least one countermeasure	5%	93.4%
	Only other	1.7%	
One countermeasure selection 85.1%, Two countermeasures selection 13.2%			
Fear of missing the ability to be popular	Set status	66.9%	33.1%
	Terms and conditions	46.3%	53.7%
	Other with at least one countermeasure	2.5%	95.9%
	Only other	1.7%	
One countermeasure selection 83.5%, Two countermeasures selection 14.9%			
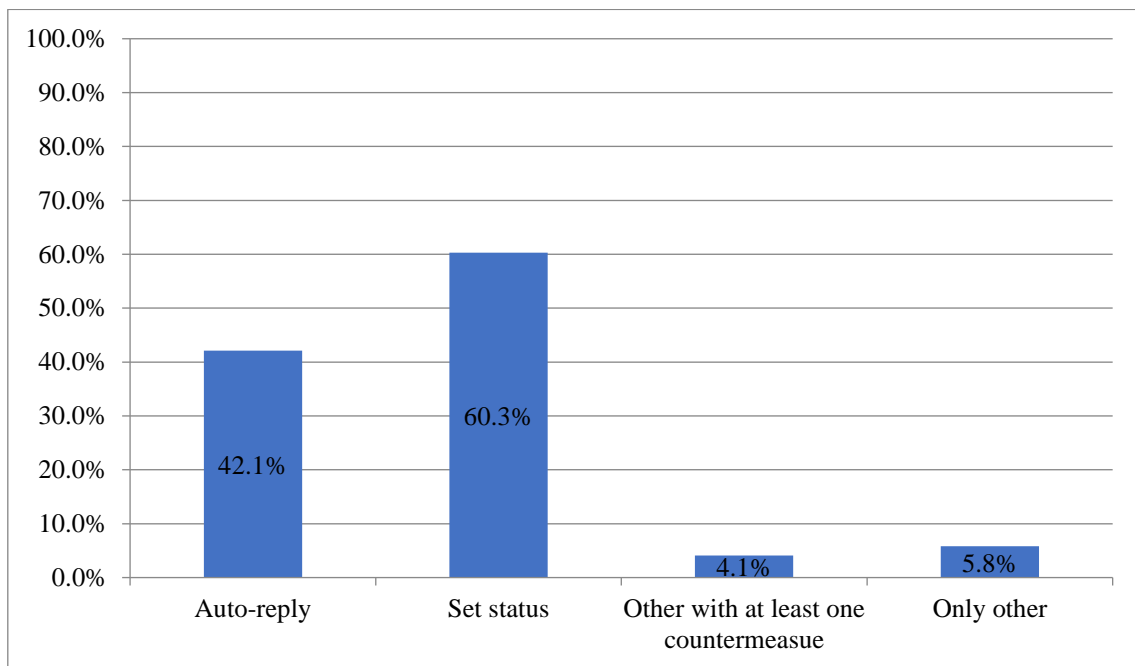
FIGURE 24: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE ABILITY TO BE POPULAR

7.8.1.1   *FEAR OF MISSING THE ABILITY TO BE POPULAR*

The desire of being popular or not missing the ability to be popular may increase the time with which one is preoccupied with social media sites and in turn this would increase the usage time. However, there are a number of countermeasures namely *auto-reply and set a status* that could aid people to manage this kind of FoMO (see Chapter 4). In this section, these countermeasures were validated quantitatively from the participants perspective in order to know what countermeasures people prefer.

When the analysing of the countermeasures was done, the largest percentage of the participants selected only one countermeasure secondly came two countermeasures, with 86% and 8.3% respectively (see Table 18). As shown in Figure 24, within these countermeasures the greatest number of participants wished their contacts to set their status in order to have the ability to manage their FoMO, with 60.3% agreeing. 42.1% of participants would prefer their contacts to set a form of auto-reply to inform them if they cannot interact currently whereas 9.9% selected other and some of them offered suggestion suggestions, for example, one participant suggested a countermeasure that can be embedded in a social media site to remind individuals of an unanswered message, and said that *"Similar to Gmail, have buttons that suggest an easy response to the message so it is easier to at least acknowledge you have received a message*

then have a reminder if you have not replied any further in a few days, for example, three days since you received this message Send reply."

However, 5.8% of those who selected other did not select the proposed countermeasures. This slight percentage may indicate that the proposed countermeasures are comprehensive enough for the majority.
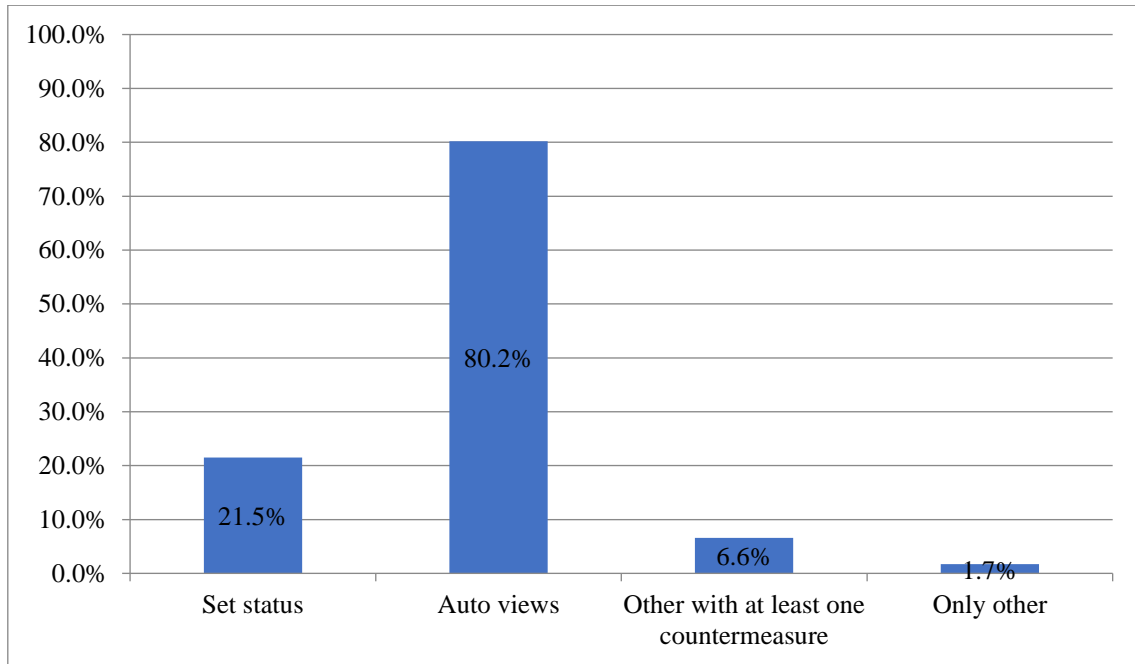
FIGURE 25: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE ABILITY TO BE IINTERESTING

7.8.1.2   *FEAR OF MISSING THE ABILITY TO BE INTERESTING*

Sharing and posting on social media and also getting expected feedback from others in a form of Likes or Retweets may create interesting interactions that could gratify a number of individuals. However, a kind of FoMO can be experienced when those individuals have not received the expected feedback. However, this FoMO can be managed and reduced by certain countermeasures such as *set a status and Auto views*. Such countermeasures were examined from the participants perspective to understand which of those countermeasures people wanted to see on social media sites.

As with the previous statement the largest percentage of the participants selected only one countermeasure, secondly, two countermeasures, the distribution of the answers were 95% and 3.3 respectively. As shown in Figure 25, within these countermeasures most participants preferred certain social media sites to show them who viewed their post to diminish their FoMO, with 80.2 % agreeing. 21.5% of participants would prefer their contacts to set their

status to know whether they are online or available to interact or not whereas 8.3% selected other.

Some of those who selected other offered suggestions. One of those suggestions is **Auto shared**. It can distribute post automatically to groups or individuals who are interested in this post, or a person who interacts the most with them. For instance, one participant suggested "*Have an algorithm that places posts from those who I interact the most with to see my posts with more priority than others or reappear on refreshed feeds*" and also another said that "*Having it automatically shared in certain sectors so that it has a wider reach to more interested people This can generate more feedback.*" Although this can generate more feedback, it can also result in an overload of information that leads to increased time checking and also it may have a negative effect on the persons 'privacy. Another suggestion is *forwarded* to show how many times a certain post has been forwarded via different social media sites. Individuals may not press the "Like" or "Retweet" button but they may forward it to others. Hence, they are expressing that they have seen such a post by forward it to their contacts or groups on social media. As evidence for that one respondent stated that "*Some people may forward it to others through WhatsApp or email even though they pressed "Like". I would like to know if they forwarded it and how many times.*"

However, 1.7 % of those who selected other did not select proposed countermeasures. This slight percentage implies that the proposed countermeasures seem to be useful.

7.8.2 FOMO WHEN UNABLE TO INTERACT OR CONNECT AS WISHED

Interactions via social media sites may be reduced either because of being bounded by time or by some circumstances (see Chapter 4 for more details). When this context arises different kinds of FoMO may be experienced. However, there are a number of countermeasures which could reduce or combat such kinds of FoMO (see Chapter 5 for more details). The following section will describe the frequency with which respondents answered in terms of which countermeasures they wish to see on social media sites in order to manage certain kinds of FoMO they experience.
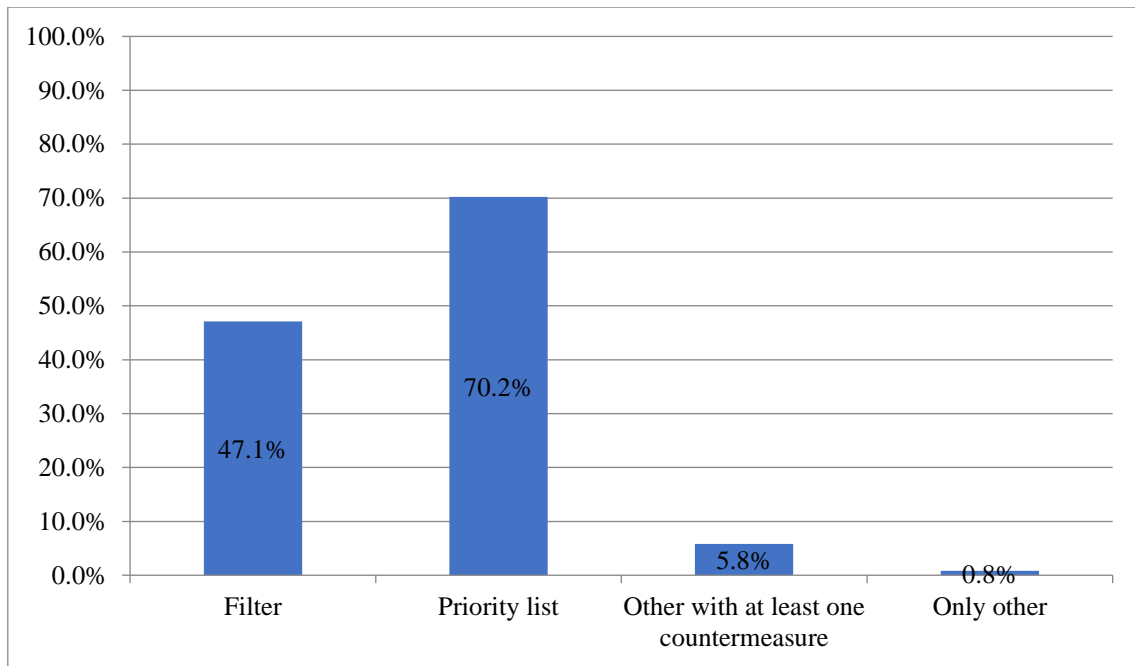
FIGURE 26: SELECTED COUNTERMEASURES FOR FEAR OF MISSING INFORMATION DUE TO A LARGE VOLUME OF INFORMATION

7.8.2.1   *FEAR OF MISSING INFORMATION DUE TO A LARGE VOLUME OF INFORMATION*

Users of social media may receive streams of information from all their contacts. Hence, the amount of information has become overloaded, making it hard to extract beneficial information and the situation may continue to worsen if individuals are unable to check it due to certain circumstances such as being busy or attending a lecture. However, there are number of countermeasures that could help and reduce this kind of FoMO such as Filter and priority list.

When analysing the responses of participants, following the trend of all the statements 81% of participants selected only one countermeasure, 18.2% two countermeasures (see Table 18). As shown in Figure 26, within these countermeasures the greatest number of participants preferred to be able to set levels of importance and relevance to topics, contacts, etc, so, they are able to prioritize better and not to experience this kind of FoMO, with 70.2% agreeing. 47.1% wished to be able to classify information according to the topic and contacts involved. Thus, they could easily extract interesting information and not experience this kind of FoMO, whereas 6.6% selected other and just one participant offered suggestion.

There is one participant who offered a feature that involved an aid receiver to pick up important information. This feature could be described as establishing a level of importance. This feature works when the senders define the level of importance from high to low importance and thus the receivers can extract important information. As evidence for this one participant stated that

"An urgency button if the message is important the sender can state it needs to be seen ASAP and comes higher on the notifications." Furthermore, the rest of suggestions supported the presented countermeasures. For example, one respondent commented that *"Definitely being able to filter as well as prioritize the messages into a list would help to determine if any of the messages are of importance at such a small break."*

However, 0.8% of those who selected other did not select proposed countermeasures. This smallest percentage implies that the proposed countermeasures are comprehensive and useful for the majority.

7.8.2.2   *FEAR OF MISSING TEMPORARILY AVAILABLE INFORMATION*

There is content on social media which has validity but is removed after a predetermined amount of time such as WhatsApp status, Instagram and Snapchat stories. Such content may make people feel pressurised if they are unable to check it therefore, they may feel this kind of FoMO. However, there are two proposed countermeasures which may help people to manage this kind of FoMO namely *Event and content recorder and diverse notification.* Here, these countermeasures were examined in terms of what people prefer to see on social media sites in order to minimise this kind of FoMO.
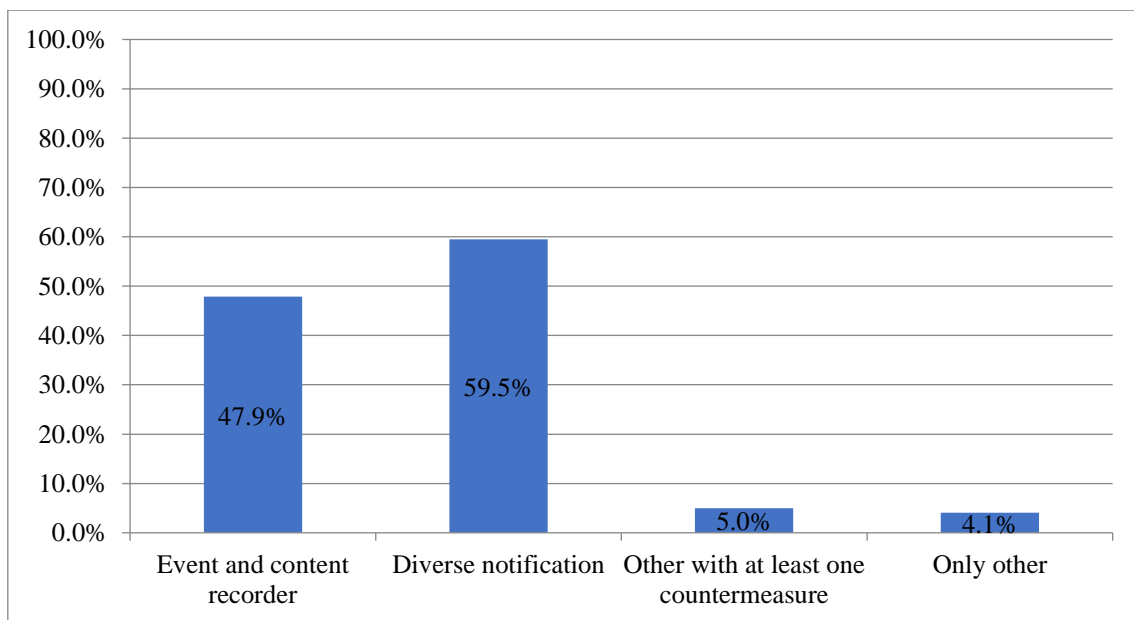
FIGURE 27: SELECTED COUNTERMEASURES FOR FEAR OF MISSING TEMPORARILY AVAILABLE INFORMATION

When the statistical analysis was done for countermeasures related to this kind of FoMO, following the trend, the largest percentage of respondents choose only one countermeasure,

secondly, two countermeasures, with 84.3% and 11.6% respectively (see Table 18). Additionally, as shown in Figure 27, within such countermeasures most participants preferred to set a different tone and alert style for temporarily available information and when information is about to expire, with 59.5% agreeing. 47.9% they wished to have an event and content recorder to help them to record such temporarily available content and see them when they have time. However, it is important to notice that event and content recorders were expected to have a greater percentage than diverse notification because it has the ability to give individuals enough time to see and watch that content.

9.1% selected other although most of them supported the countermeasure that was proposed namely Event and content recorder and diverse notification. For example, one respondent said that *"if I have run out of data and I have a little time to access Wi-Fi in a coffee shop I can record and download all the stories or content so that I can watch them when the Wi-Fi runs out",* another commented that "*an alert tone may be better if the content will expire in specific time I set it before for example two hours before the content expire."* However, there was an interesting point which was mentioned in the results by one respondent who felt that information overload probably occurred when an event and content recorder feature downloaded all temporarily available information. However, it could be combined with a filter technique to make it easier for individuals to "*specify certain contacts and apps and types of posts."*

However, 4.1% of those who choose other did not select proposed countermeasures. This slight percentage may indicate that the proposed countermeasures seem to be useful and comprehensive by the majority.

7.8.2.3   *FEAR OF MISSING A TIMELY INTERACTION*

A number of interactions on social media sites need individuals to react immediately, for example, responding to friends' invitations to a social event or a family request. Thus, individuals may be preoccupied with such interactions and the fear of missing it when they are unable to interact for a period of time. However, there are countermeasures that may help people to reduce this kind of FoMO such as Auto-reply and Set status (see Chapter 5). Here, statistical analysis was done to understand what people wished to use and see on social media sites to manage this kind of FoMO.
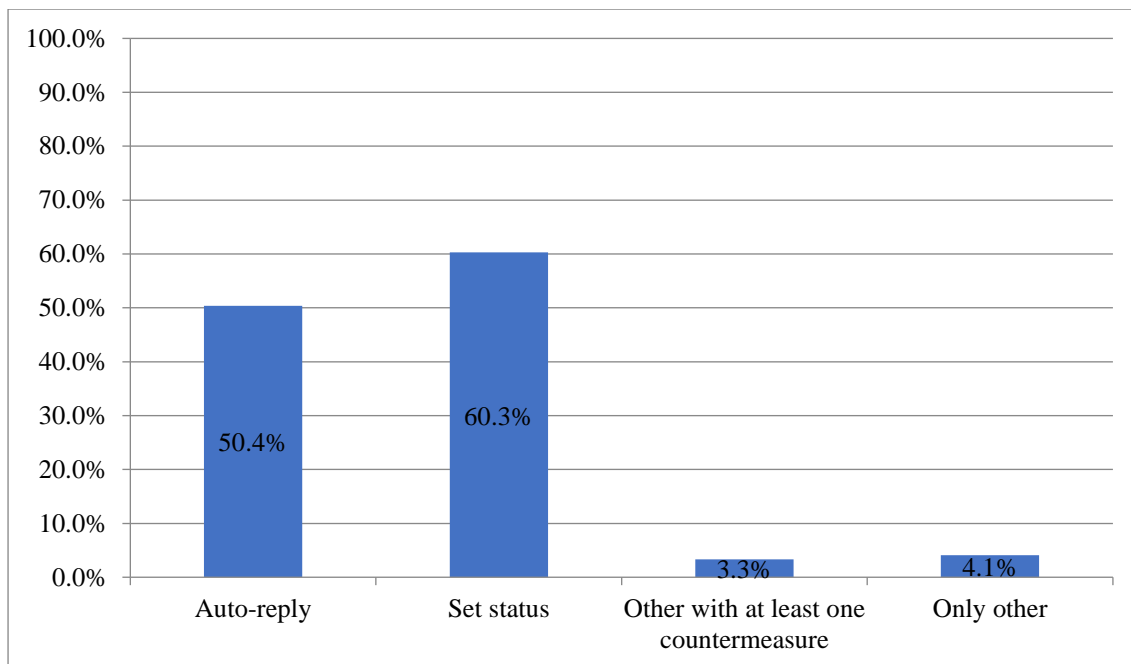
FIGURE 28: SELECTED COUNTERMEASURES FOR FEAR OF MISSING A TIMELY INTERACTION

When the statistical analysis was done for countermeasures that are related to this kind of FoMO, 81% of the participants selected only one countermeasure and 14.9% selected two countermeasures (see Table 18). As shown in Figure 28, of the countermeasures provided most participants preferred to set their current status on social media in advance to inform others regarding their situation with 60.3% agreeing. Interestingly, the results for auto-reply are almost exactly the same with 50.4% wanting to set some form of auto-reply that sends an automatic response to messages and informs their messaging contacts that they cannot respond immediately and 49.6% responding negatively, while 7.4% % chose other and some of them offered suggestion. However, most of the comments have not added any interesting points in relation to the countermeasures. The respondents either supported the use of auto reply or set status or offered social techniques such as *"apologise for the late response"*.

However, 4.1% of those who suggested other countermeasure did not choose presented countermeasures. This percentage indicates that the proposed countermeasures are comprehensive enough for the majority.

7.8.2.4   FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS

Celebrities and some individuals on social media like to maintain or increase the number of followers. However, when those people are unable to be active on certain social media sites for a period of time they may be preoccupied with missing potential new followers. However, there are proposed countermeasures such as set status and contextual awareness (see Chapter

5) that could help those people to manage their FoMO. Here, such countermeasures were examined in terms of what people wished to use and see on social media.
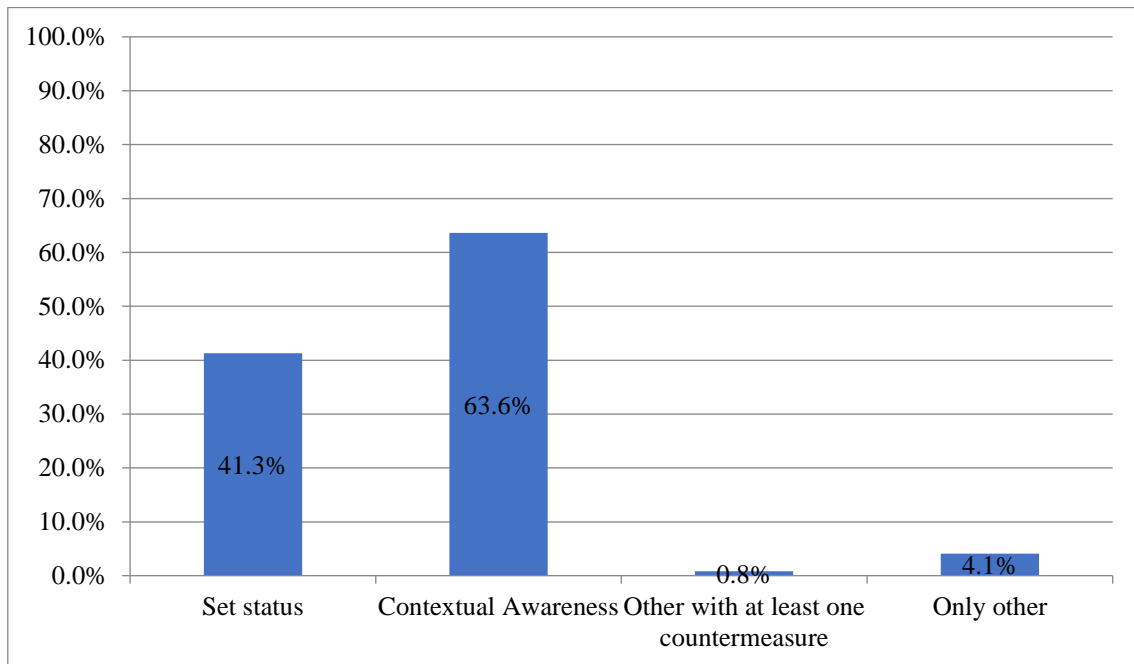
FIGURE 29: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE ABILITY TO KEEP FOLLOWERS

As with the previous statements, the popularity of each selected countermeasure followed the trend with 86.8% choosing one and 9.1% choosing two (see Table 18). As shown in Figure 29, within these countermeasures the greatest number of participants wished to see a feature on social media that can access their calendar and their location and then update their current situation automatically, for example, busy or away, driving or current local time, to name a few and make it visible for their contacts and followers, with 63.9% agreeing. 41.3% of respondents preferred to set their current status in advance to shows their contacts and followers when they are able or unable to post and communicate online. 5% selected other, however, few of them offered suggestions but these suggestions were not related to the situation and did not add any beneficial points.

However, 4.13% of those who selected other did not choose proposed countermeasures. It implies that the proposed countermeasures seem to be comprehensive and helpful.

7.8.2.5 FEAR OF MISSING INFORMATION /EVENTS DUE TO MULTI FOLLOWING

Users of social media sites continuously produce a stream of shared status updates, photos, and links for example to news stories and it is received by their contacts or followers. The situation may also be worse if people follow large numbers of people and they are unable to check their

social media and find information that they are interested in. Therefore, people may experience this kind of FoMO and may be preoccupied with missing it. However, minimising this kind of FoMO can occur either by having a priority list or filter (see Chapter 5 for more details).
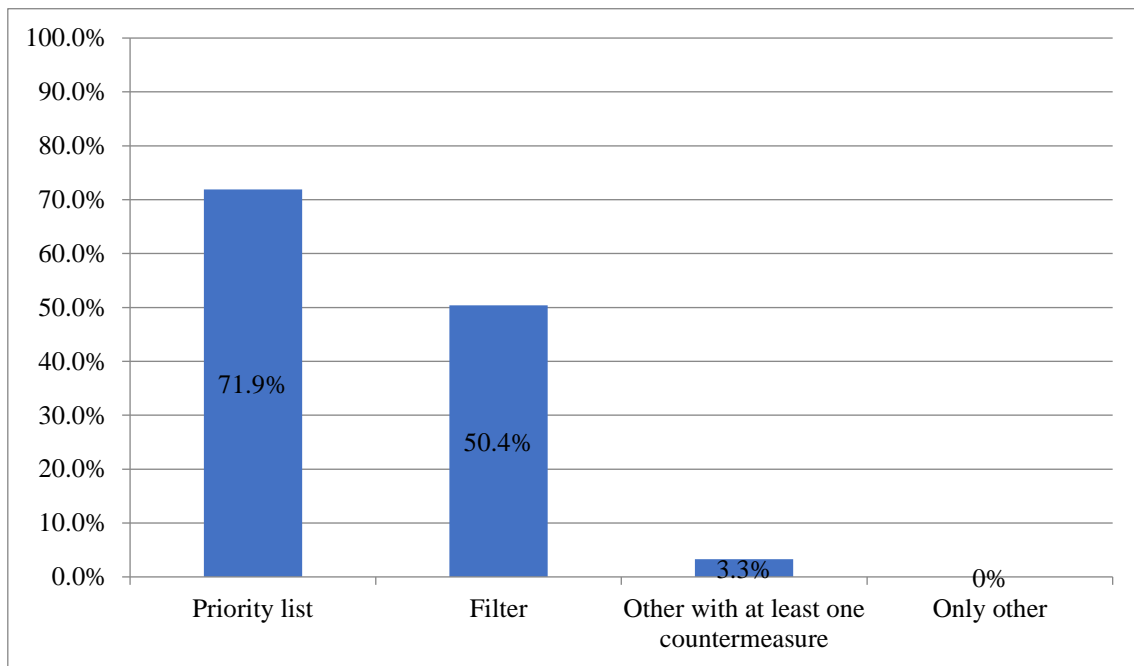
FIGURE 30: SELECTED COUNTERMEASURES FOR FEAR OF MISSING INFORMATION /EVENTS DUE TO MULTI FOLLOWING

77.7% of participants selected one countermeasure and 22.3% selected two (see Table 18). As shown in Figure 30, a significant percentage of respondents wished to see a priority list feature on social media sites which would enable them to prioritize what they followed and connected to, e.g. pages, channels and profiles, with 71.9% agreeing. 50.4% of participants preferred to utilise a filter feature that would enable them to be able to classify what they followed and connected to, e.g. pages, channels, according to their level of importance.

3.3% of participants selected other and some of them offered suggestions. One of the suggestions was the same as the proposed countermeasures, for example, one respondent said that *"I will prioritize the important ones and reply accordingly"*. Another suggestion was that *"diverse notification for important followings and this notification can be created by people who received the post."* However, there is a socio-technical countermeasure that may be a pre-written list that can be used when people do not have sufficient time to check all the following status notifications. This list can contain important people whose content has to be regarded. Another suggestion is that *"followings should specify how important their contents are"*. This suggestion could reflect the level of importance feature that exists on email.

However, and no one selected other which is in line with the continuing trend we have witness during this analysis.

7.8.2.6 *FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL MEDIA*

A number of individuals have diverse social media accounts such as Twitter, Facebook, Instagram and Snapchat and found it difficult to manage all interactions when they are unable to interact with them at the same time. Hence, those individuals may experience this kind of FoMO. However, in the findings of the qualitative study in relation to the countermeasures for different kinds of FoMO (see Chapter 5), there were two countermeasures proposed to help people to manage this kind of FoMO such as Auto-status and set status. The following will explain people's opinions regarding the use of such countermeasures.
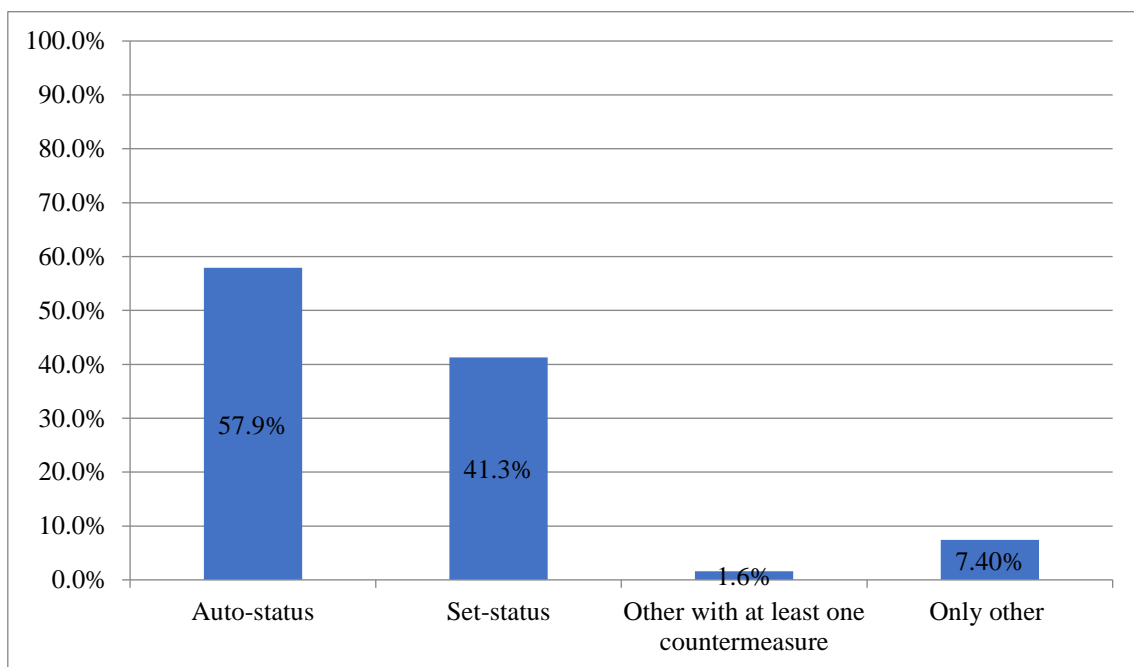
FIGURE 31: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE ABILITY TO DEAL WITH DIFFERENT SOCIAL MEDIA

Analysing the survey data in relation to these countermeasures shows that the largest segment of respondents selected only one option and secondly, two options, with 86% and 6.6% respectively (see Table 18). As shown in Figure 31, a significant percentage of respondents wished to see an Auto-status feature on social media sites that changes automatically based on their current situation e.g. Facebook set automatically as busy when they are using WhatsApp, with 57.9% agreeing. 41.3% of respondents preferred to set a status manually.

9.1% of participants chose other and some of them provide suggestions. Most of them tended to "*prioritise the important interactions*", however, this suggestion can be seen as priority list countermeasure that was already proposed to reduce other kinds of FoMO.

However, 7.4 % of participants selected only other. It means that the small percentage may indicate that the proposed countermeasures are comprehensive enough for the majority.

7.8.3 FOMO WHEN UNWILLING TO ENGAGE IN SOCIAL INTERACTION

When people do not have the willingness to interact on social media because of not being interested in the topic they may experience different kinds of FoMO (see Chapter 4 for more details). The following explains the statistical analysis for countermeasures that could help people to manage those different kinds of FoMO in this classification.

7.8.3.1 *FEAR OF MISSING VALUABLE INFORMATION*

This FoMO may occur when individuals are preoccupied with the important content of the message and they are unwilling to open the messages but still fear missing something potentially important. This kind of FoMO may most obviously be experienced when individuals have a group on a social media site. However, there are proposed countermeasures (see Chapter 5) such as Terms and conditions and recap that can help people to manage this FoMO. The following will show people's opinions regarding the use of such countermeasures.
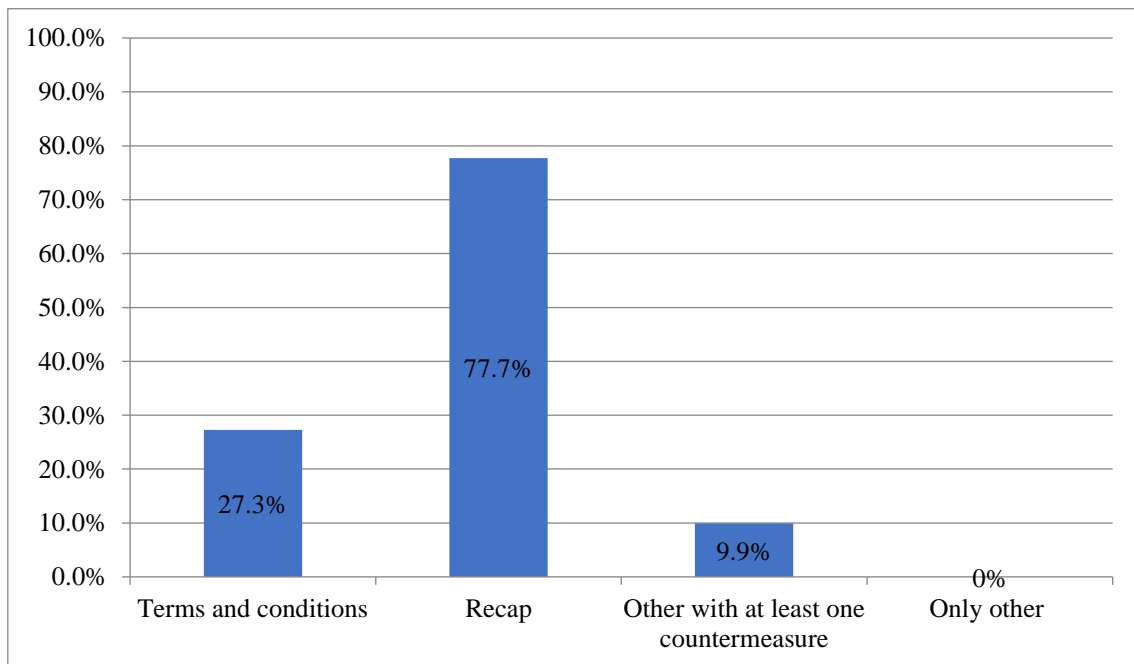
FIGURE 32: SELECTED COUNTERMEASURES FOR FEAR OF MISSING VALUABLE INFORMATION

Following the trend, the largest percentage of the participants selected only one countermeasure and secondly two countermeasures were selected, these percentages were represented as 95% and 5% respectively (see Table 18). Figure32 presents that a significant number of respondents wished to see a recap feature on social media that gives them a summary and the highlights of what is discussed in the group with 77.7% agreeing. 27.3% of the participants would prefer to set collective terms and conditions for the group interactions, e.g., agree times for posting, tolerance of the lack of responses, topics of interest, etc.

9.9 % of participants selected other but not all of them offered suggestions. For example, one participant suggested that offering a *dictionary* which enables people to specify the important content for them and then they will be notified if the message contains such contents, e.g. "*different tone if the message include my name then I know that they want me to be involved*". However, this suggestion reflects the existing countermeasure which is called *diverse notification*. Other participants supported the recap feature and they are interested in seeing it on social media sites, for instance one respondent said that "*A recap feature would be a great thing as sometimes being in a group can be a bit hard catching up with a lot of people.*" Another respondent said, "*a strong agree for recap option it is really helpful.*" It is important to be noted that the respondent supported the findings of current mitigation strategies (see Chapter 4 for more details) which is that people may tend to phone or ask someone in the group to know what happened in the group chat.

However, it is important to notice that no one selected other which is in line with the continuing trend we have witness during this analysis. It means that the proposed countermeasures in relation to this kind of FoMO are more comprehensive and useful.

7.8.3.2   *FEAR OF MISSING THE ABILITY TO DEFEND POPULARITY*

An individual could experience this kind of FoMO, i.e. the unwillingness to engage and respond, when they are preoccupied with missing the social relationship and reputation with peers as they do not engage frequently with them on social media. However, there are proposed countermeasures which could be embedded on social media sites to aid people to diminish their experience of this FoMO such as self-expression and set-status. Here, such countermeasures are examined in terms of what people wish to use and see on social media.
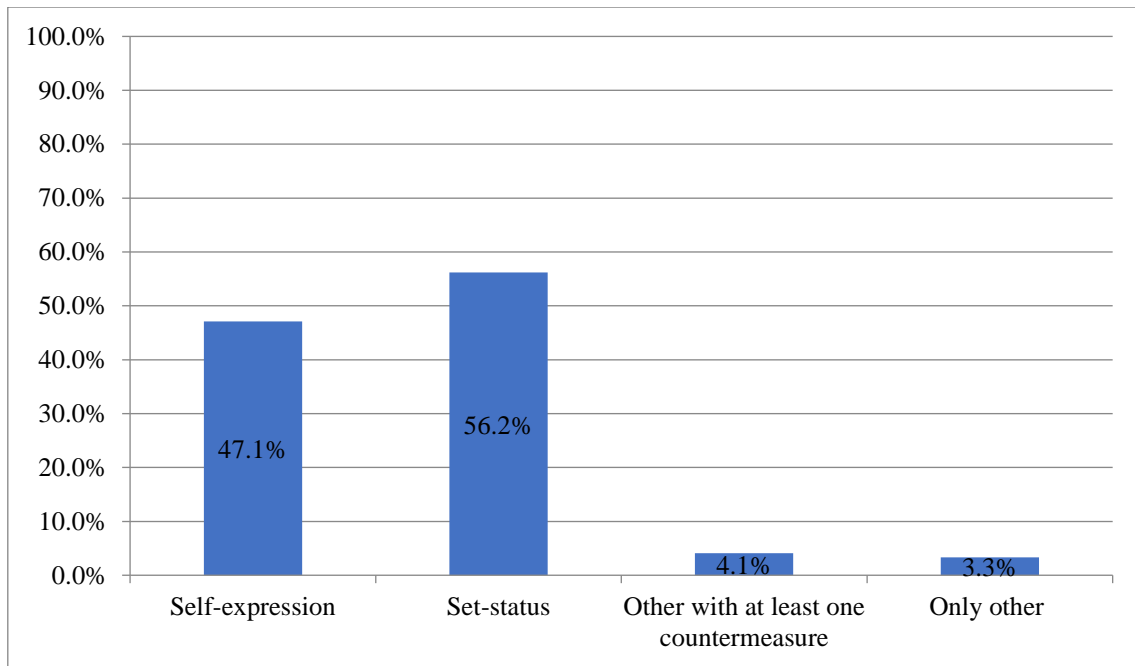
When statistical analysis was done in relation to these countermeasures, the largest percentage of the participants selected only one countermeasure and secondly came two, with 90.1% and 6.6% respectively (see Table 18). As shown in Figure 33, within these countermeasures the greatest number of participants wished to set social media status in advance to inform other contacts of their current mood or time available in order to not feel ignored, with 56.2% agreeing. 47.1% of respondents preferred to see a feature that enables them to express details about themselves in advance such as their topic of interest, time of interactions and the style of their responsiveness.

7.4% selected other but not all of them offered suggestions. However, most of the comments can be seen as proposed countermeasures such as *self-expression and set status* features, e.g., *"Usually, I would either notify them that I am busy or set status where applicable in order not to make my friends feel like I am leaving them out."*

However, 3.3% of those who selected other did not choose presented countermeasures. It means that the slight percentage may indicate that the proposed countermeasures seem to be useful and comprehensive by the majority.

7.8.4 FOMO WHEN HAVING TO OR FEELING A NEED TO ENGAGE IN CONTINUOUS AND UNTIMED INTERACTIONS

Individuals prefer to be online and active on social media sites to fill their desire in terms of not missing certain interactions. Thus, different kinds of FoMO can be experienced by individuals when they stay online (see Chapter 4 for more details). The following explains the statistical analysis for countermeasures that could help people to manage those different kinds of FoMO in this context.

7.8.4.1   *FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION*

Individuals are interested in keeping a positive attitude about their image and social standing amongst others, such as peers or colleagues, via social media sites. This can increase pressure on them when they want to leave a spontaneous and unplanned conversation. As a result of this, they are preoccupied with the negative effect it may have on others opinion of their self-image or damage their level in the social relationship. However, there are some suggested countermeasures that could help those individuals in this situation and minimise their FoMO, namely Self-expression and Set status. Such countermeasures were examined in terms of what people wished to use and see on social media.
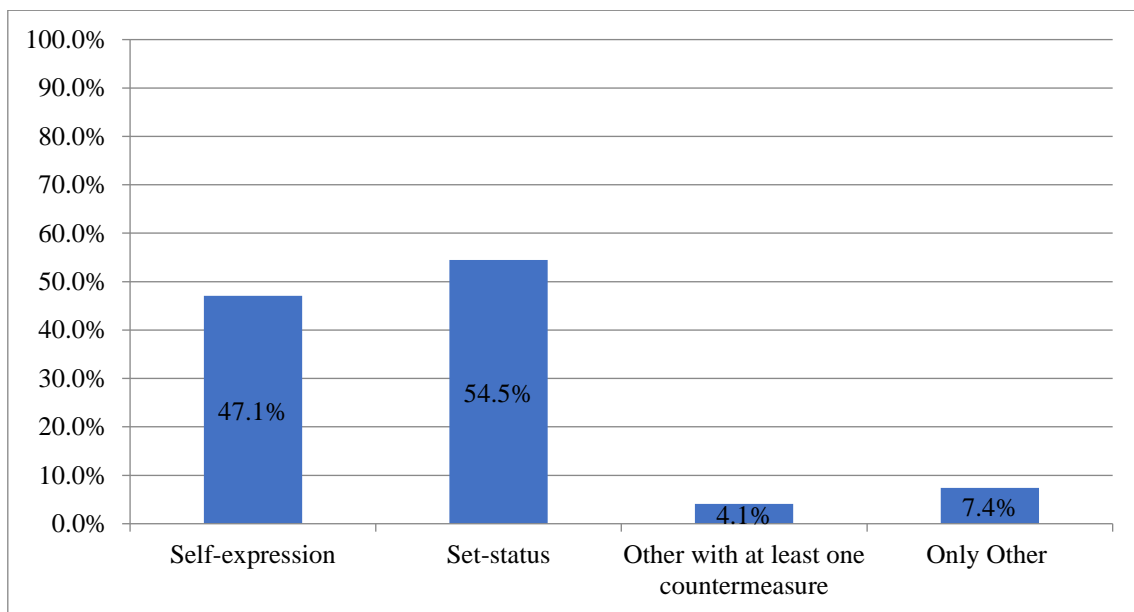
FIGURE 34: SELECTED COUNTERMEASURES FOR FEAR OF MISSING EMPATHY AND LEAVING A GOOD IMPRESSION

Analysing the survey data in relation to these countermeasures show that the largest segment of respondents selected only one option and secondly came two options, with 83.5% and 9.1% respectively (see Table 18). Figure 34 indicates that most respondents wished to set their status in advance and make it visible for their contacts such as their other activities and the amount of time available to stay online, with 54.5% agreeing. 47.1% of respondents preferred to see a

feature that enables them to identify details about themselves in advance to their contacts before they interact with them such as their topic of interest, the maximum time for their conversations and the style of their responsiveness.

11.6% of respondents selected other and some of them suggested countermeasures with similar characteristics to the proposed countermeasures (*Self-expression and Set status*). For example, one participant suggested that "*I inform my friend that you have limited time and may leave soon.*" Another said that "*I would prefer to let my friend know that I am busy, and I am not able to talk at this time and tell them to catch up when we are together.*" Those suggestions reflect the characteristics of the self-expression countermeasure. Within these suggestions, a number of respondents offered self-education to help people to be resilient when they face this situation such as "*practicing the ability to say see you later*" or "*application teaches people how to end a conversation.*"

However, 7.4 % of 11.6% selected other only. This percentage may indicate to the validity and comprehension of those proposed countermeasures to manage this kind of FoMO.

7.8.4.2   *FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS' IMPRESSION*

Individuals contribute on social media sites in the form of posts or shares and they prefer to know and get their impressions from their contacts regarding their participation. Hence, they find it difficult to stop checking their social media to know and obtain this feedback and not miss it (see Chapter 4 for more details). However, priority list and diverse notification countermeasures could aid those individuals to manage and reduce this FoMO (see Chapter 5). The countermeasures were examined in terms of what people would prefer to see on social media to reduce their FoMO.
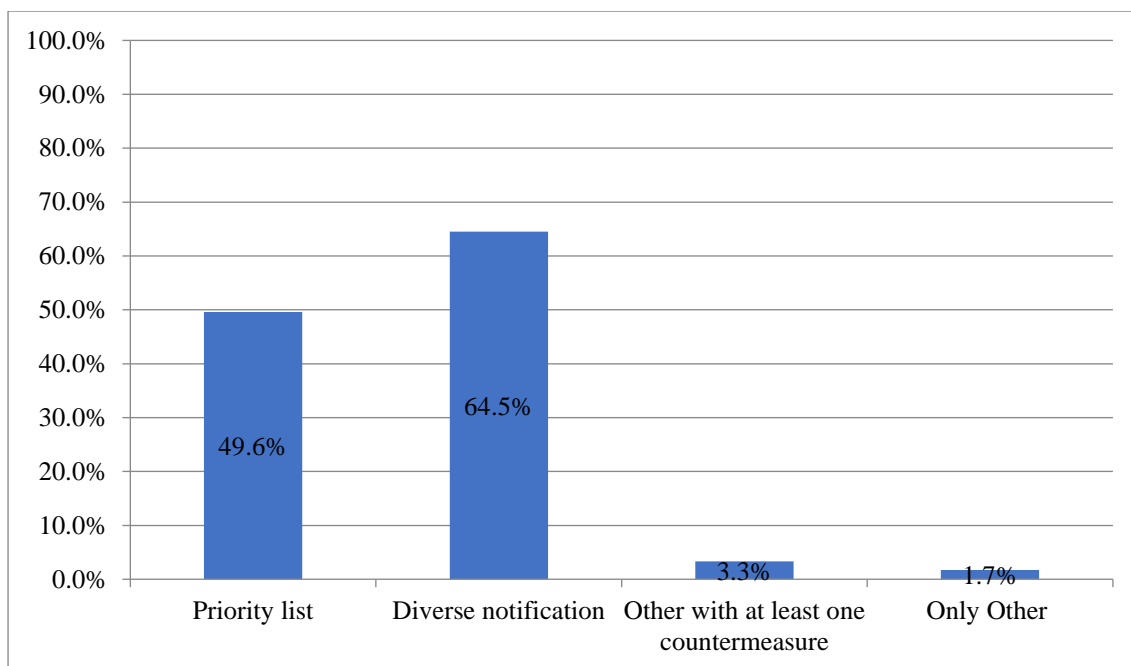
FIGURE 35: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE OPPORTUNITY TO KNOW OTHERS'
IMPRESSION

As has previously been seen, the largest segment of respondents selected only one option, 82.6% and secondly two options were chosen, 15.7% (see Table 18). Figure 35 shows that a significant percentage of respondents wished to set diverse notification, e.g. setting a different tone for specific contacts or reactions for specific posts, with 64.5% agreeing. 49.6% of respondents preferred to see a feature that enables them to set the level of importance of contacts that they would like to know their reactions to their posts.

5% chose other and few of them provide a suggestion that could help them to stop checking the feedback of their post such as *up-to-date* feature. It means people can receive an up-to-date reaction message that their post had received. Other participant suggested that a certain *social media site does no allow individuals to check their post for a period of time*. However, this suggestion may increase the level of FoMO and make the situation worse.

However, 1.7% of those who chose other did not select presented countermeasures. This slight percentage may indicate that the proposed countermeasures are comprehensive enough for the majority.

7.8.4.3 *FEAR OF MISSING VALUABLE OPPORTUNITY*

One of the facilities that is provided by social media sites are valuable opportunities that individuals are able to benefit from such as discounts, career opportunities and advice. Hence, individuals may stay online in order not to miss such an opportunity (see Chapter4). However,

diverse notification and alternative notification can be as solutions to make individuals more comfortable and to enable them to manage this kind of FoMO (see Chapter 5).
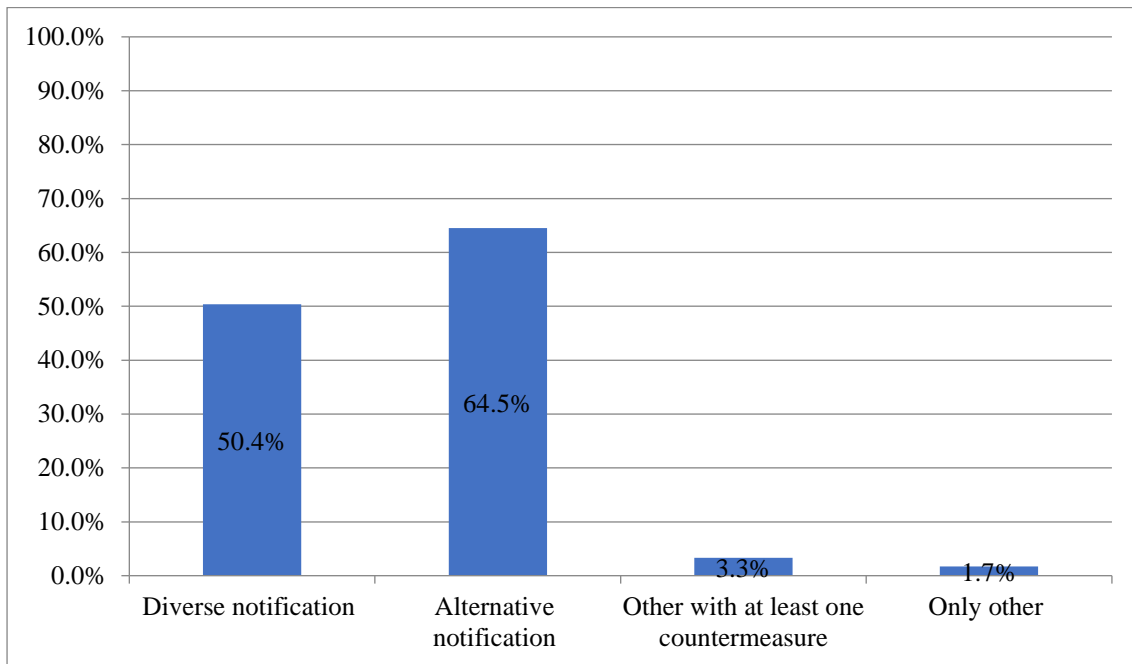
FIGURE 36: SELECTED COUNTERMEASURES FOR FEAR OF MISSING VALUABLE OPPORTUNITY

A statistical analysis in relation to those solutions in terms of what people wish to use was done. Generally, Table 18 shows that the largest percentage of the participants selected only one countermeasure and secondly two countermeasures were nominated, with 81.8% and 16.5% respectively. Figure 36 shows that most respondents preferred to be able to connect their social media account with others smart devices, e.g. receiving SMS or a vibration on their smartwatch if there was a major opportunity, with 64.5% agreeing. Interestingly, diverse notification received 50.4% positive responses and 49.6% negative showing the polarity of the participants reaction to this statement. It means that participants prefer to be able to set different tone for specific opportunity.

5.0% selected other and some of them offered suggestions. However, such suggestions could not be used as countermeasures because they are not related to this situation.

However, 1.7 % of 5% selected other only. This small percentage may indicate to the validity and comprehension of those proposed countermeasures for the majority.

7.8.4.4   *FEAR OF MISSING THE SENSE OF RELATEDNESS*

People are interested in their social circle and want to know what others are doing to feel a sense of relatedness. Furthermore, people tend to join in social media groups such as WhatsApp or a Facebook group to fulfil this sense. So, people keep checking this group to avoid missing

spontaneous messages from the group that needs them to reply back (see Chapter 4 for more details). However, in this thesis, two countermeasures were proposed to minimise this FoMO such *as colour indication or contextual awareness.* In the following paragraph, these countermeasures were validated quantitatively from peoples' perspective in order to know what countermeasures people prefer.
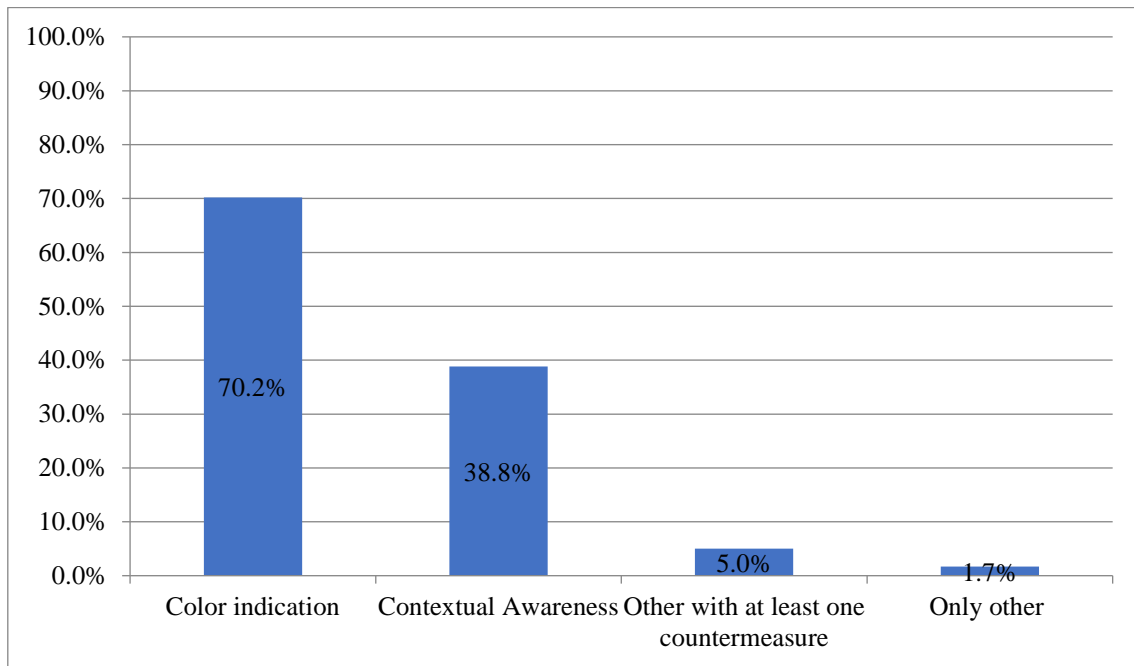
FIGURE 37: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE SENSE OF RELATEDNESS

Table 18 shows that the largest percentage of the respondents selected only one countermeasure, 87.6% and secondly, two countermeasures, 10.7%. As shown in Figure 37, within these countermeasures the largest number of participants preferred a certain social media site to provide them with a technique which enables them to set a specific colour on the alert light or the notification icon to distinguish specific information coming from the group, with 70.2% agreeing. Contextual Awareness countermeasure got 38.8% of responses that participants wished to see a feature that accessed their calendar and their location and then updated their current situation in order to make others more aware of their situation, for example, busy or away, driving or current local time.

6.7% of respondents selected other and some of them offered suggestions. Part of these suggestions supported or had a similar idea to the colour indications or contextual awareness characteristics such as "*I like colour indication to be there*" or *"contextual Awareness is highly recommended"* other participants preferred to *set different tones or alerts for a specific group.*

However, this suggestion reflects a diverse notification countermeasure that was proposed as a solution to minimize other kind of FoMO but it could be used to minimise this kind as well. However, 1.7 % of 6.6% did not choose presented countermeasures. The low percentage implies that proposed countermeasures seem to be useful and comprehensive by the majority.

7.8.4.5   *FEAR OF MISSING A SPONTANEOUS RESPONSE*

People sometimes send a message to someone via a certain social media site in order to get feedback from them, but they do not know when they will get a response. So, they tend to check frequently and wait for the response from the recipient, they may become preoccupied as more information may immediately be required from the contact when they reply to the initial messages. However, minimising this kind of FoMO can occur either by a diverse notification or alternative notification (see Chapter 5 for more details).
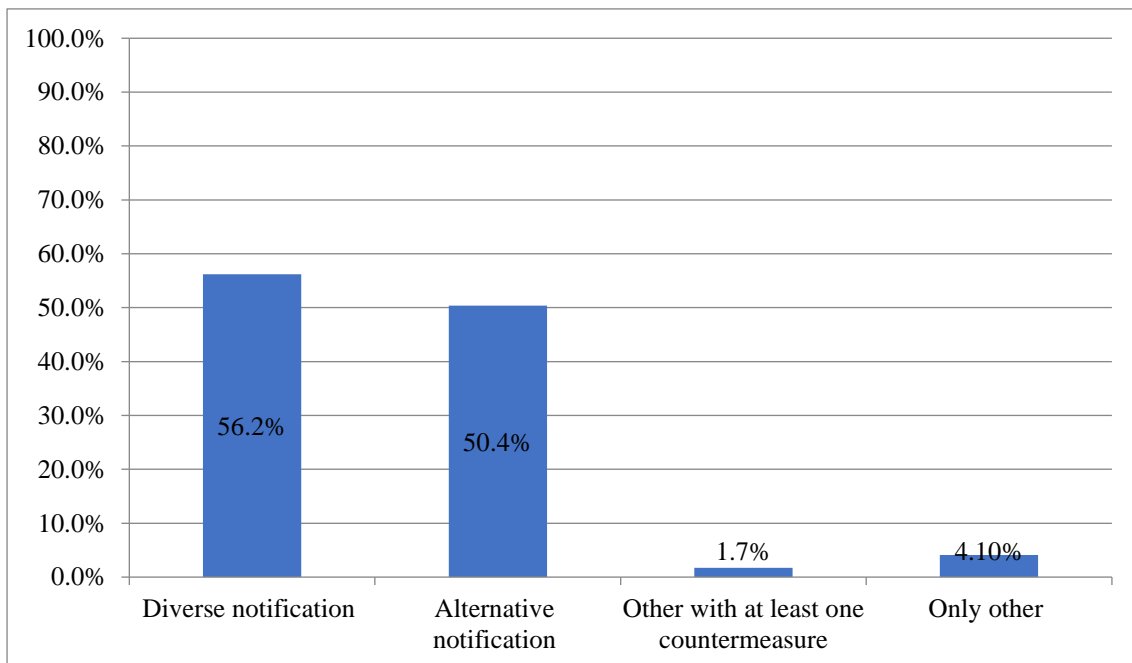
FIGURE 38: SELECTED COUNTERMEASURES FOR FEAR OF MISSING A SPONTANEOUS RESPONSE

As has been observed with the other statements, 85.1% chose only one and countermeasure, 10.7% two. Figure 38 shows that participants preferred to be able to set different tones for specific reactions, with 56.2% agreeing. Alternative notification received 50.4% of positive responses. It means that participants prefer to be able to connect to certain social media sites on other devices that they own, to receive notifications, e.g. receiving an SMS or a vibration on their smartwatch if there is a major opportunity.

5.8% of responses selected other and some of them provided suggestions. However, such suggestions are not related to this situation and could not be used as countermeasure to minimise this kind of FoMO.

4.1% of those who selected other did not choose presented countermeasures although this percentage does not affect the validity of proposed countermeasures. However, it may indicate that the proposed countermeasures are comprehensive and useful enough for the majority.

7.8.4.6   FEAR OF LOSING POPULARITY

People tend to be online and active on social media to be able to respond immediately to the interactions which may protect their popularity and increase or maintain it. Otherwise, they are preoccupied with losing the level or standing of their popularity. However, social media sites could help those people by offering countermeasures that can aid them in managing this kind of FoMO. Chapter five shows such countermeasures that could reduce this FoMO such as Set Status and alternative notification. The following paragraph will present what the sample of respondents wished to use and to see on future social media design to minimise FoMO.
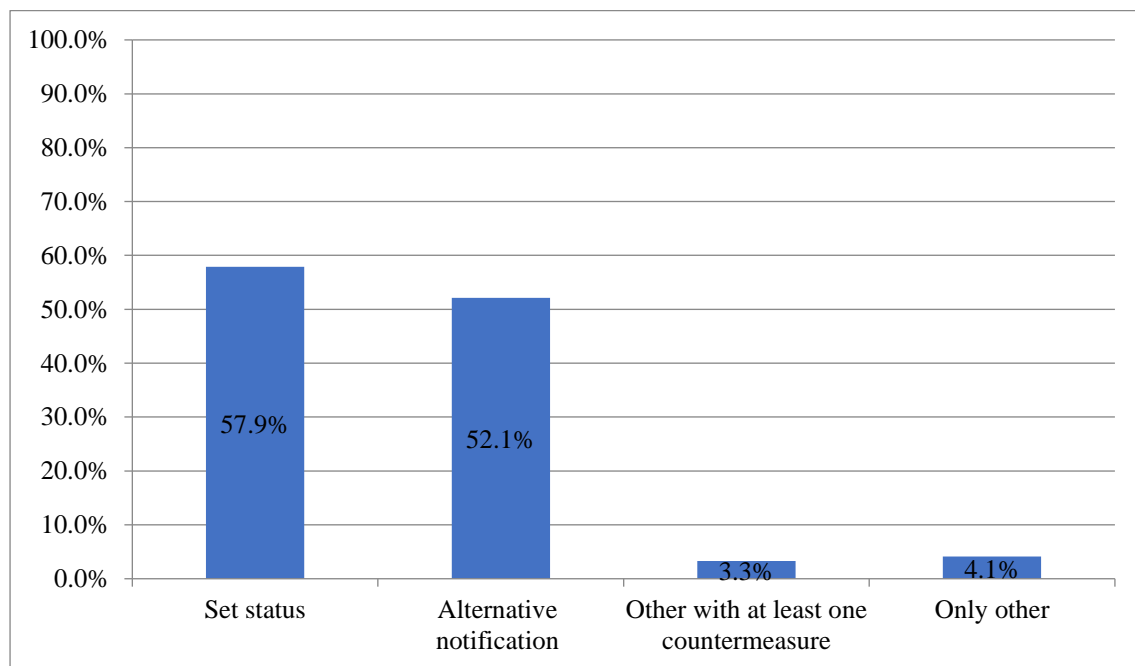
FIGURE 39: SELECTED COUNTERMEASURES FOR FEAR OF LOSING POPULARITY

When statistical analysis was done in relation to those countermeasures, a significant percentage of the respondents choose only one countermeasure and secondly two countermeasures were indicated, with 81.8% and 14% respectively (see Table 18). As shown in Figure 39, within these countermeasures most respondents wished to set a status which can be seen in advance so that is said that they are currently busy in order for their contact not to

feel ignored, with 57.9% agreeing. 52.1% of respondents preferred to be able to connect other devices to a certain social media site so as to receive notification, e.g. receiving SMS or a vibration on their smartwatch if there are urgent interactions.

7.4% of responses selected other and some of them offered suggestions. One of the suggestions supported an alternative notification countermeasure such as "*alternative notification enables me to pick which important contacts.*" Another suggested setting autoreply to inform people by *alternative ways to contacting them*. Additionally, one suggestion mentioned about the use of a level of importance feature which exists on an email system. For example, the respondent said that *"particularly with email if it comes from someone important or has an urgent priority the notification displayed in a brighter colour and bold text to help see it faster."*

However, 4.1 % of 7.4 % did not choose presented countermeasures. This percentage implies that the proposed countermeasures for this kind of FoMO seem to be comprehensive and useful by the majority.

7.8.5   FOMO WHEN AN ONLINE SOCIAL GATHERING IS EXPECTED

 Social gatherings could be defined as interactions among a diverse group of individuals of all abilities in small or large groups for social and community purposes. This can occur through social media sites such as a WhatsApp group, Facebook group, etc. Individuals may prefer to be members of groups that are beneficial to them in order to feel a sense of belonging. However, if people anticipate a certain online interaction on social media they may experience a number of FoMO's based on their needs (see Chapter 4 for more details). These kinds of FoMO could be manged and reduced by offering countermeasures that enable people to control such FoMO. The following explains the statistical analysis of these countermeasures that could help people to manage these different kinds of FoMO in this context.

7.8.5.1   FEAR OF MISSING THE OPPORTUNITY TO ATTEND AN ONLINE EVENT

A numbers of events are displayed on social media sites such as football matches, which are live, streamed on social media where people can create a chat room or a forum to comment so that they try not to miss them due to the social value they add. As a result of this, people may become preoccupied with missing the live chat. A Calendar event reminder and recap could be as countermeasures to enable these people to control their FoMO.
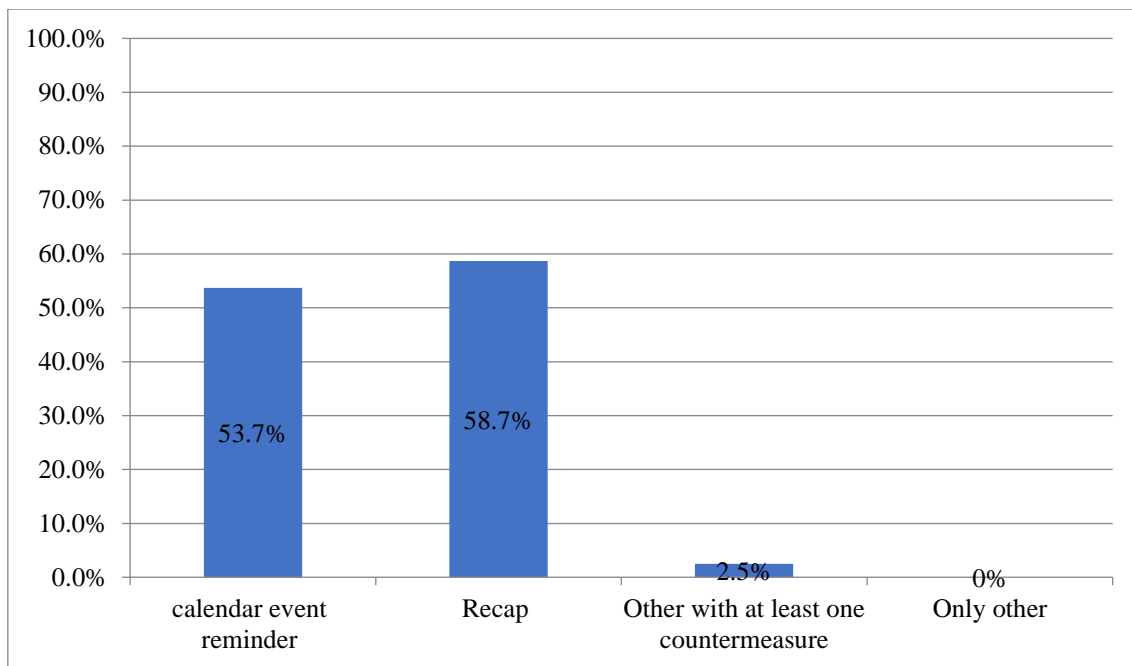
Table 18 shows that 81.3% of the respondents selected only one countermeasure and 18.7% indicated two countermeasures. As shown in Figure 40, within the mentioned countermeasures the largest number of contributors wished to see a recap feature on social media sites that gives them a summary and highlights of what is discussed within the group with 58.7% agreeing. A calendar event reminder countermeasure was endorsed by 53.7% of responses that showed that participants wished to see a feature on a social media site which would allow them to set a time and date for a specific event. 2.5% selected other with at least one presented countermeasure. However, the offered suggestions could not be related to this situation.

All respondents selected presented countermeasures, which is consistent with the continuing trend we are witnessing during this analysis. This indicates that the proposed countermeasures seem to be more comprehensive and useful by the majority.

7.8.5.2   FEAR OF MISSING THE SENSE OF RELATEDNESS

Individuals participate on social media particularly in the online group to satisfy their needs to belong. However, the timing of the group gathering may facilitate this kind of FoMO when it is unknown. However, social media sites can offer countermeasures that can help people to manage this FoMO. Terms and conditions and colour indication countermeasures may help people to manage this FoMO (see Chapter 5 for more details).
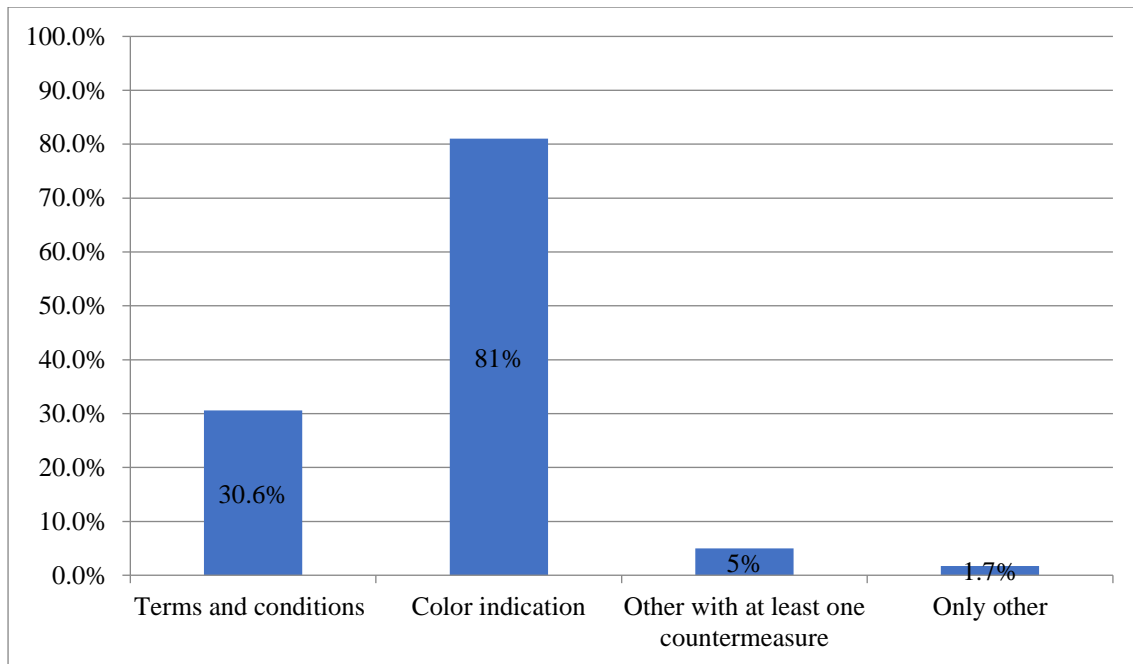
FIGURE 41: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE SENSE OF RELATEDNESS

When statistical analysis was done in relation to these countermeasures, 85.1% of the respondents selected only one countermeasure and 13.2% indicated two countermeasures (see Table 18). As shown in Figure 41, within the mentioned countermeasures a significant number of respondents preferred a certain social media site to provide them with a technique which enables them to set a specific colour in the alert light or the notification icon to distinguish specific information coming from the group, with 81% agreeing. 30.6% of the participants would prefer to set collective terms and conditions for the group interactions, e.g., agree times for posting, tolerate the lack of responses, topics of interest, etc.

6.7% chose other and some of them provided suggestions in relation to managing this FoMO. A number of respondents wanted a feature that summarises all the discussions in the online group. However, this suggested feature is already proposed which is termed as *Recap.* Others suggested that if they can set *different notification for different topics and interactions.* This is also reflected in the feature that has already been proposed in chapter 5 which is designated as *diverse notifications.*

1.7% of those who offered countermeasures did not choose presented countermeasures although this percentage does not affect the validity of proposed countermeasures. However, it may indicate that the proposed countermeasures are comprehensive and useful enough for the majority.

7.8.5.3   *FEAR OF MISSING THE ABILITY TO BE POPULAR*

When people could not interact in an online group as expected they may become preoccupied with missing social rank among their peers or family. However, there are a number of countermeasures namely *set a status and Terms and conditions* that could assist people in managing this kind of FoMO (see Chapter 5). In the following paragraph, these countermeasures were validated quantitatively from peoples' perspective in order to know what countermeasures people prefer.
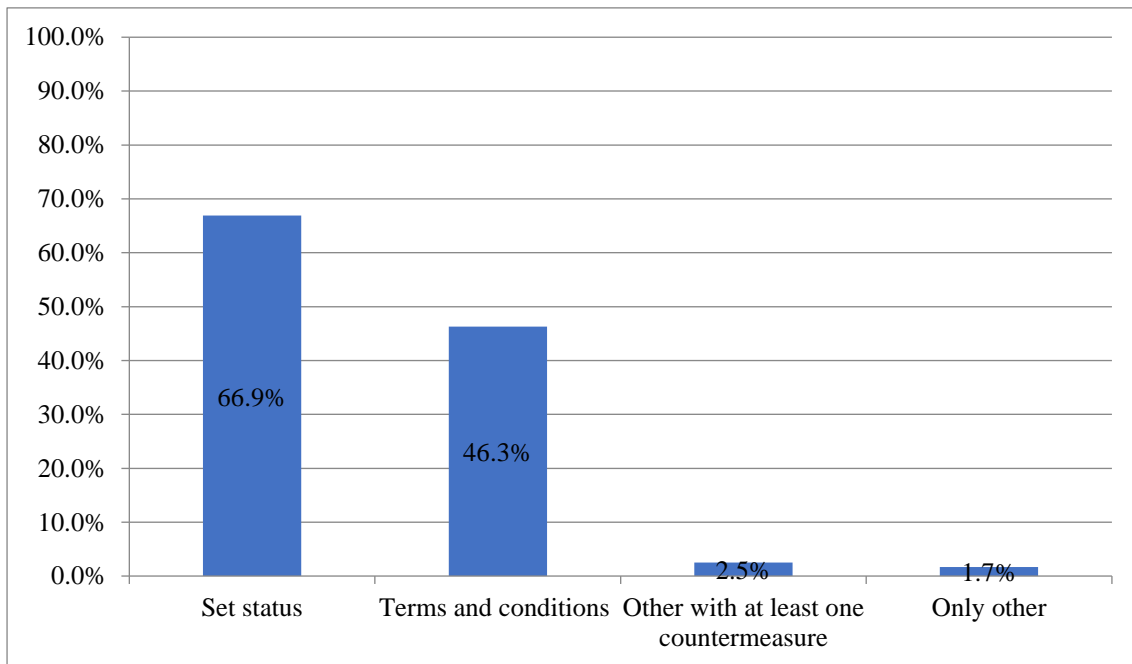
FIGURE 42: SELECTED COUNTERMEASURES FOR FEAR OF MISSING THE ABILITY TO BE POPULAR

Following the trend of all the statements, most participants chose one countermeasure, with the smallest percentage being all two chosen, this was measured by 83.5% and 14.9% respectively (see Table 18). As shown in Figure 42, within the provided countermeasures the majority of participants wished to set a status on their social media in advance so that their contacts would be aware of their other activities and the amount of time available to stay online with 66.9% agreeing. 46.3% of participants would prefer social media sites to provide a tool to enable them to set collectively agree times for posting, to tolerate the lack of responses and to indicate topics of interest.

4.1% of respondents selected other and some of them provided suggestions. One suggestion was supporting both countermeasures. Other suggestion was to inform the group members directly by messaging them about the available times. For example, one respondent said that *"I would tell group members I cannot speak and maybe rearrange the date."* This can reflect that social media can educate people on how to deal with online groups and make them resilient

to this. However, 1.6% of 4.1% did not choose presented countermeasures. The low percentage implies that proposed countermeasures seem to be useful and comprehensive by the majority.

7.9   DISCUSSION

In this chapter the acceptance of the proposed countermeasures to help people manage certain kinds of FoMO were measured. This measurement was achieved by completing either an online or paper survey. The total number of surveys that were utilised in the analysis was 121. Participants were asked to imagine themselves in the same presented situation and select one or two countermeasures, provide suggestions or refrain from choosing. The analysis was conducted using descriptive analysis (frequency procedure) for each statement independently to give a summary and describe the large volume of data that was collected. The results reveal that the majority of the participants selected the proposed countermeasures. Those who did not select such countermeasures were just a small percentage ranging from 0.8% to 7.4%. Furthermore, in some situations participants tended to select the presented countermeasures without refraining from the selection. Overall, the analysis of this data indicates that the proposed countermeasures are suitably comprehensive and useful for the majority and should be included in future designs of social media, albeit that there was a small percentage of participants who did not select the proposed countermeasures. This indicates that further research is required to investigate possible countermeasures that could prove suitable for these people.

Although the principles in conducting quantitative approach were considered, this study may still have two main threats to its validity. The first issue faced when designing a survey is to know whether the questions were obvious to all of the participants as expected. However, the author dealt with this threat by conducting a pilot test with typical respondents who met the criteria of this study and consequently some questions were revised and modified. The second issue is that the sample size for this study was 121 participants which may be considered a suitable size. However, a larger sample of participants would generate findings that are likely to be more generalisable and enable further countermeasures to be suggested. In future studies, further investigations based on a larger sample may be appropriate. The third issue is that speculating about the usefulness of countermeasures that do not currently exist poses another threat. For example, most participants (59.5%) preferred to set a different tone and alert style for temporarily available information and when information is about to expire. Meanwhile, 47.9% wished to have an event and content recorder to help them to record temporarily

available content and view it when they have time. However, it is important to note that event and content recorders were expected to have a greater percentage than diverse notification because it has the ability to give individuals sufficient time to see and watch that content. This might be because some participants are unable to select without trying it.

8. CHAPTER 8: FOMO REDUCTION METHOD (FOMO-R)

This chapter presents the proposed method (FoMO-R) for managing digital usage, utilising features that already exist on social media and proposed features that can be developed by future social media companies. Furthermore, FoMo-R contains educational elements that raise awareness of how FoMO happens and how can be managed it. This could build individuals' digital resilience in order to cope with a certain kind of FoMO when it is triggered. The method is intended to enable people to regulate their use of social media, in particular to manage FoMO. This method contains elements of the theory surrounding expectation management, anxiety management, compulsive behaviour, impulse control, uncertainty avoidance and self-control.

FoMO-R is built upon the transtheoretical model and utilising the results presented in Chapters 4 and 5. The results from Chapter 4 were used as part of FoMO-R in the stage of preparation to enable people to identify their FoMO and the results from Chapter 5 were used in the planning stage to provide people with a number of countermeasures to manage their FoMO. Meanwhile, Chapters 6 and 7 validated the strength of the different types of FoMO and people's acceptance of the countermeasures.

The chapter begins by explaining the theories that are specific to FoMO-R, then moves on to explain the philosophy of how and why those elements from those theories were selected. Finally, the customisation of the theories is presented.

8.1 SELF-CONTROL THEORY

Self-control has been defined as the effort that is exerted to regulate the self by the self. Self-control occurs when individuals try to alter the way in which they would otherwise think, feel or behave (Muraven and Baumeister, 2000). In the absence of self-control, individuals will carry out a particular desired behaviour; that is, they fail to delay gratification (Baumeister et al., 1994). This may occur in the use of social media when individuals are unable to interact with, or connect to, social media as they would like to, and thus exhibit impulsive behaviour because of their limited ability to postpone gratification. The reason behind this may be FoMO, in which people fear being ostracised from interaction with their friends or missing an opportunity (Wang et al., 2015).

8.2 ANXIETY MANAGEMENT

Anxiety is a significant part of FoMO which is operationally defined as "the fears, worries and anxiety people may have in relation to being in (or out of) touch with events, experiences and conversations happening across their extended social circles" (Cheever et al., 2014). Anxiety management offers an effective and safe technique as an alternative to anxiolytic drugs for dealing with anxiety disorders (Bulter et al, 1986). It is an active, self-help remedy relying on the vicious circle model of anxiety. Cognitive reappraisal of anxiety has been used to help people who have digital addiction and its effectiveness has been proven by people who have learned to recognise their digital addiction and to manage it (Santos et al., 2016). Consequently, it can be used to prepare people to identify FoMO triggers through their thoughts and feelings. Cognitive reappraisal of anxiety will be used in the planning stage of FoMO-R.

8.3   COMPULSIVE BEHAVIOUR

FoMO motivates individuals to continually check their social media accounts in order to remain strongly connected through their social relationships. This is a form of compulsive behaviour exhibited by individuals to satisfy their need to belong. Compulsive behaviour is related to addiction, as an "addiction is a persistent, compulsive dependence on a behaviour or substance" (Smith and Seymour, 2004). The definition goes on to state that there are two types of addiction: "substance addiction" and "process addiction". Substance addiction is an addiction to substances such as cocaine or alcohol. Process addictions comprise compulsive behaviours that do not depend on a consumable substance, such as gambling (Shaffer, 1996). In this case, it is the actual process of doing something that may make individuals addicted. According to this definition, FoMO may be classified as a process addiction that results in the unhealthy use of social media. Compulsive behaviour is a kind of anxiety disorder in which intrusive and subjectively uncontrollable thoughts are the main feature. Hence, compulsive behaviour can be coped with using techniques such as distraction and reappraisal (Hunt et al., 2018). Distraction and reappraisal techniques are some of the best candidates for involvement in the FoMO reduction method.

8.4   UNCERTAINTY AVOIDANCE

Uncertainty avoidance is defined as the extent to which the members of a culture feel threatened by uncertain or unknown situations, and is "related to anxiety, [the] need for security, and dependence upon experts" (Hofstede, 1984). It is also the extent to which an organisation or group depends on social norms or rules to alleviate the unexpected in future events. People

with high uncertainty avoidance are active, aggressive, emotional and compulsive (Hofstede, 1986). Thus, if a situation does not fit their perception or expectation of what is normal, they will create a degree of uncertainty that leads them to look for the cause. This can be seen in interactions on social media; when an experience does not meet an individual's expectations for interaction, they may seek answers as to why others do not interact with them, why interaction is lacking, or the style of interaction is insufficiently comprehensive. Hence, they may experience one or more kinds of FoMO, such as fear of missing the ability to be popular, fear of missing the ability to be interesting or fear of missing the ability to get the right interpretation. Such FoMO may lead them towards unhealthy behaviours, for example, cyberstalking or compulsive behaviours aimed at avoiding uncertainty. Interactions on certain social media among people should be obvious and declared in order to avoid any negative consequences; i.e. FoMO.

8.5   ATTRIBUTION THEORY

This theory supposes that individuals endeavour to explain the behaviour of others by attributing feelings, beliefs and intentions to them. Kelley (1972) states that people focus on three main areas when attempting to find an explanation for the behaviour of others:

- Consensus – Do other people not invite me to things?

- Consistency – Has this happened before with this group?

- Distinctiveness – Have I not been invited to other, different events?

People are driven to understand the behaviour and attitudes of those around them, known as attributions. This motivation is a reflection of the fact that humans are a fundamentally social species, whose survival and success is determined in part by how well they can predict and navigate their social world. Kelley (1972) notes that humans are influenced by the real, implied or imagined presence of others. With the rise of social media, the 'presence' of others has become ubiquitous. This has brought about a fundamental change in the locus of control in how people interact with their social group. Before social media, individuals may have attributed the frequency, or lack thereof, of interactions with their social group to the constraints of not being physically together. As such, there would be extended periods of time when individuals would not easily be able to communicate with each other; importantly, however, they would be aware that those within their social group had the same understanding of the situation. Since the development of smart devices and social media it is now almost

always possible for people to communicate and interact with their social group. Thus the locus of control for social communication and interaction has altered from partly externally determined to largely internally determined. However, the increased social interaction opportunities and the easy access to social media may cause individuals to experience FoMO, which is a preoccupation with what is occurring online and how others are reacting, either positively or negatively, to someone's online presence and interactions.

8.6   Resilience and FoMO

Resilience is often described as "a pattern of adaptive functioning in the presence of life adversities" (Masten et al., 1990, Wright and Masten, 2005), although the common definition most often used describes it as "the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances" (Masten et al., 1990). In the past decades, the definition has become more consistent (Naglieri et al., 2013), but there is a specific distinction between considering resilience as an outcome or as a non-static developmental process. Hence, the concept is difficult to define because it is not one simple construct but a combination of biological, psychological and sociological processes and interactions. This indicates the importance of understanding that resilience is a process of changing risk and protective factors that affect how people adapt in different contexts.

Risk, the common theme that emerges from the definition of resilience, is any unwanted circumstance that people face when taking action (Kaplan, 1999), and it aids the process by which they maintain adaptive functioning. It consists of precautionary factors, that "moderate against the influence of a stressful situation so that people are able to adapt more successfully than they would have, had the protective factor not been present" (Conrad and Hammen, 1993). Thus resilience is contingent on a stress-moderating or buffering process. There is controversy about the notion of resilience and the standard values that support what is considered 'good' functioning (Howard and Johnson, 2004, Bottrell, 2009).

Nowadays, definitions of resilience have been developed by researchers that take into consideration how young individuals navigate online risks. Online resilience is defined as "being able to deal with a negative experience online: i.e. not remaining passive but displaying problem-solving coping strategies in order to protect oneself from future harm" (Vandoninck et al., 2013). Several elements have been shown to help young individuals to successfully navigate and overcome online experiences, including: confiding in an adult (Livingstone et al., 2011); talking about the experience with someone (Kochenderfer-Ladd and Skinner, 2002);

being digitally literate (Vandoninck et al., 2012); having parents who facilitate their children's online media environment (Livingstone and Helsper, 2008); and having supportive peers (Nycyk, 2011).

Based on the definition of online resilience, FoMO is one of those negative online experiences that cause negative consequences (Beyens et al., 2016, Alt, 2015, Elhai et al., 2016, Hetz et al., 2015) such as: digital addiction, depression, negative feelings (Baker et al., 2016), insomnia, eating disorders (Beyens et al., 2016), low life competency (Elhai et al., 2016), emotional tensions (James et al., 2017, Lai et al., 2016), negative effects on physical well-being (Alt, 2015), anxiety (Oberst et al., 2017), emotional control (Wolniewicz et al., 2018), and insufficient sleep (Adams et al., 2017). As a result, FoMO-R may make people who use social media aware of how FoMO happens and how it is managed.

8.7   TRANSTHEORETICAL MODEL

The Transtheoretical Model is one of the prominent models in the field of behaviour change research. It is widely used by many researchers and practitioners. The model proposes that behaviour change goes through five milestones – pre-contemplation, contemplation, preparation, action, and maintenance – and is an attempt to combine ten core processes of behavioural change, including consciousness-raising, counter-conditioning and stimulus control, which are mapped to the stages of the model (Sutton, 2001). Several processes belong to more than one stage. This model will be taken as a template for the method that will be proposed to enable people to regulate their usage of social media, and in particular to manage FoMO, as will be explained in this chapter.

8.8   EMPOWERED REFUSAL (SELF-TALK)

People may find it difficult to say 'no' to temptation but it is an important skill that we all need to protect our health and well-being (Patrick and Hagtvedt, 2012). Distractions and temptations can often affect an individual's desired goals; for instance, social media can to some extent motivate addiction, even when the individual wishes to regulate their usage. Self-talk is a tool that can be used to frame an individual's resistance to temptation and to motivate goal-directed behaviour. Additionally, because self-talk affects the mental representation of one's selections, a refusal framed to signify a sense of empowerment and control has the potential to be effective in self-regulation (Patrick and Hagtvedt, 2012). The use of 'do not' can be effective when resisting temptation and motivating goal-directed behaviour due to the fact that it provides a

sense of psychological empowerment and also conveys force and determination, and is therefore final and not to open to discussion (Austin, 1975, Searle and Searle, 1969). Self-talk words are helpful in the mitigation of FoMO; for example, one might say "*I do not expect interaction from others when I post on social media.*"

The help-seeker will be told that each time they experience FoMO they should tell themselves "I don't do X." Also, they will be asked to rehearse the strategy. For instance, when unable to interact or connect as they wish, they should say "I do not need to check all things on social media," "I do not need to know everything about my contacts" or "I do not need to check each notification immediately."

8.9   EXPECTATION MANAGEMENT

Expectation is the strong belief that something will happen. It can be formed based on attitudes, values or norms (Ledingham, 2003, Heath and Bowen, 2002). In terms of communication and interaction on social media, individuals may form expectations of online interactions based on previous interactions with others, such as receiving responses immediately, or receiving 'Likes' or retweets. Additionally, individuals attempt to avoid being perceived as alien and aim to maintain a positive self-concept by conforming to the norms and improving reciprocity behaviour online (Feng and Ye, 2016). This may drive them to be more active on social media in order to avoid experiencing FoMO that might be the fear of missing the ability to defend their popularity or fear of missing the ability to be interesting. This is why expectation management is included in FoMO reduction methods. Individuals need to learn to manage their expectations when they are involved in online interactions. This can be achieved by utilising the cognitive reappraisal method. For example, when others do not interact as expected, individuals can manage their expectations by posting on social media without expecting interaction from others, or can interact with others without expecting reciprocal interaction. Another example of expectation management which helps users to avoid feelings of ostracisation by others on social media is to make clear to their social media contacts the style of their interaction and their current situation. If they adopt this approach, they need not feel uncomfortable when others do not interact with them and they ensure that their contacts are aware of their situation when they are unable to interact.

8.10   ENHANCING SELF-ESTEEM

Self-esteem is an individual's subjective evaluation of their own worth. If an individual feels unpopular because they have not achieved the number of 'Likes' for a post they expected, they may experience stress and anxiety (Hunt et al., 2018), and the feeling of FoMO in this context may link directly to posting a picture and particularly affect their self-esteem. Hence, it is necessary to enhance self-esteem to mitigate a certain kind of FoMO. This can be achieved by practicing a change in attitude. Individuals might say, "*my popularity is not measured by being active on social media and immediately responding to messages*" or "*I am not the only one who does not receive the interactions they expect.*"

8.11   PRE-POSTING THINKING (VFFT)

Pre-posting thinking is a basic strategy that may guide individuals to post on social media without experiencing negative feelings. VFFT guidelines make individuals think before posting on social media by asking themselves several questions as follows:

- What do I want to post?
- Does the post have value and add value to others?
- Does the post fit with the interests of the target audience?
- Are the post's format and language suitable?
- Is this a good time for those people targeted to receive my post?

A VFFT guideline considers different factors in relation to the post, and taken together the guidelines can help individuals to manage their posts on social media. Also, they may help individuals to reduce the number of posts they make, thus reducing time spent online. These factors are presented as following:

- **Value:** Individuals should ask themselves whether the quality of, or idea behind, the post is important and will benefit people on social media.
- **Fitness:** Does the content of the post fit the interests of those targeted?
- **Format:** Individuals should check the representation and language used in the post.
- **Time:** Users should be aware of the availability of others on social media. They should bear in mind the time zones of contacts/followers in other countries.

The important thing when a VFFT guideline is followed is that individuals have to consider the following expectations:

- Expect few interactions

- Expect no interactions

- Expect no immediate response

- Expect not all are interested

- Expect others are on leave

- Expect others may need time to process

- Expect that the algorithm has not shown their post to the intended recipient

- Expect that others were unable to connect to the internet

- Recognise that if they do not receive a response from someone who is online, they may be involved in an urgent or business conversation

- Recognise that if they do not receive a response from someone who is online, they may not be prepared to answer

- Recognise that if they do not receive a response from someone who is online, they may be busy reading a business message

8.12 FOMO-R DESCRIPTION

This method is intended to help people who:

- Seek help in relation to managing their FoMO

- Acknowledge FoMO

- Are willing to learn the principle of psychology

- Separate out the purposes of social media (i.e. use for leisure or work)

FoMO-R is built upon the template of the transtheoretical model. It involves progression through four stages of change – preparation, planning, action, review – and requires the raising of consciousness to achieve a change in behaviour. FoMO-R was designed in an attractive style (see Appendix 12.14). The subsections below explain in detail the procedure for helping people to regulate their use of social media, and particularly to manage their FoMO (see Table 19)

No	Stage	Description	Strategies to guide change
1	**Preparation**	This stage raises awareness of FoMO, and also provides the help-seeker with a greater understanding of the types of FoMO.	- Help-seeker selects the FoMO type(s) that they typically experience by referring to the self-rating sheet **(Sheet 1)**. - They remove the sticker(s) for their selection(s) and post it(them) on the self-monitoring sheet.
2	**Planning**	This stage assists the help-seeker to plan to manage FoMO by providing them with a set of suggested countermeasures. This includes learning: - Technical countermeasures such as auto reply, set status, etc. - Socio countermeasures such as self-talk, managing others' expectations, self-control, etc. - Relapse prevention strategy, which will prevent the help-seeker from reverting to their old habits.	- Help-seeker selects suitable technical and/or socio countermeasure(s) from the list of FoMO-reduction countermeasures document **(Sheet 2)**, **for each type of FoMO** that was selected on the self-rating sheet **(Sheet 1)**. - Help-seeker removes the sticker(s) for their selection(s) and posts it(them) on the self-monitoring sheet. - Help-seeker learns about relapse using **Sheet 3**.

3	**Action**	3.1 Application	Help-seeker applies the selected countermeasure.	• Help-seeker practices each of their selected countermeasures for a period of time, typically one week. • To prevent relapse whilst applying their selected countermeasure(s) they need to: - Perform the skills or activities outlined on **Sheet 3**; e.g. hobbies, positive self-talk, seeking moral support.
		3.2 Assessment	Help-seeker assesses their satisfaction with the selected countermeasure(s).	For each countermeasure they selected for each of the FoMO types they have, the help-seeker indicates on the self-monitoring sheet whether it was useful for them. - If they found at least one useful countermeasure for each of their FoMO types, they go to stage 4; the review stage. - If none of the countermeasures for one or more of the FoMO types they have failed to work, they go to the empowerment step.

		3.3 Empowerment	Empowerment of further support	• Help-seeker determines the challenges that may make it harder for them to manage their FoMO by answering the following questions:
				
				  1. Is peer pressure the cause?
				  2. Do you put the needs of others above your own?
				  3. Are there technical issues?
				• They select other countermeasures from the FoMO countermeasure document (**Sheet 2**), or follow the instructions on **Sheet** 4.
				• Return to the application stage and repeat.
				• If they run out of countermeasures and are unable to cope with their FoMO, go to the Review stage.

| 4 | **Review** | Help-seeker reviews their self-monitoring sheet to assess whether they have managed their FoMO. | Help-seeker describes the outcome of actions taken by answering the following:
1. What happened?
2. What has been improved?
3. Did you manage your FoMO?
If the help-seeker managed their FoMO, they repeat the first stage to see whether they have any other types of FoMO that could be addressed. If not they stop.
If they failed to manage their FoMO, they check that they had:
1. Selected the types of FoMO that applied to them.
2. Maintained a focus on the selected countermeasures and on the appropriate relapse prevention technique(s). If, after this, they have seen no improvement, there may be comorbidities. |

8.12.1   PREPARATION STAGE

The purpose of the preparation stage is to raise awareness of FoMO, and also to provide help-seekers with a greater understanding of the various types of FoMO. This is the stage in which help-seekers plan to manage their FoMo in relation to social media. They may be involved in this stage because they are unaware exactly how FoMO happens and of its consequences or they may have attempted to manage it but have low self-efficacy which means that they fail to enact the required change.

Prepration phase
• FoMO consciousness raising • Immersion in FoMO classifications • Diagnosis of FoMO (see Table 19)
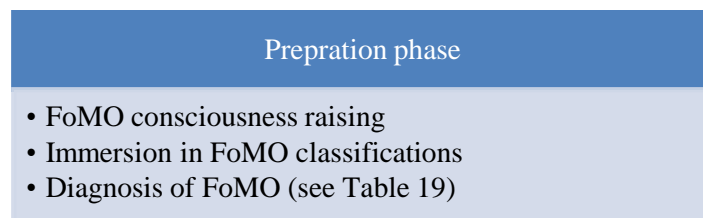
FIGURE 43: PREPARATION STAGE

Consciousness raising is the process that helps people move from stage to stage, it involves raising awareness of FoMO and how it happens in the use of social media. This is achieved by introducing the classifications of FoMO to help-seekers and asking them to select the FoMO type(s) that they typically experience by referring to the self-rating sheet (see Table 20); in other words, the things that preoccupy them when they experience a certain kind of FoMO. Sheet 1 is based on the results from Chapter 4 that demonstrated the different types of FoMO. The help-seeker is asked to tick the symptoms that they feel when they experience a certain FoMO situation, and is given self-rating sheet (see Figure 44) to diagnose their FoMO based on their daily usage. The aim of this stage is to make individuals fully aware of FoMO and how it arises on social media and also to prepare them for the next stage, the planning stage.

FIGURE 44: SAMPLE OF USER VERSION FOR SHEET 1

When others do not interact with me as expected on social media, I may be:
☐ Preoccupied with the lack of my participation with others that leads them not to interact with me **(P1)**
☐ Preoccupied with missing prior interactions with others that leads them not to interact with me **(P2)**
☐ Preoccupied with the loss of my reputation among friends **(P3)**
☐ Preoccupied with my post not being appealing enough **(P4)**
☐ Preoccupied with my profile being less active so that others do not interact with me **(P5)**
☐ Preoccupied that living outside my geographic social circle leads them not to interact with me **(P6)**
When I am unable to interact or connect to social media as I wish, I may be:
☐ Preoccupied with missing a particular post or information because of the large volume of information **(P7)**
☐ Preoccupied with the difficulty of reaching the necessary information because of the large volume of information **(P8)**
☐ Preoccupied with locating an important message because I have messages from different social media users **(P9)**
☐ Preoccupied with prioritising my response to messages from different social media users **(P10)**
☐ Preoccupied that posts by others' may be removed or naturally disappear, e.g. **s**tories on Snapchat, urgent messages or news feeds that disappear after a while **(P11)**
☐ Preoccupied that I have to respond immediately to the messages **(P12)**
☐ Preoccupied that my friends feel they are ignored **(P13)**
☐ Preoccupied with missing people who are rarely online on social media **(P14)**

☐ Preoccupied with missing being involved in current discussions on social media **(P15)**

☐ Preoccupied that I will miss supporting or defending friends, teams or opinions in online groups **(P16)**

☐ Preoccupied with the inability to talk about missed online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc. **(P17)**

☐ Preoccupied with increasing my participation on social media to retain or increase my followers **(P18)**

☐ Preoccupied with the need to update my profile frequently to retain or increase my followers **(P19)**

☐ Preoccupied with missing posts from a certain person (e.g. celebrities) **(P20)**

☐ Preoccupied with reinstalling the app for a certain social media platform in order to determine whether there are design issues **(P21)**

When I am unwilling to engage in social interaction (e.g. group chat), I may be:

☐ Preoccupied with ad hoc requests from group members **(P22)**

☐ Preoccupied with the loss of the benefits of the online group (e.g. plans for a party, assignment information) **(P32)**

☐ Preoccupied that my group members will not respond to me in future **(P24)**

☐ Preoccupied that my friends feel they are ignored **(P25)**

☐ Preoccupied with missing out on relationships and opportunities to build my reputation with others **(P26)**

☐ Preoccupied that I will not be involved in future discussions in online groups **(P27)**

When I keep checking or feel a need to engage in continuous untimed interactions, I may be:

☐ Preoccupied with reassuring friends I am interested in their conversation **(P28)**

☐ Preoccupied with not harming my self-image **(P29)**

☐ Preoccupied with missing empathy **(P30)**

☐ Preoccupied with not hurting the feelings of others (e.g. affecting their self-esteem) **(P31)**

☐ Preoccupied with not missing my social relationships **(P32)**

☐ Preoccupied with the need to reply to people who comment on my posts **(P33)**

☐ Preoccupied with the need to appreciate people who comment on my posts **(P34)**

☐ Preoccupied with the need to delete a post if negative comments are made **(P35)**

☐ Preoccupied with doing something wrong before knowing the impressions of others (making wrong decisions) **(P36)**

☐ Preoccupied with replying immediately **(P37)**

☐ Preoccupied with not letting people feel ignored **(P38)**

☐ Preoccupied with information needed by the sender **(P39)**

☐ Preoccupied with missing valuable opportunities (e.g. commercials or employment opportunities) **(P40)**

☐ Preoccupied with missing ad hoc requests **(P41)**

☐ Preoccupied with missing what others are doing **(P42)**

When I expect an online social gathering, I may be:

☐ Preoccupied with missing live chat **(P43)**

☐ Preoccupied with missing peoples' availability on social media **(P44)**

☐ Preoccupied with whether my name is mentioned in online groups **(P45)**
☐ Preoccupied with missing an opportunity to improve my social rank **(P46)**

8.12.2   PLANNING STAGE

This aim of this stage is to assist help-seekers to plan for their goal of managing FoMO by providing them with a set of suggested countermeasures. This includes learning:

- Technical countermeasures such as auto reply and set status that are based on the results in Chapter 5.

- Socio countermeasures such as self-talk, managing the expectations of others, and self-control.

- Relapse prevention strategies, which will prevent the help-seeker from reverting to old habits.

This stage is based on the cognitive reappraisal of anxiety and social media use method. Here, the help-seeker will learn about their daily social media use, cognitions involved in this use, and about anxiety. Cognitive distortions are determined in the first stage, and the help-seeker comes to realise that distortions such as the following facilitate the experience of FoMO and excessive use of the internet: "I have to answer my friends immediately, otherwise they will not forgive me"; "If my friends don't give 'likes' on my posts or my photos, it is a signal that they don't like me or that I did something wrong"; and "If I am unable to connect to social media, I will miss important or valuable things because the best things are on social media." All thoughts related to anxiety and social media use were extracted over two studies in this thesis. In order to support this method, it will be combined with a variety of methods that are intended to educate the help-seeker about reducing the feeling of FoMO (see Table 21). Help-seekers are asked to select suitable technical and/or socio countermeasure(s) from the FoMO-countermeasures document (see Table 22 and Figure 46) for each type of FoMO that was selected from the self-rating sheet **(Sheet 1)**, to find out about relapse using **Sheet 3** (see Table22), and then to move to the next stage, the action stage.

Planning Stage
• Cognitive reappraisal of anxiety and social media use • Empowered refusal • Expectation management • VFFT guidelines • Enhancement of self-esteem and self-regulation • Technical countermeasures • Visualisation of technical FoMO countermeasures

FIGURE 45: PLANNING STAGE

FIGURE 46: SAMPLE OF USER VERSION OF SHEET 2

Kinds of FoMO	Recommended technical countermeasures	Recommended socio-technical countermeasures
Context 1: FoMO when others do not interact as expected		
You posted your holiday pictures on social media a few times and expected to receive some 'Likes' and comments from friends but you did not receive any. Thus, you may experience the following FoMO but may practice the following techniques to reduce your fear:		
Fear of missing the ability to be popular (<u>P1, P2, P3</u>)	- **Auto-reply**, e.g. when you send a message, you would like your contacts to set a form of auto-reply to inform if they cannot interact currently - **Set status** e.g. before you send the message, you would be happy if your contacts declare their status, e.g. Busy, Driving On a call, etc. so you know they may not respond swiftly	-**Try to practice self-talk, you can say:** *I do not expect interaction from others when I post on social media* - **Try to improve your self-esteem by saying:** *I am not the only one who does not receive the interaction they expect* - **Try to manage your expectations by:** *posting on social media without expecting interaction from others OR interact with others without expecting reciprocal interactions* - **Try to control your anxiety by:** *distracting yourself by engaging in offline activities such as making coffee, cleaning the house, talking to the person next to you, walking around your house, etc.* - **Try to ask yourself** *what you would say to a friend who faced a similar situation*
Fear of missing the ability to be interesting (<u>P4, P5, P6</u>)	- **Set status**, you would like certain contacts to set their status in advance to show you whether they are online or available to interact or not. - **Social media** shows you who viewed your post	- **Manage the post by using pre-posting thinking**

Context 2: FoMO when unable to interact or connect as wished		
You are in a formal meeting and unable to check your social media even when you receive notifications. Also, you had a 5 minute coffee break but it wasn't enough to check all notifications and respond. Thus, you may experience the following FoMO but could practice the suggested techniques to reduce your fear:		
Fear of missing information due to a large volume of information (P7, P8)	- **Filter,** e.g. you are able to classify messages and notifications according to the topic, contacts, etc. involved. so that you can easily estimate their subject and importance. - **Priority list**, e.g. you can set levels of importance and relevance to topics, contacts, etc. so you are able to prioritise better.	- **Try to manage your expectations by:** *expecting to miss information* - **Try to** *keep your contacts informed about your current situation* - **Try to practice self-talk:** *you can say, I do not need to check all things on social media; I do not need to know everything about my contacts; or I do not need to check each notification immediately* - **Try to improve your self-esteem by saying:** *my popularity is not measured by being active on social media and immediate response to messages*
Fear of missing the ability to deal with different social media (P9, P10)	- **Auto-status,** e.g. Facebook sets you as busy automatically when you are using WhatsApp - **Set status,** e.g. you set a status manually on WhatsApp that you are busy on another conversation.	- **Try to manage your impulsive behaviour by:** *not reacting to each notification* - **Try to manage your impulsive behaviour by:** *not checking your social media for a period of time*
Fear of missing temporally available information; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a while (P11)	- **Event and content recorder**, e.g. having an offline version downloaded so you can still see such temporarily available content when you have time. - **Diverse notification**, e.g. using different tones and alert styles for such temporarily available information	

	and when content is about to expire, etc.
Fear of missing a timely interaction; e.g. responding to messages from friends to accept an invitation to a dinner party (P12, P13, P14)	- **Auto-reply,** e.g., you set some form of auto-reply that sends an automatic response to messages and informs your messaging contacts that you cannot respond immediately. - **Set status,** e.g. you set social media status in advance saying that you are in a formal meeting or unavailable so they know in advance about your situation.
Fear of missing participating in popular interactions (P15, P16, P17,	-
Fear of missing the ability to keep followers interested (P18, P19)	- **Set status,** e.g. you set a status in advance that shows your contacts and followers when you are able or unable to post and communicate online. - **Contextual awareness,** a function in your smart device that accesses your calendar and location and then updates your current situation; for example, busy or away, driving, or current local time.
Fear of missing information/events due to multi-following (P20)	- **Priority list,** such features help you to prioritise what you follow and connect to, e.g. pages, channels and profiles. - **Filter,** you set a filter to classify what you

	follow and connect to (e.g. pages, channels), according to their level of importance.	
Context 3: FoMO when unwilling to engage in social interaction		
Your colleagues are discussing a topic that is of interest to you; e.g. sport or music events in an online group. You are receiving notifications but you do not engage and check because you are tired or not in the mood to do so. Thus, you may:		
Fear missing valuable information (P22, P23)	- **Terms and conditions,** e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc. - **Recap** e.g. you wish if there is a recap feature that gives you a summary and highlights of what is discussed in the group.	- **Try to practice self-talk:** *you can say, my popularity does not depend on online participation* - **Try to practice self-talk:** *you can say, I do not engage in every online group interaction* - **Try to manage your expectations:** *by informing your online group members about your current situation, mood* - **Try to manage your expectations:** *by expecting to miss information on social media*
Fear missing the ability to defend your popularity (P24, P25, P26, P27)	- **Self-expression,** e.g. social media allows you to declare details about yourself in advance such as your topic of interest, times available for interaction and the style of your responsiveness, etc. - **Set status,** e.g. you set Facebook or WhatsApp statuses in advance to inform other contacts of things such as your current mood or time availability in order for them not to feel ignored if you are not there.	

Context 4: FoMO when having, or feeling a need, to engage in continuous and untimed interactions		
You are having a conversation on social media with a close friend. You want to stop the conversation but are unable to because you may:		
Fear missing empathy and leaving a good impression (P28, P29, P30, P31, P32)	- **Self-expression,** e.g. social media allows you to provide details about yourself in advance for your contacts to see before they interact with you; for example topics of interest, the maximum time available for conversations and the style of your responses. - **Set status,** e.g. you set the status on your social media in advance for your contacts to see; for example, your other activities and the amount of time you will stay online.	- **Try to practice self-talk:** *you can say, I do not need to spend a long time on conversations because I have a task to do; I have to go to sleep early, etc.* - **Try to practice self-talk: you can say,** *my popularity does not depend on an immediate response to the message* - **Try to control your compulsive feelings by distracting yourself by** • *Doing something that you enjoy* • *Occupying yourself with work* • *Keeping yourself busy* • *Calling to mind positive images* • *Thinking pleasant thoughts* - **Try to be away from the phone or computer**
You posted a video on social media (e.g. Instagram) and find it difficult to stop checking for responses when you are doing other activities (e.g. driving, physical exercise). You want to stop checking but you may:		
Fear missing the opportunity to know others's impressions (P33, P34, P35, P36)	- **Priority list,** e.g. where social media allows you to prioritise the importance of your contacts' responses. - **Diverse notifications,** e.g. you set different tones for specific contacts or reactions for specific posts.	- **Try to practice self-talk:** *you can say, I do not need to spend a long time on conversations because I have a task to do; I have to go to sleep early, etc.* - **Try to practice self-talk: you can say,** *my popularity does not depend on an immediate response to the message* - **Try to control your compulsive feelings by distracting yourself by** • *Doing something that you enjoy* • *Occupying yourself with work* • *Keeping yourself busy* • *Calling to mind positive images* • *Thinking pleasant thoughts*
Fear losing popularity (P37, P38)	- **Set status,** e.g. your email allows you to set a status which can be seen in advance and says that you are currently busy.	

	- **Alternative notification** e.g., receiving SMS or a vibration on your smartwatch if you have an urgent email from some contacts.	**Try to be away from the phone or computer**
Fear missing spontaneous responses (P39)	- **Diverse notification,** e.g. you set a different tone for comments that are related to your post. - **Alternative notification** e.g., receiving SMS or a vibration on your smartwatch if someone comments on your post.	
In the sales season, or on a discount day such as Boxing day or Black Friday, you are sitting with your family or friends while thinking about buying something. You start to check brand sites and their apps and your shopping groups because you may:		
Fear missing a valuable opportunity (P40)	- **Diverse notifications,** e.g. you set different tones for specific brands, discount types and products. - **Alternative notification,** e.g. receiving SMS or a vibration on your smartwatch if there is a major discount for a specific brand.	
Fear missing a sense of relatedness (P41, P42)	- **Colour indication,** e.g. you set a specific colour for the alert light or the notification icon to distinguish specific information coming from this group. - **Contextual awareness,** a function in your smart device that accesses your calendar and	

	location and then updates your current situation; for example, busy or away, driving or current local time.	

Context 5: FoMO when an online social gathering is expected		
When an informal online social gathering is planned (e.g. group chat on Facebook or WhatsApp) if there is a possibility that you will be unable to connect as expected for the whole session time or part of it, you may:		
Fear missing the opportunity to attend (P43)	- **Calendar event Reminder**, e.g. social media allows you to set the time and date of a specific event. - **Recap** e.g. you wish if there is a recap feature in social media that gives you a summary of what has been discussed in live chat.	- **Try to manage your expectations by:** *expecting to miss it* - **Try to:** *keep your contacts informed about your current situation* - **Try to practice self-talk:** *you can say, I do not need to check all things on social media; I do not need to know everything about my contacts; or I do not need to check each notification immediately* - **Try to improve your self-esteem by saying:** *my popularity is not measured by being active on social media and immediately responding to messages* - **Try to manage your impulsive behaviour by:** *not reacting to each notification* - **Try to manage your impulsive behaviour by:** *practicing not checking your social media for a period of time*
Fear of missing a sense of relatedness (P44, P45)	- **Terms and conditions,** e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc. - **Colour indication,** e.g. you set a specific colour for the alert light or the notification icon to distinguish specific information coming from this group.	
Fear of missing the ability to be popular (P46)	- **Set status,** e.g. you set your status on your social media in advance for your contact to see detailing your other activities and the amount of time	

| | available to you online, etc. | |
| | - **Terms and conditions,** e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc. | |

TABLE 22: SHEET 3 RELAPSE PREVENTION

What is relapse?

Relapse "refers to a breakdown or failure in a person's attempt to change or modify any target behaviour"

What is relapse prevention?

Relapse Prevention (RP) is a self-control technique designed to help individuals who are trying to change their behaviour. It enables them to anticipate and cope with the problem of relapse.

Important points, please read them:

1. If you manage your FoMO for a while and then begin to experience it again, you have relapsed.
2. Relapse happens because people may stop using the FoMO reduction method.
3. Relapse can be avoided by will power and self-discipline alone.

Relapse prevention plan

Coping skills: please list activities or skills you enjoy that will take your mind off social media

1.   2.   3.   4.   5.

To prevent relapse:

1. Please do one or more of the activities or skills that you listed in the relapse prevention plan, OR

2. Please do hobby related activities such as reading a book, walking, exercising, using a club membership, etc. OR

3. Practice positive self-talk, e.g. **YOU CAN SAY**

   - "Even though I am frustrated by not being connected or checking, I am open to the possibility I can find a calm space within myself." **OR**

   - "Even though I am anxious about not being connected or checking, I am open to the possibility I will feel better soon". **OR**

   - "Even though I am anxious about not receiving responses from others I know they have not done this on purpose".

8.12.3   ACTION STAGE

The action stage is divided into three sub stages as follows:

1. **Application step** in which help-seekers can manage their FoMO and regulate their usage style on social media. The help-seekers are asked to spend a period of time, typically one week, practicing and rehearsing the techniques they have selected from the previous stage, the planning stage. In this stage, the help-seeker is reminded by doing activities that were declared by them in the planning stage in order to prevent a relapse.

2. **Assessment step** in which the help-seeker is asked to assess their own satisfaction with using the selected countermeasure(s). This assessment is intended to assess the extent to which using the selected countermeasures made them feel psychologically empowered. The assessment works as follows:

3. For each countermeasure help-seekers selected for each of the FoMO they have, they indicate whether it was useful for them.

   - If they found at least one useful countermeasure for each of their FoMO types, they move on to stage 4, the review stage.

   - If they have one or more of the FoMO types without any useful countermeasures, they move on to the next step, the empowerment step.

4. **Empowerment** is where help-seekers find further support. To do so, they determine the challenges that may make it harder for them to manage their FoMO by answering the following questions:

1. Is peer pressure the cause?
2. Do you put the needs of others above your own?
3. Are there technical issues?

After having thought about these questions, they have a choice to select other countermeasures from the FoMO countermeasure document **(Sheet 2)**, or following the instructions in **Sheet 4** (see Figure 47), return to the application stage and repeat.

If they run out of countermeasures and are unable to cope with their FoMO, they move on to the next stage, the review stage.
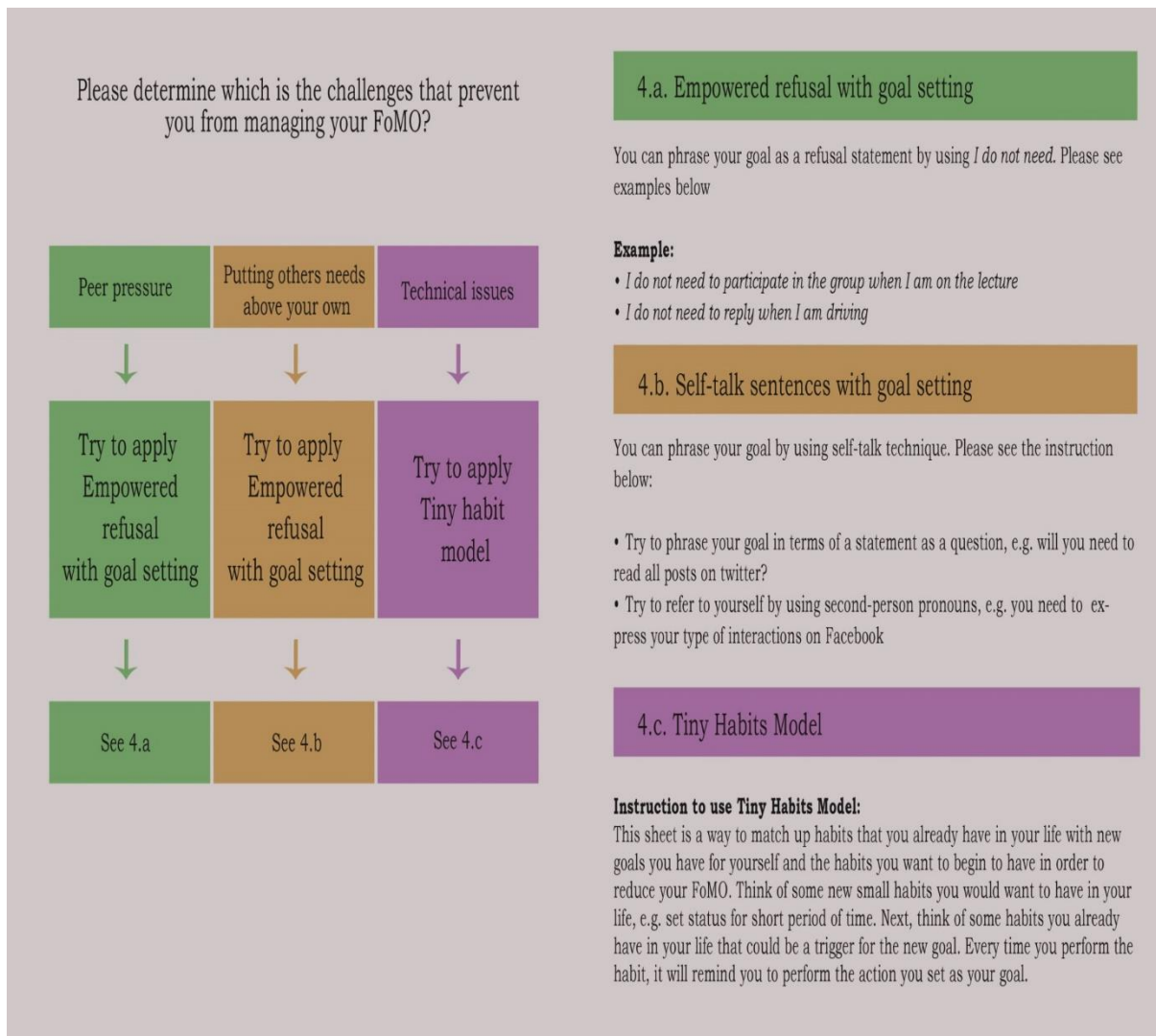
FIGURE 47: SAMPLE OF USER VERSION FOR SHEET 4

8.12.4   REVIEW STAGE

In this stage help-seekers review what they did in the previous stages to see whether they have managed their FoMO. This stage works by asking the help-seekers to answer the questions: 1) What happened?; 2) What has been improved?; and 3) Did you manage your FoMO? If they managed their FoMO, they repeat the first stage (the preparation stage) to see whether there are any other FoMO types that apply to them. If they do not select any additional types of FoMO, the FoMO-R process is ended. However, if they failed to manage their FoMO, they are asked to assure themselves that they selected all FoMO types that applied to them and that they maintained an appropriate focus on the selected countermeasures and the relapse prevention technique. For those who saw no improvement, this may be indicative of a comorbidity.

8.13   SUMMARY

This chapter begins by explaining the theories that are relevant to FoMO-R. Then the philosophy of how and why the elements from those theories are selected is explained. After that, the customisation of those theories is presented.

The chapter also proposes a FoMO reduction method (FoMO-R) that enables help-seekers to regulate their use of social media, and in particular to manage FoMO. FoMO-R consists of four stages, namely the preparation stage, planning stage, action stage and review stage.

9. CHAPTER 9: FOMO-R EVALUATION

Following on from the previous chapter where FoMO-R was introduced, this chapter reports on the method used to evaluate the FoMO-R. The FoMO-R is aimed at help seekers, where the goal is to raise their awareness of FoMO and how it can be managed. This could help build digital resilience among individuals, so as to assist them in being better able to cope with a certain kinds of FoMO, in the event of it being triggered. Therefore, this chapter focuses on the design of the evaluation study, the findings that emerged and finally the conclusions drawn.

9.1 EVALUATION STAGES:

The evaluation process comprised the following steps (see Figure 48)

Before using FoMO-R
- Baseline measures of FoMO awareness and experience will be gathered before using the FoMO-R, based on the FoMO Experience Test (see Table 23)

During use of FoMO-R
- Engagement: This refers to participant willingness to use the FoMO-R, as measured using a Treatment Questionnaire Concerning Continued Program Participation (TSRQ) (see Table 25)

After using FoMO-R
- FoMO experiences will be measured after using the FoMO-R, based on the FoMO Experience Test (see Table 26)
- Intention to use the FoMO-R will be measured after using the FoMO-R, e-Therapy Attitudes and Process Questionnaire (e-TAP)(see Table 27
- Usefulness, coverage and clarity will be measured using a questionaire

FIGURE 48: EVALUATION PROCESS

9.2 EVALUATION QUESTIONS:

The evaluation process seeks to address the following research questions:

Q1: Does the proposed method (FoMO-R) work effectively and contribute to managing people's FoMO? This question was answered by undertaking a comparative analysis of FoMO experiences both before and after using the FoMO-R (see FoMO Experience Test, Table 24).

Q2: Do participants engage in the use of the FoMO-R, in the absence of any coercion or pressure being exerted on them? This question was answered by using the Treatment Questionnaire Concerning Continued Program Participation (TSRQ) (see Table 26).

Q3: Can each stage provide a solid foundation for the next?

Q4: Are the supporting documents accompanying the FoMO-R sufficient to ensure that its main goal is achieved?

Q5: Does the FoMO-R flow well and are its supporting documents clear and understandable?

Q6: Do participants plan to use the FoMO-R in the future?

9.3 DESIGN OF THE EVALUATION STUDY:

This section sets out the procedures put in place in relation to participant recruitment and data collection.

9.3.1 SAMPLE RECRUITMENT

Thirty participants were recruited by an open call being issued through a student forum, where individuals could self-nominate to participate. All participants self-identified that they suffer from FoMO, in relation to their social media usage. Participants received a consent form and details outlining the purpose of the study through email, in advance, in order to give them adequate time to peruse these documents and seek further information, as required.

9.3.2 FOCUS GROUP

The first phase consisted of convening three focus group sessions, with a maximum of ten participants assigned to each. The focus group sessions were specifically designed to give participants an opportunity to immerse themselves in the issue, discuss their opinions about how FoMO occurs on social media and be instructed on how to use the FoMO-R (see Figures 49 and 50). In addition, participant demographic and FoMO experience data were collected by administering a survey (see Table 23). Each participant was given FoMO-R materials (See Appendix 12.14) The ten participants allocated to each focus group ranged in age from 18–42 years.

Personal information:

What is your age?

What is your gender?
☐ Male ☐ Female ☐ I prefer not to say

Before you are involved in achieving these steps of managing FoMO,
- **Are you willing to know how FoMO happens and how it can be managed on social media?**

  ◯ Yes   ◯ No

- **How do you rate your awareness of knowing the types of FoMO?**

Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

- **How do you rate your awareness managing your FoMO?**

Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

FoMO experience
Here are different kinds of FoMO in different contexts that may or may not apply to you. Please tick the box as close as possible to your daily experience with FoMO on social media.

	Always	frequently	Occasionally	Rarely	Very rarely	Never
When others do not interact with me as expected on social media, I may be:						
Concerned that others are choosing not to reply to me or comment on my post						
Concerned with missing to reply to others previous message or comment on their previous post that cause them not to interact with me						
Concerned that my reputation among my friends has declined						
Concerned that my post was not appealing enough for them to want to Like or Retweet it or even comment on it						

Concerned with my profile being less active so that others lose interest						
Concerned that if people live outside my city or country they may not interact with me						
When I am unable to interact or connect to social media as you wish, I may be:						
Concerned with missing a certain post because of the large number of posts or tweets						
Concerned with the difficulty of reaching the posts or tweets I need because of the large number of posts or tweets						
Concerned with locating an important message because I have messages from many different social media users						
Concerned with responding the most important messages received from different social media users						
Concerned that other people's posts may be removed or disappear; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a period of time						
Concerned that I have to respond immediately to messages						
Concerned that my friends feel they are ignored						
Concerned with missing people who do not often post messages on social media so that I may not find them when I come back online						
Concerned with missing being involved in current discussions that may be interpreted to mean that I do not like to participate in friends' discussions						
Concerned I may miss supporting or defending friends, teams or opinions on Facebook, WhatsApp, Snapchat, Twitter, Instagram or others social media platforms						

Concerned at the inability to talk regarding missing online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc.					
Concerned with the need to increase my activity on social media to keep or increase my followers					
Concerned with the need to update my profile frequently to keep or increase my followers					
Concerned at missing posts from a particular person (e.g. celebrities)					
When I am unwilling to engage in social interaction (e.g. group chat), I may be:					
Concerned about missing unexpected requests from group members					
Concerned about losing the benefits of being in the online group (e.g. plans for a party, assignment information)					
Concerned that group members will not respond to me in future					
Concerned that my friends feel they have been ignored					
Concerned about damaging relationships and reputations with others					
Concerned that I will not be involved in future discussions in online groups					
When I keep checking or feel a need to engage in continuous untimed interactions, I may be:					
Concerned about reassuring friends I am interested in their conversation when I really want to stop the conversation					
Concerned about not harming my self-image when I really want to stop the conversation					
Concerned about not showing empathy when I really want to stop the conversation					

Concerned about not hurting other people's feelings (e.g. affect others' self-esteem) when I really want to stop the conversation					
Concerned about missing my social relationships					
Concerned about the need to reply to people who comment on my posts or tweets					
Concerned about the need to value people who comment on my posts or tweets					
Concerned about the need to delete a post if negative comments are made					
Concerned about doing something wrong before knowing others' impressions (making wrong decisions) when I asked them about something					
Concerned about the need to reply immediately					
Concerned about not people feeling ignored so that I feel the need to reply immediately					
Concerned about information needed by the sender when I ask them to do something to help me					
Concerned about missing valuable opportunities (e.g. advertisements or job opportunities)					
Concerned about missing unexpected requests from friends/group members					
Concerned about missing out on what others are doing					
When I expect an online social gathering, I may be:					
Concerned about missing live chats					
Concerned about being unaware of whether or not people are available on social media					
Concerned about whether or not my name is mentioned in online groups					
Concerned about losing influence among my friends					

FIGURE 49: PARTICIPANTS ENGAGING IN FOCUS GROUP

FIGURE 50: PARTICIPANT ENGAGING IN FOCUS GROUP

9.3.3   DIARY STUDY

The second phase consisted of a diary study, comprising the 30 participants who had already participated in the focus group sessions. As part of this study, participants were requested to apply the FoMO-R over ten days. The diary studies approach was also chosen as it minimises recall bias and provides the opportunity to gather in-play data, which are more expressive and contextualised (Lazar et al., 2017). During the diary study phase, participants were requested to complete the TSRQ after three days (see Table 25). They were also asked whether they had encountered issues or difficulties when they were applying the FoMO-R, using the diary template (see Table 24). The aim of this question was to take participants' timely feedback into consideration when conducting the analysis. Participants were provided with a hard copy

document on which to write their diary entries, and they were also reminded to record this information through the use of text messages.

<div align="center">TABLE 24 : DIARY TEMPLATE</div>

Guidance

Thank you for agreeing to help me with this study. This diary is a qualitative research tool that is being used to capture your in-depth thoughts, feelings and reactions regarding your usage of FoMO-R materials. Here are some guidelines for completing the diary template:

1. The template of the diary will be received in hard or soft copy as you wish.

2. Please do not worry about using perfect English as long as you can communicate the meaning.

3. Remember that this is your diary and there are no wrong or right answers. I am interested in finding out as much as possible about your opinion about the use of giving materials. Therefore, please tell me as much as you can about that experience, no matter how unimportant it may seem to you. Feel free to add notes to texts, diagram or materials design, and I would much rather have too much information than too little. Everything you write within this diary is completely confidential and anonymous.

4. Please refer to the name of sheet and page number when you add comments.

If you have any questions during this activity, do not hesitate to contact me on aalutaybi@bournemouth.ac.uk

Thank you for your time,

Aarif Alutaybi

Sheet name	Page number	Comments

Treatment Questionnaire Concerning Continued Program Participation

The following questions relate to your reasons for continuing to participate in the FoMO management program. Different people have different reasons for continuing in such a program, and we want to know how true each of these reasons is for you. There are two groups of questions. The questions in each group pertain to the sentence that begins that group.

Please indicate how true each reason is for you, using the following scale:

1	2 3	4	5 6 7
not at all true		somewhat true	very true

A. I have remained in treatment because:
1. I would have felt bad about myself if I didn't.
2. Others would have been angry at me if I didn't.
3. I would have felt like a failure if I didn't.
4. I feel like it's the best way to help myself.
5. People would think I'm a weak person if I didn't.
6. I have chosen not to leave the program.
7. It is a challenge to accomplish my goal.
8. I have invested so much time in this program.

B. I have been following the procedures of the program because:
9. I believe they help me solve my problem.
10. I have been worried that I would get in trouble with the researcher if I didn't follow all
   the guidelines.
11. I want the researcher to see that I am really trying to manage my FoMO.
12. It is important to me that my efforts succeed.
13. I feel guilty if I don't comply with all the procedures.

9.3.4   QUESTIONNAIRE

The third phase consisted of administering a paper questionnaire, which comprised three parts. The first part of the questionnaire focused on participant FoMO experiences (see Table 26). The second section included e-Therapy Attitudes and Process Questionnaire (e-TAP) which is based on the Theory of Planned Behaviour in answering the question 6 (see Table 27). The final part contained a combination of open-ended and close-ended questions (e.g. ratings) (see Table 29). The open-ended questions were used to minimise the risk of missing important information and to allow participants to feel free to add information they felt was relevant to the FoMO-R evaluation process. Closed questions

were used to stimulate or trigger participant thought processes, while also ensuring that they had to invest less effort in completing the questionnaire. These questions focused on the usefulness, coverage and clarity of the FOMO-R (see Table 28). Participants who completed the diary study undertook the questionnaire, having used the FoMO-R. The questionnaire was employed to assess the extent to which participants understood the purpose that the FoMO-R is serving. This was achieved by undertaking a comparative analysis of participant answers gathered through the focus group sessions with their responses elicited through the questionnaire.

TABLE 26: FOMO EXPERIENCE MEASUREMENT

Regarding using FoMO-R ten days ago, please answer the following questions

- **How do you rate your awareness of knowing the types of FoMO?**

| Extremely aware aware | Moderately aware | Somewhat aware | Slightly aware | Not at all |

- **How do you rate your awareness managing your FoMO?**

| Extremely aware aware | Moderately aware | Somewhat aware | Slightly aware | Not at all |

FoMO experience
Here are different kinds of FoMO in different contexts that may or may not apply to you. Please tick the box as close as possible to your daily experience with FoMO on social media in the last ten days.

	Always	frequently	Occasionally	Rarely	Very rarely	Never
When others do not interact with me as expected on social media, I may be:						
Concerned that others are choosing not to reply to me or comment on my post						
Concerned with missing to reply to others previous message or comment on their previous post that cause them not to interact with me						
Concerned that my reputation among my friends has declined						

Concerned that my post was not appealing enough for them to want to Like or Retweet it or even comment on it						
Concerned with my profile being less active so that others lose interest						
Concerned that if people live outside my city or country they may not interact with me						
When I am unable to interact or connect to social media as you wish, I may be:						
Concerned with missing a certain post because of the large number of posts or tweets						
Concerned with the difficulty of reaching the posts or tweets I need because of the large number of posts or tweets						
Concerned with locating an important message because I have messages from many different social media users						
Concerned with responding the most important messages received from different social media users						
Concerned that other people's posts may be removed or disappear; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a period of time						
Concerned that I have to respond immediately to messages						
Concerned that my friends feel they are ignored						
Concerned with missing people who do not often post messages on social media so that I may not find them when I come back online						
Concerned with missing being involved in current discussions that may be interpreted to mean that I do not like to participate in friends' discussions						
Concerned I may miss supporting or defending friends, teams or opinions on Facebook, WhatsApp, Snapchat, Twitter,						

Instagram or others social media platforms						
Concerned at the inability to talk regarding missing online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc.						
Concerned with the need to increase my activity on social media to keep or increase my followers						
Concerned with the need to update my profile frequently to keep or increase my followers						
Concerned at missing posts from a particular person (e.g. celebrities)						
When I am unwilling to engage in social interaction (e.g. group chat), I may be:						
Concerned about missing unexpected requests from group members						
Concerned about losing the benefits of being in the online group (e.g. plans for a party, assignment information)						
Concerned that group members will not respond to me in future						
Concerned that my friends feel they have been ignored						
Concerned about damaging relationships and reputations with others						
Concerned that I will not be involved in future discussions in online groups						
When I keep checking or feel a need to engage in continuous untimed interactions, I may be:						
Concerned about reassuring friends I am interested in their conversation when I really want to stop the conversation						
Concerned about not harming my self-image when I really want to stop the conversation						
Concerned about not showing empathy when I really want to stop the conversation						

Concerned about not hurting other people's feelings (e.g. affect others' self-esteem) when I really want to stop the conversation						
Concerned about missing my social relationships						
Concerned about the need to reply to people who comment on my posts or tweets						
Concerned about the need to value people who comment on my posts or tweets						
Concerned about the need to delete a post if negative comments are made						
Concerned about doing something wrong before knowing others' impressions (making wrong decisions) when I asked them about something						
Concerned about the need to reply immediately						
Concerned about not people feeling ignored so that I feel the need to reply immediately						
Concerned about information needed by the sender when I ask them to do something to help me						
Concerned about missing valuable opportunities (e.g. advertisements or job opportunities)						
Concerned about missing unexpected requests from friends/group members						
Concerned about missing out on what others are doing						
When I expect an online social gathering, I may be:						
Concerned about missing live chats						
Concerned about being unaware of whether or not people are available on social media						
Concerned about whether or not my name is mentioned in online groups						
Concerned about losing influence among my friends						

The e-Therapy Attitudes and Process Questionnaire (eTAP)

1. I will use FoMO-R method to gain a better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4 5		6	7

2. I find FoMO-R method for controlling FoMO on social media to be:

Not helpful						Helpful
−3	−2	−1	0	+1	+2	+3

3. Those people who are important to me would approve of me using FoMO-R method to gain a better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

4. I possess the required knowledge to use FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

5. It is likely that I will use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

6. Most people who are important to me would approve of me using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

7. I find using FoMO-R method to gain better control over my FoMO on social media to be:

Harmful						Beneficial
−3	−2	−1	0	+1	+2	+3

8. It is mostly up to me whether I use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

9. I intend to use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

10. I find using FoMO-R method to gain better control over my FoMO on social media to be:

Unpleasant						Pleasant
−3	−2	−1	0	+1	+2	+3

11. Those people who are important to me would support me using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

12. I intend to ensure I have access to the required materials to use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

13. I have complete control over whether I use FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

14. I find FoMO-R method to gain better control over my FoMO on social media to be:

Not credible						Credible
−3	−2	−1	0	+1	+2	+3

15. I am confident using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

16. Those people who are important to me think FoMO-R method for managing FoMO on social media are credible:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

TABLE 28: COVERAGE, CLARITY, COHERENCE AND USABILITY QUESTIONS

Please answer the following questions about documents used in FoMO-R:

Q1: I got sufficient information about FoMO that is provided by a self-help guide sheet:

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please   elaborate   on   your   answer:

………………………………………………………………………………………
………………………………………………………………………………………
……

Q2: I got sufficient information about how different FoMOs happen on social media that is provided by self-rating sheet (Sheet 1):

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please   elaborate   on   your   answer:

………………………………………………………………………………………
…Q3: I got sufficient information about the countermeasures for combating FoMO that is provided by FoMO-reduction countermeasures sheet (Sheet 2)

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please   elaborate   on   your   answer   :

…………………………………………………………………………………………

…

Q4: I got sufficient information about relapse prevention from Sheet 3:

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |

Please   elaborate   on   your   answer:

…………………………………………………………………………………………

…

Q5: I got sufficient information about empowerment further support that is provided by Empowerment sheet (Sheet 4):

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |

Please   elaborate   on   your   answer

…………………………………………………………………………………………

…

<u>Please answer the following questions about FoMO-R as a whole:</u>

Q6: I got sufficient information regarding how to use FOMO-R method:

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |

Please   elaborate   on   your   answer:

…………………………………………………………………………………………

…

Q7: Generally speaking, FOMO-R method was not difficult to understand (e.g. it was explained in a clear way):

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please elaborate on your answer

Q8: Each stage of FoMO-R provides a solid foundation for the following one?

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please   elaborate   on   your   answer
………………………………………………………………………………………
…

Q9: Overall, FOMO-R method was not difficult to use:

●	●	●	●	●
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Please   elaborate   on   your   answer
………………………………………………………………………………………
…

Q10: Did you encounter issues or difficulties when using FoMO-R? If yes, please explain?

………………………………………………………………………………………

Q11: Did you experience any habitual behaviour while you were applying FoMO-R? If yes, please explain?

………………………………………………………………………………………

Q12: Would you like to add any further thoughts? If yes, please explain?

9.4   ANALYSIS

Data analysis was carried out in order to address the research questions set out earlier. Essentially, its primary objective was to evaluate the proposed method (i.e. the FoMO-R), by establishing whether it is sufficiently comprehensive. This included considering factors such as: its awareness-raising induction capability regarding FoMO types and how this can be managed; and determining if its supplementary materials (self-rating and countermeasure education documents) provide sufficient information about how FoMO occurs on social media and how it can be managed.

The returned evaluation forms were analysed, where the responses were cleaned up and irrelevant/inconsistent answers were excluded. Descriptive analysis of the quantitative aspects of the survey was conducted in order to describe the data. In addition, a series of paired samples t-test was performed to test whether any difference in FoMO experiences occurred before and after using the FoMO-R. Paired sample t-tests were done on the total score within each context, instead of on individual questions (see **Section 9.5.7**). Qualitative analysis was also applied to the open-ended questions contained in the survey, which comprised coding the responses, as well as identifying patterns and trends, which were subsequently classified into various categories. The quantitative and qualitative findings were compiled and they were then reported on collectively.

9.5   FINDINGS

The findings were structured in line with the question format adopted in the evaluation. In addition, the diary study and open-ended question (qualitative) components of the evaluation were reported on in conjunction with the quantitative aspect and these were differentiated in the text using italics.

9.5.1   SAMPLE

Thirty participants took part in this study. All participants stated that they were keen to learn more about how FoMO manifests and how it can be managed on social media. Therefore, fifteen men and fifteen women (n=30), ranging in age from 18–42 years (M=26.37, SD=5.89) participated in this study. Appendix 12.13 provides a sample of answers delivered during the evaluation stages.

9.5.2   RELIABILITY AND VALIDITY OF THE INSTRUMENTS

Cronbach's alpha was computed in order to test the internal consistency of the reflective measures. Internal consistency is "the extent to which measures are positively correlated, with higher correlations resulting in higher estimates of internal consistency reliability" (Edwards, 2011). Sekaran and Bougie (2016) posited that the closer the value of Cronbach's alpha reliability is to 1, then the more reliable this measurement will be. Table 29 presents the evaluation of Cronbach's alpha reliability values, which are in line with Sekaran and Bougie (2016) interpretation.

TABLE 29: EVALUATION OF THE VALUES OF CRONBACH'S ALPHA RELIABILITY (SEKARAN & BOUGIE, 2016)

Value of Cronbach's alpha reliability	Evaluation
Less than 0.6	Poor
In 0.7 range	Acceptable
Above than 0.8	Good

Cronbach's alpha coefficients of all the reflective questionnaires measured in the evaluation study are presented in Table 30. It can be noted in this table that the internal consistency reliabilities of all the constructs are considered to be good (over 0.8).

TABLE 30: CRONBACH'S ALPHA COEFFICIENTS OF REFLECTIVE CONSTRUCTS IN THE EVALUATION STUDY

Questionnaires	No. of items	Cronbach's Alpha
Before using FoMO-R	47 Items	0.968
After using FoMO-R	47 Items	0.957
Assessment of FoMO-R	9 Items	0.840

9.5.3   FOMO-R COVERAGE:

In response to the question regarding FoMO-R coverage (see Figure 51), it can be seen that the largest proportion of the sample strongly agreed that they had received sufficient information on how to use the FoMO-R, with 60% strongly agreeing with this statement. It can also be noted that no one expressed a negative attitude toward the completeness of the FoMO-R information provided as a self-help guide to respondents.

One participant commented on the coverage of FoMO-R, stating that, *"The booklets provide step by step plans for identifying, treating and preventing FoMO in users in an effective way"*. Another remarked that, *"The whole process was explained sufficiently in the self-help guide with the use of diagrams and figures"*.
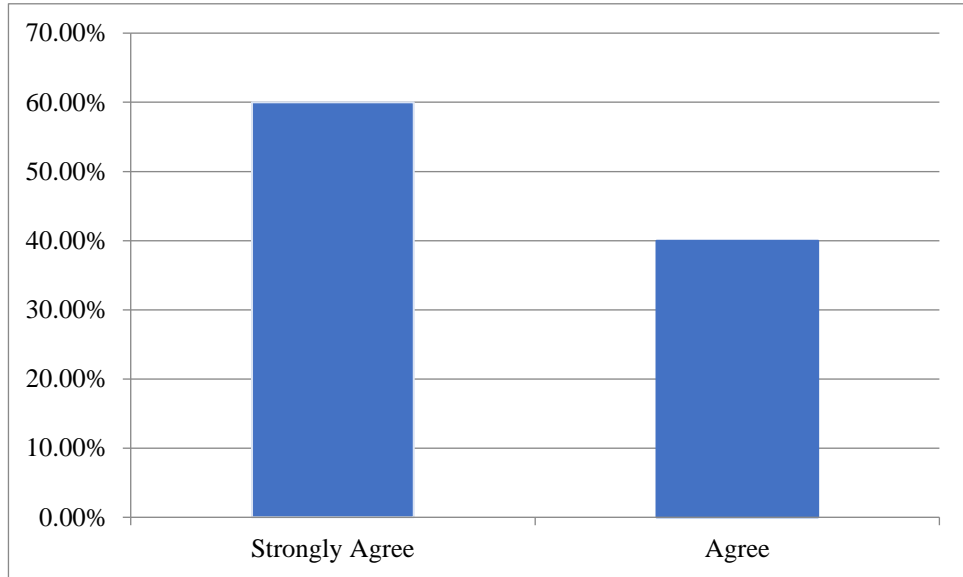
FIGURE 51: FOMO-R COVERAGE

Moreover, in response to questions regarding the coverage of the FoMO-R supplementary materials used (see Figure 52), namely, the self-help guide and Sheets 1–4, the following sections will explain the responses received for each sheet separately.
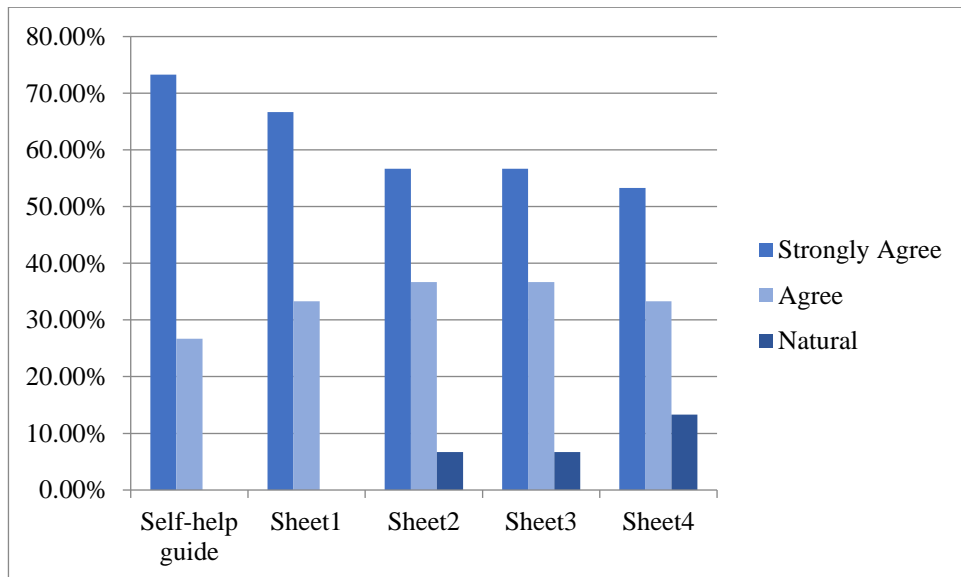
FIGURE 52: SUPPLEMANTARY MATERIALS COVERAGE

In the question relating to the coverage of the **self-help guide** (which provides information on how FoMO occurs on social media), most of the participants displayed a

strong positive attitude toward it. They claimed that it provided sufficient information about FoMO in relation to social media use, with 73.3% strongly agreeing with this statement. A further 26.7% of participants displayed a positive attitude by agreeing with the statement. It can also be noted that no participant expressed either a negative or strongly negative reaction or indeed a neutral opinion.

Additionally, a question was included relating to the coverage of **<u>Sheet 1</u>**, which provides statistics regarding the large numbers of FoMO that exist within different contexts. In response to this question, it can be noted that a large proportion of the participants (66.7%) strongly agreed that the information provided in Sheet 1 was complete, while the remaining one-third (33.3%) agreed with this statement.

Most participants provided positive comments regarding Sheet 1. One such example is captured in the comment that, "*Sheet 1 was helpful for us and make me aware of what types of FoMOs occur on social media*". Another participant commented on the colour used for this sheet, stating, "*The different kinds of FoMOs were divided into sections and the colours helped to place the different FoMOs into groups. Lots of them you experience yourself so it's easy to remember*".

<u>Sheet 2</u> outlines a variety of countermeasures that exist, which are either technical or social, and they can help people in managing the different forms of FoMO. With regard to the question on coverage of Sheet 2, analysis has shown that most participants strongly agreed that it contained sufficient countermeasures combating different types of FoMO, with 56.7% strongly agreeing with this statement. A further 36.7% reacted positively to the sheet, by agreeing that the key information was included. Finally, a neutral opinion was held in relation to this question by 6.7% of participants.

Overall, the comments were positive in relation to the coverage of this issue in Sheet 2. One of the comments focused on the detailed description provided of each countermeasure, with one participant noting that, "*Each countermeasure has sufficient description that helps us to apply it and to identify the best one*". Another participant indicated that, "*There are plenty of countermeasures provided that help them in managing their FoMO*".

Furthermore, descriptive analysis of the question on the coverage of **<u>Sheet 3</u>** showed that most participants strongly agreed that the relapse prevention sheet outlined an adequate

number of techniques detailing preventing the recurrence of relapse, with 63.6% strongly agreeing with this statement. In addition, a further 33.3% of participants expressed a positive reaction toward it. A neutral opinion regarding the completeness of Sheet 3 was held by 3.3% of participants. It can be seen that participants who expressed neutral opinion they might not use Sheet 3 and this could be inferred from one of the participant's comment "*I do not use sheet 3 because I found countermeasures are useful to me.*"

The comments provided further reinforced that participants supported the details contained in Sheet 3, with one of them describing it as "*a reminder for me about comprehensive activities and techniques that help me to prevent the occurrence of relapse through the use of countermeasures*".

<u>Sheet 4</u> sets out further countermeasures which can help people if those suggested in Sheet 2 are not sufficiently useful for them. Analysis of the data emerging from the question regarding the coverage of Sheet 4 revealed that 53.3% of participants strongly agreed that the sheet was useful, while a further 33.3% agreed with this statement. A neutral opinion was held by 13.3% of participants, and whereby it can be seen that in all subsequent graphs the total percentage of neutral opinions expressed never exceeded 3.3%. This higher neutral rating might be reflective of the fact that these participants did not use Sheet 4.

Moreover, the comments provided by participants supported the views held regarding the coverage of the issue in Sheet 4, where one participant stated that, "*There was lots of information given and it was easy to understand when we could not find another useful countermeasure*". Another noted that, "*Sheet 4 empowerment methods explain and identify very clearly and concisely ways to help the user overcome FoMO and empower themselves*".

9.5.4 FOMO-R CLARITY

One of the aspects considered in this study was the level of clarity surrounding the FoMO-R, in terms of how clear and easily understandable it is for help seekers. In response to the question regarding this aspect, the results indicate that (see Figure 53) the largest proportion of participants strongly agreed that the FoMO-R was not difficult to understand and was explained in a clear manner, with 70% strongly agreeing. It can also be noted that no participant displayed a negative or strongly negative reaction. In all, 3.3%

of participants expressed a neutral opinion regarding the issue of clarity in relation to the FoMO-R.

A variety of positive comments were received in relation to the clarity of the FoMO-R. The following is an outline of some of these:

- *"FoMO-R is straight forward".*
- *"I can describe FoMO-R as a self-explanatory method that enables a person to use it without professional help".*
- *"The guides were easy to read and follow".*
- *"The method was clearly explained and made easy to use".*
- *"It was explained very clearly and sufficiently".*
- *"The whole means of dealing with FoMO, alongside the stickers helped to countermeasure against FoMO".*
- *"The colours really helped".*

However, there was a negative comment about the background colour of materials. Some participants mentioned that "*in some contexts, the background colour could be confusing and they suggested using light colours to make the text easier to read*".
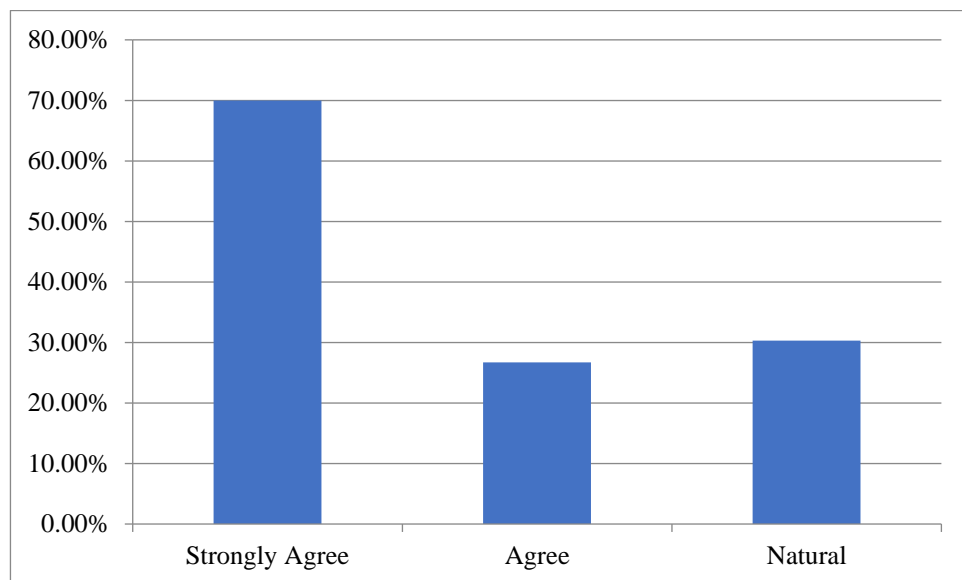
FIGURE 53: FOMO-R CLARITY

9.5.5 FOMO-R COHERENCE

FoMO-R coherence was another aspect examined in the evaluation study. This component was included in order to establish whether each FoMO-R stage provides a

solid foundation for the following one. From a participant perspective, questionnaire responses (see Figure 54) revealed that a similar proportion expressed either a strongly positive or a positive reaction, with 50% strongly agreeing and 46.7% agreeing. A further 3.3% of participants expressed a neutral opinion that strong continuity exists between all the FoMO-R stages.

Positive comments were recorded regarding the coherence of the FoMO-R. The following are some examples:

- *"The structure was connected and when you follow the steps it makes sense".*
- *"They all link really well together".*
- *"They were all clearly linked and easy to follow".*
- *"From Sheet 1 to Sheet 4, it all flowed and made sense, easy to use and illustrative".*
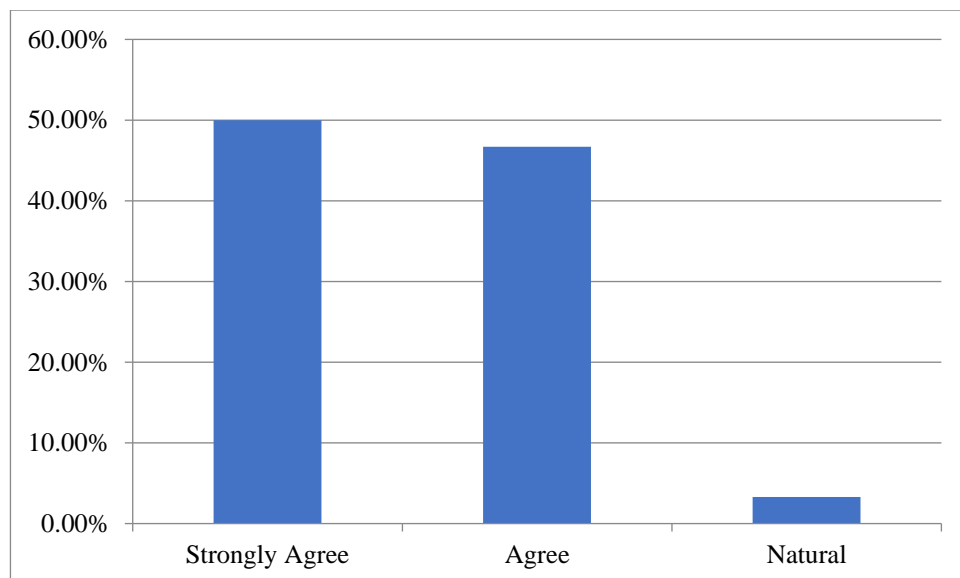
FIGURE 54: COHERENCE OF FOMO-R

9.5.6   FOMO-R USABILITY

Usability refers to the ease of use and learnability of a tool. Within a software engineering context, usability is the level to which software can be utilised by specified individuals to perform particular goals with effectiveness, efficiency and satisfaction. Thus, the usability of the FoMO-R was evaluated and considered in this study, as was the self-help guide which has also been developed to accompany it. In response to the question regarding FoMO-R usability, quantitative analysis (see Figure 55) has revealed that most participants strongly agreed with the statement that the FoMO-R was not difficult to use

(63.6%). In addition, it was noted that that a further 33.3% of participants expressed a positive reaction. A neutral opinion regarding FoMO-R usability was held by 3.3% of participants.

A variety of positive comments were expressed regarding the usability of the FoMO-R. The following is a sample of some of them:

- *"Overall, the experience was efficient and effective. It was simple and clear and explained for easy implementation".*
- *"The method is very simple if the process was followed according to the steps provided".*
- *"It was a straight forward method to follow and presented clearly".*
- *"The stickers and different booklets made FoMO-R really easy to follow and use".*
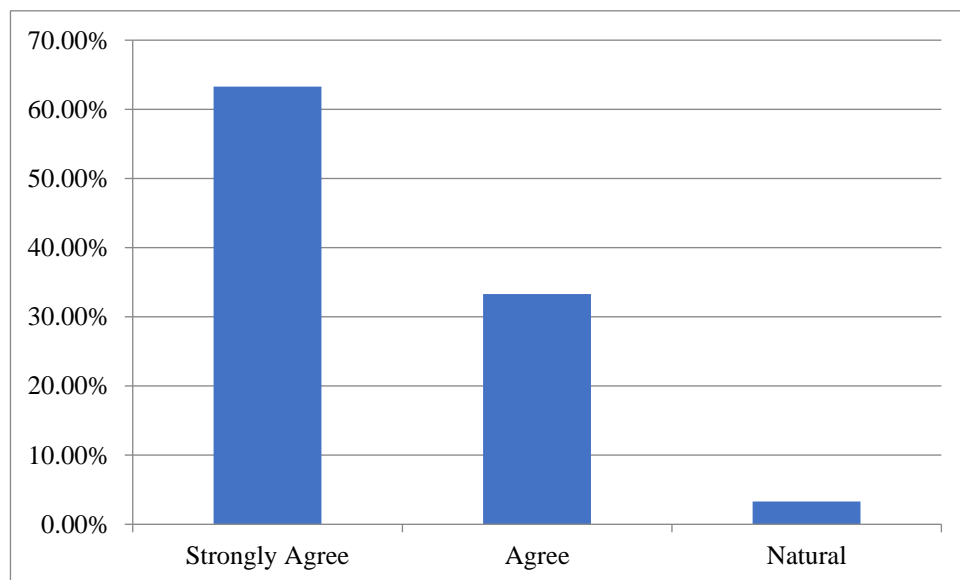
FIGURE 55: FOMO-R USABILITY

9.5.7 EFFECTIVENESS OF FOMO-R

The effectiveness of the FoMO-R was evaluated by undertaking a comparative analysis of the FoMO experience before and after using the FoMO-R. To achieve this, a series of paired- sample t-tests were performed to compare the FoMO experiences of participants in different contexts both before and after FoMO-R usage (see Tables 31 and 32, respectively). In the following two tables, **B** refers to before using the FoMO-R, while **A** refers to after its usage.

TABLE 31:PAIRED SAMPLES STATISTICS

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Awareness of FoMO Types B	3.43	30	1.00	.183
	Awareness of FoMO Types A	1.23	30	.43	.07
Pair 2	Awareness of FoMO Managing B	3.56	30	1.16	.21
	Awareness of FoMO Managing A	1.70	30	.74	.13
Pair 3	Context_1_Total_B	21.13	30	8.05	1.46
	Context_1_Total_A	28.53	30	5.32	.97
Pair 4	Context_2_Total_B	46.06	30	15.56	2.84
	Context_2_Total_A	65.80	30	10.42	1.90
Pair 5	Context_3_Total_B	19.0333	30	7.86	1.43
	Context_3_Total_A	28.53	30	5.41	.98
Pair 6	Context_4_Total_B	44.80	30	16.37	2.99
	Context_4_Total_A	69.30	30	10.51	1.92
Pair 7	Context_5_Total_B	13.33	30	4.56	.83
	Context_5_Total_A	19.13	30	3.319	.60

TABLE 32:PAIRED SAMPLES TEST

		t	df	Sig. (2-tailed)
Pair 1	Awareness of FoMO Types B Awareness of FoMO Types A	12.092	29	$p < .001$
Pair 2	Awareness of FoMO Managing B Awareness of FoMO Managing A	7.530	29	$p < .001$
Pair 3	Context_1_Total_B - Context_1_Total_A	-6.356	29	$p < .001$
Pair 4	Context_2_Total_B - Context_2_Total_A	-10.139	29	$p < .001$
Pair 5	Context_3_Total_B - Context_3_Total_A	-9.132	29	$p < .001$
Pair 6	Context_4_Total_B - Context_4_Total_A	-10.457	29	$p < .001$
Pair 7	Context_5_Total_B - Context_5_Total_A	-8.262	29	$p < .001$

A Bonferroni correction was applied to the results to accommodate the multiple comparisons that were made to the data set (.05/7). All significant results from the paired sample t-tests were < .001, and as such the application of this correction did not change the interpretation of the results.

There was an improvement in both types FoMO awareness and in FoMO management across all five contexts. Overall, taken together, these findings suggest that the FoMO-R is expected to work effectively and contribute to helping people to manage their FoMO. This is achieved by creating awareness among them of how FoMO occur on social media and how they can be managed by adopting different countermeasures, which can be either technical or social in nature.

9.5.8   ENGAGEMENT OF USING FOMO-R

Engagement, within this context, refers to a willingness to use the FoMO-R, in the absence of any interpersonal coercion or pressure being exerted. This is a reflection of "autonomous behaviour which is one for which the regulation is experienced as chosen and as emanating from one's self. In contrast, controlled behaviour is one for which the regulation is experienced as pressured or coerced by some interpersonal or intrapsychic force" (Williams et al., 1996). Thus, TSRQ was used to test the participants' reasons for continuing to use the FoMO-R (see Table 25), as well as to adhere to the guidelines provided. The participants were required to complete this questionnaire after the third day of the study.

Table 33 presents the means and standard deviations of each factor for participants who completed the questionnaire. The first factor was autonomous regulation, and it comprised five items representing autonomous reasons for using the FoMO-R (Q4, Q6, Q7, Q9 and Q12) and adhering to the guidelines. The scores for this factor were in the range of 5 (low score) to 35 (high score). The second factor, controlled regulation, contained eight items, which described control-related reasons for using the FoMO-R (Q1, Q2, Q3, Q5, Q8, Q10, Q11 and Q13) and adhering to the guidelines. The score range for this factor was from 8 (low score) to 56 (high score). Descriptive statistics produced were as follows: autonomous regulation (M=26.20, SD= 4.06); and controlled regulation (M=30.43, SD=9.73).

These results indicate that the mean autonomous regulation score was 26.20 with a standard deviation of 4.06. The mean plus the standard deviation is 30.26 which is a

positive outcome, given that it is relatively close to the highest possible value of 35. This may reflect that participants were self-directed and purposefully engaged in using the FoMO-R, thus exercising a strong sense of choice. Essentially, participants continued to use this tool without feeling in any way pressurised or coerced. This may be because participants found that the FoMO-R was helpful in managing their FoMO. In contrast, their controlled regulation mean score was 30.43 and standard deviation was 9.73. The mean added to the standard deviation is 40.16, the delta between highest possible value of 56 and 40.16 is 15.84, this indicates a higher value than autonomous regulation participants. In the two factors captured in table 33 "Autonomous Regulation" and "Controlled Regulation", it is evident the mean subtracted by the standard deviation for Autonomous Regulation yields a relatively high "Possible Scores" as it is 22.14, the highest possible score is 35. However, for Controlled Regulation the mean subtracted by the standard deviation yields a low "Possible Score" as it is 20.7. and the highest possible score is 56.

TABLE 33: MEANS, STANDARD DEVIATIONS, RANGES, AND SAMPLE SIZES FOR AUTONOMOUS REGULATION AND CONTROLLED REGULATION

Factors	N	No.Item	Possible Scores	Mean	Std. Deviation
Autonomous Regulation	30	5	5 - 35	26.20	4.06
Controlled Regulation	30	8	8 - 56	30.43	9.73

9.5.9 ACCEPTANCE OF FOMO-R

Acceptance of use of the FoMO-R in the future was tested using the e-TAP, which is based on the TPB. Ajzen (1991) devised the TPB, which is underpinned by a social cognition model and affirms the role of intention in anticipating actions (Webb et al., 2010). This theory advances that intention in itself is the result of the following four factors:

- **Behavioural intention**, which refers to the motivational elements required to predict individual behaviour.
- **Attitude toward the behaviour**, which is influenced by expectation and the desired outcomes.

- **Subjective norms** (for example, social pressures and norms), which are determined by the expectations of peers and individual motivation to comply with their beliefs.
- **Perceived behavioural control**, which refers to the perceived capacity to achieve the behaviour.

Originally derived from the theory of reasoned action (Bagozzi, 1986), this theory gradually evolved, whereby a third factor was inserted which expresses the same sense of self-efficacy (Terry and O'Leary, 1995). Such factors can be used to create an exploratory framework which aims to predict people's behaviours (Riekert et al., 2013).

The e-TAP questionnaire was used to predict FoMO-R usage behaviour among participants. In order to achieve this, an e-TAP questionnaire was selected, which measures TAB factors. This questionnaire contained 16 items (see Table 27). Having used the FoMO-R, participants were then requested to complete the e-TAB questionnaire.

In response to the questionnaire, Table 34 outlines the distribution of means and standard deviations for intention, attitude, subjective norms and perceived control in relation to FoMO-R use. The score range for the behavioural intention subscale was between 4–28, however the actual mean score recorded was 23.90 (SD = 2.74), indicating that the participants had moderate intention to use the FoMO-R. The participants displayed a favourable attitude toward use of the FoMO-R, as evident from their mean score of 25.36 (SD = 2.15). In relation to the subjective norms and perceived behavioural control subscales, the participants' scores were 23.70 (SD = 2.53) and 23.93 (SD = 2.9), respectively. This indicates that the opinions of significant others regarding the participants' FoMO-R usage behaviour, along with participants' perceived control over FoMO-R usage, exerts a positive influence on the latters' behaviour. The results emerging from all TPBQ factors were positive, which indicates the possibility that the FoMO-R method will be adopted in the future as in all four factors the mean plus the standard deviation is relatively close to the highest possible score. Essentially, participants perceive that the FoMO-R is a useful approach in helping them to manage their FoMO more effectively. For all four factors in the table below (table 35) the mean subtracted by the standard deviation yields a high "possible score" number, for example, for behavioural intention factor the mean subtracted by the standard deviation is 21.16, this

is a relative high "possible score" this proves that the participants had intentions to use FOMO-R.

TABLE 34: DISTRIBUTION OF RANGE, MEANS AND STANDARD DEVIATION OF INTENTION, ATTITUDE, SUBJECTIVE NORM, PERCEIVED CONTROL AS PREDICTORS OF FOMO-R USE (N= 30)

Factors	N	No.Item	Possible Scores	Variance	Mean	Std. Deviation
Behavioural Intention	30	4	4 - 28	7.54	23.90	2.74
Attitude toward the Behaviour	30	4	4-28	4.65	25.36	2.15
Subjective Norm	30	4	4-28	6.42	23.70	2.53
Perceived behavioural Control	30	4	4-28	8.47	23.93	2.911

9.6   EVALUATION QUESTIONS REVISITED

This section will review the answers provided in relation to each of the evaluation questions, as follows:

Q1: Does the proposed method (FoMO-R) work effectively and contribute to managing people's FoMO?

In order to answer this question, a series of paired-samples t-tests were carried out to compare FoMO experiences in different contexts by participants before and after use of the FoMO-R. Ultimately, a significant before and after change in FoMO experiences emerged as a result of FoMO-R usage. Thus, the FoMO-R is expected to work effectively and make a positive contribution toward managing people's FoMO (see Section 9.5.7).

Q2: Do participants engage in the use of the FoMO-R, in the absence of any coercion or pressure being exerted on them?

In order to answer this question, the TSRQ was selected to ascertain participants' reasons for continuing to use the FoMO-R and to adhere to its guidelines. The participants were requested to complete this questionnaire following a three-day period. The results showed

that participants continued to engage in FoMO-R usage, without any coercion or pressure being exerted on them (see Section 9.5.8).

> Q3: Can each stage provide a solid foundation for the next?

A close-ended question was used to answer this question in relation to FoMO-R coherence. The results indicate that there was both a strong positive and positive reaction to this question, evidenced by 50% strongly agreeing and 46.7% agreeing with this statement. A further 3.3% of participants were neutral in their response to a strong link existing between the different FoMO-R stages (see Section 9.5.5).

> Q4: Are the supporting documents accompanying the FoMO-R sufficient to ensure that its main goal is achieved?

A close-ended question was used to answer this question regarding FoMO-R coverage. The results indicate that a large proportion of the sample group surveyed strongly agreed that they had received sufficient information about how to use the FoMO-R, with 60% strongly agreeing with this statement (see Section 9.5.3).

> Q5: Does the FoMO-R flow well and are its supporting documents clear and understandable?

A close-ended question was used to answer this question regarding FoMO-R clarity. The results indicate that the largest proportion of participants strongly agreed that the FoMO-R was not difficult to understand and was explained in a clear manner, with 70% strongly agreeing (see Section 9.5.4).

9.7   DISCUSSION

In this chapter the FOMO-R that helps people to manage certain kinds of FoMO was validated. This evaluation was achieved using a three-step process. The first step involved collecting baseline information; the second step entailed applying FoMO-R for 10 days; and the third step was to complete the paper survey. The sample size was 30 participants. The participants were asked to apply FoMO-R and provide any suggestions they may have. The analysis was conducted using descriptive analysis (frequency procedure) for each statement independently regarding aspects such as clarity, coherence, coverage and usability. The results emphasise that the majority of participants have a positive attitude towards these aspects in relation to the use of FoMO-R. Paired sample t-tests were

conducted on the total score within each context instead of on individual questions to establish whether FoMO-R achieved its aim. The results show that the FoMO-R is anticipated to help people to effectively manage their FoMO. This is achieved by creating awareness among them about how FoMO happens on social media and how they can be managed by adopting different countermeasures which can be either technical or social in nature.

Two of the participants commented that "*there is a high volume of Information provided by FoMO-R materials and this may make us a little bit confused*." However, it is a trade-off between having a reasonable amount of information and too much information (unneeded information). However, FoMo-R needs the provided information in order to deliver its message in terms of making people aware of how FoMO happens and is managed. In the future, this issue can be addressed when FoMO-R is implemented as an online app. It means that the amount of information can be decreased and customised based on user's FoMO type(s).

While the participants indicated that FoMO-R was easy to use, it was observed that the first impression of the participants when they saw the FoMO-R materials was that the materials were overwhelming. However, the participants enjoyed it once they had used it and recognised the high level of education and awareness that FoMO-R delivered.

Coherence was one of the aspects that was considered in the FoMO-R evaluation. Two of the participants had a negative attitude regarding the level of coherence; they argued that some of the loops inside certain stages could be confusing and they suggested that the number of loops should be decreased. This would make it easier for them to achieve the stages smoothly. However, reducing the number of loops could adversely affect the effectiveness of FoMO-R.

A challenging aspect that three of the participants referred to while using FoMO-R is the pressure that they felt from peers and significant others (subjective norms). For example, when they set their status to say that they are unavailable, the notifications from their peers or family continued. This could make them feel under pressure to respond in order to maintain relations and not suffer a loss of relatedness or popularity. However, some of the participants tended to use the self-talk technique to help alleviate such pressure; e.g. *"I set my status saying I am busy at the moment, so I do not need to check each notification immediately."*

Although the principles of conducting a valuation study were followed, there were two main threats to validity:

- The time of applying FoMO-R was short for changing people's behaviour but this was limited by the timeframe of this research. However, the author wanted to establish whether or not there are potential improvements in managing FoMO.

- The sample size for this study was 30 participants which may be considered a small size. A larger sample size would generate better insight and more comments to enhance the FoMO-R work. In future studies, the implementation of FoMO-R will involve an online application.

- Some of the technical countermeasures, such as recap and the priority list, have not yet been implemented on social media. If participants want to use them, this could affect the implementation of FoMO-R. However, the researcher tried to overcome this limitation by providing participants with alternatives which may work similarly to these technical countermeasures; for example, muting the notifications from unwanted contacts or groups

There was an update on the FoMO-R and its supporting materials after the evaluation study was conducted. The main update is that some of the participants mentioned that in some contexts the background colour could be confusing and they suggested using lighter colours to make the text easier to read. The new versions of FoMO-R materials are updated (see Appendix 12.13).

9.8   SUMMARY

This chapter presented the methodology utilised to validate the effectiveness, usefulness, coverage, clarity and coherence of the FoMO-R, along with also validating the level of engagement and acceptance of its usage among participants. The evaluation process consisted of three stages. Firstly, three focus group sessions were conducted with 30 participants, in order to collect baseline data on FoMO experiences and demographic data, as well as to familiarise the participants on how to use the FoMO-R. The next stage comprised a diary study, with the same participants who had attended the focus group sessions being required to apply the FoMO-R over a ten-day period. In the final stage, a questionnaire was administered consisting of both open-ended and close-ended (e.g. Likert rating scales) questions. The study concludes that the FoMO-R is an effective tool in managing different types of FoMO in relation to social media use, along with helping individuals to develop and maintain a healthy relationship with social media.

FoMO is defined as a "pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski et al., 2013). Also, it is characterised by the desire to stay continually informed about what others are doing. In this thesis, FoMO typically refers to a preoccupation with gaining more interaction opportunities and a loss of ability when social media users are offline or unable to connect and communicate on demand. Social media as a tool provides diverse information in real time about events, conversations and activities. This real time information enables people to keep in touch with up-to-date information. However, up-to-date information, among other things, may facilitate FoMO because affected individuals check their social media accounts frequently or stay online continuously to avoid missing this information.

Cheever et al. (2014) found evidence of negative influences such as anxiety when people could not access the internet. Anxiety is a significant result of FoMO which is operationally defined as "the fears, worries and anxiety people may have in relation to being in (or out of) touch with events, experiences and conversations happening across their extended social circles" (Przybylski et al., 2013). In addition, Fox and Moreland found that FoMO is the reason why people feel pressured to continue using Facebook (Fox and Moreland, 2015).

The relatively limited research on FoMO has focused mainly on users' psychology. These studies have shown a correlation between social media designs, psychological factors such as depression, and FoMO. Consequently, more research is needed into software design practices such as user experience (UX), requirements engineering and human computer interaction (HCI), particularly in the area of intervention systems for FoMO. Alutaybi et al. (2018) proposed that countermeasures should be embedded into social media, and techniques such as filtering, recap and advanced versions of the auto-reply shall be introduced.

As a result, this research advocates the need for a method that enables people to manage their FoMO and to reduce the harm of digital addiction. This research utilised results presented in Chapters 4 and 5 and developed a method for managing FoMO in relation to social media use, utilising features that already exist on social media and proposed features that can be included in future social media platform. This method is intended to enable people to regulate their use of social media, in particular to manage FoMO.

The proposed method (**FoMO-R)** is divided into four stages: 1) the preparation stage is intended to raise awareness of FoMO, and also provides help-seekers with a greater understanding of the various types of FoMO which are identified in Chapter 4; 2) the planning stage aids help-seekers to plan toward their goal of managing FoMO by providing them with a set of suggested countermeasures, which are described in Chapter 5; 3) the action stage in which help-seekers can manage their FoMO and regulate their usage style on social media. The help-seeker is asked to spend a period of time, typically one week, practicing and rehearsing the techniques they have selected from the previous stage (the planning stage); 4) the review stage in which help-seekers review their actions in the previous stages to determine whether they have managed their FoMO.

This thesis addressed the following questions: **RQ1)** How do people who use social media experience FoMO? **RQ2)** What are the features of social media that may contribute to triggering FoMO? **RQ3)** Which features could social media platforms incorporate in future to help users manage their FoMO? **RQ4)** What would be the best method to raise awareness of how a certain kind of FoMO happens and how this can be managed? Ultimately, this thesis contributed by: 1) developing a set of five classifications of FoMO, each classification consisting of various kinds of FoMO in relation to social media; 2) exploring FoMO in relation to social media as presented by users in relation to the design features of social media platforms; 3) identifying a number of software-assisted mechanisms that can combat different types of FoMO and can also be incorporated into social media designs; 4) proposing a method (FoMO-R) that enables people to manage their FOMO.

10.1   OBJECTIVES REVISITED

Objective 1: A literature based exploration of FoMO with regard to social media

In order to achieve the goal of this thesis, a comprehensive understanding of numerous fields was important; they included FoMO, digital addiction, and behaviour change, from both psychological and computing perspectives. This understanding informed the subsequent exploratory studies and provided a foundation for the thesis solution.

This exploration was intended to inform the research with regard to the nuances of FoMO and how FoMO happens in relation to social media, and it was conducted using a Mixed Methods Approach (Sequential Exploratory Design). Ultimately, five classifications of FoMO, each of which has sub categories, were developed. Furthermore, current strategies used to mitigate certain kinds of FoMO were identified that may be either healthy or unhealthy (see Chapter 4). This classification of FoMO could be used as a basis for the future design of social media that combats FoMO. It could enable users to become more informed about how FoMO happens, and how to identify FoMO in their own social media usage.

To achieve this objective, a Mixed Methods Approach (Sequential Exploratory Design) was adopted (see Chapter 3, Section 3.6). This included three studies; two qualitative and one quantitative. The first exploratory qualitative study consisted of two focus group sessions and a diary study, and its purpose was to gauge opinion concerning the experience of FoMO in relation to social media usage. Focus groups, as a data collection method, allowed participants to discuss their opinions and to suggest countermeasures that might help them to manage FoMO. The diary study minimised recall issues and gathered information on how FoMO is experienced as lived. The second qualitative study consisted of interviews, diary study and two focus group sessions, and further elaborated on the findings extracted from the first study.

The aim of the quantitative study was to validate the existence, and to assess the strength, of the different kinds of FoMO in relation to social media that were identified during the qualitative study. As tools for data collection, surveys were disseminated in two ways, firstly as online and secondly as paper-based surveys. The purpose of using a paper-based survey was to reach a wider number of participants.

This exploration was built on the result of the second objective. Objective 3 informs the research regarding the features of social media that may contribute to triggering certain

kinds of FoMO and the potential countermeasures for reducing those FoMO. An empirical study, following a Mixed Methods Approach (Sequential Exploratory Design), was conducted in order to better achieve the aim of this objective. Ultimately, the development of a taxonomy that demonstrated the link between the features of social media and certain kinds of FoMO was realised. Moreover, a list of features was derived that can be embedded in social media to help individuals manage certain kinds of FoMO (see Chapter 5).

To achieve Objective 3, a Mixed Methods Approach (Sequential Exploratory Design) was adopted (see Chapter 3, Section 3.6). This included three studies; two qualitative and one quantitative. The aim of the first qualitative study was to gauge the opinions of people in relation to FoMO and how it may be managed, and to elicit the features of social media that contribute in triggering FoMO. Furthermore, this study aimed to derive countermeasures that might help people to manage their FoMO. In terms of data collection, it used a focus group to allow participants to discuss their opinions and to suggest countermeasures to reduce FoMO, and a diary methodology to minimise recall issues and to deepen understanding of how features of social media trigger FoMO. The second qualitative study was a refining study and it consisted of interviews, diary study and two focus group sessions. It further elaborated on the findings extracted from the first study.

The function of the quantitative study was to validate the need for FoMO countermeasures that were suggested in the qualitative studies. Data was collected using surveys disseminated in two ways: firstly online and secondly paper-based. Paper-based surveys were used to reach a wider number of participants.

Objective 4: Developing a method to help people manage their FoMO (FoMO-Reduction method (FoMO-R))

To achieve this objective, the researcher attempted to develop a method for managing digital usage utilising features that already exist in social media and proposing features that could be added to future social media. The intention was to enable people to manage their FoMO and to reduce the harm of digital addiction. This method involved elements

from expectation management, anxiety management, compulsive behaviour control, impulse control, uncertainty avoidance, self-talk and self-control theory.

Objective 5: Evaluation and refinement of FoMO-R

The purpose of this objective was to evaluate and refine FoMO-R which concentrates on awareness-raising with regard to how FoMO occurs on social media and how it can be managed. The evaluation considered a number of aspects, namely coverage, usability, clarity, coherence engagement and acceptance, and was performed in three phases.

Phase one consisted of three introductory focus group sessions, with ten participants in each. In these sessions, participants' demographic and FoMO experience data were collected by administering a survey. Also, participants were given FoMO-R materials and instructed on how to use them in phase two.

Phase two involved utilising a diary study to make participants apply the techniques identified in FoMO-R for a period of ten days. During the diary study phase, participants were requested to complete the TSRQ after three days (see Table 25). They were asked to use the diary template to report any issues or difficulties when they were applying FoMO-R, using the diary template. The aim of this question was to ensure that participants' feedback was collected when their memories of a particular situation were fresh. Participants were provided with a hard copy document in which to write their diary entries, and they were also reminded to record this information using text messages.

Phase three involved a paper questionnaire, which comprised three parts. The first part of the questionnaire focused on participant FoMO experiences (see Table 27). The second section included an e-Therapy Attitudes and Process Questionnaire (e-TAP) which was based on the Theory of Planned Behaviour (see Table 28). The final part involved a combination of open-ended and closed-ended questions (e.g. ratings) (see Table 29). The open-ended questions were used to minimise the risk of missing important information and to allow participants to feel free to add information they felt was relevant to the FoMO-R evaluation process. Closed questions were used to stimulate or trigger participant thought processes, while also ensuring that they had to invest less effort in completing the questionnaire. These questions focused on the usefulness, coverage and clarity of FOMO-R (see Table 29). Participants who completed the diary study undertook

the questionnaire, having used FoMO-R. The questionnaire was employed to assess the extent to which participants understood the purpose of FoMO-R. This was achieved by undertaking a comparative analysis of participant answers gathered through the focus group sessions with their responses elicited through the questionnaire.

10.2   CONTRIBUTION TO KNOWLEDGE

First contribution: Exploring the real-world experience of individuals who experience FoMO in relation to social media and understanding the phenomena in a naturalistic, or close to a naturalistic, setting. This was achieved by utilising a diary study design as a data collection method in the exploration phase. Eighteen participants took part in the study over a period of fourteen days, and for each there were three diary entries every day. In previous studies, the majority of the experimental research in relation to FoMO has built on retrospective data collection methods. This introduces limitations due to the possibility of recall bias and questions about ecological validity.

Second contribution: Developing a set of five classifications of FoMO, each classification consisting of various kinds of FoMO in relation to social media. These classifications could help pave the way for software designers and serve as a guide to how behaviour change tools can help to manage FoMO related behaviour FoMO in relation to social media. They should be designed to meet individual needs. The contribution was achieved by using a two phase qualitative study where the diary study method was considered at the initial stage, and again at the refinement and confirmation stage, to improve ecological validity. Also, a quantitative study using a web-based questionnaire was utilised to gather responses from participants to validate the existence of the classifications.

Third contribution: An ecological exploration of FoMO in relation to social media as presented by users in relation to design features of social media platforms. This was built upon an ecological exploration through the utilisation of diary entries for data collection. Identification of the social media features that can trigger certain kinds of FoMO was a helpful first step towards thinking that social media could embed tools to help people manage their FoMO and reform previously unhealthy online interaction.

Fourth contribution: Identifying a number of software-assisted mechanisms that can combat different types of FoMO and can also be added to social media designs. This was achieved by using a two-phase qualitative approach where the diary study method was used at the initial stage, and also the refinement and confirmation stage, to improve

ecological validity. Quantitative study using a web-based questionnaire was also utilised to gather responses from participants to validate the need for these countermeasures.

Fifth contribution: Proposing a method (FoMO-R) that enables people to manage their digital usage with features that already exist on social media and proposed features that can be developed by future social media platform. Such a method would enable people to manage their FoMO, help to reverse the harm of digital addiction, and also make them digitally resilient when they using social media. This method involves elements of expectation management, anxiety management, compulsive behaviour, impulse control, uncertainty avoidance, self-talk, resilience and self-control theory.

10.3   FUTURE WORKS

Although the results of this thesis have vital implications, further studies are needed to draw consistent conclusions about the different factors involved in designing and proposing tools to manage and regulate FoMO in relation to social media.

Based on the findings of this thesis, future research needs to consider other data gathering techniques and data sources based on objective and real-time measurement. For example, smartwatches and wrestler sensors might be utilised to collect biological, physical, behavioural or environmental data which could be correlated with actions on social media for a better understanding of user experience and FoMO.

Additionally, in this thesis, five classifications of FoMO were developed and were confirmed and validated by183 participants. The researcher recommends that future studies are conducted with large representative samples to enable the generalisation of findings from that sample to an entire population. Future work could also investigate the role of gender differences in social media related FoMO and how this might contribute to the design of behavioural change tools.

Other work might focus on linking the different types of FoMO to types of social media platform; for example, which types of FoMO happen on Facebook? This could be done by taking the FoMO classification and testing it on a particular social media platform.

Additionally, FoMO-R could be implemented as an online application and connected to social media to monitor the user and give them a short test to identify their FoMO type(s). It could then suggest suitable techniques and also monitor users and update them with their progress towards managing FoMO.

11. REFERENCES

ABEL, J. P., BUFF, C. L. & BURR, S. A. 2016a. Social media and the fear of missing out: Scale development and assessment. *Journal of Business & Economics Research (Online),* 14**,** 33.

ABEL, J. P., BUFF, C. L. & BURR, S. A. 2016b. Social media and the fear of missing out: Scale development and assessment. *Journal of Business & Economics Research (JBER),* 14**,** 33-44.

ADAMS, S. K., WILLIFORD, D. N., VACCARO, A., KISLER, T. S., FRANCIS, A. & NEWMAN, B. 2017. The young and the restless: socializing trumps sleep, fear of missing out, and technological distractions in first-year college students. *International Journal of Adolescence and Youth,* 22**,** 337-348.

AJZEN, I. 1991. The theory of planned behavior, organizational behavior and human decision processes, vol. 50. *Cited in Hansen***,** 93-114.

AL-DEEN, H. S. N. & HENDRICKS, J. A. 2011. *Social media: usage and impact*, Lexington books.

ALBERT, B. 1986. Social foundations of thought and action: A social cognitive theory. *NY: Prentice-hall*.

ALBLWI, A., MCALANEY, J., ALTUWAIRIQI, M., STEFANIDIS, A., PHALP, K. & ALI, R. 2020. Procrastination on social networks: Triggers and Countermeasures. *Psihologija***,** 16-16.

ALBLWI, A., STEFANIDIS, A., PHALP, K. & ALI, R. Procrastination on Social Networking Sites: Combating by Design. 2019 13th International Conference on Research Challenges in Information Science (RCIS), 2019a. IEEE, 1-11.

ALBLWI, A., STEFANIDIS, A., PHALP, K. & ALI, R. 2019b. Procrastination on Social Networks: Types and Triggers.

ALI, R., JIANG, N., PHALP, K., MUIR, S. & MCALANEY, J. The emerging requirement for digital addiction labels. International working conference on requirements engineering: Foundation for software quality, 2015. Springer, 198-213.

ALLEN, M. 2017. *The SAGE encyclopedia of communication research methods*, SAGE Publications.

ALLPORT, G. W. 1968. The historical background of modern social psychology. *Handbook of social psychology*.

ALROBAI, A., PHALP, K. & ALI, R. Digital addiction: a requirements engineering perspective. International working conference on requirements engineering: Foundation for software quality, 2014. Springer, 112-118.

ALT, D. 2015. College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior,* 49**,** 111-119.

ALT, D. 2018. Students' wellbeing, fear of missing out, and social media engagement for leisure in higher education learning environments. *Current Psychology,* 37**,** 128-138.

ALTUWAIRIQI, M., ARDEN-CLOSE, E., BOLAT, E., RENSHAW-VUILLIER, L. & ALI, R. When People are Problematically Attached to Social Media: How Would the Design Matter? 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC), 2019a. IEEE, 4211-4218.

ALTUWAIRIQI, M., ARDEN-CLOSE, E., JIANG, N., POWELL, G. & ALI, R. Problematic Attachment to Social Media: the Psychological States vs Usage Styles. 2019 13th International Conference on Research Challenges in Information Science (RCIS), 2019b. IEEE, 1-6.

ALTUWAIRIQI, M., JIANG, N. & ALI, R. 2019c. Problematic attachment to social media: five behavioural archetypes. *International journal of environmental research and public health,* 16**,** 2136.

ALUTAYBI, A., ARDEN-CLOSE, E., MCALANEY, J., STEFANIDIS, A., PHALP, K. & ALI, R. How Can Social Networks Design Trigger Fear of Missing Out? 2019 IEEE

International Conference on Systems, Man and Cybernetics (SMC), 2019a. IEEE, 3758-3765.

ALUTAYBI, A., MCALANEY, J., ARDEN-CLOSE, E., STEFANIDIS, A., PHALP, K. & ALI, R. 2019b. Fear of Missing Out (FoMO) as Really Lived: Five Classifications and one Ecology.

ALUTAYBI, A., MCALANEY, J., STEFANIDIS, A., PHALP, K. & ALI, R. Designing Social Networks to Combat Fear of Missing Out. Proceedings of British HCI, 2018. 1.

ANDREASSEN, C. S., TORSHEIM, T., BRUNBORG, G. S. & PALLESEN, S. 2012. Development of a Facebook addiction scale. *Psychological reports,* 110**,** 501-517.

ASSOCIATION, A. P. 2013. *Diagnostic and statistical manual of mental disorders (DSM-5®),* American Psychiatric Pub.

ATTRILL, A. 2015. *Cyberpsychology*, Oxford University Press, USA.

AUSTIN, J. L. 1975. *How to do things with words*, Oxford university press.

BAGOZZI, R. P. 1986. Attitude formation under the theory of reasoned action and a purposeful behaviour reformulation. *British Journal of Social Psychology,* 25**,** 95-107.

BAKER, Z. G., KRIEGER, H. & LEROY, A. S. 2016. Fear of missing out: Relationships with depression, mindfulness, and physical symptoms. *Translational Issues in Psychological Science,* 2**,** 275.

BANDURA, A. 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological review,* 84**,** 191.

BAUMEISTER, R. F., HEATHERTON, T. F. & TICE, D. M. 1994. *Losing control: How and why people fail at self-regulation*, Academic press.

BAUMEISTER, R. F. & LEARY, M. R. 1995. The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin,* 117**,** 497.

BENNETT, K., REYNOLDS, J., CHRISTENSEN, H. & GRIFFITHS, K. M. 2010. e-hub: an online self-help mental health service in the community. *Medical Journal of Australia,* 192**,** S48-S52.

BERG, B. L. 2004. Methods for the social sciences. *Qualitative Research Methods for the Social Sciences. Boston: Pearson Education*.

BERKOWITZ, A. D. 2004. The social norms approach: Theory, research, and annotated bibliography.

BEWICK, B. M., TRUSLER, K., MULHERN, B., BARKHAM, M. & HILL, A. J. 2008. The feasibility and effectiveness of a web-based personalised feedback and social norms alcohol intervention in UK university students: a randomised control trial. *Addictive behaviors,* 33**,** 1192-1198.

BEYENS, I., FRISON, E. & EGGERMONT, S. 2016. "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior,* 64**,** 1-8.

BICCHIERI, C. & MERCIER, H. 2014. Norms and beliefs: How change occurs. *The complexity of social norms.* Springer.

BLAXTER, L. H. & HUGHES, C. 1996. C. and Tight, M (1996) How to Research. Open University Press, Buckingham.

BOLGER, N., DAVIS, A. & RAFAELI, E. 2003. Diary methods: Capturing life as it is lived. *Annual review of psychology,* 54**,** 579-616.

BOTTRELL, D. 2009. Understanding 'marginal'perspectives: Towards a social theory of resilience. *Qualitative social work,* 8**,** 321-339.

BOYATZIS, R. E. 1998. *Transforming qualitative information: Thematic analysis and code development*, sage.

BOYD, D. M. & ELLISON, N. B. 2007. Social network sites: Definition, history, and scholarship. *Journal of computer-mediated Communication,* 13**,** 210-230.

BRANDLER, S. & ROMAN, C. P. 2007. *Handbook of research methods in public administration*, CRC press.

BRAUN, V. & CLARKE, V. 2006. Using thematic analysis in psychology. *Qualitative research in psychology,* 3**,** 77-101.

BRICKER, J. B., MULL, K. E., KIENTZ, J. A., VILARDAGA, R., MERCER, L. D., AKIOKA, K. J. & HEFFNER, J. L. 2014. Randomized, controlled pilot trial of a smartphone app for smoking cessation using acceptance and commitment therapy. *Drug and alcohol dependence,* 143**,** 87-94.

BROWN, R. 1993. Some contributions of the study of gambling to the study of other addictions. *Gambling behavior and problem gambling,* 1**,** 241-272.

BUGLASS, S. L., BINDER, J. F., BETTS, L. R. & UNDERWOOD, J. D. 2017. Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior,* 66**,** 248-255.

BURT, R. S. 2000. The network structure of social capital. *Research in organizational behavior,* 22**,** 345-423.

ÇAM, E. & ISBULAN, O. 2012. A New Addiction for Teacher Candidates: Social Networks. *Turkish Online Journal of Educational Technology-TOJET,* 11**,** 14-19.

CAPLAN, S. E. 2005. A social skill account of problematic Internet use. *Journal of communication,* 55**,** 721-736.

CARVER, C. S. & SCHEIER, M. F. 1982. Control theory: A useful conceptual framework for personality–social, clinical, and health psychology. *Psychological bulletin,* 92**,** 111.

CHEEVER, N. A., ROSEN, L. D., CARRIER, L. M. & CHAVEZ, A. 2014. Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior,* 37**,** 290-297.

CIALDINI, R. B. 2001a. Science and practice. *Allyn & Bacon A Pearson Education Company,* 160.

CIALDINI, R. B. 2001b. Science and practice. Pearson.

CIALDINI, R. B. 2009. *Influence: Science and practice*, Pearson education Boston, MA.

COLEMAN, J. C. 2011. *The nature of adolescence*, Routledge.

CONRAD, M. & HAMMEN, C. 1993. Protective and resource factors in highand low-risk children: A comparison of children with unipolar, bipolar, medically ill, and normal mothers. *Development and Psychopathology,* 5**,** 593-607.

CRESWELL, J. W. & CLARK, V. L. P. 2017. *Designing and conducting mixed methods research*, Sage publications.

CRESWELL, J. W. & CRESWELL, J. D. 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*, Sage publications.

CRESWELL, J. W., PLANO CLARK, V. L., GUTMANN, M. L. & HANSON, W. E. 2003. Advanced mixed methods research designs. *Handbook of mixed methods in social and behavioral research,* 209**,** 240.

CRESWELL, J. W. & POTH, C. N. 2017. *Qualitative inquiry and research design: Choosing among five approaches*, Sage publications.

DAVIES, J. B. 2011. *Myth of addiction*, Routledge.

DETEL, W. 2008. On the concept of basic social norms. *Analyse & Kritik,* 30**,** 469-482.

DORAN, G. T. 1981. There'sa SMART way to write management's goals and objectives. *Management review,* 70**,** 35-36.

DUNBAR, R. & DUNBAR, R. I. M. 1998. *Grooming, gossip, and the evolution of language*, Harvard University Press.

EDWARDS, J. R. 2011. The fallacy of formative measurement. *Organizational Research Methods,* 14**,** 370-388.

ELHAI, J. D., LEVINE, J. C., DVORAK, R. D. & HALL, B. J. 2016. Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior,* 63**,** 509-516.

ELPHINSTON, R. A. & NOLLER, P. 2011. Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. *Cyberpsychology, Behavior, and Social Networking,* 14**,** 631-635.

ENRIQUE, E. 2010. Addiction to new technologies and to online social networking in young people: A new challenge. *Adicciones,* 22.

ERIKSON, E. H. 1994. *Identity and the life cycle*, WW Norton & Company.

FEHR, E. & GÄCHTER, S. 2000. Fairness and retaliation: The economics of reciprocity. *Journal of economic perspectives,* 14**,** 159-181.

FENG, Y. & YE, H. J. 2016. Why do you return the favor in online knowledge communities? A study of the motivations of reciprocity. *Computers in Human Behavior,* 63**,** 342-349.

FENGER, M. M. 2015. Internet Addiction. Neuroscientific Approaches and Therapeutical Interventions.

FEREDAY, J. & MUIR-COCHRANE, E. 2006. Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International journal of qualitative methods,* 5**,** 80-92.

FOGG, B. J. A behavior model for persuasive design. Proceedings of the 4th international Conference on Persuasive Technology, 2009. ACM, 40.

FORSYTH, D. R. 2018. *Group dynamics*, Cengage Learning.

FOX, J. & MORELAND, J. J. 2015. The dark side of social networking sites: An exploration of the relational and psychological stressors associated with Facebook use and affordances. *Computers in Human Behavior,* 45**,** 168-176.

GLANZ, K., RIMER, B. K. & VISWANATH, K. 2008. *Health behavior and health education: theory, research, and practice*, John Wiley & Sons.

GOFFMAN, E. 1949. The presentation of self in everyday life. *American Journal of Sociology,* 55**,** 6-7.

GOFFMAN, E. 1959. Performances. *The presentation of self in everyday life***,** 17-76.

GOFFMAN, E. 2002. The presentation of self in everyday life. 1959. *Garden City, NY***,** 259.

GRAVETTER, F. J. & FORZANO, L.-A. B. 2011. Research Methods for the Behavioral Sciences: PSY 200 (300) Quantitative Methods in Psychology Series. *Western Cengage Learning***,** 151-152.

GRIFFITHS, M. 1996a. Behavioural addiction: an issue for everybody? *Employee Councelling Today,* 8**,** 19-25.

GRIFFITHS, M. 1996b. Gambling on the Internet: A brief note. *Journal of Gambling Studies,* 12**,** 471-473.

GRIFFITHS, M. 2000. Does Internet and computer" addiction" exist? Some case study evidence. *CyberPsychology and Behavior,* 3**,** 211-218.

HA, J. H., YOO, H. J., CHO, I. H., CHIN, B., SHIN, D. & KIM, J. H. 2006. Psychiatric comorbidity assessed in Korean children and adolescents who screen positive for Internet addiction. *The Journal of clinical psychiatry*.

HARDEMAN, W., JOHNSTON, M., JOHNSTON, D., BONETTI, D., WAREHAM, N. & KINMONTH, A. L. 2002. Application of the theory of planned behaviour in behaviour change interventions: A systematic review. *Psychology and health,* 17**,** 123-158.

HART, J., RIDLEY, C., TAHER, F., SAS, C. & DIX, A. Exploring the facebook experience: a new approach to usability. Proceedings of the 5th Nordic conference on Human-computer interaction: building bridges, 2008. ACM, 471-474.

HEATH, R. L. & BOWEN, S. A. 2002. The public relations philosophy of John W. Hill: Bricks in the foundation of issues management. *Journal of Public Affairs,* 2**,** 230-246.

HENDRIKS, V. M., BLANKEN, P., ADRIAANS, N. F. P. & HARTNOLL, R. 1992. *Snowball sampling: A pilot study on cocaine use*, IVO, Instituut voor Verslavingsonderzoek, Erasmus Universiteit Rotterdam.

HETZ, P. R., DAWSON, C. L. & CULLEN, T. A. 2015. Social media use and the fear of missing out (FoMO) while studying abroad. *Journal of Research on Technology in Education,* 47**,** 259-272.

HEWETT, T. T., BAECKER, R., CARD, S., CAREY, T., GASEN, J., MANTEI, M., PERLMAN, G., STRONG, G. & VERPLANK, W. 1992. *ACM SIGCHI curricula for human-computer interaction*, ACM.

HOFSTEDE, G. 1984. *Culture's consequences: International differences in work-related values*, sage.

HOFSTEDE, G. 1986. Cultural differences in teaching and learning. *International Journal of intercultural relations,* 10**,** 301-320.

HOLSTI, O. R. 1969. Content analysis for the social sciences and humanities. *Reading. MA: Addison-Wesley (content analysis)*.

HOMANS, G. C. 1958. Social behavior as exchange. *American journal of sociology,* 63**,** 597-606.

HOWARD, S. & JOHNSON, B. 2004. Resilient teachers: Resisting stress and burnout. *Social Psychology of Education,* 7**,** 399-420.

HUNT, M. G., MARX, R., LIPSON, C. & YOUNG, J. 2018. No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology,* 37**,** 751-768.

IIDA, M., SHROUT, P. E., LAURENCEAU, J.-P. & BOLGER, N. 2012. Using diary methods in psychological research.

JAMES, T. L., LOWRY, P. B., WALLACE, L. & WARKENTIN, M. 2017. The effect of belongingness on obsessive-compulsive disorder in the use of online social networks. *Journal of Management Information Systems,* 34**,** 560-596.

JANZ, N. K. & BECKER, M. H. 1984. The health belief model: A decade later. *Health education quarterly,* 11**,** 1-47.

JOFFE, H. & YARDLEY, L. 2004. Content and thematic analysis. *Research methods for clinical and health psychology,* 56**,** 68.

JOHNSON, R. B. & ONWUEGBUZIE, A. J. 2004. Mixed methods research: A research paradigm whose time has come. *Educational researcher,* 33**,** 14-26.

KAPLAN, H. B. 1999. Toward an understanding of resilience: A critical review of definitions and models in resilience and development: positive life adaptations. New York, Kluwer Academic/Plenum Publishers.

KELLEY, H. 1972. Attribution in social interaction. EE Jones, DE Kanouse, HH Kelley, RE Nisbett, S. Valins, B. Weiner, eds. Attribution: Perceiving the Causes of Behavior. General Learning Press, Morristown, NJ.

KESICI, A. & TUNÇ, N. F. 2018. Investigating the Digital Addiction Level of the University Students According to Their Purposes for Using Digital Tools. *Universal Journal of Educational Research,* 6**,** 235-241.

KIETZMANN, J. H., HERMKENS, K., MCCARTHY, I. P. & SILVESTRE, B. S. 2011. Social media? Get serious! Understanding the functional building blocks of social media. *Business horizons,* 54**,** 241-251.

KITCHENHAM, B. A., PFLEEGER, S. L., PICKARD, L. M., JONES, P. W., HOAGLIN, D. C., EL EMAM, K. & ROSENBERG, J. 2002. Preliminary guidelines for empirical research in software engineering. *IEEE Transactions on software engineering,* 28**,** 721-734.

KO, M., YANG, S., LEE, J., HEIZMANN, C., JEONG, J., LEE, U., SHIN, D., YATANI, K., SONG, J. & CHUNG, K.-M. NUGU: a group-based intervention app for improving self-regulation of limiting smartphone use. Proceedings of the 18th ACM conference on computer supported cooperative work & social computing, 2015. ACM, 1235-1245.

KOCHENDERFER-LADD, B. & SKINNER, K. 2002. Children's coping strategies: Moderators of the effects of peer victimization? *Developmental psychology,* 38**,** 267.

KRÄMER, N. C. & WINTER, S. 2008. Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. *Journal of media psychology,* 20**,** 106-116.

KUSS, D. J. & GRIFFITHS, M. D. 2011. Online social networking and addiction—a review of the psychological literature. *International journal of environmental research and public health,* 8**,** 3528-3552.

LAI, C., ALTAVILLA, D., RONCONI, A. & ACETO, P. 2016. Fear of missing out (FOMO) is associated with activation of the right middle temporal gyrus during inclusion social cue. *Computers in Human Behavior,* 61**,** 516-521.

LANKSHEAR, C. & KNOBEL, M. 2011. *Literacies: Social, cultural and historical perspectives*, Peter Lang.

LAZAR, J., FENG, J. H. & HOCHHEISER, H. 2017. *Research methods in human-computer interaction*, Morgan Kaufmann.

LEDINGHAM, J. A. 2003. Explicating relationship management as a general theory of public relations. *Journal of public relations research,* 15**,** 181-198.

LEE, H., AHN, H., CHOI, S. & CHOI, W. 2014. The SAMS: Smartphone addiction management system and verification. *Journal of medical systems,* 38**,** 1.

LEIGH, S. & FLATT, S. 2015. App-based psychological interventions: friend or foe? *Evidence-based mental health,* 18**,** 97-99.

LENHART, A., LING, R., CAMPBELL, S. & PURCELL, K. 2010. Teens and mobile phones: Text messaging explodes as teens embrace it as the centerpiece of their communication strategies with friends. *Pew Internet & American Life Project*.

LEWIS, M. A., LEE, C. M., PATRICK, M. E. & FOSSOS, N. 2007. Gender-specific normative misperceptions of risky sexual behavior and alcohol-related risky sexual behavior. *Sex Roles,* 57**,** 81-90.

LIVINGSTONE, S., HADDON, L., GÖRZIG, A. & ÓLAFSSON, K. 2011. Risks and safety on the internet: the perspective of European children: full findings and policy implications from the EU Kids Online survey of 9-16 year olds and their parents in 25 countries.

LIVINGSTONE, S. & HELSPER, E. J. 2008. Parental mediation of children's internet use. *Journal of broadcasting & electronic media,* 52**,** 581-599.

LOCKE, E. A. & LATHAM, G. P. 1990. *A theory of goal setting & task performance*, Prentice-Hall, Inc.

LOLLO, E. 2012. Toward a theory of social capital definition: its dimensions and resulting social capital types. *URL: http://socialeconomics. org/Papers/Lollo1C. pdf (accessed: 25.10. 2017)*.

MARKS, I. 1990. Behavioural (non-chemical) addictions. *British Journal of Addiction,* 85**,** 1389-1394.

MASTEN, A. S., BEST, K. M. & GARMEZY, N. 1990. Resilience and development: Contributions from the study of children who overcome adversity. *Development and psychopathology,* 2**,** 425-444.

MCALANEY, J., BEWICK, B. & HUGHES, C. 2011. The international development of the 'Social Norms' approach to drug education and prevention. *Drugs: education, prevention and policy,* 18**,** 81-89.

MORSE, J. M. 1991. Approaches to qualitative-quantitative methodological triangulation. *Nursing research,* 40**,** 120-123.

MURAVEN, M. & BAUMEISTER, R. F. 2000. Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological bulletin,* 126**,** 247.

NADKARNI, A. & HOFMANN, S. G. 2012. Why do people use Facebook? *Personality and individual differences,* 52**,** 243-249.

NAGLIERI, J. A., LEBUFFE, P. A. & ROSS, K. M. 2013. Measuring resilience in children: From theory to practice. *Handbook of resilience in children.* Springer.

NEWMAN, P. R. & NEWMAN, B. M. 1976. Early adolescence and its conflict: Group identity versus alienation. *Adolescence,* 11**,** 261-274.

NEWMAN, W. M. Busy days: exposing temporal metrics, problems and elasticities through diary studies. CHI 2004 Workshop on Temporal Issues in Work, 2004. Citeseer.

NYCYK, M. 2011. Review of Key Competencies in the Knowledge Society Conference 2010: E-learning and computer competency research in the age of social media. *Digital Culture and Education,* 3**,** 157-162.

OBERST, U., WEGMANN, E., STODT, B., BRAND, M. & CHAMARRO, A. 2017. Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of adolescence,* 55**,** 51-60.

ORB, A., EISENHAUER, L. & WYNADEN, D. 2001. Ethics in qualitative research. *Journal of nursing scholarship,* 33**,** 93-96.

PAGOTO, S., SCHNEIDER, K., JOJIC, M., DEBIASSE, M. & MANN, D. 2013. Evidence-based strategies in weight-loss mobile apps. *American journal of preventive medicine,* 45**,** 576-582.

PALLANT, J. 2013. *SPSS survival manual*, McGraw-Hill Education (UK).

PATRICK, V. M. & HAGTVEDT, H. 2012. "I don't" versus "I can't": When empowered refusal motivates goal-directed behavior. *Journal of Consumer Research,* 39**,** 371-381.

PROCHASKA, J. O. 2013. Transtheoretical model of behavior change. *Encyclopedia of behavioral medicine***,** 1997-2000.

PROCHASKA, J. O. & DICLEMENTE, C. C. 1983. Stages and processes of self-change of smoking: toward an integrative model of change. *Journal of consulting and clinical psychology,* 51**,** 390.

PRZYBYLSKI, A. K., MURAYAMA, K., DEHAAN, C. R. & GLADWELL, V. 2013. Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior,* 29**,** 1841-1848.

PUTNAM, R. D. 2000. *Bowling alone: The collapse and revival of American community*, Simon and schuster.

RAMMSTEDT, B. 2007. The 10-item big five inventory. *European Journal of Psychological Assessment,* 23**,** 193-201.

RIEKERT, K. A., OCKENE, J. K. & PBERT, L. 2013. *The handbook of health behavior change*, Springer Publishing Company.

ROBSON, C. & MCCARTAN, K. 2016. *Real world research*, John Wiley & Sons.

RUBIN, A. M. 2009. Uses-and-gratifications perspective on media effects. *Media effects.* Routledge.

RYAN, R. M. & DECI, E. L. 2000a. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology,* 25**,** 54-67.

RYAN, R. M. & DECI, E. L. 2000b. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist,* 55**,** 68.

RYAN, T., CHESTER, A., REECE, J. & XENOS, S. 2014. The uses and abuses of Facebook: A review of Facebook addiction. Akadémiai Kiadó, co-published with Springer Science+ Business Media BV ….

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**,** 1658-1664.

SANTOR, D. A., MESSERVEY, D. & KUSUMAKAR, V. 2000. Measuring peer pressure, popularity, and conformity in adolescent boys and girls: Predicting school performance, sexual attitudes, and substance abuse. *Journal of youth and adolescence,* 29**,** 163-182.

SANTOS, V. A., FREIRE, R., ZUGLIANI, M., CIRILLO, P., SANTOS, H. H., NARDI, A. E. & KING, A. L. 2016. Treatment of Internet addiction with anxiety disorders: Treatment protocol and preliminary before-after results involving pharmacotherapy and modified cognitive behavioral therapy. *JMIR research protocols,* 5**,** e46.

SAUNDERS, M., LEWIS, P. & THORNHILL, A. 2003. Research methods forbusiness students. *Essex: Prentice Hall: Financial Times*.

SAUNDERS, M., LEWIS, P. & THORNHILL, A. 2009. Research methods for business students.(Pearson Education Limited, Harlow).

SAUNDERS, M. N. 2011. *Research methods for business students, 5/e*, Pearson Education India.

SEARLE, J. R. & SEARLE, J. R. 1969. *Speech acts: An essay in the philosophy of language*, Cambridge university press.

SEKARAN, U. & BOUGIE, R. 2016. *Research methods for business: A skill building approach*, John Wiley & Sons.

SHAFFER, H. J. 1996. Understanding the means and objects of addiction: Technology, the internet, and gambling. *Journal of Gambling Studies,* 12**,** 461-469.

SMITH, D. E. & SEYMOUR, R. B. 2004. The Nature of Addiction.

STEAD, H. & BIBBY, P. A. 2017. Personality, fear of missing out and problematic internet use and their relationship to subjective well-being. *Computers in Human Behavior,* 76**,** 534-540.

STEINFIELD, C., ELLISON, N. B., LAMPE, C. & VITAK, J. 2013. Online social network sites and the concept of social capital. *Frontiers in new media research.* Routledge.

STEMLER, S. 2001. An overview of content analysis. *Practical assessment, research & evaluation,* 7**,** 137-146.

STRAUSS, A. & CORBIN, J. 1998. *Basics of qualitative research techniques*, Sage publications Thousand Oaks, CA.

STRECHER, V. J., SEIJTS, G. H., KOK, G. J., LATHAM, G. P., GLASGOW, R., DEVELLIS, B., MEERTENS, R. M. & BULGER, D. W. 1995. Goal setting as a strategy for health behavior change. *Health education quarterly,* 22**,** 190-200.

SU, W., FANG, X., MILLER, J. K. & WANG, Y. 2011. Internet-based intervention for the treatment of online addiction for college students in China: a pilot study of the Healthy Online Self-helping Center. *Cyberpsychology, Behavior, and Social Networking,* 14**,** 497-503.

SUE, V. M., RITTER, L. A. & LOIS, A. 2007. Designing and developing the survey instrument. *Conducting online surveys. Thousand Oaks: Sage***,** 59-88.

SUTTON, S. 2001. Back to the drawing board? A review of applications of the transtheoretical model to substance use. *Addiction,* 96**,** 175-186.

TERRY, D. J. & O'LEARY, J. E. 1995. The theory of planned behaviour: The effects of perceived behavioural control and self-efficacy. *British Journal of Social Psychology,* 34**,** 199-220.

TORNING, K. & OINAS-KUKKONEN, H. Persuasive system design: state of the art and future directions. Proceedings of the 4th international conference on persuasive technology, 2009. ACM, 30.

TURKLE, S. 2017. *Alone together: Why we expect more from technology and less from each other*, Hachette UK.

VAISMORADI, M., TURUNEN, H. & BONDAS, T. 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences,* 15**,** 398-405.

VANDONINCK, S., D'HAENENS, L. & ROE, K. 2013. Online risks: Coping strategies of less resilient children and teenagers across Europe. *Journal of Children and Media,* 7**,** 60-78.

VANDONINCK, S., D'HAENENS, L. & SEGERS, K. 2012. Coping and resilience: Children's responses to online risks. *Children, risk and safety on the internet research and policy challenges in comparative perspective***,** 205-218.

VERMEEREN, A. P., LAW, E. L.-C., ROTO, V., OBRIST, M., HOONHOUT, J. & VÄÄNÄNEN-VAINIO-MATTILA, K. User experience evaluation methods: current state and development needs. Proceedings of the 6th Nordic conference on human-computer interaction: Extending boundaries, 2010. ACM, 521-530.

VOGT, W. & STATISTICS, D. 1999. Methodology: A Nontechnical Guide for the Social Sciences. London: Sage.

VOHS, K. D. & BAUMEISTER, R. F. 2016. *Handbook of self-regulation: Research, theory, and applications*, Guilford Publications.

VORDERER, P., KRÖMER, N. & SCHNEIDER, F. M. 2016. Permanently online–Permanently connected: Explorations into university students' use of social media and mobile smart devices. *Computers in Human Behavior,* 63**,** 694-703.

WANG, C., LEE, M. K. & HUA, Z. 2015. A theory of social media dependence: Evidence from microblog users. *Decision Support Systems,* 69**,** 40-49.

WANG, Y., WU, A. M. & LAU, J. T. 2016. The health belief model and number of peers with internet addiction as inter-related factors of Internet addiction among secondary school students in Hong Kong. *BMC Public Health,* 16**,** 272.

WEBB, T. L., SNIEHOTTA, F. F. & MICHIE, S. 2010. Using theories of behaviour change to inform interventions for addictive behaviours. *Addiction,* 105**,** 1879-1892.

WEGMANN, E., OBERST, U., STODT, B. & BRAND, M. 2017. Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder. *Addictive behaviors reports,* 5**,** 33-42.

WILLIAMS, G. C., GROW, V. M., FREEDMAN, Z. R., RYAN, R. M. & DECI, E. L. 1996. Motivational predictors of weight loss and weight-loss maintenance. *Journal of personality and social psychology,* 70**,** 115.

WILLIAMS, K. D., CHEUNG, C. K. & CHOI, W. 2000. Cyberostracism: effects of being ignored over the Internet. *Journal of personality and social psychology,* 79**,** 748.

WOLNIEWICZ, C. A., TIAMIYU, M. F., WEEKS, J. W. & ELHAI, J. D. 2018. Problematic smartphone use and relations with negative affect, fear of missing out, and fear of negative and positive evaluation. *Psychiatry research,* 262**,** 618-623.

WRIGHT, M. O. D. & MASTEN, A. S. 2005. Resilience processes in development. *Handbook of resilience in children.* Springer.

YELLOWLEES, P. M. & MARKS, S. 2007. Problematic Internet use or Internet addiction? *Computers in Human Behavior,* 23**,** 1447-1453.

YOUNG, K. S. 1999. Internet addiction: symptoms, evaluation and treatment. *Innovations in clinical practice: A source book,* 17**,** 351-352.

YOUNG, K. S. & DE ABREU, C. N. 2010. *Internet addiction: A handbook and guide to evaluation and treatment*, John Wiley & Sons.

YOUNG, K. S. & RODGERS, R. C. Internet addiction: Personality traits associated with its development. 69th annual meeting of the Eastern Psychological Association, 1998. 40-50.

12. APPENDICES

12.1 APPENDIX1: ETHICAL APPROVAL COMMITTEE OF THE AUTHORS' INSTITUTION

Research Ethics Checklist

Reference Id	15292
Status	Approved
Date Approved	07/03/2017

Researcher Details

Name	Aarif Alutaybi
School	Faculty of Science & Technology
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, DEng)
Course	Postgraduate Research
Have you received external funding to support this research project?	No

Project Details

Title	The fear of missing out (FoMO) and social networks
Proposed Start Date of Data Collection	06/03/2017
Proposed End Date of Project	22/12/2017
Supervisor	Raian Ali
Approver	Hongnian Yu

Summary - no more than 500 words (including detail on background methodology, sample, outcomes, etc.)

Research Ethics Checklist

Reference Id	19076
Status	Approved
Date Approved	02/02/2018

Researcher Details

Name	Aarif Alutaybi
Faculty	Faculty of Science & Technology
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, DEng)
Course	Postgraduate Research - FST
Have you received external funding to support this research project?	No

Project Details

Title	The fear of missing out (FoMO) and social networks
Proposed Start Date of Data Collection	23/01/2018
Proposed End Date of Project	30/09/2019
Supervisor	Raian Ali
Approver	Hongnian Yu

Summary - no more than 500 words (including detail on background methodology, sample, outcomes, etc.)

Below is a set of statements which may describe your everyday experience with social networks. Please tick the box that really reflects your typical experiences. Please answer according to what really reflects your experiences rather than what you think your experiences should be:

No	Statements	Tick here
1	When I am not using social networks, I often feel anxious	
2	I often fail to get enough rest because I interact with friends through social networks	
3	I get worried when I find out my friends are having fun with- out me	
4	I get anxious when I don't know what my friends are up to	
5	Sometimes, I wonder if I spend too much time keeping up with what is going on social networks	
6	It bothers me when I miss an opportunity to meet up with friends	
7	When I go on vacation, I continue to keep tabs on what my friends are doing	
8	I spend a lot of time thinking about social networks	
9	I often find myself thinking about social networks	
10	Sometimes, I can get quite stressed if I start to think about social networks	
11	I often look forward to my next session on social networks	
12	I hate being distracted with thoughts about social networks.	
13	Deciding what to post/share on social networks can be quite stressful	
14	I have done things on social networks that make me popular among friends, even when it meant doing something I would not usually do	
15	Sometime, I have changed my behaviour on social networks in order to be more popular	
16	None of the above PLEASE do not complete the rest of this survey	

Personal information

- What do you do?

- How old are you?

- What is your gender?

- Where are you from?

- Could you please provide us with your email?

General software and device familiarity

- What kind of digital devices do you use?

- When do you check your social network accounts during your day?

  □ during lectures □ during meals □ before going to bed □ immediately after waking up □ during work □ all

- What kind of social networks do you prefer to use?

Please answer the following questions:

1. Have you ever tried to manage your use of social networks and how?
2. If you found a way to manage your FoMO and usage in relation to the use of social networks would you use it?
3. What would you like to see in social networks in relation to managing FoMO?

Participant Information Sheet

The title of the research project

The fear of missing out (FoMO) and social networks

Invitation

You are being invited to take part in this research project conducted by Aarif Alutaybi, a postgraduate researcher, in the Department of Computing and Informatics, Faculty of Science & Technology, Bournemouth University, UK. This study is a part of his PhD thesis which is under the supervision of Dr. Raian Ali. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the project?

The aim of this research is to understand the fear of missing out (FoMO) in relation to the use of social networks, and propose software-based aiding mechanisms which help people managing their FoMO.

What is the fear of missing out (FoMO)?

The fear of missing out is defined as a pervasive apprehension that others might be having rewarding experiences from which one is absent. Also, it is characterized by the desire to stay continually connected with what others are doing.

Why have I been chosen?

This is an open call that aims to reach those who feel they can contribute to the research by sharing their experience with technology, utilizing our mechanisms and giving us feedback on them.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a participant agreement form. You can withdraw at any time, up to the point where the data are processed and become anonymous, so your identity cannot be determined, without it affecting any benefits that you are entitled to in any way. You do not have to give a reason. Deciding to take part or not will not adversely affect you.

What would taking part involve?

As a participant in this study, there will be some activities to undertake. Firstly, you will fill a short pre-selection survey to gather your demographic data (e.g. age,

gender, profession, etc.) and your experience with technology. If based on the information you provide you are selected for the next stage of the study, you will be invited to a focus group. During the focus group session you will be given a brief presentation about the fear of missing out and Evernote smart phone app. After that, you will be given different scenarios to discuss with the researcher and other participants.

What is Evernote and why do I need to use it?

Evernote is an application for smartphones and computers. It is used to allow people taking notes such as voice or text and keeping them for themselves or sharing with others. You will be asked to download the Evernote app from Apple Store or Play Store depending on the type of your smartphone and keep it active for a certain period of time. The researcher will use the Evernote to send you questions during the day about FoMO and you are expected to answer and send it back as text or voice or other formats. Once this phase is finished, you may be invited to an interview about your experience with the software and messages.

What are the advantages and possible disadvantages or risks of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will improve our understanding of the fear of missing out in relation to the use of social networks and how we design a new technology that can help people managing their FoMO. There are not speculated risks of taking part of this study.

Will my taking part in this study be kept confidential?

All the information that we collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications. All data relating to this study will be kept for 5 years on a BU password protected secure network.

Will I be recorded, and how will the recorded media be used?

Yes, if you take part in the focus group and interview stage. The recording will help the research team to capture the information that will be sought from you during the focus group and interview. However, you will be given the right to accept or reject recording the interview. No other use will be made of the recording without your written permission, and no one outside the research team will be allowed access to the original recordings. The audio recordings made during this research will be deleted once transcribed and anonymised. The transcription of the interviews will not include your name or any identifiable information. Instead, each person will be identified by their code (i.e. #id523741, #id523753, etc.).

Contact for further information

If you have any queries about this research, please contact Aarif Alutaybi by email on aalutaybi@bournemouth.ac.uk or by phone on 01202 968140 or by post to:

Aarif Alutaybi
Faculty of Science and Technology

Bournemouth University
BH12 5BB

Complaints

If you have any complaints about this project please contact Professor Keith Phalp, Acting Executive Dean of the Faculty of Science and Technology at Bournemouth University at the following address:

> Professor Keith Phalp
> Poole House P307, Bournemouth University, Talbot Campus, Fern Barrow, Poole, BH125BB
> E-mail: researchgovernance@bournemouth.ac.uk

Thank you for taking the time to read this information sheet, and please do not hesitate to contact me if you have any queries.

Participant Agreement Form

Full title of project: The fear of missing out (FoMO) and social networks

Name, position and contact details of researcher: Aarif Alutaybi, Postgraduate researcher, Department of Computing and Informatics, Faculty of Science & Technology, Bournemouth University. Email: aalutaybi@bournemouth.ac.uk

Supervisor: Dr. Raian Ali, Department of Computing and Informatics, Faculty of Science & Technology. Email: rali@bournemouth.ac.uk

Tick Here

I have read and understood the participant information sheet for the above research project.	
I confirm that I have had the opportunity to ask questions.	
I understand that my participation is voluntary.	
I understand that I am free to withdraw up to the point where the data are processed and become anonymous, so my identity cannot be determined.	
During the tasks of the study, I am free to withdraw without giving a reason and without there being any negative consequences.	
Should I not wish to answer any particular question(s), complete a test I am free to decline.	
I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the outputs that result from the research.	
I understand taking part in the research may include being recorded (audio) but that these recordings will be deleted once transcribed and anonymised.	
I agree to take part in the above research project.	

Name or Initials of the Participant   Date   Signature

Name or Initials of the Researcher   Date   Signature

The following questions are useful for discussion each scenario:

Q1: what is the issue that annoys the person in each scenario?

The intention of this question is to enable participants to identify the issue in each scenario.

Q2: what extent do you think this issue could affect person's mood and feeling?

The intention of this question is to enable participants to identify the feeling that is caused by the issue.

Q3: what could you do if you face the same situation?

This question is to investigate how people currently managed the fear of missing out.

Q4: what would you like to see in social networks to minimise this issue?

The intention of this question is to enable participants to provide suggestions that could be offered by social networks in relation to manage FoMO.

The following are several techniques that could be useful for answering question four:

No	Techniques	Explanations
1	Auto Reply	It is a feature that informs people that you will not respond to their message right away.
2	Situational Awareness	It is technique to allow you to know what is going on around you. It means that you will know the situation of others before interactions.
3	Auto Interaction	It is a technique that allows you to interact with others when you are offline.
4	Priority list	It is a technique that informs people that you will respond to them in a certain time.
5	Event recording	It is a technique that records the events that you missed.
6	Delivery report	It is a technique that confirms that your message has been delivered to the other person.
7	Setting protocol	It is platform that allows group of people set their protocol to avoid any future issues.
8	Temporal status	
9	Spatial status	

10	Conditions and terms	It is a technique that informs you that how group of people behave before interacting with them

Scenario 1

Henry and his friends decided to camp on one of the lower slopes of the mountain last summer holiday. Henry was worried and fearful about the difficulty of maintaining internet access because he did not want to miss anything on Twitter. Unfortunately, when they arrived at the destination there was no 3G signal. At that time, henry was walking around the camp to try and find a signal. Henry did not enjoy the time spent with his friends and he annoyed them.

The intention of this scenario is to show the state of individuals when they fail in self-regulation. This is due to FoMO from losing an opportunity.

Scenario 2

John is interested in using Facebook. However, he often cannot check his account because he is a PhD student and does not have enough time. John always blames himself because he infrequently interacts with friends on Facebook. He thinks that because he does not interact with his friends continually he has not got enough likes on his photo. Thus, he feels inadequate among his friends.

The previous scenario describes a situation that occurs when individuals fear being excluded by peers and how this fear may affect their self-esteem.

Scenario 3

The Human Resources department of an organisation has recently seen an increase in stress-related leave in part because of the increased number of emails and peer pressure online. Alexander is one of these cases. He often feels pressured to give responses upon receiving an urgent and highly important email. He then does so in a hasty and erratic style and feels bad later. He sometimes uses his smart phone to reply and feels unable to resist the urge to wait until he has access to a PC and can write a proper reply. He fears that a slow response will adversely affect his popularity and image among his colleagues.

The intention of this scenario is to show how peer pressure can create a FoMO for people. Individuals fear a loss of popularity among colleagues and this may affect their self-image.

Scenario 4

We have been close friends since high school. We share our life details and organise weekend activities via Facebook. Mike is our leader and he manages our group account on Facebook. Sam is a very active member of the group and always argues with Mike. Then, Mike excludes Sam from the group. As a sequence of this, Sam now prefers to contact me to learn about our news. Then I noticed that Sam began feeling lonely and anxious. He has missed part of his daily activities and started to show his regret about what he did with the group leader.

The previous scenario explains the state of members of a group when they lose a sense of belonging to the group and thus could affect social identity.

Scenario 5

Alessia has multiple social network accounts and she belongs (within the same account) to various groups each having different interaction styles and online social norms. She finds it difficult to manage her polymorphic presence online despite the fact that she thinks this is necessary because it amplifies her presence and offers diversity and creativity. This leads her to spend a lot of time thinking about and managing her on-line presence. At the same time, she sometimes feels lost amongst the different versions she has of herself, thereby causing her conflict and preoccupation.

The intention of the previous scenario is to describe the difficulty of dealing with different accounts and groups on social networks. This difficulty may create a FoMO from being excluded when individuals cannot conform to the identity of the group.

Scenario 6

A Facebook user (Claudia) finds it difficult to switch the phone off during a holiday where she is meant to be enjoying nature and doing some physical activities. Claudia fears that she may be missing important events and the opportunity to reply to some interesting comments made by her friends on her newly posted pictures. At the same time, Claudia feels that friends may feel upset if they comment on her new posts and have to wait a long time for her to reply. Claudia thinks that her popularity with friends will be reduced if she often does that and replies only in her free time. While on holiday, she often feels the need to go to one side and check her messages and notifications, thereby annoying the people around her in the physical world.

The intention of this scenario is to show the failure of self-regulation that may be caused by FoMO from delaying the reply. In addition, a misunderstanding could be found in this scenario in which individuals require an immediate response otherwise their friends will blame them for any delay.

Scenario 7

Sarah is an international student living in the United Kingdom. This gives her the opportunity to meet people from various backgrounds and cultures. They decide to create a Facebook group to enjoy and share their daily events. Despite Sarah enjoying this first experience of being in a group of friends from different countries, she has some difficulties in dealing with their posts. This increases her concern when they do not reply to her post but do reply to posts sent afterwards.

12.5 APPENDIX 5: EXAMPLE OF DIARY GUIDANCE AND A DIARY DAY

Guidance

Thank you for agreeing to help me with this study. This diary is a qualitative research tool that is being used to capture your in-depth thoughts, feelings and reactions regarding your use of social networks and, more importantly, the feeling of fear of missing out (FoMO).

Here are some guidelines for completing the template of the diary:

1. The template will be sent via Evernote app every day(2 times).
2. Please do not worry about spelling or grammar.
3. Try to fill in the diary every morning, afternoon and evening. If you cannot make an entry for a particular event, then you may fill it in during the following event. However, do not try to fill the diary in any later than one day after the entry was due; e.g. do not try to fill in Monday's entry on Wednesday.
4. If you find that you have missed several events, please do not give up the whole week's events. Just start again with the next event that you are able to fill in.
5. Remember that this is your diary. I am interested in finding out as much as possible about your usage style on social networks. Therefore, please tell me as much as you can (no matter how unimportant it may seem). I would much rather have too much information than too little. Everything you write within this diary is **completely confidential and anonymous.**

Thank you for your time,

Aarif Alutaybi

Please answer the following questions in relation to your situation:

Which social network triggered your feelings of fear of missing out so far (FoMO)?

□Facebook

□Twitter

□Email

□ Snapshat

□ Instagram

□Other

What is it?

……………………………………………….

What kinds of activities in the selected social networks triggered your FoMo?

…………………………………………………

How was your feeling at that time?

□Anxious

□Stressful

□Irritable

□Inadequate

□ Other

What was it?

What was your fear about?

□ Missing social events

□ Fear of being excluded from the group

□ Delayed reply to email

□ Sending email

□ Getting negative feedback from friends

□ Getting followers or likes

□ Fear of missing an opportunity

□Other

What was it?

Please, list any ideas that you may have regarding what you would like to see on social networks to reduce your FoMO:

12.6   APPENDIX 6: EVERNOTE APP

What is Evernote and why do I need to use it?

Evernote is an app for smartphones and computers. It is used to enable people to take notes such as voice or text and share these with others. Participants will be asked to download the Evernote app from the Apple Store or Play Store depending on the type of their smartphones and keep it active for a certain period of time. They will sign up using their email account. The researcher will use Evernote to send questions to participants during the day about FoMO in relation to the use of social networks and they are expected to answer and send it back as a text or voice message.
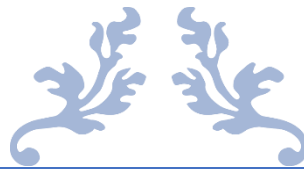
DIARY TEMPLATE (DAY1)

Your code ······· ················

Guidance

Thank you for agreeing to help me with this study. This diary is a qualitative research tool that is being used to capture your in-depth thoughts, feelings and reactions regarding your usage of social networks and, more importantly, the feeling of fear of missing out (FoMO). Here are some guidelines for completing the diary template:

1. The template of the diary will be received in hard or soft copy as you wish.

2. Please do not worry about using perfect English as long as you can communicate the meaning.

3. Try to fill in the diary as close as possible to your usage of social networks. When doing that, please be informed by the different FoMO categories provided in the template and try to reflect on them and their context based on your personal experience. If you do not find the proper type of FoMO, but you still think you have FoMO, please elaborate on that and suggest new categories.

4. Please try to come back to the diary few times a day as this will help getting fresh comments from you and also help recognizing whether you encountered a FoMO of certain category and in different contexts.

5. If for any reason you missed filling in the diary for a day or more, please do not give up and continue the day after. We want to get at least 10 days in total.

6. Remember that this is your diary and there are no wrong or right answers. I am interested in finding out as much as possible about your FoMO experience on social networks. Therefore,

please tell me as much as you can about that experience, no matter how unimportant it may seem to you. Feel free to add and suggest, and **I would much rather have too much information than too little**. Everything you write within this diary is completely confidential and anonymous.

If you have any questions during this activity, do not hesitate to contact me on aalutaybi@bournemouth.ac.uk

Thank you for your time,

The following are some concepts that you need to know before starting your diary:

Definition of fear of missing out (FoMO): *FoMO is a form of social anxiety that is a compulsive concern when one might miss an opportunity for social interaction or other satisfying event.* Also, it is *"Pervasive apprehension that others might be having rewarding experiences from which one is absent."* It is characterised by the desire to stay continually connected with what others are doing (Przybylski et al., 2013).

Table 35: Contexts of FoMO and Explanation

Context	Description and example
FoMO when others do not interact as expected	This is when individuals do not see interaction from others and fear may come to their mind. *"I sent a message to my friend on Facebook but my friend hasn't seen it yet. However, I have seen my friend was online. This made me anxious as I fear that I missed some interaction with him recently which led to him ignoring me.*
FoMO when unable to interact or connect as wished	This context means that an individual cannot use social networks due to a certain circumstance such as technical problems or because they are busy at work and a number of fears may come to their mind. *"There was so much news and so many university-related tweets that I couldn't read them all. I felt a bit anxious because I was unable to keep up with news that's important to me and I think I missed it."*
FoMO when unwilling to engage in social interaction	This context means that some interactions may not be of interest to individuals when using social networks. However, they have to engage in the interaction unwillingly because a number of fears come to their mind. *"I found 150 WhatsApp messages from group of friends and I did not want to read them all because it takes time and sometimes they are not interesting. However, I think that if I do not read them one by one I may miss interesting messages.*
FoMO when having to or feeling a need to engage in continuous untimed interactions	This context means that some interactions may distract individuals indefinitely because individuals fear missing an opportunity from a certain interaction.

	"*My friend was talking to me about a personal matter and I couldn't stop using WhatsApp until 4:00am because I feared that my friend would think I didn't want to listen to him.*"
FoMO when online social gathering is expected	This context means when individuals expect certain interactions are coming on a certain SNS, a number of FoMO may come to their mind. "*I have a family group on WhatsApp and we usually chat and I like the jokes that my brothers tell so I am keen to keep the tone of notification to be active even when I want to sleep in order not to miss the sense of being close to them during the conversation.*"

The following is an example to show you how to fill in the diary.

These are dummy responses so PLEASE try not to get influenced by them and please avoid using them as a starting or reference point.

Example

Context 1: FoMO when others do not interact as expected	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing the ability to be popular **e.g.** Not receiving a response from someone while they are online	I sent a message on Facebook to my friend but he has not answered despite being online for a long time. I fear I missed something that made him ignore me! However, I was in the gym and I handled this fear by engaging more with people around me in the gym and looking more into the stats of the treadmill. Next time, I may tell my friend via private message in advance that I can be busy sometimes of the day. Calling this one as "*fear of missing social capital*" would sound better to me. As context, I think being in new environment, like University for fresh students, may increase the chance of this FoMO.
Fear of missing the ability to be interesting **e.g.** Not seeing interactions from friends recently so you may think your post is not interesting and is not capturing attention	I got a nice selfie in an interesting museum and I posted it on Snapchat but I have not seen any interaction from my friends. I fear I have missed the ability to catch their attention. I hope to see a feature to allow friends to express when they cannot interact or how their interaction or lack of interaction may look like to their friends I suggest rephrasing the category to "*Fear of Missing the Chance to Keep Contact Attention*".. This would sound better to me.

Fear of missing the ability to get the right interpretation **e.g.** You have not received comments on your post but you are unsure whether or not you are being ignored	This fear has not happened to me today but I know my friend was suffering with this type of fear mainly because … To help them, I suggest having a button like Disputed or Arguable next to Like button.

Comments:

This fear of missing out was much dependent on some of the contacts in my list but not all of them. These contacts are those close to me and I know them in person. However, for light contacts, I felt a bit bad but would expect that they have not committed to me to be in constant support and reactiveness.

Also, I feel that …

Please fill in the below throughout the day as close as possible to your feeling of FoMO and social network experience:

Context 1: FoMO when others do not interact as expected	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing the ability to be popular **e.g.** Not receiving a response from someone while they are online. So, you fear you missed something that made him/her ignore you	I faced this fear of missing out as I haven't had my phone on me since it has been out of order, and I had messaged a friend on Facebook, but received no reply. This led to much anxiety over wondering why she hadn't responded. This was quickly resolved when I could log into Whatsapp and had realized that I hadn't responded to some of her messages there, for my phone was inaccessible. Having explained the situation, the issue was quickly resolved.
Fear of missing the ability to be interesting **e.g.** Not seeing interactions from friends recently so you may think your post is not interesting and is not capturing attention	
Fear of missing the ability to get the right interpretation **e.g.** You have not received comments on your post from friends but you are unsure whether or not you are being ignored	I faced this fear of missing out when I commented on someone's conversation but didn't get a reply until a little later. In the meantime, it made me worry whether what I said was inappropriate or that no

	one wanted to respond to it. However, comments started to pour in soon after and the FoMO dissipated.

Comments: ………………………
I think this past week I have primarily experienced foMO due to my phone been inaccessible. The battery wanes off quickly and I'm usually left with no phone.

Context 2: FoMO when unable to interact or connect as wished	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing information due to a large volumes **e.g.** Facing a large volume of news or events on Facebook and you may not be able to keep up with them so you fear missing them	I definitely faced this sort of foMO this past week as, one, I have had packed days, with absolutely no breathing space, and two, my phone has been conked for the duration giving me nil access or frequent access to social media networks and I did experience anxiety over missing out on all the newsfeed, especially when I would hear conversations like, "Did you hear about this thing or that thing?"
Fear of missing the ability to deal with messages from different social networks **e.g.** Receiving messages from family on WhatsApp and from colleagues on Facebook but you cannot deal with them together	I did experience a fear of missing out due to my lack of access via my phone and also, when I did log back in, I knew there would be scores of messages to read through. And also, missing out on my usual live feed, and instant messaging to friends and such. It was definitely a mind-boggling week for me. Not to mention being busy, which led to an even limited usage of my phone.

Fear of missing temporarily available information **e.g.** You are away from your phone and you fear of missing an interesting story on Snapchat. Note that stories on Snapchat are only available for a limited time	
Fear of missing timely interactions **e.g.** You fear of missing the ability to respond to messages from WhatsApp immediately because you are at work and unable to contact.	I faced this sort of foMO majority of the time as I couldn't respond to family or friends in a timely fashion as they are usually accustomed to my instant replies (the expectation) and my need to reply instantly as well (self-expectation). As I was busy and my phone out of order, I had to postpone this and it was at the back of my head to respond or check my phone for messages. But not having a phone on me 24/7 has been a great digital detox. The feeling of not having your phone goes away in a few minutes and I found myself focussing on my tasks at hand more than I would if I had to monitor phone activity.
Fear of missing participating in popular interactions **e.g.** There is an important football match and many of your friends are discussing it online but you cannot be there as you are at social dinner and you fear missing the opportunity to be part of the discussion	
Fear of missing the ability to avoid a communication backlog **e.g.** You are busy with your family commitment and you cannot check your email so you fear accumulating business emails and missing the ability to sort some of them out before that happens	I faced this fear of missing out as I couldn't access my phone and I knew I was going to be tied up through the day, so I basically missed an opportunity to unclog/ respond to messages/emails in order to prevent a backlog.

Fear of missing important information due to frequent alerts **e.g.** You are in a lecture and you are not allowed to use the phone. Frequent alerts on WhatsApp come to you and you are unable to contact.so, you fear missing important messages	
Fear of missing the ability to keep followers **e.g.** You cannot be active on Instagram daily but you feel you have to upload new things or check more often because of the fear of missing followers	
Fear of missing information/events due to multi following **e.g.** you may be unable to keep up with what followings post on Twitter so you fear missing it because you have high number of followings	
Fear of missing information/events due to design issues **e.g.** Not seeing tweets and you wonder if Twitter is down or you need to reinstall the Twitter app so you fear missing tweets	

Comments:

……
……
……
……
……
……
………………………………………………

Context 3: FoMO when unwilling to engage in social interaction	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing valuable information due to information abundance **e.g.** Receiving a high number of messages from a group on Facebook and you are not interested in reading them one by one but you read them in order to avoid missing valuable messages	I face this fear of missing out with family groups and also my overactive choir group, as I have no interest in instantly replying since those chats are on 24/7, but I have this need to read through them, so that I haven't missed out on any important update, especially with regard to choir schedules as that is important for this week.
Fear of missing the ability to defend your popularity **e.g**. You engage in a group discussion such as a WhatsApp group in order to maintain your popularity to an acceptable level	

Comments:

……
……
……
……
……
……
……
……

……
……
……
………………………………………………………………………………………………..

Context 4: FoMO when having to or feeling a need to engage in continuous untimed interactions	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing empathy and leaving a good impression **e.g.** You engage in a twitter conversation but are unable to stop it from your side in order to avoid a possible misunderstanding by the other party, For example, you are not interested in the conversation with them	
Fear of missing the opportunity to know others' impressions **e.g.** Checking continuously to avoid missing friends' comments about your post	I face this fear of missing out because I am interested to know who has commented on my recent posts. I am constantly checking my phone for such things, even when it's out of order, I manage somehow to log in from my laptop as much as I can. However, not having steady access has really helped and distracting myself from social media works like a charm, even if it means tossing my phone into another room.
Fear of losing popularity **e.g.** you are checking continuously as you feel a need to response immediately to messages in order to retain your popularity in front of other parties	

Fear of missing a valuable opportunity **e.g.** Checking continuously to avoid missing a valuable opportunity such as a discount or registering for an interesting workshop	
Fear of missing relatedness **e.g.** Checking continuously in order to avoid missing an ad-hoc request from WhatsApp group	
Fear of missing spontaneous responses **e.g.** you are waiting for a response of email or message that is not defined by a specific time and you have to be online in order to avoid missing it	

Comments:

………
………
………
………
………
………
………
………
………
………
………
…………………………………………………………………………………………..

Context 5: FoMO when online social gathering is expected	
	Did it happen to you? How? Any suggestions how to minimise FoMO here? Any comments?
Fear of missing the opportunity to attend an online event **e.g.** There is expected to be a conference on Facebook but you do not see it when you are on Facebook and you fear missing the opportunity to attend	
Fear of missing the sense of relatedness **e.g.** You have a group of friends on WhatsApp and they always chat so you are usually close to your phone in order not to miss the sense of being close to them during the conversation	I face this fear of missing out with a close group of friends and the chat groups associated with it, and hence, I find myself checking my phone at regular intervals to see if there is any message or update from them.
Fear of missing the ability to be popular **e.g.** It was your birthday and some of your close friends created an event for it on Facebook but you didn't receive messages from friends to congratulate you so you were wondering if you missed their birthday or some other interaction with them before that led them to exclude you or maybe they do not see you as a popular and interesting friend	

Comments:

………………………………………………………………………………………………

……
……
……
……
……
……
……
……
……
……
………………………………………………………………………………………………………..

Please read the following scenarios and answer questions. Feel free to discuss each scenario with group members and the facilitator:

Scenario 1:

Jacqui works in the marketing department of a bank in the UK. She works hard and has made great deals that supported the bank last year. The bank work rewarded her for her achievements with a free flight to California and hotel accommodation. Once she had arrived California she took pictures to share the moment with her friends on Instagram and expected to receive lots of interaction such as Likes and comments. However, Jacqui was hesitant to post them because she feared her friends may perceive her to be showing off, thereby affecting her reputation. After a while, she decided to share her posts with a group of friends to open the discussion about fascinating places in California. Since her posts are attractive, she thinks this will generate interaction and she will receive a high volume of comments. Unfortunately, she did not get as much interaction as she expected and this affected her mood and enthusiasm toward to share her nice moment with friends. As a result, Jacqui fears that her friends have ignored her posts.

This scenario explains the context of FoMO when others do not interact as expected. In addition, the varieties of fears are notable in this scenario such as fear of missing the ability to be popular, fear of missing the ability to be interesting and the fear of missing the ability to get the right interpretations.

Please answer the following questions:

Q1: What were the fears that faced Jacki in this scenario?

Q2: What could you do if you faced the same situation?

Q3: What would you like to see on social networks to help minimise these fears?

Scenario 2:

Sarah is a manager in the human resources department. Sarah is not interested in using social media but she uses Facebook, Twitter, Snapchat and WhatsApp as part of her work. One day she was travelling by train day visit for workplace. During the journey, she experienced an intermittent internet signal and this made her anxious. When the signal

returned, she found on Twitter a high volume of interesting events happening on her work but she could not read them all so she feared missing an important events. Also, she found huge number of WhatsApp messages that she had to reply to but she feared that this would delay her replies to business emails.

Sarah was afraid when she returned to her city because she had limited data and she was trying to be economized of her online usage. Unfortunately, the data ran out and this made her feels stressed because she was aware this would delay her timely response and possibly result in losing important information. Also, once she arrived back home and connected to the internet she found that a group of her colleagues on WhatsApp was discussing an interesting topic in relation to their work but she could not reply because it was too late. As a result of this, Sarah was disappointed to be missing an interesting discussion. Furthermore, she checked her email account and found a large number of emails that she had to deal with before going to sleep in order to avoid missing any important emails.

This scenario explains the FoMO context when people are unable to interact or connect as wished. In addition, the variety of fears are notable in this scenario such as fear missing information due the large volume of information, Fear of missing the ability to deal with different social networks, fear of missing timely interactions, fear of missing participating in popular interactions, fear of missing the ability to avoid a communication backlog.

Please answer the following questions:

Q1: What were the fears that Rozana faced in this scenario?

Q2: What could you do if you faced the same situation?

Q3: What would you like to see on social networks to help minimise these fears?

Scenario 3:

Ana works in a bakery and has to wake up at 5.00am every morning to prepare the bread. Ana has a group of friends on WhatsApp to share and discuss meaningful matters such as healthy food, diet plans and interesting events in the city. Occasionally, she finds more

than 120 messages from the group but she sometimes perceive that her friends are discussing unworthwhile topics or two members of the group are talking about less meaningful matters but she needs to read them all as she fears missing important information. Additionally, the notification tone and vibration of messages make noise for her and some members of the group. However, Ana sometimes has to engage in these conversations in order to retain her sense of belonging to the group and maintain the level of her popularity and connectedness to an acceptable level.

This scenario explains the context of people who feel FoMO when unwilling to engage in social interactions. In addition, the varieties of fears are notable in this scenario such as Fear of missing valuable information and fear of missing the ability to defend popularity.

Please answer the following questions:

Q1: What were the fears that Ana faced in this scenario?

Q2: What could you do if you faced the same situation?

Q3: What would you like to see on social networks to help minimise these fears?

Scenario 4:

James finds it difficult to stop checking Twitter every day, even when he is enjoying nature and doing physical activities. James fears that he may be missing important events and the opportunity to reply to some interesting comments made by his friends relating to his newly posted video. At the same time, James feels that his friends may feel upset if they comment on his new posts and have to wait a long time for him to reply and he also fears cutting endless conversations, even when he is doing an important task. James thinks that his popularity with friends would be harmed if he often did that and only replied in his free time. While having a meal, he often feels the need to check his messages and notifications, thereby annoying the people around him in the physical world.

Please answer the following questions:

Q1: What were the fears that James faced in this scenario?

Q2: What could you do if you faced the same situation?

Q3: What would you like to see on social networks to help minimise these fears?

Scenario 5:

Alex is 22 years old and he is studying for a bachelor degree in software engineering at Bournemouth University. He has a limited budget and cannot go out every weekend. He likes using social media and Facebook in particular. One day of weekend, He decided staying at home and spending time with his family without checking Facebook. However, he expected interesting event may come on Facebook and he fear of missing it.

This scenario explains the context of FoMO when people expect an online social gathering. In addition, the varieties of fears are notable in this scenario such as fear of missing a nice moment, Fear of missing the ability to be popular and fear of missing the sense of relatedness.

Please answer the following questions:

Q1: What were the fears that Alex faced in this scenario?

Q2: What could you do if you faced the same situation?

Q3: What would you like to see on social networks to help minimise these fears?

12.9 APPENDIX 9: FOMO SURVEY

Thank you for agreeing to help me with this survey. This survey aims to get information regarding your personality trait, the experience of the Fear of Missing Out (FoMO). Also, it aims to get your opinion regarding the future of social networks design in relation to manage FoMO.

Definition of Fear of Missing Out (FoMO): FoMO refers to the **anxiety** people feel when unable to connect to social media as they wish either due to **technical issue**, e.g. being without internet or due to the **situation** they are in, e.g. driving or working. FoMO can also be felt when **contacts are not communicating** as expected without knowing the reasons.

The survey is expected to take around 10- 12minutes. We will reward you with **free Starbucks coffee** for completing it.

In this survey, the questions will be around 4 facets:
1. Personal information
2. Personality traits test
3. The experience of FoMO in relation to the use of social media
4. The future design of social networks in order to reduce the fear of missing out

Privacy and Confidentiality:
All answers will be treated confidentially and respondents will be anonymized in any published work.

If you have any comments or inquiries please do not hesitate to contact the researcher via the email address below:
aalutaybi@bournemouth.ac.uk

(FoMO Experience) these tow option is to filter participants regarding the experience of FoMO)
☐ I frequently experience FoMO
☐ I rarely experience FoMO or do not have it at all. [Please note if you select this option do not complete the survey]

Personal information

Please respond to each of the following questions:

What is your age?
My age is……….. Years old

What is your gender?
☐ Male ☐ Female ☐ I prefer not to say

Personality traits test

Instructions: How well do the following statements describe your personality?

I see myself as someone who...	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1. is reserved					
2. is generally trusting					
3. tends to be lazy					
4. is relaxed, handles stress well					
5. has few artistic interests					
6. is outgoing, sociable					
7. tends to find fault with others					
8. does a thorough job					
9. gets nervous easily					
10. has an active imagination					

FoMO experience

Here are different kinds of FoMO in different contexts that may or may not apply to you. Please tick the box as close as possible to your experience with FoMO on social networks

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
You posted your holiday's pictures on social media a few times and expected to receive some "Likes" and comments from friends but you did not receive any. Thus, you may					
Q11/Fear you are becoming less popular					
Q12/ Fear your pictures are not attractive or interesting enough					
You were in a formal meeting and frequent alerts from different social media came to your phone and you are unable to check it. Thus you may					
Q13/Fear you are missing important information					
You are at work, and have a 5 minutes coffee break and went with a colleague. You checked the mobile phone and found a high volume of messages including emails, events in your workplace, an invitation from friends and Snapchat stories. However, you do not have time to read and respond to all messages. Thus, you may					
Q14/Fear you are missing important events					
Q15/Feel confused about which one you should start with and how to prioritize responses					
Q16/Fear you are missing **temporarily** available information, e.g. Stories on snapchat, urgent messages or news feed, etc which disappear after a while					
Q17/Fear you are missing time-critical interactions, e.g. responding to friends' messages to accept an invite to a dinner party					
You were on holiday for two weeks where connection to the internet was hard and intermittent so you were unable to update your friends with your news					

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
including internet status. It was also difficult to look thoroughly and download your contacts posts and stories and respond. Thus you may					
Q18/Fear you are missing the ability to keep your followers and contacts updated and interested in you					
Q19/Fear you will be unable to cope with a large amount of information from followings during the rest of the holiday					
Q20/Fear you will eventually be missing participating in an important discussion with your contacts					
Your colleagues are discussing the topic that is related to your interest, e.g. sport or music events in an online group such as Facebook or WhatsApp. You are receiving notifications but you do not engage and check because you are tired or not in the mood to do so. Thus, you may					
Q21/Fear you are missing valuable information from your colleagues about topic					
Q22/Fear your group may accept you less in future discussions and eventually exclude you					
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
You are having a conversation on social media with your close friend. You want to stop the conversation but are unable to because you may					
Q23/Fear you are making a bad impression when leaving his/her messages unanswered for some time					
You posted a video on social media, e.g. Instagram, and you found it difficult to stop checking social media when you are doing some other activities (driving, physical exercise, etc.). You want to stop checking but you may					
Q24/Fear you are missing the opportunity to know others' reactions, e.g. Likes, comments, share, etc. on your post					
Q25/Fear you are missing the opportunity to reply in a timely fashion and quickly to some comments made by					

your friends on your post, so that you do not make them feel ignored					
Q26/Fear you are not doing enough to appreciate your followers who commented on your post, or answer their question regarding your post					
On a sales season or a discount day such as Boxing day or Black Friday, You are sitting with your family or friends while thinking of buying something. You start to check brand sites and their apps and your shopping groups because you may					
Q27/Fear you are missing a discount or a good offer					
Q28/Fear you are missing how your social circle is interacting with events, e.g. what offers and products they got					
When you expect an informal online social gathering, e.g. group chat on Facebook or WhatsApp, if there is a possibility that you cannot connect them as expected for the whole session time or part of it, you may					
Q29/Fear you are missing the opportunity to attend the online event , e.g. Live chat					
Q30/Fear of missing the sense of relatedness and being a member of group					
Q31/Fear others may accept you less and eventually exclude you from next meeting if you cannot participate as expected					

Q32/If you have any comments or suggestion, please write it down?

<u>Here , you will be presented a number of techniques that could help you to manage FoMO in different situations. Please select one or more than one technique</u>

Q33. When you send a message through social media and you do not receive an expected response from your contacts, <u>you may feel that you are becoming less popular</u>. Which of these techniques would help you:

☐ Auto-reply, e.g. when you send a message, you would like your contacts to set a form of auto-reply to inform if he/she cannot interact currently

☐ Set status e.g. before you send the message, you would be happy if your contacts declare their status, e.g. Busy, Driving on a call, etc. so you know they may not respond swiftly

☐ Other (Please specify)……………………………..

Q34. When you post picture on social media such as Instagram or Facebook and do not receive expected interactions such as Like or retweet from friends, <u>you may fear your posts are not appealing enough</u>. Which of these techniques would help you:

☐ Set status, you would like certain contacts to set their status in advance to show you whether they are online or available to interact or not .
☐ Social media shows you who viewed your post

☐ Other (Please specify)……………………………..

Q35. You are at work and have 5 minutes coffee break with a colleague. During the break, you checked the phone and found a high volume of messages and notifications. Since you do not have time to go through all of them and reply when needed, <u>you may fear you are missing a certain content and information</u>. Which one of these techniques would help you:

☐Filter, e.g. you are able to classify messages and notifications according to the topic and contacts involved, etc. so that you can easily estimate their subject and importance.

☐ Priority list, e.g. you can set levels of importance and relevance to topics, contacts, etc. so you are able to prioritize better.
☐ Other (Please specify)……………………………..

Q36. When you have an intermittent internet access so are unable to check a certain social media, <u>you may fear you are missing temporarily available information</u>

e.g. Snapchat stories, WhatsApp status or news feeds, etc. which disappear after a while. Which of these techniques would help you:

☐ Event and content recorder, e.g. having an offline version downloaded so you can still see such temporarily available content when you have time.

☐ Diverse notification, e.g. using different tones and alerts styles for such temporarily available information and when content is about to expire, etc.

☐ Other   (Please specify)…………………………….

Q37. You have a formal meeting and you cannot check your smartphone, <u>you may fear you are missing time-critical interaction</u>s, e.g. responding to friends' invites to a social event or a family request. Which of these techniques would help you :

☐ Auto-reply, e.g., You set some form of auto-reply that sends an automatic response to messages and informs your messaging contacts that you cannot respond immediately.

☐ Set status, e.g. you set social media status in advance saying that you are in a formal meeting or unavailable so they know in advance about your situation.

☐ Other   (Please specify)…………………………….

Q38. When you are unable to increase your time and activity on social media, <u>you may think that this will make your followers and contacts eventually less interested in your profile and posts</u>. Which of these techniques would help you :

☐ Set status, e.g. you set a status in advance that shows your contacts and followers when you are able or unable to post and communicate online.

☐ Contextual Awareness, it is a property in your smart device that accesses to your calendar and your location and then updates your current situation, for example, busy or away, driving or current local time, etc.

☐ Other   (Please specify)……………………………..

Q39. You are at work, and have 5 minutes coffee break with a colleague. You check your phone and see many interactions and notifications from different applications you use, e.g. Facebook, Snapchat, WhatsApp, etc. You are unable to check them all and <u>you may fear of missing something important</u> . Which of these techniques would help you :

☐ Priority list, e.g. you wish if there is a priority list feature in a social media that helps you to prioritize what you follow and connect to, e.g. pages, channels and profiles.

☐ Filter, e.g. you set a filter to be able to classify what you follow and connect to, e.g. pages, channels, according to their level of importance.

☐ Other (Please specify)……………………………..

Q40. You receive notifications and messages or calls on more than social media at the same time, e.g. Facebook, WhatsApp and Snapchat, but you are unable to respond to them at the same time. Which of these techniques would help you:

☐ Auto-status, e.g. Facebook sets you as busy automatically when you are using WhatsApp

☐ Set status, e.g. you set a status manually on WhatsApp that you are busy on another conversation.

☐ Other (Please specify)……………………………..

Q41. You are receiving number of notifications from an online group on social media, e.g. Whatsapp or Facebook, but you do not check and engage because you are tired or not in the mood, and also you think your friends are discussing unworthwhile topics . However, you may fear you are missing something if you do not check. Which of these techniques would help you:

☐ Terms and conditions, e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc.

☐ Recap e.g. you wish if there is a recap feature that gives you a summary and highlights of what is discussed in the group.

☐ Other (Please specify)……………………………..

Q42. You are receiving a number of notifications from an online group on WhatsApp or Facebook but you do not check and engage because you are tired or not in the mood, and also you think your friends are discussing is not of interest of to you. However, you may fear that not engaging will make them accept you less and potentially exclude you from future interactions. Which of these techniques would help you:

☐ Self-expression, e.g. social media allows you to declare details about yourself in advance such as your topic of interest, time of interactions and the style of your responsiveness, etc.

☐ Set status, e.g. you set Facebook or WhatsApp status in advance to inform other contacts such as your current mood or time availability in order for them not to feel ignored if you do not.

☐ Other   (Please specify)…………………………….

Q43. When you are having conversation with your friend on social media and you want to stop, <u>you fear you may not show her/him the appropriate level of empathy and interest if you leave</u>. Which of these techniques would help you:

☐ Self-expression, e.g. social media allows you to identify details about yourself in advance to your contacts before they interact with you such as your topic of interest, the maximum time for you conversations and the style of your responsiveness, etc.

☐ Set status, e.g. you set status on your social media in advance to your contacts such as your other activities and the amount of time available to stay online,etc.

☐ Other   (Please specify)…………………………..

Q44. You posted a video or picture on your social media and found it difficult to stop checking it   when you are doing some other activities (driving, physical exercise, etc.) as <u>you fear you may miss the opportunity to know others' reactions</u>, e.g. Likes, comments, share, etc. Which of these techniques would help you:

☐ Priority list, e.g. when social media enables you to set the level of importance of contacts that you would like to know their reactions to your posts.

☐ Diverse notifications, e.g. you set different tone for specific contacts or reactions for specific posts

☐ Other   (Please specify)……………………………

Q45. On a sale season or a discount day such as Boxing Day or Black Friday, you found it difficult to stop checking some brand sites and apps and group chats because <u>you may fear you are missing discount information of some products</u>. Which of these techniques would help you:

☐ Diverse notifications, e.g. you set different tone for specific brand, discount type and product.

☐ Alternative notification, e.g. receiving SMS or a vibration on your smartwatch if there is a major discount for a specific brand.

☐ Other   (Please specify)…………………………..

Q46. You have an online group on Whatsapp, Facebook, etc for a specific purpose such as study assigment, work task, trip, etc. You found it difficult to stop checking this group because <u>you may fear you are missing spontaneous and suddent requests from group members</u>. Which of these techniques would help you:

☐ color indication, e.g. you set a specific color in the alert light or the notification icon to distinguish a specific information coming from this group.

☐ Contextual Awareness, it is a property in your smart device that accesses to your calendar and your location and then updates your current situation, for example, busy or away, driving or current local time, etc.

☐ Other   (Please specify)……………………………..

Q47. You post picture on social media and you found it difficult to stop checking <u>to see reactions to your post and reply to comments for some or all of the contacts.</u> Which of these techniques would help you :

☐ Diverse notification, e.g. you set a different tone for comments that are related to your post.

☐ Alternative notification e.g., receiving SMS or a vibration on your smartwatch if someone comments on your post

☐ Other   (Please specify)……………………………..

Q48. You find it difficult to stop checking your email when you are doing some other activities (driving, physical exercise, etc.) because <u>you feel a need to respond immediately to messages which are urgent and meet the expectations of your contacts.</u> Which of these techniques would help you:

☐ Set status, e.g. your email allows you to set a status which can be seen in advance so that you say that you are currently busy

☐ Alternative notification e.g., receiving SMS or a vibration on your smartwatch if you have an urgent email from some contacts.

☐ Other   (Please specify)……………………………..

Q49. When you are expecting an event of interest to you, as sport match or a TV show. <u>You may fear you are missing the live chat with your contacts that is accompanying the event.</u> Which of these techniques would help you:

☐ Calendar event reminder, e.g. social media allows you to set a time and date of a specific event.

☐ Recap e.g. you wish if there is a recap feature in social media that gives you a summary of what has been discussed in live chat

☐ Other   (Please specify)……………………………..

Q50. When you expect an informal online social gathering, e.g. group chat on Facebook or WhatsApp, if there is a possibility that you cannot connect them as expected for the whole session time or part of it, <u>you may fear you are missing the sense of relatedness and being a member of group</u>. Which of these techniques would help you:

☐ Terms and conditions, e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc.

☐ Color indication, e.g. you set a specific color in the alert light or the notification icon to distinguish a specific information coming from this group.

☐   Other   (Please specify)……………………………..

Q51. When you expect an informal online social gathering, e.g. group chat on Facebook or WhatsApp, if there is a possibility that you cannot connect them as expected for the whole session time or part of it, <u>you may fear others may accept you eventually exclude you from next meeting if you cannot participate as expected</u>. Which of these techniques would help you:

☐ Set status, e.g. you set a status on your social media in advance to your contact such as your other activities and the amount of time available to stay online, etc.

☐ Terms and conditions, e.g. group members of WhatsApp or Facebook collectively agree times for posting, tolerating lack of responses, topics of interest, etc.

☐   Other   (Please specify)……………………………..

12.10 APPENDIX 10: AUTHORISATION FROM THE COLLEGE ADMINISTRATION

Aarif Alutaybi

From:	@kaplan.com>
Sent:	11 February 2019 09:35
To:	Aarif Alutaybi
Cc:	
Subject:	RE: Social Media Survey

Hi Aarif,

I've spoken with the Head of College Services (copied in) and College Director and they've agreed that the best place to speak with our students is in the Compass (our on-site restaurant). Our classes tend to be very small (some have as few as two students), so it would be a struggle to get a large number of survey responses from them within the hour or so that they have class. However, all of them pass through the Compass at some point in the day, either for classes, revision or lunch, so you would potentially be able to survey a bigger pool of students. We have approx. 120 students at the moment.

If you let me know a date and time that you would like to come, I'm happy to help you speak with students in the Compass and encourage them to fill in the survey.

Our College Director has asked if you have an ethics statement for the survey which you could send us (and which should also be available for students to see if they ask), as well as a copy of the survey we could see beforehand (this won't be shared with anybody else).

Best wishes,

Communications and Progression Coordinator
Bournemouth University International College

Landline: +4412020
Skype: kaplan. @outlook.com

kaplanpathways.com/bournemouth
51-56 Holdenhurst Road, Bournemouth, BH8 8GN, UK

#KaplanLife

1

7/4/2019   My Projects | Qualtrics Survey Software

Projects   Contacts   Library   Help

All Projects   Last Modified ⌄   Q Search Projects...   ➕ Create Project

Today

Survey   16   280   ·············
How does FoMO Happen? ★   ACTIVE   ···
Modified Jul 4, 2019   Status   Questions   Responses   12 Day Trend

More Than 30 Days Ago

Survey   17   207   ·············
Designing Social Media to Re...   ACTIVE   ···
Modified Dec 19, 2018   Status   Questions   Responses   12 Day Trend

Survey   14   221   ·············
Designing Social Media to Re...   ACTIVE   ···
Modified Dec 19, 2018   Status   Questions   Responses   12 Day Trend

Showing page 1 of 1

Qualtrics.com   Contact Information   Legal

https://bournemouthpsych.eu.qualtrics.com/Q/MyProjectsSection   1/1

Fear of missing the ability to be popular

Fear of missing important information due to frequent alerts

Fear of missing information/events due to multi following

Frequency

50.0%
40.0%
30.0%
20.0%
10.0%
0.0%

12.6% — Strongly agree
38.8% — Agree
16.9% — Neither agree nor disagree
25.7% — Disagree
6% — Strongly disagree

Fear of losing popularity

Frequency

100.0%
80.0%
60.0%
40.0%
20.0%
0.0%

15.8% — Strongly agree
39.9% — Agree
17.5% — Neither agree nor disagree
22.4% — Disagree
4.4% — Strongly disagree

Fear of missing the opportunity to attend an online event

Frequency

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

18% — Strongly agree
43.7% — Agree
18.6% — Neither agree nor disagree
18.6% — Disagree
1.1% — Strongly disagree

Participant code:...P21.... (You will be given this number at the beginning of the focus group session)

What is your age?
24

What is your gender?
☐ Male ☑ Female ☐ I prefer not to say

Before you are involved in achieving this study.

- Are you willing to know how FoMO happens and how it can be managed on social media?

  ☑ Yes   ◯ No

- How do you rate your awareness of knowing the types of FoMO?

  Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

- How do you rate your awareness of managing your FoMO?

  Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

FoMO experience

Here are different kinds of FoMO in different contexts that may or may not apply to you. Please tick the box as close as possible to your daily experience with FoMO on social media.

When others do not interact with me as expected on social media, I may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned that others are choosing not to reply to me or comment on my post				✓		
Concerned with missing to reply to others previous message or comment on their previous post that cause them not to interact with me			✓			
Concerned that my reputation among my friends has declined						
Concerned that my post was not appealing enough for them to want to Like or Retweet it or even comment on it		✓				
Concerned with my profile being less active so that others lose interest					✓	
Concerned that if people live outside my city or country they may not interact with me						✓

When I am unable to interact or connect to social media as you wish, i may be:	Always	frequently	Occasionally	Rarely	Very rarely	Never
Concerned with missing a certain post because of the large number of posts or tweets			✓			
Concerned with the difficulty of reaching the posts or tweets I need because of the large number of posts or tweets			✓			
Concerned with locating an important message because I have messages from many different social media users		✓				
Concerned with responding the most important messages received from different social media users		✓				
Concerned that other people's posts may be removed or disappear; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a period of time						✓
Concerned that I have to respond immediately to messages		✓				
Concerned that my friends feel they are ignored					✓	
Concerned with missing people who do not often post messages on social media so that I may not find them when I come back online					✓	
Concerned with missing being involved in current discussions that may be interpreted to mean that I do not like to participate in friends' discussions					✓	
Concerned I may miss supporting or defending friends, teams or opinions on Facebook, WhatsApp, Snapchat, Twitter, Instagram or others social media platforms						✓
Concerned at the inability to talk regarding missing online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc.					✓	

	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned with the need to increase my activity on social media to keep or increase my followers				✓		
Concerned with the need to update my profile frequently to keep or increase my followers				✓		
Concerned at missing posts from a particular person (e.g. celebrities)			✓			

When I am unwilling to engage in social interaction (e.g. group chat), i may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about missing unexpected requests from group members					✓	
Concerned about losing the benefits of being in the online group (e.g. plans for a party, assignment information)		✓				
Concerned that group members will not respond to me in future		✓				
Concerned that my friends feel they have been ignored		✓				
Concerned about damaging relationships and reputations with others				✓		
Concerned that I will not be involved in future discussions in online groups					✓	

When i keep checking or feel a need to engage in continuous untimed interactions, i may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about reassuring friends I am interested in their conversation when I really want to stop the conversation		✓				
Concerned about not harming my self-image when I really want to stop the conversation		✓				
Concerned about not showing empathy when I really want to stop the conversation			✓			
Concerned about not hurting other						

	Always	Frequently	Occasionally	Rarely	Very rarely	Never
people's feelings (e.g. affect others' self-esteem) when I really want to stop the conversation			✓			
Concerned about missing my social relationships				✓		
Concerned about the need to reply to people who comment on my posts or tweets				✓		
Concerned about the need to value people who comment on my posts or tweets			✓			
Concerned about the need to delete a post if negative comments are made	✓					
Concerned about doing something wrong before knowing others' impressions (making wrong decisions)			✓			
When I asked them about something						
Concerned about the need to reply immediately				✓		
Concerned about not people feeling ignored so that I feel the need to reply immediately		✓				
Concerned about information needed by the sender when I ask them to do something to help me	✓					
Concerned about missing valuable opportunities (e.g. advertisements or job opportunities)		✓				
Concerned about missing unexpected requests from friends/group members				✓		
Concerned about missing out on what others are doing					✓	

When i expect an online social gathering, i may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about missing live chats						✓
Concerned about being unaware of whether or not people are available on social media					✓	
Concerned about whether or not my name is mentioned in online groups					✓	
Concerned about losing influence among my friends			✓			

Participant code:...21..... (You will be given this number at the beginning of the focus group session)

Please indicate how true each reason is for you:

A. I have remained in treatment because:

		1 not at all true	2	3	4 somewhat true	5	6	7 very true
1	I would have felt bad about myself if I didn't.	✓						
2	Others would have been angry at me if I didn't.	✓						
3	I would have felt like a failure if I didn't.	✓						
4	I feel like it's the best way to help myself.						✓	
5	People would think I'm a weak person if I didn't.	✓						
6	I have chosen not to leave the program.							✓
7	It is a challenge to accomplish my goal.				✓			
8	I have invested so much time in this program.		✓					

B. I have been following the procedures of the program because:

		1 not at all true	2	3	4 somewhat true	5	6	7 very true
9	I believe they help me solve my problem.							✓
10	I have been worried that I would get in trouble with the researcher if I didn't follow all the guidelines.					✓		
11	I want the researcher to see that I am really trying to manage my FoMO.						✓	
12	It is important to me that my efforts succeed.							✓
13	I feel guilty if I don't comply with all the procedures.							✓

DIARY TEMPLATE

Your code ....2\...........

Guidance

Thank you for agreeing to help me with this study. This diary is a qualitative research tool that is being used to capture your in-depth thoughts, feelings and reactions regarding your usage of FoMO-R materials. Here are some guidelines for completing the diary template:

1. The template of the diary will be received in hard or soft copy as you wish.

2. Please do not worry about using perfect English as long as you can communicate the meaning.

3. Remember that this is your diary and there are no wrong or right answers. I am interested in finding out as much as possible about your opinion about the use of giving materials. Therefore, please tell me as much as you can about that experience, no matter how unimportant it may seem to you. **Feel free to add notes to texts, diagram or materials design**, and I would much rather have too much information than too little. Everything you write within this diary is completely confidential and anonymous.

4. Please refer to the name of sheet and page number when you add comments.

If you have any questions during this activity, do not hesitate to contact me on aalutaybi@bournemouth.ac.uk

Thank you for your time,

Aarif Alutaybi

Sheet name	Page number	Comments
1	All	The listed issues made me realize that there are others facing the same issues & it's not me only.
2	1-21	I've never realized that there are different ways to solve issues related to using social media until I had a look at all the counter-measures. Some of them did fail at the beginning but there were alternative counter measures that eventually helped in reducing the issue.
3	23-25	Helped in learning new methods when using social media applications.
4	whole sheet.	I do believe that everything starts from within. Therefore, practicing self talk and setting a goal for yourself to achieve, will help you manage and solve different problems. This sheet gave me more information on how to do so.

Sheet name	Page number	Comments
		Overall, everything was well organized and guides were easy for us to use as participants. I forgot my awareness of some issues that I had no idea about. All information needed was easy to access and understand.

Sheet name	Page number	Comments

Sheet name	Page number	Comments

Participant code:...2...... (You will be given this number at the beginning of the focus group session)

Regarding using FoMO-R ten days ago, please answer the following questions

- How do you rate your awareness of knowing the types of FoMO?

Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

- How do you rate your awareness managing your FoMO?

Extremely aware   Moderately aware   Somewhat aware   Slightly aware   Not at all aware

FoMO experience

Here are different kinds of FoMO in different contexts that may or may not apply to you. Please tick the box as close as possible to your daily experience with FoMO on social media in the last ten days.

When others do not interact with me as expected on social media, I may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned that others are choosing not to reply to me or comment on my post					✓	
Concerned with missing to reply to others previous message or comment on their previous post that cause them not to interact with me					✓	
Concerned that my reputation among my friends has declined					✓	
Concerned that my post was not appealing enough for them to want to Like or Retweet it or even comment on it				✓		
Concerned with my profile being less active so that others lose interest						✓
Concerned that if people live outside my city or country they may not interact with me						✓

When I am unable to interact or connect to social media as you wish, i may be:	Always	frequently ly	Occasio nally	Rarely	Very rarely	Never
Concerned with missing a certain post because of the large number of posts or tweets				✓		
Concerned with the difficulty of reaching the posts or tweets I need because of the large number of posts or tweets					✓	
Concerned with locating an important message because I have messages from many different social media users				✓		
Concerned with responding the most important messages received from different social media users				✓		✓
Concerned that other people's posts may be removed or disappear; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a period of time						✓
Concerned that I have to respond immediately to messages				✓	4 4 4	✓
Concerned that my friends feel they are ignored					✓	
Concerned with missing people who do not often post messages on social media so that I may not find them when I come back online						
Concerned with missing being involved in current discussions that may be interpreted to mean that I do not like to participate in friends' discussions						✓
Concerned I may miss supporting or defending friends, teams or opinions on Facebook, WhatsApp, Snapchat, Twitter, Instagram or others social media platforms						
Concerned at the inability to talk regarding missing online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc.						✓
Concerned with the need to increase my activity on social media to keep or increase my followers						✓

	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned with the need to update my profile frequently to keep or increase my followers					✓	
Concerned at missing posts from a particular person (e.g. celebrities)					✓	✓

When I am unwilling to engage in social interaction (e.g. group chat), i may be:

	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about missing unexpected requests from group members					✓	
Concerned about losing the benefits of being in the online group (e.g. plans for a party, assignment information)				✓		
Concerned that group members will not respond to me in future				✓		
Concerned that my friends feel they have been ignored				✓		
Concerned about damaging relationships and reputations with others					✓	
Concerned that I will not be involved in future discussions in online groups					✓	

When i keep checking or feel a need to engage in continuous untimed interactions, i may be:

	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about reassuring friends I am interested in their conversation when I really want to stop the conversation				✓		
Concerned about not harming my self-image when I really want to stop the conversation				✓		
Concerned about not showing empathy when I really want to stop the conversation				✓		
Concerned about not hurting other people's feelings (e.g. affect others' self-esteem) when I really want to stop the conversation				✓		

Concern	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about missing my social relationships					✓	
Concerned about the need to reply to people who comment on my posts or tweets				✓		
Concerned about the need to value people who comment on my posts or tweets				✓	✓	
Concerned about the need to delete a post if negative comments are made				✓	✓	
Concerned about doing something wrong before knowing others' impressions (making wrong decisions) when I asked them about something			✓			
Concerned about the need to reply immediately					✓	✓
Concerned about not people feeling ignored so that I feel the need to reply immediately				✓		
Concerned about information needed by the sender when I ask them to do something to help me				✓		
Concerned about missing valuable opportunities (e.g. advertisements or job opportunities)					✓	
Concerned about missing unexpected requests from friends/group members					✓	
Concerned about missing out on what others are doing					✓	✓

When I expect an online social gathering, i may be:	Always	Frequently	Occasionally	Rarely	Very rarely	Never
Concerned about missing live chats						✓
Concerned about being unaware of whether or not people are available on social media					✓	
Concerned about whether or not my name is mentioned in online groups						✓
Concerned about losing influence among my friends					✓	

2. Regarding using FoMO-R ten days ago, please rate each statement.

1. I will use FoMO-R method to gain a better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

2. I find FoMO-R method for controlling FoMO on social media to be:

Not helpful						Helpful
−3	−2	−1	0	+1	(+2)	+3

3. Those people who are important to me would approve of me using FoMO-R method to gain a better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	(6)	7

4. I possess the required knowledge to use FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

5. It is likely that I will use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	(5)	6	7

6. Most people who are important to me would approve of me using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	(6)	7

7. I find using FoMO-R method to gain better control over my FoMO on social media to be:

Harmful						Beneficial
−3	−2	−1	0	+1	(+2)	+3

8. It is mostly up to me whether I use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

9. I intend to use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	(6)	7

10. I find using FoMO-R method to gain better control over my FoMO on social media to be:

Unpleasant						Pleasant
−3	−2	−1	0	+1	+2	(+3)

11. Those people who are important to me would support me using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	(6)	7

12. I intend to ensure I have access to the required materials to use FoMO-R method to gain better control over my FoMO on social media in the next week:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

13. I have complete control over whether I use FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

14. I find FoMO-R method to gain better control over my FoMO on social media to be:

Not credible						Credible
−3	−2	−1	0	+1	+2	(+3)

15. I am confident using FoMO-R method to gain better control over my FoMO on social media:

Strongly disagree						Strongly agree
1	2	3	4	5	6	(7)

16. Those people who are important to me think FoMO-R method for managing FoMO on social media are credible:

Strongly disagree						Strongly agree
1	2	3	4	(5)	(6)	7

3. Please answer the following questions about documents used in FoMO-R:

Q1: I got sufficient information about FoMO that is provided by a self-help guide sheet:

Strongly Agree (●)   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer:
Everything was organised and well explained.

Q2: I got sufficient information about how different FoMOs happen on social media that is provided by self-rating sheet (Sheet 1):

Strongly Agree (●)   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer:
The researcher held a meeting with us before collecting data.

Q3: I got sufficient information about the countermeasures for combating FoMO that is provided by FoMO-reduction countermeasures sheet (Sheet 2)

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer :
....

Q4: I got sufficient information about relapse prevention from Sheet 3:

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer:
All details & information were aided by examples.
....

Q5: I got sufficient information about empowerment further support that is provided by Empowerment sheet (Sheet 4):

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer
....

4. Please answer the following questions about FoMO-R as a whole:

Q1: I got sufficient information regarding how to use FOMO-R method:

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please   elaborate   on   your   answer:

....
....
....

Q2: Generally speaking, FOMO-R method was not difficult to understand (e.g. it was explained in a clear way):

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please   elaborate   on   your   answer

It was easy to understand and follow.
Methods used were not complicated.
....
....

Q3: Each stage of FoMO-R provides a solid foundation for the following one?

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please   elaborate   on   your   answer

....
....
....

Q4: Overall, FOMO-R method was not difficult to use:

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

Please elaborate on your answer

....

Q5: Did you encounter issues or difficulties when using FoMO-R? If yes, please explain?

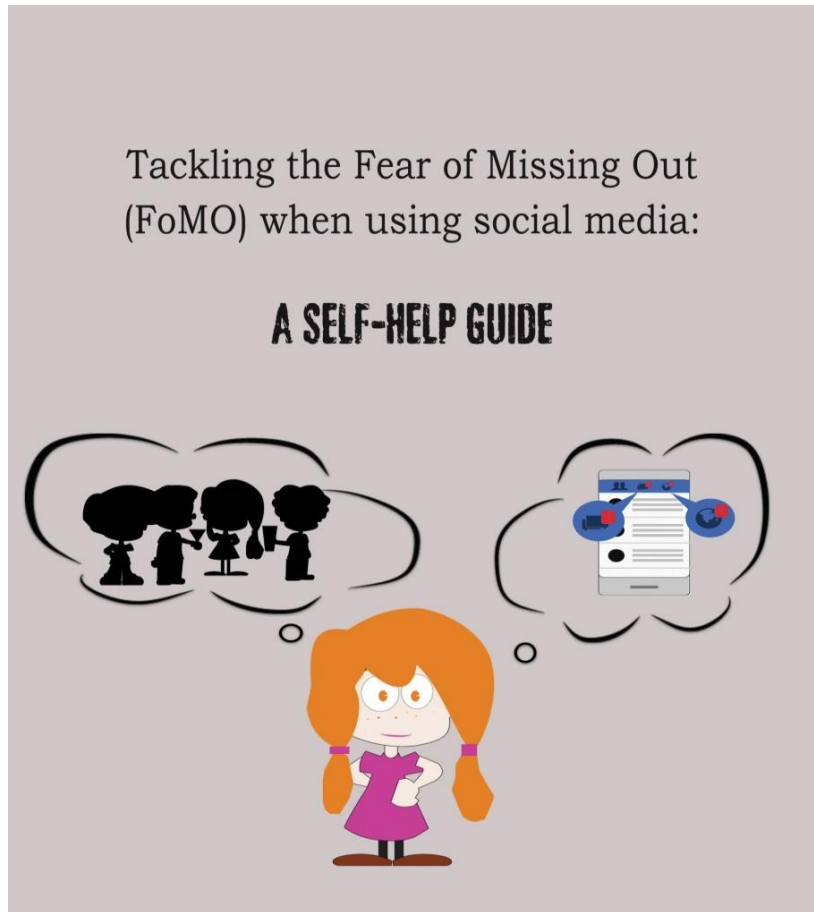Haven't encountered any all stages and procedures were explained prior by the researcher.

Q6: Did you experience any habitual behaviour while you were applying FoMO-R? If yes, please explain?

Yes following the first 2 days, I found out that I tend to check my phone less due to practising mark self-talk.

Q7: Would you like to add any further thoughts? If yes, please explain?

I think that the work was well introduced & organised and covily help many of those facing different issues with social media.

12.14.1   A SELF HELP GUIDE SHEET

12.14.1 Continued

12.14.1 Continued

12.14.1 Continued

12.14.1 Continued

The previous examples are some common experiences which are faced by people who suffer from FoMO. If you experience FoMO you may have similar thoughts yourself. Sometimes it is possible to be experiencing FoMO and not even know it. Therefore, the first step in helping you to manage your FoMO is by recognising what type of FoMO you are experiencing. Thus, we have proposed the FoMO reduction method to help you to become more aware of and resilient to FoMO when social media triggers you to feel it.

FOMO REDUCTION METHOD (FOMO-R)

FoMO-R is a method that aims to reduce how much FoMO affects you. It helps you to recognise which types of FoMO apply to you when you use social media. By finding out your types you can then find the best techniques to help you manage FoMO. It involves a number of stages, and the following section explains the stages of FoMO-R that you need to follow in order to help you control how FoMO affects you.

HOW TO USE (FOMO-R):

➤ Follow the stages of the reduction method.
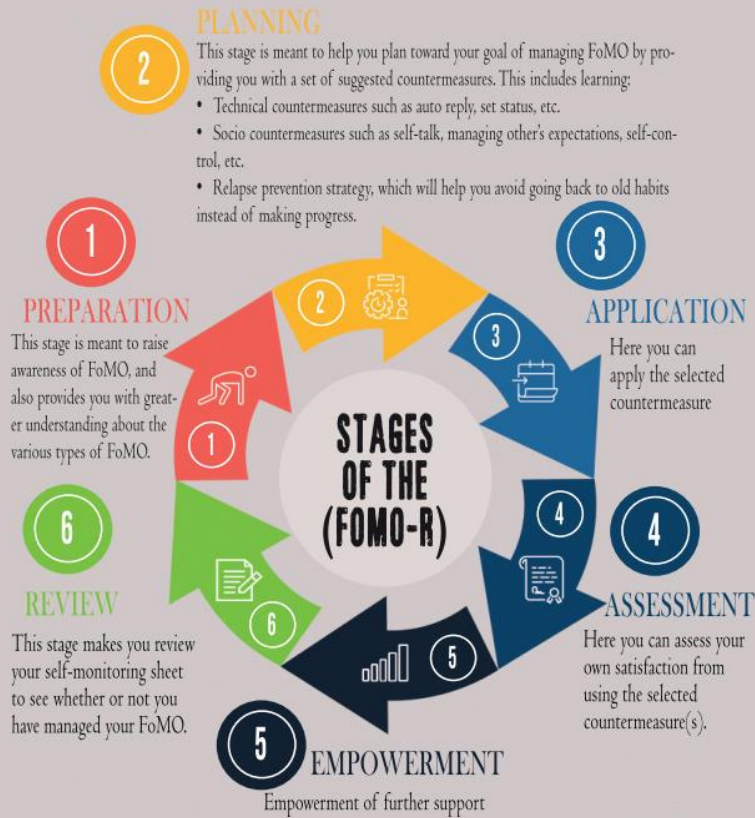
➤ Fill in the FoMO Monitoring Sheet.

PAGE 4

12.14.1 Continued

STAGES OF THE FOMO REDUCTION METHOD (FOMO-R)

In the process of managing FoMO on social media, the person who is seeking help may follow the stages in order to find out their types of FoMO, and then they may select the most suitable countermeasures that will help them to tackle their FoMO.
Note: Please use the FoMO Monitoring Sheet to post your selections (i.e. stickers).

PLANNING
This stage is meant to help you plan toward your goal of managing FoMO by providing you with a set of suggested countermeasures. This includes learning:
• Technical countermeasures such as auto reply, set status, etc.
• Socio countermeasures such as self-talk, managing other's expectations, self-control, etc.
• Relapse prevention strategy, which will help you avoid going back to old habits instead of making progress.

PREPARATION
This stage is meant to raise awareness of FoMO, and also provides you with greater understanding about the various types of FoMO.

APPLICATION
Here you can apply the selected countermeasure

STAGES OF THE (FOMO-R)

REVIEW
This stage makes you review your self-monitoring sheet to see whether or not you have managed your FoMO.

ASSESSMENT
Here you can assess your own satisfaction from using the selected countermeasure(s).

EMPOWERMENT
Empowerment of further support

PAGE 5

12.14.1 Continued

STRATEGIES FOR EACH STAGE

① PREPARATION
- Please select the FoMO type(s) that you typically experience by referring to self-rating sheet (Sheet 1).
- Please remove the sticker of your selection(s) and post it on self-monitoring sheet, and then go to the next stage; the planning stage.

② PLANNING
- Please select the suitable technical or/and socio countermeasure(s) from the list of FoMO-reduction counter-measures document (Sheet 2) for each type of FoMO that was selected on the self-rating sheet (Sheet1).
- Please remove the sticker of your selection(s) and post it on self-monitoring sheet.
- Find out information about relapse using Sheet 3, and then go to the next stage; action stage

③ APPLICATION
- Please practice each of your selected countermeasures for a period of time typically one week.
- In order to prevent relapse from happening while applying your selected countermeasure you need to:
- Perform the skills or activities that you were provided with on Sheet 3; e.g. doing hobbies, talking to yourself positively, seeking moral support.
- Please go to the next stage; assessment stage

④ ASSESSMENT
For each countermeasure you selected for each of the FoMO you have, please indicate whether it was useful for you using self-monitoring sheet.
- If you found at least one useful countermeasure for each of your FoMO types, go to stage 6, the review stage.
- If you have one or more of the FoMO types without any useful countermeasures, go to the next Empower-ment stage

⑤ EMPOWERMENT
- Please determine the challenges that may make it harder for you to manage your FoMO by answering the fol-lowing questions:
Is it peer pressure? | Is it due to you putting others needs above your own? | Is it technical issues?
- Select other countermeasures from the FoMO countermeasure document (Sheet 2) and Please remove the sticker of your selection(s) and post it on self-monitoring sheet, OR—
- Follow the instructions in Sheet 4 and post your selection on the self-monitoring sheet.
- Return to the application stage and repeat.
- If you run out of the countermeasures and unable to cope with your FoMO, go to the next stage; review stage

⑥ REVIEW
- Describe the outcome of your actions by answering the following on self-monitoring sheet:
What happened? | What has been improved? | Did you manage your FoMO?
- If you managed your FoMO, please repeat the first stage; preparation stage to see if there is any other FoMO types that applies to you. If instead you do not select any types of FoMO again you can stop.
If you did not manage your FoMO, please ensure:
1. You selected FoMO types that apply to you.
2. You kept your focus on applying you selected countermeasures alongside with relapse prevention technique
- If you have not seen any improve, this can be that you may have comorbidity.

PAGE 6
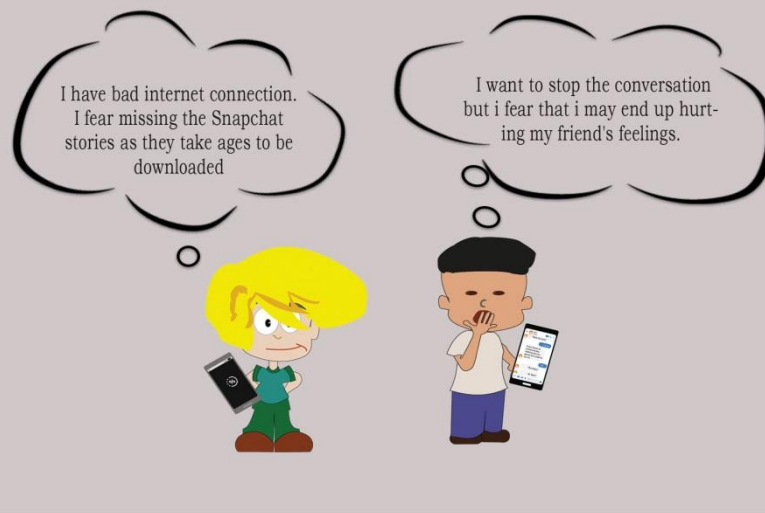
12.14.2 Continued

Below is a set of statements which may describe your everyday experience with social media. Please select the statement(s)that really reflects your typical experiences and then remove the sticker from the sticker sheet based on your selection. Please answer according to what really reflects your experiences rather than what you think your experiences should be:

Context1: When others do not interact with me as expected on social media, I may be:

P1 Concerned that others are choosing not to reply to me or comment on my post

P2 Concerned with missing to reply to others previous message or comment on their previous post that cause them not to interact with me

P3 Concerned that my reputation among my friends has declined

P4 Concerned that my post was not appealing enough for them to want to Like or Retweet it or even comment on it

P5 Concerned with my profile being less active so that others lose interest

P6 Concerned that if people live outside my city or country they may not interact with me

Context2: When I am unable to interact or connect to social media as I wish, I may be:

P7 Concerned with missing a certain post because of the large number of posts or tweets

P8 Concerned with the difficulty of reaching the posts or tweets I need because of the large number of posts or tweets

P9 Concerned with locating an important message because I have messages from many different social media users

P10 Concerned with responding the most important messages received from different social media users

12.14.2 Continued

P11 — Concerned that other people's posts may be removed or disappear; e.g. stories on Snapchat, urgent messages or news feeds that disappear after a period of time

P12 — Concerned that I have to respond immediately to messages

P13 — Concerned that my friends feel they are ignored

P14 — Concerned with missing people who do not often post messages on social media so that I may not find them when I come back online

P15 — Concerned with missing being involved in current discussions that may be interpreted to mean that I do not like to participate in friends' discussions

P16 — Concerned I may miss supporting or defending friends, teams or opinions on Facebook, WhatsApp, Snapchat, Twitter, Instagram or others social media platforms

P17 — Concerned at the inability to talk regarding missing online discussions when my friends are gathered at school, restaurants, coffee shops, home, etc.

P18 — Concerned with the need to increase my activity on social media to keep or increase my followers

P19 — Concerned with the need to update my profile frequently to keep or increase my followers

P20 — Concerned at missing posts from a particular person (e.g. celebrities)

Context3: When I am unwilling to engage in social interaction (e.g. group chat), I may be

P21 — Concerned about missing unexpected requests from group members

P22 — Concerned about losing the benefits of being in the online group (e.g. plans for a party, assignment information)

P23 — Concerned that group members will not respond to me in future

P24 — Concerned that my friends feel they have been ignored

P25 — Concerned about damaging relationships and reputations with others

P26 — Concerned that I will not be involved in future discussions in online groups

12.14.2 Continued

Context4: When I keep checking or feel a need to engage in continuous untimed interactions, I may be:

P27 Concerned about reassuring friends I am interested in their conversation when I really want to stop the conversation

P28 Concerned about not harming my self-image when I really want to stop the conversation

P29 Concerned about not showing empathy when I really want to stop the conversation

P30 Concerned about not hurting other people's feelings (e.g. affect others' self-esteem) when I really want to stop the conversation

P31 Concerned about missing my social relationships

P32 Concerned about the need to reply to people who comment on my posts or tweets

P33 Concerned about the need to value people who comment on my posts or tweets

P34 Concerned about the need to delete a post if negative comments are made

P35 Concerned about doing something wrong before knowing others' impressions (making wrong decisions) when I asked them about something

P36 Concerned about the need to reply immediately

P37 Concerned about not people feeling ignored so that I feel the need to reply immediately

P38 Concerned about information needed by the sender when I ask them to do something to help me

P39 Concerned about missing valuable opportunities (e.g. advertisements or job opportunities)

P40 Concerned about missing unexpected requests from friends/group members

P41 Concerned about missing out on what others are doing

Context5: When I expect an online social gathering, I may be:

P42 Concerned about missing live chats

P43 Concerned about being unaware of whether or not people are available on social media

P44 Concerned about whether or not my name is mentioned in online groups

P45 Concerned about losing influence among my friends

SHEET 2:

List of FoMO-reduction

countermeasures

12.14.3 Continued

Context 1: FoMO when others do not interact as expected

EXEMPLAR CASE:
You posted your holiday pictures on social media a few times and expected to receive some 'Likes' and comments from friends but you did not receive any. Thus, you may experience the following FoMO but may practice the following techniques to reduce your fear:

KINDS OF FOMO

➡ Fear of missing the ability to be popular (P1,P2,P3)

Recommended technical countermeasures

Auto-reply
Technical Countermeasure

Set status
Technical Countermeasure

Auto-reply e.g. when you send a message, you would like your contacts to set a form of auto-reply to inform if he/she cannot interact currently

Set status e.g. before you send the message, you would be happy if your contacts declare their status, e.g. Busy, Driving on a call, etc. so you know they may not respond swiftly

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 3

PAGE 1

12.14.3 Continued

Fear of missing the ability to be interesting (P4, P5, P6)

Recommended technical countermeasures

Set status

Technical Countermeasure

Auto view

Technical Countermeasure

Set status e.g. you would like certain contacts to set their status in advance to show you whether they are online or available to interact or not.

Social media shows you who viewed your post, e.g. Snapchat provides this feature. You can 1. Go to your Profile on snapchat 2. Tap 'My Story' to view it 3. Tap eyeball to see who watched your story

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 3

PAGE 2

12.14.3 Continued

Recommended socio-countermeasures for P1-P6

Practice Self-talk

Socio-Countermeasure

Try to **practice self-talk,** you can say: I do not expect interaction from others when I post on social media

Improve Self-esteem

Socio-Countermeasure

Try to improve your **self-esteem** by saying: I am not the only one who does not receive the interaction they expect

Set status

Technical Countermeasure

Try to **manage your expectation** by: posting on social media without expecting interaction from others OR interact with others without expecting reciprocal interactions

Controlling anxiety

Socio-Countermeasure

Try to **control your anxiety** by: distracting yourself by engaging in offline activities such as making coffee, cleaning the house, talking to the person next to you, walking around your house etc.

Ask questions

Socio-Countermeasure

Try to **ask yourself:** what you would say to friend who faced a similar situation

Pre-posting thinking

Socio-Countermeasure

Manage the post by using **pre-posting thinking** (See Think before post instructions on page 22)

PAGE 3

12.14.3 Continued

Context 2: FoMO when unable to interact or connect as wished

EXEMPLAR CASE:
You are in a formal meeting and unable to check your social media even when you receive notifications. Also, you had a 5 minute coffee break but it wasn't enough to check all notifications and respond. Thus, you may experience the following FoMO but could practice the following techniques to reduce your fear:

KINDS OF FOMO

Fear of missing information due to a large volume of information (P7, P8)

Recommended technical countermeasures

Filter	Priority list	Mute notification
Technical Countermeasure	Technical Countermeasure	Technical Countermeasure

Filter, set your filter by classifying messages and notifications according to the topic and contacts involved that are interested to you, so that you can easily estimate their subject and importance, e.g. see instruction A (page 23) and B (page 24)

Priority list, set levels of importance and relevance to topics, contacts, etc that are interested to you, so that you are able to prioritize better.

Alternative option, mute notifications from contacts or groups that are not high importance.

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

PAGE 4

12.14.3 Continued

Fear of missing the ability to deal with different social media (P9, P10)

Recommended technical countermeasures

Auto status

Technical Countermeasure

Set status

Technical Countermeasure

Auto-status, Facebook sets you as busy automatically when you are using WhatsApp. Alternatively, you can use the next technique.

Set status, set a status manually on a certain social media profile that you are busy on another conversation, e.g set you are busy on WhatsApp when you are using Facebook

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

Fear of missing temporally available information; stories, urgent messages or news feeds etc. that disappear after a while (P11)

Recommended technical countermeasures

Event and content recorder

Technical Countermeasure

Customize notification

Technical Countermeasure

Mute notification

Technical Countermeasure

Event and content recorder, e.g. having an offline version downloaded so you can still see such temporarily available content when you have time.

Diverse notification, e.g. set different tones and alerts styles for such temporarily available information and when content is about to expire, etc, e.g. see instruction C (page 24)

Alternative option, mute notifications from contacts or groups that their stories are not

PAGE 5

12.14.3 Continued

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

Fear of missing a timely interaction; e.g. responding to friends' messages to accept an invite to a dinner party (P12, P13, P14)

Recommended technical countermeasures

Auto-reply

Technical Countermeasure

Set status

Technical Countermeasure

Auto-reply set some form of auto-reply that sends an automatic response to messages and informs your messaging contacts that you cannot respond immediately. E.g., you can set up auto-reply message on your email

Set status, set social media status on your profile in advance saying that you are in a formal meeting or unavailable so they know in advance about your situation

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

PAGE 6

12.14.3 Continued

➡️ Fear of missing participating in popular interactions (P15,P16,P17)

Recommended technical countermeasures

Auto-reply

Technical Countermeasure

Set status

Technical Countermeasure

Auto-reply set some form of auto-reply that sends an automatic response to messages and informs your messaging contacts that you cannot respond immediately. E.g., you can set up auto-reply message on your email

Set status, e.g. you set a social media status in advance that shows your contacts and followers when you are able or unable to post and communicate online.

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

➡️ Fear of missing the ability to keep followers (P18, P19)

Recommended technical countermeasures

Contextual Awareness

Technical Countermeasure

Set status

Technical Countermeasure

Contextual Awareness, allow a certain social media to access your calendar and your location on smart device that in order to updates your current situation, for example, busy or away, driving or current local time, etc. As example, see instruction F (page 25)

Set status, e.g. you set a social media status in advance that shows your contacts and followers when you are able or unable to post and communicate online.

PAGE 7

12.14.3 Continued

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

⟹ Fear of missing information/events due to multi-following (P20)

Recommended technical countermeasures

Priority list — Technical Countermeasure

Filter — Technical Countermeasure

Mute notification — Technical Countermeasure

Priority list, set levels of importance and relevance to topics, contacts, etc that are interested to you, so that you are able to prioritize what you follow and connect to.

Filter, set a filter by classifying what followings are interested to you, e.g. see instruction A (page 23) and B (page 24)

Alternative option, mute notifications from followings that you are not highly interested to their post.

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 9

PAGE 8

12.14.3 Continued

Recommended socio-countermeasures for P7-P20

Managing expectations
Socio-Countermeasure

Try to **manage your expectation** by: expecting to miss information

Keep informed
Socio-Countermeasure

Try to: **keep your contacts informed** about your current situation

Practice Self-talk
Socio-Countermeasure

Try to **practice self-talk,** you can say: I do not need to check all things on social media; I do not need to know everything about my contacts; or I do not need to check each notification immediately

Improve Self-esteem
Socio-Countermeasure

Try to **improve your self-esteem** by saying: my popularity is not measured by being active on social media and immediately response to messag-

Manage impulsive behaviour
Socio-Countermeasure

Try to **manage your impulsive behaviour** by: not reacting to each notification

Manage impulsive behaviour
Socio-Countermeasure

Try to **manage your impulsive behaviour** by: practicing not checking your social media for a period of time.

PAGE 9

12.14.3 Continued

12.14.3 Continued

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 12

➡ Fear of missing the ability to defend your popularity (P23, P24, P25, P26)

Recommended technical countermeasures

Self-expression

Technical Countermeasure

Set status

Technical Countermeasure

Self-expression, set details about yourself in advance such as your topic of interest, time of interactions and the style of your responsiveness, etc. **Alternative option**, set details about yourself in advance such as your topic of interest, time of interactions and the style of your responsiveness, etc. on your profile on social media

Set status, set Facebook or WhatsApp status in advance to inform other contacts such as your current mood or time availability in order for them not to feel ignored if you do not.

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 12

PAGE 11

12.14.3 Continued

Recommended socio-countermeasures for P21-P26

Self-talk
Socio-Countermeasure

Managing expectations
Socio-Countermeasure

Try to **practice self-talk,** you can say:

My popularity does not depend on online participation,

I do not engage in each online group interaction

Try to **manage your expectations**:

by making your online group members informed about your current situation, mood

Try to manage your expectations: by expecting to miss information on social media

PAGE 12

12.14.3 Continued

Context 4: FoMO when having to or feeling a need to engage in continuous and untimed interactions

EXEMPLAR CASE:

You are having a conversation on social media with a close friend. You want to stop the conversation but are unable to because you may:

KINDS OF FOMO

→ Fear of missing empathy and leaving a good impression (P27, P28, P29,P30,P31)

Recommended technical countermeasures

Self-expression

Technical Countermeasure

Set status

Technical Countermeasure

Self-expression, identify details about yourself in advance to your contacts before they interact with you such as your topic of interest, the maximum time for you conversations and the style of your responsiveness, etc. **Alternative option** identify details about yourself in advance to your contacts before they interact with you such as your topic of interest, the maximum time for you conversations and the style of your responsiveness, etc. on your profile on social media

Set status, on your social media in advance to your contacts such as your other activities and the amount of time available to stay online,etc

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

PAGE 13

12.14.3 Continued

EXEMPLAR CASE:

You posted a video on social media, e.g. Instagram, and you found it difficult to stop checking social media when you are doing some other activities (driving, physical exercise, etc.). You want to stop checking but you may

KINDS OF FOMO

➡ Fear of missing the opportunity to know others' impressions (P32, P33, P34, P35)

Recommended technical countermeasures

Priority list	Customize notification	Mute notification
Technical Countermeasure	Technical Countermeasure	Technical Countermeasure

Priority list, set the level of importance of contacts that you would like to know their reactions to your posts.

Diverse notifications, set different tone for specific contacts or reactions for specific posts, **Alternative option** Customize tone for your favourite contacts. As example, see instruction C (page 24)

Alternative option, Mute notification from unwanted contacts or groups. As example, see instruction D (page 24)

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

PAGE 14

12.14.3 Continued

Fear of losing popularity (P36, P37)

Recommended technical countermeasures

Set status

Technical Countermeasure

Alternative notification

Technical Countermeasure

Set status, set social media status on your profile which can be seen in advance so that you say that you are currently busy

Alternative notification, set up SMS or a vibration notification from a certain social media on your smartwatch if you have an urgent email from some contacts, e.g. see instruction E (page 25)

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

Fear of missing spontaneous responses (P38)

Recommended technical countermeasures

Customize notification

Technical Countermeasure

Alternative notification

Technical Countermeasure

Diverse notification, set a different tone for contacts that you are waiting message from them, **Alternative options:** Customize tone for your favourite contacts. As example, see instruction C (page 24)

Alternative notification set up SMS or a vibration notification from a certain social media on your smartwatch if you have an urgent email from some contacts, **Alternative option**: Set up SMS notification on Facebook, see instruction E (page 25)

PAGE 15

12.14.3 Continued

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

EXEMPLAR CASE:
On a sales season or a discount day such as Boxing day or Black Friday, You are sitting with your family or friends while thinking of buying something. You start to check brand sites and their apps and your shopping groups because you may

KINDS OF FOMO

Fear of missing a valuable opportunity (P39)

Recommended technical countermeasures

Customize notification

Technical Countermeasure

Alternative notification

Technical Countermeasure

Diverse notifications, set different tone for specific brand, discount type and product. **Alternative option:** Customize tone for your favourite contacts. As example, see instruction C (page 24)

Alternative notification, set up SMS or a vibration notification from a certain social media on your smartwatch if there is a major discount for a specific brand. **Alternative option:** Set up SMS notification on Facebook, see instruction E (page 25) for instructions

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

PAGE 16

12.14.3 Continued

Fear of missing a sense of relatedness (P40, P41)

Recommended technical countermeasures

Color indication

Technical Countermeasure

Contextual Awareness

Technical Countermeasure

Customize notification

Technical Countermeasure

Color indication set a specific color in the alert light or the notification icon to distinguish specific information coming from this group.

Contextual Awareness, allow a certain social media to access your calendar and your location on smart device that in order to updates your current situation, for example, busy or away, driving or current local time, etc. As example, see instruction F (page 25)

Alternative option: Customize tone for your favorite contacts. As example, see instruction C (page 24)

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 18

PAGE 17

12.14.3 Continued

Recommended socio-countermeasures for P27-P41

Practice Self-talk Socio-Countermeasure	Manage impulsive behaviour Socio-Countermeasure	Be away from the devices Socio-Countermeasure

Try to **practice self-talk,** you can say:

I do not need to spend a long time on conversations because I have task to do; I have to sleep early etc.

my popularity does not depend on an immediate response to the message

Try to **control your compulsive feelings by:** distracting yourself by

• Doing something that you enjoy
• Occupying yourself with work instead
• Keeping yourself busy
• Calling to mind positive images instead
• Thinking pleasant thoughts instead

Try to **be away** from the phone or computer

PAGE 18

12.14.3 Continued

Context 5: FoMO when an online social gathering is expected

EXEMPLAR CASE:
When you expect an informal online social gathering (e.g. group chat on Facebook or WhatsApp) if there is a possibility that you cannot connect as expected for the whole session time or part of it, you may:

KINDS OF FOMO

➡️ Fear of missing the opportunity to attend an online event (P42)

Recommended technical countermeasures

Calendar event reminder

Technical Countermeasure

Recap

Technical Countermeasure

Calendar event reminder, set a time and date of a specific event.

Recap e.g. you wish if there is a recap feature in social media that gives you a summary of what has been discussed in live chat, As example for Snapchat gives you a recap monthley about your stories. Just Just open the Snapchat app and tap on the Memories icon as you normally would. Your month End Story will appear under the Snaps tab at the top of the screen

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 21

PAGE 19

12.14.3 Continued

Fear of missing a sense of relatedness (P43, P44)
Recommended technical countermeasures

Terms and conditions
Technical Countermeasure

Recap
Technical Countermeasure

Terms and conditions, group members of WhatsApp or Facebook collectively agree terms and conditions for the group, e.g. times for posting, tolerating lack of responses, topics of interest, etc. **Alternative option** , On WhatsApp Facebook, twitters etc. ask your group members to set terms and condition for the group on group description section

Color indication, set a specific color in the alert light or the notification icon to distinguish specific information coming from this group.

Recommended socio-countermeasures - if you would like to use socio countermeasures, please go to page 21

Fear of missing the ability to be popular (P45)
Recommended technical countermeasures

Terms and conditions
Technical Countermeasure
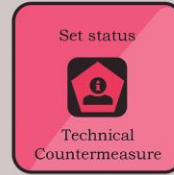
Set status
Technical Countermeasure

Terms and conditions,group members of WhatsApp or Facebook collectively agree terms and conditions for the group, e.g. times for posting, tolerating lack of responses, topics of interest, etc. **Alternative option** , On WhatsApp Facebook, twitters etc. ask your group members to set terms and condition for the group on group description section

Set status, e.g. you set a status on your social media in advance to your contact such as your other activities and the amount of time available to stay online, etc.

PAGE 20

12.14.3 Continued

Recommended socio-countermeasures for P42-P45

Managing expectations
Socio-Countermeasure

Practice Self-talk
Socio-Countermeasure

Try to manage your expectation by: expecting to miss it
-Try to: keep your contacts informed about your current situation

Try to practice self-talk, you can say: I do not need to check all things on social media; I do not need to know everything about my contacts; or I do not need to check each notification immediately

Improve Self-esteem
Socio-Countermeasure

Manage impulsive behaviour
Socio-Countermeasure

Try to improve your self-esteem by saying: my popularity is not measured by being active on social media and immediately responding to messages

Try to manage your impulsive behaviour by:

not reacting to each notification

practicing not checking your social media for a period of time

PAGE 21

12.14.3 Continued

Think before post

To think before post or send please use the following checklist:

Does the post or message have value to the audience? — **YES** **NO** → Choose a different topic

Does the post's content fit the audience's interests? — **YES** **NO** → Choose a different audience

Is this the best format and language for the post?
For example:
• Emoji may not be understood by others
• Text language may not be understood by others, e.g., BRB, BTW,SBY,HAND, etc — **YES** **NO** → Adjust your format and language,

Is this the best time for a certain audience? — **YES** **NO** → Schedule for another time by looking to the audience's availability

If your answers are "yes" for all questions, it may be good to post or send but bear in mind the various expectations:
- Expect few interactions
- Expect No interactions
- Expect No immediate response
- Expect not all are interested
- Expect others are on leave
- Expect others may need time to process
- Expect the algorithm does not show your post to them
- Expect others could not connect to the internet
- If you do not receive interactions from someone who is online you can expect they may have an urgent or business conversation
- If you do not receive interactions from someone who is online you can expect they may not be prepared to answer
- If you do not receive interactions from someone who is online you can expect they may be busy in reading a business message

PAGE 22

12.14.3 Continued

Instruction A

🐦 Search from Twitter

💻 If you search from the web ,please follow the instruction below

1. Enter your search query into the **search box** at the top of the page.
2. Your results will show a combination of Tweets, photos, accounts, and more.
3. Filter your results by clicking **Top, Latest, People, Photos, or Videos** (located at the top of your search results).
4. Click the **Search filters** options to filter your results From anyone or **People you follow**, and **Anywhere** or **Near you**

🍎 If you search from the IOS, please follow the instruction below

1. Tap the **Explore** tab
2. At the top of the page, enter your search into the search box and tap Search.
3. Your results will show a combination of Tweets, photos, accounts, and more.
4. Filter your results by tapping **Top, Latest, People, Photos, Videos, or News, or Periscopes** (located at the top of your search results)
5. Tap the filter icon in the search bar to refine your results according to **All people or People you follow, and Everywhere or Near you.**

📱 If you search from the Android, please follow the instruction below

1. Tap the **Explore** tab
2. Enter your search into the search box and tap Search.
3. Your results will show a combination of Tweets, photos, accounts, and more.
4. Filter your results by tapping **Top, Latest, People, Photos, Videos, or News, or Periscopes** (located at the top of your search results).
5. Tap the filter icon in the search bar to refine your results according to **From anyone or People you follow, and Anywhere or Near you.**

PAGE 23

12.14.3 Continued

Instruction B

To adjust your Facebook News Feed preferences

Your News Feed preferences help you control what you see on your News Feed. To view your News Feed preferences:

1. Click ▼ in the top right corner of any Facebook page (example: your home page).
2. Select News Feed Preferences.
3. Click Prioritize who to see first to make posts from people or Pages appear at the top of your News Feed

Instruction C

To set special notification

1. Go to the group or contacts in WhatsApp, then tap the subject of the group or the contact.
2. Tap the custom tone.
3. Select Custom notifications.
4. Click save on the top right.

Instruction D

To control comment's notification for your post

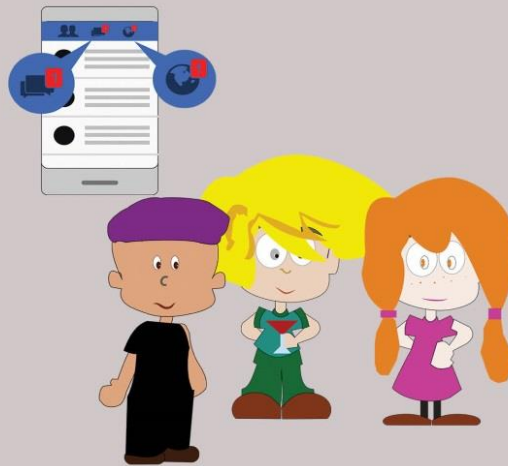To set notification about what you get notifications about:

1. Click ▼ at the top-right corner and select Settings.
2. Click Notifications on the left.
3. Click comments to adjust how you get notifications
Note: please turn off the rest of notifications in order to just notify regarding the comments

PAGE 24

12.14.4 Continued

WHAT IS RELAPSE?

Relapse "refers to a breakdown or failure in a person's attempt to change or modify any target behavior"

WHAT IS RELAPSE PREVENTION?

Relapse Prevention (RP) is a self-control technique designed to help individuals who are trying to change their behavior on how to anticipate and cope with the problem of relapse.

IMPORTANT POINTS, PLEASE READ THEM:

1. If you manage your FoMO for a while and then begin to experience again, you relapsed.
2. Relapse happens because people may stop using the FoMO reduction method.
3. Relapse can be avoided by willpower and self-discipline alone.

12.14.4 Continued

RELAPSE PREVENTION PLAN

Coping skills: please list activities or skills you enjoy that can get your mind off of using

12.14.4 Continued

TO PREVENT RELAPSE:
1. Please do one or more of activities or skills that you listed on the relap prevention plan,
OR
2. Please do hobbies such as a reading book, walking, exercise, club membership, etc.
OR
3. Practice positive self-talk, e.g.

YOU CAN SAY

"Even though I am frustrated with not being connected or checking, I am open to the possibility I can find a calm space within myself."

"Even though I am anxious about not being connected or checking, I am open to the possibility I will feel better soon"

"Even though I am anxious about not received responses from others I know they did not do this on purpose". thin myself."

"Even though I am anxious about not being connected or checking, I am open to the possibility I will feel better soon"
.
"Even though I am anxious about not received responses from others I know they did not do this on purpose".

SHEET 4

Empowered refusal and

Self-talk

4.a. Empowered refusal with goal setting

You can phrase your goal as a refusal statement by using *I do not need.* Please see examples below

Example:
• *I do not need to participate in the group when I am on the lecture*
• *I do not need to reply when I am driving*

4.b. Self-talk sentences with goal setting

You can phrase your goal by using self-talk technique. Please see the instruction below:

• Try to phrase your goal in terms of a statement as a question, e.g. will you need to read all posts on twitter?
• Try to refer to yourself by using second-person pronouns, e.g. you need to express your type of interactions on Facebook

4.c. Tiny Habits Model

Instruction to use Tiny Habits Model:
This sheet is a way to match up habits that you already have in your life with new goals you have for yourself and the habits you want to begin to have in order to reduce your FoMO. Think of some new small habits you would want to have in your life, e.g. set status for short period of time. Next, think of some habits you already have in your life that could be a trigger for the new goal. Every time you perform the habit, it will remind you to perform the action you set as your goal.

12.14.5 Continued

They should happen at the same time every day and the things you do daily. Also, if the goal is something you want to do more than once a day, make sure to think of existing habits that you do more than once per day. After you finish listing out your thoughts, take time to match up which goal is most important with the habit that works best as a trigger. Remember to start small and simple, it will help you be the most successful.

Please see example below as an assistant

Existing Habits:	**New Tiny Goals:**
After I sat on my desk	I will set status as busy
After I have my dinner	I will participate in Facebook group

Existing Habits:	**New Tiny Goals:**