Social Media use, social anxiety and the relationship with life satisfaction

Kirsty-Lee Collins

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(DClinPsych)

School of Health and Human Sciences

University of Essex

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Acknowledgments

Abstract

Introduction: There has been a growing interest around the use of the Internet, and more recently the role of social media use, within all aspects of day-to-day living. Previous research has found contrasting relationships between social media use and meaningful social connectivity. Some suggesting Facebook can provide a 'social compensation'; offering an opportunity of developing positive social relationships and self-exploration (Indian & Grieves, 2014; Selfout et al., 2009; Ellison, Steinfield & Lampe, 2008). Other research argued that those who most benefitted from social media already have good social links, thus a 'rich get richer' effect (Kraut et al., 2002).

Aim: This study aimed to investigate the relationship between social anxiety symptoms, passive and active Facebook use and online and offline relationships (bridging and bonding) to life satisfaction.

Method: A total of 124 completed online questionnaires were collected. The participants completed five quantitative measures. The link to the study was posted on related Facebook pages and online social anxiety forums.

Results: The results demonstrated a positive correlation between social anxiety and passive and active Facebook use, but only a significant negative correlation between active Facebook use and life satisfaction. There was also a negative correlation between social anxiety and life satisfaction. A mediation analysis suggested that social anxiety acted as a significant mediating variable between active Facebook use and life satisfaction. Furthermore, a hierarchical regression suggested that it was, when controlling for social anxiety, face-to-face bonding relationship that was the most significant predictor variable for life satisfaction.

Clinical implications: The study does not argue a causal relationship between Facebook use, social anxiety, relationship types and a negative impact on life satisfaction. However it does highlighted interesting significant correlation between Facebook use, social anxiety and life satisfaction. This would suggest that within clinical practice an individual's digital life should be thought about, alongside the more traditional ideas of social networks. Furthermore, the clinical focus of developing of an individual's face-to-face relationships remains an important factor associated with life satisfaction.

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Chapter 1

Introduction

'The techniques of the internet have become a major way of

liberating humans from old values and systems'

Ai Weiwei (2016 cited in Obrist)

Within this chapter the reader will be presented with an overview of the key topics

related to the thesis hypotheses. This includes an overview of communication and

how communication has developed within the online sphere. Furthermore,

information relating to social anxiety and its psychological pathology will be

reviewed and the links to social media use considered. Finally, previous research

related to Facebook use, social anxiety, life satisfaction and interpersonal

relationships will be reviewed and areas of further investigation suggested.

Developments in communication

When considering the role of Facebook use and life satisfaction, it would be

helpful to explore the impact Facebook has had on communication, particularly on

individuals who experience discomfort or anxiety when socialising. This includes the

history and development of the internet and the sharp increase in social media and the

role this now plays in everyday communication. The internet was initially established

in the 1960's as a means for US government projects to share information. However,

it wasn't until 1989 that the World Wide Web was invented by Sir Tim Berners-Lee

(World Wide Web Foundation, 2015). This significant breakthrough led the way for

the first server in 1993, with the start of more commercial availability of the internet.

A point that may have enabled the internet to become so central in business,

education and across human interaction was Berners-Lee's ethos that the internet

should be 'freely available to all', (World Wide Web Foundation, 2015). However,

it was not until the early 2000's that most people had access to the internet in their homes.

By the early 2000's internet use was far more diverse than simple communications or business transactions. There was a growing interest in social communication; the use of digital media was coined 'Social media'. Social media describes a platform for individuals to communicate using words, images, photographs, emoticons and videos. Social media has been used to reach a wider and varying audience with ease, with the first recognised social media site known as 'Six-degrees' (Terrell, 2015). The focus of 'Six-degrees' was to communicate with friends and reconnect with those that users had lost touch with. The use of social media has significantly changed from keeping in contact with people already known to the users to others 'you may know' or a total stranger who shares a hobby or interest. It is common for large corporations, governing bodies and health institutions, such as the NHS, and political parties to use social media to try and reach a wider audience.

One of the most successful social media platforms is Facebook. Facebook was founded in February 2004, where it was initially set up for use by American Ivy league colleges Harvard, Stanford, Columbia and Yale (Facebook, 2016). By September of 2004, the Facebook founders had launched the 'Facebook Wall', which allowed Facebook users to send messages to 'friends', this meant that messages could be sent to those users who were linked to on their Facebook profile. A criticism of this term 'friends' is that it does not necessarily denote the level of intimacy between two Facebook members, but is a generalised term used to describe a link between them. Additionally, other have questioned how Facebook may be shaping the perception of 'friendship' and how this may connect to external pressures, such as

working longer hours and spending less time with others in person (Alexander, 2016; Wallace, 2016).

In December 2004 Facebook had a total of 1 million users, this increased to 6 million within twelve months (Facebook, 2016). During this time Facebook was made available to other colleges and higher education institutions, membership was based on having an academic email address. In 2006 the mobile application was developed increasing accessibility via smart phones and tablets. Furthermore, within the same year Facebook was made available to networks outside of education, individuals could join outside of educational bodies. It was during 2006 that Facebook reached 12 million active users, by 2007 this number had risen to 58 million active members and by August 2015 it was reported that around 1 billion people were using Facebook every day (Facebook, 2016, Zephoria, 2015).

The Facebook platform has continued to develop since its inception in the early 2000's. The initial adaptation included a 'wall' where 'friends' could leave messages. This has further been developed to include adding photos, writing status updates and posting videos. However, the presence and developments with Facebook have not always been well received. With this 'open' public access to personal data (photographs and personal details) there have been examples of misuse or abuse, in particular there has been a growing controversy around the use of Facebook, and other social media platforms, to bully or 'troll' other Facebook users (Bishop, 2013). Trolling is described as an 'anti-social act of causing personal conflict and controversy online' (Hertfordshire constabulary, 2015). There have also been growing concerns around the use of Facebook to groom children (Hope, 2013, Choo, 2009), to recruit for extremist organisations (Harte & Volz, 2016) or to distribute illegal material (Crawford, 2016). Facebook responded to these concerns by

incorporating a Child Exploitation and Online Protection report button (CEOP, 2010; Facebook, 2006). This development would be welcomed by a Child Protection Organisation (Children's commissioners, 2010) with the main focus to 'deal with specific threats from individuals who seek to use the online environment to access young people and children' (CEOP, n.d). Much of the focus has been on protecting children and young people, however, there has also been a growth in the concern over trolling, as highlighted above, and cyber stalking happening to adult users.

Furthermore, there have been concerns around the psychological impact of social media sites. This has included debate around the impact on personality, such as 'does Facebook make us narcissistic?' (Fishwick, 2016). The latter questioned the alarming rapid rise in the diagnosis of Narcissistic Personality disorder in the US and the links with social media use. Fishwick (2016) provides an overview of Bergman, Fearrington, Davenport and Bergman (2011), their findings linked social media sites, such as Facebook, to narcissistic traits such as enticing attention from others and to receive positive feedback from the online community.

As well as concerns over the impact Facebook is having on personality, there have also been concerns levelled at Facebook being used as an avoidance strategy. For example, people may avoid face-to-face interactions and therefore not have the opportunity to develop their interpersonal communication skills. This avoidance could lead to a cycle of social anxiety when coming into contact with others, social avoidance and self-imposed social isolation. Also, criticisms have focused on the fictional lives created online. These depictions of a user's life are highly edited which could be seen as a playful fantasy world or a move towards an unhealthy avoidance or denial of their reality. This fictional life may also add to the level of envy in others who view the superficial profile.

Overall, the invention and development of digital communication has meant fundamental changes in how people connect and communicate. Within a decade, how and what people can communicate has influenced our understanding of communication. Social media can no longer be considered the activity of student millennials gossiping with friends, but has become a recognised forum for communication. Social media has challenged the previously held beliefs about the limited richness of written communication; however, this is not without its critics. This study aims to further consider the role of Facebook as a means of facilitating social communication for those individuals who struggle with more traditional face-to-face socialising. Additionally, it would be helpful to consider how this growth within social communication may impact on those who are socially anxious, therefore those who may benefit from using alternative modes of social communication to converse with others. In order to understand if social media may offer an alternative method to connect, it would be necessary to understand what 'social anxiety' is and how it is related to social communication and connectivity.

Theory of social anxiety

When considering how 'social anxiety' is constructed and clinically diagnosed, within a healthcare setting, there are two core diagnostic manuals to acknowledge. Firstly, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), as outlined by the American Psychiatric Association (2013), and secondly The International Statistical Classification of Diseases and Related Health Problems, developed by the World Health Organisation (WHO). As the diagnostic tools highlight, to meet the threshold of 'social anxiety' the individual would need to experience more than a passing or temporary discomfort to a single social situation. For an individual to be diagnosed as meeting clinical social anxiety they will need to

demonstrate the following symptoms of Social anxiety as outlined within the DSM-5 as follows (The American Psychiatric Association, 2013):

'A. A persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be embarrassing and humiliating.

B. Exposure to the feared situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally pre-disposed Panic Attack.

C. The person recognizes that this fear is unreasonable or excessive.

D. The feared situations are avoided or else are endured with intense anxiety and distress.

E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.

F. The fear, anxiety, or avoidance is persistent, typically lasting 6 or more months.

G. The fear or avoidance is not due to direct physiological effects of a substance (e.g., drugs, medications) or a general medical condition not better accounted for by another mental disorder'.

However, the guidance for ICD-10 diagnosis is less structured than the DSM-5, it holds more of an emphasis on the distress and physiological symptoms of anxiety and how these would need to occur within social settings. Furthermore, the term 'social phobia' is also used interchangeably, however, the focus remains on the distress, anxiety and in some cases panic about interacting with others.

The ICD-10 (WHO, 2016) guidelines categorises these symptoms as:

F40.1 Social phobias:

> 'Fear of scrutiny by other people leading to avoidance of social situations. More pervasive social phobias are usually associated with low self-esteem and fear of criticism. They may present as a complaint of blushing, hand tremor, nausea, or urgency of micturition, the patient sometimes being convinced that one of these secondary manifestations of their anxiety is the primary problem. Symptoms may progress to panic attacks'.

There are a number of similarities between these two descriptions, both use a medical position which agrees the presence of a mental health disorder as measurable and treatable symptoms. Both models highlight the difficulty around the fear of scrutiny from others, with the possibility of panic attacks. With both models acknowledging the distress and limitations the symptoms of social anxiety has on an individual, this is recognised by a reduction in well-being. It is the DSM-5 which specifies recognition by the person that their beliefs and responses are irrational. More fundamental differences arise between these diagnostic tools, including the ICD10 being developed by a global health agency which is representative of a variety of nations and cultures, whereas the DSM was developed within the US with only a western approach in mind (American Psychological Association, 2009). Additionally, there is a psychiatrist led approach on the DSM, whereas the ICD is made up of a broader professional group, who are all involved in the development of the guidelines; with a focus on reducing 'the disease burden of mental health' (APA, 2009 p.63). Wakefield (1992) have highlighted the DSM's focus on symptoms, and the symptoms seen as dysfunction and a problematic move away from a normal or 'functional' response. However, this symptom approach could be criticised for overlooking the underlying cause of mental health symptoms, such as early experiences.

These perspectives of the experiences which make up 'social anxiety' are within a medical model. This perspective focuses on the immediate symptoms and its impact on the individual; however it overlooks the wider social, political and systemic influences of how and why social anxiety occurs and is maintained in individuals.

Prevalence rates of social anxiety

The rates of social anxiety or social phobia vary. They have been reported as 7% of the population at any one time (Richards, 2015). With some rates of social anxiety in the US reported as low as 5% of the populations (Manfro, 2006), and resources stating this can be as high as 18% of the population (National Institute of Mental Health, 2005). The global rates of social anxiety have been reported as ranging from 0.9% to 28.3% (Baxter, Scott, Vos & Whiteford, 2013). These varying rates of social anxiety would highlight the importance of social and cultural aspects of social anxiety. Furthermore, there may be a difference in how social anxiety is assessed, the access to health care where symptoms or difficulties could be assessed and the willingness for individuals to receive a diagnosis, with some avoiding medical input due to social stigma.

It is also important to consider treatments offered for managing and overcoming problematic social anxiety and the related symptoms. This is a core component of talking therapies, with focus being placed on understanding distressing trigger points, social contact, social networks and support which could include online support. The treatment for social anxiety, as recommended by NICE, includes pharmacological medication. Furthermore, psychological approaches are also highlighted as an evidence based approach. This includes psychological input

focusing on 'desensitisation and flooding' techniques (NICE, 2013 p.23) which are based on Cognitive Behavioural Therapy (CBT). When considering social media and social anxiety in relation to clinical practice, a mental health practitioner would be interested in what social contact their client may access, this would include relationships online. The clinician would ask what role relationships online play, for example does the client use social media to interact with others or is social media used in an unhelpful or punishing way, such as comparing oneself unfavourably with what others post online. Additionally, the clinician would be curious to see if social media is being used as an unhelpful or blocking avoidant strategy to challenging their unhelpful thought processes. For example, being social online but not trying these social skills and self-esteem building exercises in actual face-to-face relationships.

Cultural influence of Social Anxiety diagnosis

As previously highlighted, the growth of social media in the UK has been slightly behind that of the US and has not had as much attention regarding its impact on relationships, communication and connectedness as compared to the well-established face-to-face influence, such as school attendance, attachment style or personality traits.

There are no clearly defined rates of social anxiety within the UK, but it is estimated that there is around a '12% life time prevalence rates of social anxiety' (Kessler et al., 2005 cited in National Collaborating Centre for Mental Health, 2013). This number is based on other western societies such as the US and Australia. Therefore, it is not possible to say whether the rates of social anxiety differ in the UK, an assumption is made that it will be similar to that of other comparable societies. It may be possible to apply some of the findings from the US, as both are described as

'Individualistic' cultures. However, there could be subtle but important differences between the UK population from the US, for example, the cultural shared norms around social anxiety and the fears relating to social interaction. With the invention of Facebook based in a US university by US students, this may have specific elements related to a white American affluent belief systems. This may differ to the UK, particularly to those who are outside of the 'white, affluent and highly educated' groups.

Furthermore, the focus of social anxiety can be culturally bound, as described by Taijin Kyousho (TSK, Kirmayer, 2001) in Japan, which focuses on the individuals' anxiety of causing offence or embarrassment to another person rather than a fear of embarrassing themselves. This emphasises the importance of social rules on how emotions and affect can be expressed, and how individuals attempt to find a balance between social rules and their own feelings and experiences. Additionally, the variations in social anxiety rates across the world could be used to question the origins of social anxiety. For example, whether clinical diagnosis has been developed as a means to label behaviour which is acceptable in some cultures, being withdrawn or remaining within a closed community, and the challenge this poses to cultures who assume that others should strive to, and enjoy, socialising with others. Therefore, within an environment outside of the individual's life, such as in a clinic room with a mental health professional, behaviour can be misinterpreted outside of its cultural context and labelled as 'maladaptive'.

Furthermore, questions have been raised regarding the variety of 'symptoms' which have been grouped together to form the diagnosis of 'social anxiety'. As demonstrated earlier, the inclusion criteria for a diagnosis has been extended, with concerns around the impact of labelling human behaviour as something more

maladaptive (Khoury, Langer & Pagnini, 2014). This has included the significant impact this can have on the individuals' sense of personal autonomy and the powerful role this gives to clinicians and other authorities (Khoury et al., 2014).

Psychological understanding of Social Anxiety

There are a variety of perspectives for the development and onset of social anxiety or social phobia. The cognitive approach highlights the helpful nature of anxiety to enable survival in life threatening situations, such as keeping away from large 'mob-like' groups or aggressive individuals. However, these cognitive pathways in the brain are triggered in non-life threatening experiences. Clark and Beck (2010) linked this automatic response to an individual's belief, attitudes and assumptions relating to threat and being vulnerable to it. Clark et al., (2010) highlighted that individuals with high levels of anxiety will be hyper vigilant and sensitive to threat, interpreting situations as more threatening than they are. Overtime these thoughts can be reinforced, and unless challenged will continue to operate on an automatic level. The focus of cognitive therapy is to support the individual to challenge these thoughts, feelings and subsequent responses, as a means to learn alternative assumptions and beliefs so that social interaction does not have to be experienced as a threat to life. Alternatively, a more behavioural perspective relevant to social anxiety would be negative reinforcement. This would relate to a negative experience, in this case of social interaction with others and experiencing a negative response in return, such as being snubbed, rejected or ridiculed. This experience would strengthen the negative beliefs and assumptions of social relationships and maintain fear and discomfort of social interactions with others.

A contrasting psychodynamic position would be that the anxiety experience is a defence mechanism against unacceptable impulses or immoral thoughts. The repressed thoughts, feelings and fantasies are displaced and the fear is projected into something or someone else more socially acceptable, such as meeting strangers or talking to people they don't know. This protects the individual against their own anger and desire to carry out aggressive impulses and to dismissing, harming or causing distress to the other. A psychodynamic therapy would focus on the defences, the repressed feelings and the link with the anxiety (Carr, 2012).

When considering the previous research, there has been an understanding that social communication is changing, with significant modifications relating directly to the invention of social media platforms, such as Facebook. When considering the developments in communication and the relationship between life satisfaction and social connectedness, it is still unclear whether there are significant relationships between social media use and life satisfaction.

Social Medias' impact on communication theory

The Theory of Affordance (Hutchby, 2001), argues for the 'function, attributes and opportunities' that different media make available. In particular the varying ways media can be used to connect with others. Additionally, this perspective demonstrates the differences between mediums, where each form can offer various functions, such as formal to informal reasons for communication. Furthermore, there are a range of opportunities made available by social media; including communicating only with people you have met, to building up relationships outside of your immediate geographical or social networks. In relation to Facebook, it has been shown to offer a wide range of opportunities to build social networks, where you are able to connect

with others who you may never physically meet. There is also a developing function of Facebook which has moved on from digitally socialising with others, to large corporations using Facebook to advertise their goods, communicating on a more direct level with consumers, such as feedback posted on product pages.

Earlier work of Daft and Lengel (1984) outlined the notion of 'rich' media. The description of 'rich' was in association to the speed and ability for the media to convey emotions, meaning and feeling. For example, the opposite of rich media would be a text message would be considered a lean media. In its early stages there was a word limit for the message and it was limited in the meaning which could be conveyed. Furthermore, there was an increased likelihood of misinterpretation of the meaning within the succinct message. With the development of social media, the possible means of communication has spread, challenging Daft and Lengel's theory of Media Richness theory (MRT). Social media platforms, such as Facebook, offer more than electronic written exchange of communication. Facebook offers the use of images as well as instant messenger, videos and commenting on photos. Although these options may not offer the same level of information as is made available from face-to-face communication, what is made available from social media, is more complex than was realised in the initial development of the MRT.

The growth in social media has led to an increased feeling of a possible 'community' on the internet (Chambers, 2013), where people can build connections, message and share discussions online without having to meet in person. One such development was the introduction of emoticons as a means to convey emotional meaning and reduce possible miscommunication. This development gives an immediate feedback into how the writer is feeling, with the possibility of more subtle

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expressions of emotions being able to be conveyed online, such as humour or sarcasm.

There has been a growing interest in the variety of media and how this is being utilised by individuals to stay in touch. As outlined by Haythornthwaite (2005), relationships today use a multitude of mediums to stay in touch. Haythornthwaite described the term 'media multiplexity', to describe how the stronger and more personal the relationships are, the more mediums they are likely to use to stay in touch. For example, a strong and important relationship between two people or more could be reinforced by talking on the phone, sending photos and music over email, commenting on each other's walls or instant messenger over Facebook, re-tweeting each other's twitter posts, sending text messages and sending messages over Whatsapp.

Furthermore, there could be a perceived control over interpersonal communication, for example different levels of intrusions of communication. The moderately high experience of intrusive communication could be an unexpected telephone call, compared to spam emails which can easily be ignored and deleted with no interruption to the receiver's day. To use this idea in relation to social media use and social anxiety, it is possible to understand that Facebook offers a safer medium to communicate for those who experience social anxiety. This is because any received communication can be accessed when the person wishes to see it, it does not demand an instant response therefore it gives the person time to consider a response. Furthermore, with the added features such as emoticons and visual information, it may feel like a good way to convey emotions and may be less likely to be misconstrued or confused. However, what if someone is reliant on social media for their social interactions? Individuals may be using multiple social media sites to stay

connected, however, social media is still not able to convey the same level of emotional cues as face-to-face interaction.

Additionally, there was also found to be a difference in the way generations of users view the internet and the varying ways it can be used in communication. This includes adults sending fewer emails and having a lower percentage who had social media profiles, whereas for younger adults, frequently sent emails and actively used social media (Pew, 2010). This could be associated with the central role that emails now play in communication at work and education for the younger generations, such as applying for jobs or receiving formal feedback from school via emails.

A link between social media and our understanding of interpersonal interactions, as highlighted by Meyrowitz (1985), is the changing nature of the mediums of social interaction and its social and political surroundings. Meyrowitz (1985) argued that media can be described as 'change mechanisms' on social behaviour, drawing comparisons between the changes arising from the industrial revolution on the wider influences on society,

> 'Who would claim the only important things to study are the specific goods the new machines produced. Instead, historians, sociologists, and other have long noted that the important things to look at in the industrialization of society are the effects of the new means of production themselves on such variables as the balance of rural and urban life, divisions of labour, degree of social cohesion, structure of the family, value systems, perceptions of time and space, class structure, and rate of social change', (Meyrowitz, 1985).

Using this comparison it is possible to recognise the long term implication social media has on interpersonal communication, with an emphasis not necessarily

on the products or digital capabilities of social media, such as instant messenger, but acknowledging the possible adaptations within behaviour and society.

There have been criticisms of social media and an underestimation of the role of social media in everyday interaction. Lidsky and Friedel (2013) outlined the 'spontaneous and informal communication' which enabled a connection to develop between social media users, to the point where communication resembled 'informal gossip' rather than more 'formal written communication (p.237). The implications of this are blurred lines between formal communication, which may lead individuals to be more thoughtful before submitting their views, and more flippant or spontaneous verbal communication, which pass and do not remain recorded. However, even flippant remarks made on sites like Facebook remain recorded online. There has been a growing anxiety surrounding what is posted on social media and whether this is simply freedom of speech or something more formal, which should be governed by a legal framework.

The innovative connections made available via social media is not seen as dismissing the need for face-to-face relationships, however, the role of social media needs to be explored further, particularly for those who are socially isolated due to psychological reasons, such as social anxiety or social phobia.

An overview of Social Media use and normative populations

The 'Digital Natives' population and social media use

Williams (2014) and Oblinger and Oblinger (2005) outlined the important impact the internet has had on the 18-25 age group, as they were born into a society where the internet has always been present. Individuals within this age group have grown up in a society where the internet and its uses have become central to so many parts of

daily living, including education. In a recent report by Pew Research Centre (2014) 89% of internet users accessing social media sites were between the ages of 18-29 years old, with Facebook being the most commonly used social media site, with 79% of all adults online using Facebook. This age group was initially selected because these individuals are within the most prolific age group for using sites like Facebook. This age group are also able to give informed consent to participate in a research project. Prensky's (2001) paper highlighted the use of the term 'digital native', also sighting other descriptions as the 'net' or 'digital' generations. Prensky defined this group as 'the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age' (2001, p.1).'Studies also showed the presence of age-specific motives for SNS, with younger adults using Facebook as a means of communicating with others and maintaining offline relationships' (Hayes et al., 2015, in Settanni & Marengo, 2015).

Additionally, the developmental age for younger adults (17-21 years), and the natural stages of personality and psychological development are important points to consider in relation to social media use and interpersonal relationships. It is during this time a young adult may be developing their awareness of themselves and the wider changes in their role, such as having more freedom but becoming more responsible (Munsey, 2006). As Erikson outlined in the psychosocial stages of development young adults will continue to hone their skills to have intimate and meaningful relationships with others (Shaffer, 2009). With these stages in mind it is possible to see how Facebook could be a tool which could influence an individual's development. For example, during this time a young adult may be more receptive to

feedback they receive online, as Facebook is experienced at a more manageable distance to try out their social skills with peers. Furthermore, Facebook may offer a means to play with their identity, trying out different ways of relating and presenting themselves, in a way that can be more easily adapted than in face-to-face relationships. The information presented on Facebook is able to be thought about and edited, with the user having more control than in face-to-face interactions. However, individuals may be limited in their skills to read others social cues and emotions within the moment and respond accordingly, if the individual is reliant of having time to craft a 'suitable' response.

Alternatively, with an awareness of how many have access to Facebook, and the possibility information could be reposted outside of the user's control, anxiety of posting something on Facebook could be justified. This anxiety on some level could be a seen as a recognition of the loss of control individuals feel when using social media. This raises the question of why individuals use Facebook if it induces feelings of anxiety. The answer is less straightforward, as the chapter will go on to discuss, this may be due to communication changing and social media being central to our relationships with one another. It is common place for individuals to now post the most important or intimate moments of their life online. Therefore, the idea of not using social media sites, such as Facebook, could feel like a self-imposed isolation in its self.

Social implications of social media and networking

The implications of increased social media use has raised questions about the immediate and long term influence of social interactions. Apart from the immediate dangers associated to social media previously discussed in this chapter, such as

cyberbullying, there are concerns of more subtle influences. Prensky (2001) highlights secondary impacts of this new technology and access, for example those using social media may 'thrive on instant gratification and frequent rewards' (p.2). This is of concern as it means that individuals demand immediate rewards and they have reduced ability to withstand difficult feelings and anxieties, when waiting for a response. When considering social media, social relationships and the concerns raised by Prensky (2001), users of social media may expect an immediate response from others, such as 'liking' their posts and pictures and leaving comments. Therefore, if they do not receive positive feedback they may experience this as a cause for concern or confirmation that they lack what others might find interesting. This type of response could lead to an experience of anxiety and worries about what others think of them and the content of their Facebook profile, with some users possibly exhibiting increasing controlling behaviour of how they present themselves online.

Theory of life satisfaction & relationship satisfaction

Diener, Emmons, Larson and Griffin (1985) outlined life satisfaction as a 'cognitive judgement' that is 'dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard' (p.71). Life satisfaction and relationships have often been linked, Gustavson et al., (2015) found that relationship quality can have a positive change in both individuals' life satisfaction. Meaning that a relationship that is seen as positive and beneficial increases scores of life satisfaction for both individuals involved in the relationship.

With the development of social media in mind, the question of what constitutes a connection and a relationship has been raised. There has been growing anecdotal information relating to 'on-line' relationships. This topic has caught the fascination of

the general public, with a number of popular TV shows and films (i.e. Catfish, 2010). The interaction available on Facebook may challenge the initial expectation of online relationships as being 'Lean' (Daft & Lengel, 1984), but rather rich data that Facebook members can provide and exchange (messages, photos, instant chat, 'Liking' other information, belonging to a group and adding interest pages) would suggest that this interaction could be more meaningful than some research would consider. A study by Goodman-Dean et al. (2016), found 'richer communication methods, which include non-verbal cues, were positively associated with both overall satisfaction with life and satisfaction with relationships' (p.219), this included video calling. Furthermore, this study found that social networking was negatively associated with overall satisfaction but not with relationship satisfaction. One hypothesis could be that users compare their lives to others online, viewing Facebook posts demonstrating physical appearance as well as signs of financial independence and achievement. However, it could be suggested that the social network facilitates social relationships which can have an impact on life satisfaction.

Theory of the internet/social media and social connectedness

Social connectedness is defined as 'an exchange between two or more individuals and is a building block of society', furthermore, 'by interacting with one another, people design rules, institutions and systems within which they seek to live' (p1. Boundless, 2016). Hiltz (1994, cited in Kreijns, Kirschner & Jochems, 2003) also highlighted 'the social process of developing shared understanding through interaction' (p.338), demonstrating the fundamental nature of communication for the maintenance and development of society or culture. This point illustrates the need for interpersonal communication and how individuals are bound together in society, with a need on many levels, including survival, to communicate with one another.

The idea of social interactions is then taken a step further when thinking about 'Social Capital'. This term is used to describe relationships within social interactions, as not all social interaction are perceived to be the same. The Office for National Statistics (ONS, 2016) outlines social capital as 'the pattern and intensity of networks among people and the shared values which arise from those networks'. This idea was developed from the Organisation for Economic Co-operation and Development (OECD, 2007), who outlines social capital as 'the links, shared values and understandings in society that enable individuals and groups to trust each other and so work together' (p.102). The ONS highlight the importance of social capital in relation to other health and social benefits, such as lower crime rates, improved jobs outcomes and improved educational achievements.

In a study focusing on teen use of 'socially interactive technology' (SIT), Pierce (2009) investigated how teens communicate with others, such as peers. The technology used was outlined as 'online social sites, mobile phones, text messaging and instant messenger' (p.1367). The study consisted of 280 high school students from the US. Pierce (2009) hypothesised that there would be a relationship between social anxiety and reports of feeling more able to communicate online or via technological tools. From this research the use of the term 'belonging' could be questioned, for example is there a distinction between social connectedness and belonging? Can a person feel they belong to a group simply through social connectedness made available by SIT? Therefore, could the ability to stay connected through SIT be enough to enable a feeling of belonging?

Pierce (2009) found that those who experienced social anxiety when interacting face-to-face, felt more confident when interacting online (r=0.24, p=<.001). A similar finding was found with text messaging (r=0.12, p<.05), however, there was no

significant correlation between social anxiety levels and making new friends online. From these findings, Pierce suggested, in support of Erwin et al.'s (2004, cited in Pierce, 2009) study that SIT may be replacing elements of face-to-face communication, but not completely replacing it.

Furthermore, a paper by Grieve et al. (2013) investigated whether social connectedness can be 'derived online'. This paper highlighted the association between the social connectedness construct and the constructs related to belongingness. This research demonstrated the need for individuals to develop, and continue to develop, meaningful relationships. This connection to others has been found to positively relate to psychological wellbeing and self-esteem and is negatively associated with anxiety.

A literature review by Nadkarni and Hofmann (2012) focused on motivations for social media use. The literature review highlighted that Facebook use is driven by two key factors, 'the need for self-presentation' and the 'need to belong' (P.243). The need for belonging is something that repeatedly occurs, highlighting the importance of not just being practically 'connected to others' or to have access to peer relationships, but the idea that social interactions online via Facebook support something more meaningful.

Bridging versus bonding relationships

Work by Granovetter (1973) developed the idea of 'weak-ties' and 'strong-ties' within relationships. Granovetter's work demonstrated a key difference within the varying strengths of social interaction, with weak ties still facilitating a link between individuals. Furthermore, Granovetter argued that weak bonds allow a freedom of

connection, meaning a connection can occur without a stronger bond directly facilitating this. This approach would support the use of social media facilitated connections, where Facebook recommends 'people you might know' based on the list of mutual or overlapping friendship groups. However, Granovetter acknowledges that there is no guarantee that this weak link will facilitate any connection at all, for example, a loose association relating to a broader interest such as a sports team will not automatically mean that a meaningful connection between two or more individuals will develop.

The idea of weak and strong bonds is closely associated with 'bridging' and 'bonding' relationships. 'Bonding' relationships are outlined as 'the collective relations between defined groups', whereas 'Bridging' relationships are described as 'social capital as a resource' and 'provide a 'bridge' across divided communities' (Newell, Tansley & Huang, 2004, p.46).

Putnam (2000) outlined the term 'bridging' relationships, which are unrestricted and where individuals from a variety of backgrounds are able to find a connection. This connection may not have as much depth as 'bonding' relationships, however, the benefit of this style of relationship is the broadening nature of this interaction. This would include links to others who may share interests in a similar topic such as music or film. This type of friendship has been described as opening up 'new opportunities and resources' to the recipient (Williams, 2006).

Social competency verses 'the rich get richer' theory

As highlighted in previous research, there is a debate as to whether social media has a positive or negative impact on interpersonal communication and relationships (Goodman-Dean et al., 2016). Valkenburg, Schouten, and Peter (2005)

found that a key motivator for adolescents using internet based identity experiments, included social compensation, as well as self-exploration and social facilitation. Social compensation can be defined as the social media user gaining something from its use, which they may be lacking in their face-to-face interactions. A number of other studies have found social compensation is a positive effect of using social media sites. Previous research has compared socially and non-socially anxious Facebook users (Indian & Grieves, 2014), as well as college students (Selfout et al., 2009, Ellison, Steinfield & Lampe, 2008). Facebook was found to have a more significant impact on well-being on those who had higher levels of social anxiety. Furthermore, Facebook use interacted with psychological well-being which was described as helping individuals who have lower self-esteem and lower life satisfaction. Grieve, Indian, Witteveen, Tolan and Marrington (2013) compared online and offline social connectedness, identifying that Facebook and offline connectedness were different constructs. However, the study later found Facebook provided an opportunity to develop and maintain social connectedness within a digital medium. This online connectivity was linked with lower levels of depression and anxiety and higher life satisfaction.

In their study, Morahan-Martin and Schumacher (2003) compared the scores between lonely verses non-lonely undergraduate students and their internet use. The participants with higher loneliness scores were more likely to use the internet for emotional support. This group was also more likely to use the internet to make friends online, where these friendships rated highly for satisfaction. Similarly, Zywica and Danowski, (2008) compared Facebook users described as extroverts with high self-esteem or introverts with lower self-esteem. They argued that Facebook use could support the social compensation theory, with both groups using Facebook to develop

relationships online. However, Zywica and Danowski (2008) reasoned that the groups had different approaches to using Facebook, with the introvert groups using Facebook to find connections they did not have in face-to-face relationships, this included being more open about themselves with online friends.

However, Park, Jin and Jin (2001) demonstrated that Facebook social interactions may not provide as deep a connection as face-to-face relationships. Therefore, it would be helpful to compare the types of social connection, such as online and offline bridging and bonding social capital, and how people are connecting online, and the active and passive ways Facebook is used. This idea highlights the complicated nature of Facebook use, social anxiety, social connectedness and life satisfaction.

This body of research has supported the notion that Facebook use could offer social compensation to those who may struggle with face-to-face interactions, as well as those who are more socially adept in person and wish to use it to support their numerous interpersonal relationships. However, how Facebook facilitates this is complicated. For example, an important factor is the motivations behind using Facebook and what someone might want to get out of using it, such as to actually meet new people or to compare themselves to others online. The topic is further complicated by the different constructs which make up social connectedness and whether Facebook interactions actually provide meaningful connections.

The opposing argument for Facebook use and social compensation theory, is that of the 'rich get richer' theory. This position argues that social media only benefits those who are already socially competent. Facebook's role is primarily to facilitate already existing relationships, such as keeping in touch, rather than as a means of

developing meaningful relationships with others. Kraut et al. (1998), found that greater use of the internet was associated with less communication with those around the individual, as well as increased experiences of loneliness, depression and a reduced circle of friends. This evidence would point to the idea that social media could in fact be a barrier to healthy face-to-face interactions, leaving an individual more isolated. This idea was revisited by Kraut et al. (2002), further supporting the 'rich get richer' idea, with only those who already have successful relationships and more extrovert in their personality traits benefiting socially from Facebook use.

Moreover, Wiedman et al. (2012) found that those with social anxiety found more comfort in communicating and self-disclosure online, however, this group was also found to have higher levels of depression, lower quality of life and more frequent online use. Although this does not propose that social media use causes depression, this would suggest that internet use could be used as an avoidance strategy, keeping social interaction at a 'safe' distance and maintaining the isolative elements of social anxiety. It could be theorised that that over use of the internet can become an unhelpful safety behaviour. Safety behaviour is used in psychotherapy to describe a coping strategy which does not challenge an individual's cognitive biases, meaning the individual remains in the cycle of anxiety (Westbrook, Kennerley & Kirk, 2007). The person continues to remove themselves from social situations, only communicating with peers by messaging on social media, and does not learn to manage face-to-face interaction. Additionally, there is a concern that, even if socially anxious individuals do successfully use social media to interact with peers and build relationships, the use of social media could hinder the likelihood that individuals will actually meet others face-to-face.

Shaw, Timpano, Tran and Joorman (2015) looked at passive Facebook use, brooding and social anxiety symptoms. It was found that social anxiety was 'associated with spending more time on Facebook and passive Facebook use' (p.575), with brooding found to mediate the relationship 'between passive Facebook use and social anxiety'. These finding support the notion that Facebook can be an important platform for individuals' with social anxiety, however, it would depend how Facebook is used. This also supports the idea that how Facebook is used, is as important as the frequency of use. Furthermore, Shaw et al. (2015) made links with a CBT understanding of social anxiety, with passive use reinforcing negative thoughts and beliefs, perpetuating the anxiety cycle.

Life satisfaction and Facebook use

Verduyn et al. (in press), explored the relationship between Facebook use and life satisfaction using a laboratory based procedure to collect data from participants. Participants were asked to complete computerised questionnaires initially within a controlled laboratory environment. The follow up data was collected immediately once participants had been assigned to the active or passive Facebook group. Once the 10 minute task was completed the original questionnaires were completed again. Verduyn et al. (in press), reported a negative correlation between passive social media use and well-being, however, no significant relationship between active Facebook use and well-being.

In contrast research by Chan (2014) took a different approach to examining the relationship between Facebook use, social skills and life satisfaction. Their research focused on the conflicting positions, 'double edged sword', within the theoretical understanding surrounding Facebook use. Chan's study was based on 515

undergraduate students, who allowed access to their Facebook accounts. Each participant completed a measure of their personality (NEO PI-R), a measure of empathic social skills (Empathic Quotient scale), Facebook Usage and Satisfaction with Life scale (SWLS). Furthermore, Chan highlighted the possible 'suppression' and 'enhancement' effects of Facebook, such as Facebook reducing the number of face-to-face connections some people experience (and opting for online interactions), and where others find Facebook may support them to have more social interactions. Chan also questioned how personality traits (extroversion and neuroticism) relate to the mediating impacts of Facebook use (suppression or enhancement effects on social connectivity) and empathic social skills and the impact this has on life satisfaction.

Chan (2014) identified a significant relationship between empathic social skills and life satisfaction. This would support the idea that Facebook does not necessarily have a negative impact on social connectedness (Facebook being used as an avoidance strategy) but at more extreme levels of use could be problematic. It also appears that Facebook use may have improved empathic social skills in those who were identified as having stronger neurotic traits, with a reduction from -0.187 to -0.131 when Facebook use was added to the statistical model. Active Facebook use could involve more mutually beneficial interactions with others, such as not only receiving support but making an effort to support and interact with Facebook 'friends' and acquaintances. The difference was small and not enough to argue a clear causality to support the social compensation theory. An interesting link between how Facebook can be used and the positive impact this has on overall life satisfaction has been highlighted.

Social anxiety as a mediating factor for well-being/life satisfaction

Previous research has highlighted the correlation between social anxiety, lower life satisfaction (Jazaieri, Goldin & Gross, 2016), higher depression rates and lower well-being (Weidman et al., 2012). Research by Chye et al. (2012) questioned whether social anxiety was a 'mediating factor in predicting problematic internet use among lonely adolescents' (p.1). This study focuses on what could be understood as more negative aspects of wellbeing and social connectedness and internet use. The early findings demonstrated a significant relationship, with an increase in social anxiety, loneliness and problematic internet use (B = 0.59, ß = 0.41, p < .001), however, when social anxiety was added as a mediating factor, the effect of loneliness was no longer found to be significant in predicting problematic internet use. This supports the idea that social anxiety is a key factor in well-being and internet use. Furthermore, within individuals with autism, social anxiety and loneliness were found to be significant mediating factors for quality of life (Reed et al., 2016). This would raise the question as to whether social anxiety could be a mediating factor within the general population; warranting further investigation in to whether social anxiety may mediate between how social media is used and an individuals' life satisfaction.

The above section highlights the growing research in the areas of social communication, the development of social media, Facebook use, social anxiety, life satisfaction and relationship types. It also provides an overview of the conflicting view surrounding social media use and whether it is helpful in connecting people. This study aims to further examine the relationship between social anxiety, Facebook use, and relationship types to life satisfaction.

Literature review

The development of online communication has rapidly changed since wide spread access to the internet and the subsequent invention of social media platforms. The literature review aims to critique previous research methods and identify the gaps within the under-researched topic areas. The gaps within knowledge are the basis for the study hypothesis, with the methodology an amalgamation of previously published papers.

Literature search

A search was conducted on Web of Science search engine. The search engine consists of Web of Science Core Collection and Medline. The topic search terms used were 'Facebook' and 'Social Anxiety'; the papers identified were further reduced by limiting the papers to English and published between 2009-2015 (Appendix B). These dates were selected as it was the time when a majority of papers were published, following the invention of Facebook in the US in 2004 and membership opened to UK based universities in 2006. The results were prioritised by the highest number of times the article was cited. This was to allow a critique of papers which were most likely to be informing the field relating to social anxiety, connectivity and social media and to identify the gaps in knowledge and under-researched areas. Articles were excluded if they were on a specific pathological difficulty other than social anxiety, or where Facebook was only used for recruitment rather than a core part of the study. Furthermore, papers were excluded if they did not specify what social networking sites were used, such as Facebook, or if they used multiple sites and did not differentiate between social media use. From these inclusion criteria six papers were selected: Grieve et al. (2013), Rosen, Whaling, Rab, Carrier and Cheever

(2013), Oldmeadow, Quinn and Kowert (2013), Indian and Grieve (2014), Lee (2013) and McCord, Rodebaugh and Levinson (2014). The above studies are listed in the order of the most cited paper.

Research overview and methodological critique

Firstly, Grieve et al. (2013) focused on whether connectedness can be found online, such as the relationships and social interactions which take place on social media sites, rather than face-to-face. They hypothesised the Facebook social connection 'would emerge as a distinct construct separate from social connectedness experienced in the offline environment'. The authors also hypothesised that 'greater Facebook connectedness would be associated with lower anxiety and depression' (p.605). The study had a large number of participants, with the first part of the study comprising of 344 participants and 274 participants in the second study. All were from a large Australian University. The mean age of the participants from the first part of the study was 28.12 years and 25.87 years in the second study. There was little information given about the demographic information of participants and, therefore, little can be identified about what possible cultural norms of communication could have influenced the outcomes. Furthermore, due to this limited age distribution and knowledge about participants, this study may not be reflective of the wider Facebook audience and outcomes may be limited in their generalisability. The study used the Social Connectedness Scale-Revised and an adapted version of the same self-reported questionnaire to measure offline and online connectedness. A complication with these measures is around the constructs framing connectedness. As highlighted earlier, connectivity online and offline are related and sometimes difficult to distinguish.

Rosen et al. (2013) focused on the impact of social media on clinical symptoms related to mood disorders, including depression, anxiety and personality disorders. The study had a large sample of participants, with 1143 adults taking part, with participants ranging in age from 18-65, with the median age being 30.74 years. There were a majority females (59.75%), with a mixed group based on ethnicity. It could be argued that this profile of participants is more representative than using a younger homogeneous sample from a university sample as some previous studies have reported. However, all participants were still students within a higher education institute and were rewarded with 'extra credit', therefore, the sample may not be representative of those outside of further education and those who are not motivated by partaking in research. The study used validated measures, including the Millon Multiaxial Clinical Inventory (MCMI-III; Millon, Millon, Davis, & Grossman, 2009) to assess personality types. Participants were also asked about their social media use including what they did online (listening to music to communicating with friends) and how long they spent online. This study also assessed the active ways Facebook was used and how many friends the individual had, however, this study also overlooked the possible impact passive Facebook use might have. The study also assessed the individual's negative opinion of technology and any anxiety related to using it.

Oldmeadow, Quinn and Kowert (2013) questioned the role of attachment types, anxiety and the use of Facebook. They hypothesised that attachment theory would be positively associated with Facebook use, in particular, whether certain attachment types would use Facebook in distinct ways. This study recruited 617 adults who used Facebook. Participants were from a mixture of Psychology students, those who responded to a social media post by the authors and, finally, via a crowd

sourcing site. There were an equivalent number of male and female participants, with an average age of 27.63 years. The study used measures for experience in close relationships (ECR), a Social Skills Inventory (SSI) and Facebook usage and experience measure. A strength of this study is the focus given to the different ways Facebook can be used, recognising both passive and active means of communication.

Indian and Grieve (2014) focused on social support originating from Facebook for socially anxious individuals. This paper referred to previous literature, identifying the opportunities for social connection on Facebook and the correlations with Facebook use and the benefits of the social capital developed, and sustained online. The study used measures of social anxiety (mini-SPIN), a measure for offline support, Facebook support and a subjective measure of a life satisfaction scale. The study asked about when participants had joined Facebook and what their average usage was, there was little other demographic detail collected. A total of 294 participants were recruited, with an average age of 28.35 years.

A further study by Lee (2013) focused on the attachment styles in building social capital on social media sites. Lee predicted that the type of attachment would affect the type of social capital, bridging or bonding, developed online. The sample was made up of 440 South Korean undergraduate students. The group was gender balanced, with inclusion criteria excluding those who had used Facebook for less than a year. The study focused on anxious and avoidant attachment styles, but did not distinguish between attachment styles in the form of Bartholomew and Horowitz's (1999) four category model, which includes secure and pre-occupied styles. Lee (2013) suggests that avoidant and anxious attachment styles have been found to

negatively correlate with support seeking. Participants completed questionnaires to assess their adult attachment style and social capital use. Lee's (2013) study measured avoidant attachment styles and social capital, particularly bonding social capital. This was based on the idea that social anxiety would be associated with high level of avoidance and would impact on bonding relationships within that group. Lee (2013) also hypothesised that avoidance attachment would have a negative impact on bridging relationships. Furthermore, anxiety and avoidance were predicted to interact more within the lower levels of anxiety within bridging relationships.

McCord et al. (2014) examined the relationship between social anxiety, anxiety on Facebook and social Facebook use. This follows previous research highlighting correlations between the level of social anxiety and significant differences in the ways Facebook was used (Oldmeadow et al., 2013). The study is focused on two hypotheses: firstly, it was predicted that participants with high social anxiety would report 'less social Facebook use' compared to participants with low social anxiety (p.24 McCord et al., 2014). Secondly, the authors predicted higher social anxiety would report higher anxiety on Facebook. The study recruited 216 participants, with an average age of 32.2 years. Of the 216 participants, 185 were female, and the majority of the sample were white (83.3%). The participants were recruited via a university participant pool and email contacts of the investigator. The study was made up of a mixture of non-students (55.6%), undergraduates and post graduate students. The study assessed social anxiety and social phobia (SAIS-SPS12). This measure was described as two measures which 'closely relate to aspects of social anxiety, social interaction anxiety and fear of public scrutiny' (p.24, McCord et al., 2014). This measure was also adapted for measuring social anxiety experienced when

using Facebook. This approach could be viewed as an inclusive measure, which may be more sensitive to the varying presentations of social anxiety. Nonetheless, when considering how social anxiety is assessed in the UK NHS services, neither the SIAS, SPS-12 or a combination are recommended in NICE guidelines as robust and validated measures. Instead the Leibowitz social anxiety scale or the SPIN are recommended for formal assessment of social anxiety.

Research findings and recommendations

Social connectedness online and offline

The results from Grieve et al. (2013) found that the connectedness found in face-to-face and online interactions overlapped and were not clearly distinct constructs. Key differences within the constructs of online and offline connectedness was found, however, the differences between online and offline is more distinct in the way individuals feel disconnected. This could highlight that those who feel socially isolated may experience some, but not all needs being met online, therefore, not feeling wholly connected online. Furthermore, Facebook social connectedness was found to have a moderate positive relationship with subjective wellbeing and was negatively correlated to anxiety and depression. This would suggest that both online and offline connectedness should be measured and compared, as each appears to provide some sort of connection. Additionally, McCord et al. (2014) found that the Social Interaction Anxiety Scale and Social Phobia Scale-12 (SIAS-SPS-12) and the Facebook use measure (FBQ) were not found to have a significant correlation, thus rejecting the hypothesis that social anxiety would be negatively correlated with social Facebook use. This finding highlights that social anxiety does not appear to deter social interaction on Facebook.

Furthermore, McCord et al. (2014) identified a correlation between experiencing social anxiety and lower scores in life satisfaction and lower levels of perceived offline social support. However, there was no significant difference noted between offline and online social support by either those who experience social anxiety or not.

The impact of the severity of social anxiety

A further interesting finding was made by Indian and Grieves (2014), identified a significant difference based on the level of social anxiety experienced by participants. For those scoring within the higher thresholds, online support was shown to have a significant amount of variance compared to offline support, with an association between Facebook use and wellbeing in higher anxiety groups. This association was not found in the same groups for offline support. Indian and Grieves (2014) discussed the idea that Facebook could be 'mediating the social support-well-being relationships for individuals with high social anxiety' (p.105). This would strengthen the idea of using a clinically relevant measure of social anxiety. Firstly to help identify participants who meet clinical threshold for social anxiety within the study, and to see if there is any significant relationship between social anxiety severity and Facebook use. This would then allow analysis to check for any mediating impact of social anxiety on social connections and life satisfaction.

Social capital and Facebook use

Additionally, Lee (2013) found that only avoidant attachment was a negative predicting factor in a participant bonding and bridging capital. Anxious attachment styles were not found to have a significant impact on bridging or bonding capital. Lee (2013) investigated the relationship between anxiety in the form of anxious attachment styles, Facebook use and social capital. Furthermore, Facebook use was a significant predictor of bridging capital, suggesting that Facebook was being used to build relationships outside of already established groups. This demonstrated the opportunities made available online to contact others based on a shared interest. This study supports the notion that individuals who show avoidant attachment strategies are more likely to feel discomfort in interacting with others, with Facebook being used to meet their need to find some social connection, but in a more controlled and therefore 'safe' way. This study also highlights the important differences in the types of relationships which are developed or maintained on Facebook. Therefore, it would be helpful to assess how Facebook users use the different functions of Facebook to conduct different types of relationships. Within the current study participants will be assessed on their online (predominantly Facebook) and offline (face-to-face) relationships. Although the study yielded a large sample, this sample may not be representative of the broad Facebook user profile, with all participants under the age of 25 years. Furthermore, it is not clear what the cultural backgrounds of the participants were (ethnicity, status or wealth).

The impact of Facebook user's age and technology use

Rosen et al. (2013) found that anxiety while using this technology was significantly different between age groups. Younger participants experienced significantly higher anxiety than older participants, with the anxiety related to not being able to check text, personal correspondence and social networking sites. This discomfort could be seen as a generational difference in how Facebook has become a significant and central way to feeling connected to peers within younger age groups. The younger generation were found to be checking their social media accounts and social technology more frequently than the older generation. Furthermore, the number of 'Facebook friends' was linked to having fewer clinical symptoms of low mood. The study also found that the greater amount of time spent on Facebook doing activities which related to controlling how others saw them on Facebook (impression control), was related to a higher number of symptoms of major depression. This could be related to the concern, or distress, around what others might think about their online life and a desire to control this as much as possible. Facebook provides a platform in which to interact with others, however, this interaction is fraught with anxiety for some and they act this anxiety out by trying to control how others perceive them. It is not clear if Facebook use is a clear cause of this behaviour, or whether Facebook is merely the context where the anxiety and the associated controlling behaviour occur.

Critical appraisal of methodologies

The studies selected all used a quantitative method to collect data, with a majority using self-rated questionnaires. Some studies also collected data directly from

participants Facebook accounts, alongside the self-rated measures. This would have

provided strong triangulation of information, rather than relying solely on self-

completion measures. This could have allowed a more objective and possibly more

consistent way of collecting data. However, this would have been difficult to receive

ethical permission and justify this intrusion into participants' private

communications. Furthermore, the studies used a variety of questionnaires. It would

be helpful to use measures which are recommended by governing bodies within the

UK. Nice guidelines recommend using the PHQ9 to measure symptoms of low mood

and the SPIN to measure symptoms of social anxiety. As highlighted above a number

of the studies did not use measures recommended within the UK, therefore the ideas

and structure were of interest but would need to be repeated using questionnaires

more likely to be used in clinical practice, such as the SPIN and PHQ9. Overall,

social anxiety has been found to be significantly related to life satisfaction. There

have also been significant relationships found between social anxiety and Facebook

use, as well as anxiety and relationship types. It is not clear if this is consistently a

positive or negative relationship between such variables.

Gaps in previous research

Based on the review of previous research, this study combines a number of

previous methodologies and research focus. This study aims to investigate whether

there is a significant relationship between the use of Facebook (passive or active) and

social anxiety. Previous research has focused on active or passive use, with limited

focus on the impact of both types of Facebook use within the same study.

Secondly, this study focuses on the different types of relationships available online (bridging and bonding online) and how this relates to life satisfaction. As highlighted above, previous literature has overlooked the role of relationship types online and what impact they may have on life satisfaction. This study aims to investigate whether participants report having close bonding, as well as bridging relationships online and whether this is significantly correlated to life satisfaction. This will test whether Facebook, or online relationships offer an opportunity for meaningful relationships. If this premise is found, it would provide support for the theory that Facebook use could offer some social compensation.

Furthermore, this current study would aim to further investigate the possible relationship Facebook has with overall life satisfaction. Although life satisfaction or well-being has not been a key outcome variable for all of the literature within the review, it would be of interest to investigate whether there are wider impacts of Facebook use outside of immediate social interactions. This could be particularly important for those who have limited opportunities for social connections. It may then be possible to examine whether social anxiety acts as a mediating factor in the different ways Facebook is used, in relation to life satisfaction.

A limitation of some previous work within social anxiety and the use of social media, is the small number of UK based studies, with clinical and non-clinical populations. This was the motivation for conducting a study using similar methodologies from previously cited research, conducted in other countries (Ellison et al., 2008; Grieve et al., 2013; Oldmeadow et al., 2013; McCord et al., 2014).

Thesis hypotheses.

To investigate whether there is an association between the type of Facebook use, social anxiety, bridging and bonding (online and offline) relationships and life satisfaction.

H1. There will be a positive relationship between passive and active Facebook use and social anxiety.

H2. There will be a negative relationship between social anxiety and life satisfaction.

H3. There will be a negative relationship between active and passive Facebook use and life satisfaction.

H4. Social anxiety will act as a significant mediating factor between Facebook use and life satisfaction.

H5. There will be a negative relationship between online and offline bonding, bridging and life satisfaction.

H6. There will be negative relationships between online bridging and bonding, face-to-face bridging and bonding and life satisfaction when controlling for social anxiety.

Chapter 2

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<p style="text-align:center">**Methodology**</p>

Summary

This section gives a summary of the methods used within the study, including an overview of the quantitative measures used to collect the data needed to test the hypothesis outlined in the introduction. Furthermore, there is a justification for the epistemological position taken in this study and the impact it has on how the study was conducted. There is an overview of the background of each measure selected and why each has been included in the study. The chapter outlines the consideration given to what measures are advocated for clinical use and assessment of social anxiety in the UK. This chapter includes the ethical approval given by the University of Essex, as well as the information provided to participants before they decided to participate in the study.

Epistemological and Ontological positioning

The notion of epistemology and ontology is key to research as it considers what knowledge is and how it is acquired. The epistemological positions relate to the specific methods of how information is defined, measured and analysed. This philosophical foundation for questioning 'knowledge' is helpful in critically appraising the strengths and limitations of the version of 'truth' which is presented with any research study. Furthermore, the ontological position questions 'what you are measuring' and whether there are clear constructs which can be measured (Raddon, n.d).

This current study takes the position that some individuals experience a level of discomfort, and in some case distress, when interacting with others, which impacts on the personal relationships and interactions. This infers an acceptance that these experiences, when they become problematic and an individual is reluctant to interact with others and becomes socially isolated, could be categorised as 'Social anxiety'. In this stance the researcher acknowledges their belief that social discomfort is measurable and recognisable to the participants on a conscious level, however, this does not include the deeper rooted understanding of why they are socially anxious. Additionally, this study takes the position that the beliefs presented by those who take part are a snapshot of their experiences.

The measured symptoms may be a way to understand participants' experience of online communication and social anxiety. This approach is something more conscious rather than focusing on a pre-conscious understanding of the social experiences online. This initial level of awareness can be measured using quantitative methods. For example, participants will be able to remember their experiences of being in a social situation and rate that experience accordingly, by using the measures provided.

This study used quantitative measures which adhere to the definitions of 'social anxiety' and what would be considered to meet the threshold of being problematic 'social anxiety' in both face-to-face and online interactions. However, this study is also aware of the limitations of this realist position, and is not without criticisms of the methodology. Fundamentally, the acceptance of the constructs of 'social anxiety' and the discourses around social interaction, relationships and levels

of satisfaction has its limitations. These powerful discourses are based upon a western ideal that someone must feel comfortable and aim to seek relationships with many others. Furthermore, this discomfort in socialising with others is formulated in to a 'disorder' and something that can and should be treated. Additionally, this perspective puts the focus of deficit on the individual rather than identifying wider social issues which could be addressed on a societal level.

The researcher acknowledges the limitations in using standardised questionnaires, where the fixed possible responses do not allow for individual or cultural difference to be expressed or explored, with the focus on overall patterns and views of Facebook use. An alternative approach may have been to use in-depth qualitative interviews which would have been able to inquire about the individual meaning of Facebook interactions. However, the focus of this current study is more on the overall patterns of use which could shed light on the conflicting critique of Facebook-and its impact on social interaction. The researcher has taken the position that the quantitative SPIN measures for social anxiety, is a reliable means to identify and accurately measure social anxiety symptoms. This has been supported by Connor et al. (2000), who supported the SPIN as a measure with good construct validity and could therefore be seen to adequately measure social anxiety.

The author of this thesis acknowledges their influence in shaping possible responses in the questionnaire which they have preselected. These assumptions are based on the perceived connections between Facebook use and its influence on social interaction. This highlights the perspective that Facebook is a 'reality' and is able to be quantified and measured. It was captured by asking participants for the amount of

time spent on Facebook and the different ways participants communicate, such as uploading photos, messaging friends and responding to other posts. Further research could incorporate a qualitative approach by analysing the narrative individuals give about their online interactions, the role the online relationships play in their life and their Facebook relationship satisfaction.

The study was designed using a quantitative method, as much of the previous research has been focused on this technique. Having been based on a specific non-UK population, in particular on American college students, there were potential difficulties in applying the findings to a UK population, and those who had not attended higher education. This is relevant when considering the different cultural uses of Facebook, as highlighted by Junco (2013). Additionally, 24 million people in the UK compared to 128 million people in the US visit Facebook every day (Saba, 2013). It is unclear if this difference is simply down to a basic difference of overall population size or whether there is an important difference between the role of Facebook and its position as a facilitator of social interaction. Furthermore, Facebook was developed by a US Ivy League student for other Ivy league students, therefore, the initial ideals of Facebook were based on networking with other similar students, possibly based on similar 'class' or social group ideals.

Design

This study used a cross sectional design, the data set reflected the population currently using Facebook as a communication tool. Furthermore, this design allowed for data to be collected on the way in which Facebook was used and the frequency of participants' Facebook use. The single data set was sufficient to identify possible correlations between social anxiety, Facebook use and relationship types to life

satisfaction. Questionnaires were posted on Facebook including social interest pages and social anxiety interest websites. The links requested non–identifiable information as participants could take part without leaving their name, date of birth or address.

Procedure

The questionnaires were posted on Facebook and social anxiety related websites and online forums. With permission of the Facebook page or website administrator, the researcher posted links to the questionnaires on multiple Facebook pages and online forums, including sports interest groups and previously attended University Facebook pages. Participants were then able to find the link to the study on related internet sites as well as links forwarded by other participants.

To find other relevant Facebook pages a search for 'social anxiety' yielded 8 relevant groups. Additionally, 'Social anxiety within the UK' yielded a total of 5 relevant groups, a number of which were closed groups. A further search was run using the term 'Social phobia', and 'social anxiety and depression', which provided a proximately 82 relevant groups, it was not possible to give an exact number. A number of the support groups online focused on a variety of mental health and interpersonal difficulties and were not solely for individuals experiencing social anxiety in the UK. This demonstrates that social anxiety is experienced by a wide variety of people online worldwide and is an area of interest for online communities. The related website which agreed to post the link for the study was Social Anxiety UK (SAUK, 2015). They agreed for the questionnaire link to be posted on a discussion board, which could be accessed by the public, whether they were a member of the website or not.

The selection of research measures has been developed from reviewing literature in the field. The study combined similar points of comparisons, but also included gaps identified in the previous research. This included measuring both passive and active Facebook use and what type of friendship online relationships offered, online bridging and bonding.

Recruitment

To enable the recruitment of participants who identify as having social anxiety symptoms, the questionnaire was posted on social anxiety support pages on Facebook and the internet. To recruit participants without social anxiety, the link to the questionnaire was posted on websites which are free for the public to access. These websites included the Social-Anxiety.org.uk. Permission from the person or individuals managing the sites was sought before the questionnaire was posted. Participants would then be able to click to a link which would take them to the online questionnaire.

On the initial page there was an outline of the aims of the study. This page clearly explained the inclusion criteria, how the data was used and that the data was anonymous (Appendices C). The participants were then asked to confirm that they had read and understood the information and agreed to participate in the study, giving permission for the data to be used for the purpose of research. Only once these boxes were ticked was the participant able to move on to the questionnaires. Once the participant had completed all of the combined questionnaires, they came to a debrief page which gave them all of the contact details regarding the researcher.

There was no expectation that the questionnaires would cause any distress, but precautionary measures were put into place. Contact details were made available to

participants for national support services related to social anxiety, if for any reason, they felt any level of distress after completing the questionnaire (appendix K). There was also an opportunity for the participant to enter a prize draw for one of two £20 amazon vouchers; to have a chance of winning one of these vouchers, participants were asked to provide their email address. The email address was kept separate from the final data set and kept on an encrypted memory stick. Those who provided their email address were selected at random using the random number generator function on Excel.

Online survey

Careful consideration was paid to the data collection method. In previous research into online media and social interaction, a number of methods were undertaken. These methods included qualitative narrative methods which analysed written responses to postings on Facebook and You Tube and similar social media websites (Lewis, Heath, Denis & Noble,2011; Lewis, Heath, Sornberg & Arbuthnott, 2012). Alternative methods included online interviews where responses were typed or conducted over email (Baker & Fortune, 2008), as well as more traditional methods such as qualitative face-to-face interviews or quantitative standardised postal questionnaires.

Previous research focusing on the use of Facebook only as a means of communication utilised the online survey method. This included comparing the general rates of social anxiety, anxiety experienced while using Facebook and how individuals used Facebook. This study aimed to also analyse the different ways individuals build relationships online, whether this was 'bridging or 'bonding'

relationships and how satisfied individuals were with the different relationships they had, including comparing their online and face-to-face relationships.

Strengths of online questionnaires

When considering an effective way to collect data, and considering the previous literature for a medium sample size, online questionnaires appeared to be a suitable method. As well as being a similar method utilised on previous literature, this method is able to reach a diverse population and may be more representative of those using Facebook in the UK.

Additionally, online questionnaires are a practical way of reaching individuals who may find face-to-face interaction, such as a semi-structured interview, overwhelming. A key aim of the study was to investigate how variations in social anxiety may be related to other variables. Even though the study is not focusing on a clinical sample, individuals who experience even mild social anxiety may be likely to avoid unnecessary face-to-face interaction, such as an opinion based research study. Furthermore, when researching Facebook pages advertising other research projects, the expectation for individuals experiencing social anxiety symptoms to attend face-to-face appointments, was highlighted as a weakness.

This method allowed for anonymity and would encourage participants to take part. It is this anonymity that would allow participants to respond honestly to the questions. During a face-to-face interview or during a follow up questionnaire method, where the results would be directly connected back to them, there may be issues related to the Hawthorne effect (Coolican, 2004). This is where an individual responds in a manner to please the observer or conform to wider social expectations,

such as appearing to be confident and having lots of active online and offline 'friendships'.

Difficulties within online surveys

The response rate with online surveys can be low, and reaching the required number for the study to have statistical power was challenging. Due to the consent agreement with participants, anyone ending their participation before completing all the questionnaire were construed as withdrawing from the study. This partial data was not then used within the overall statistical analysis.

Furthermore, due to the structure of the questionnaires it was imperative that all questions were answered, in order for a comparison to be completed between previously outlined variables. This meant that participants could not skip sections of the questionnaire and so may not have wanted to complete the 98 questions.

Missing data

Throughout the questionnaires, participants needed to complete all of the questions to move to the next page. This was to reduce the amount of missing data when the responses were analysed. There were, however options of 'unknown' or middle options 'neither agree nor disagree' for questions. For an individual to participate in the study it was mandatory to answer 'Yes' to the consent questions. Participants were informed that if they were not willing to answer 'Yes' to all these points, the questionnaire would not be suitable to participate in and the questionnaire could be closed (Appendix D).

Measures

The battery of questionnaires which made up the study were selected from previous research into Facebook use and social interaction (Indian & Grieve, 2014; McCord, Rodebaugh & Levinson, 2014; Selfout et al., 2009; Williams, 2006; Ellison et al., 2007).The decision was taken to replicate previous studies as a means to compare study outcomes with a UK based population. More specifically, replicating a battery of measures which could be compared to previous research such as the SPIN (Indian & Grieves, 2014), Satisfaction with life scale (SWLS, Indian & Grieve, 2014; Ellison et al., 2007), measures of social capital (Lee & Stapinski, 2013, and Ellison et al., 2007) and a measure of Facebook use (McCord, Rodebaugh & Levinson, 2014).

The questionnaires started with basic demographic data (Appendix E). The demographic data collected included the following:

- Age
- Gender
- Ethnicity
- Level of education
- Amount of time (estimated) spent on Facebook (daily).
- How long they have been a member of Facebook.
- Estimate of the amount of 'Facebook friends'.

The demographic data was used to identify significant patterns within the data, such as differences between Facebook use and age, gender and level of social anxiety.

The questionnaires used within the study were as follows:

The Patient Health Questionnaire (PHQ-9, Kroenke, Spitzer & Williams, 2001)

Each participant was asked to complete the PHQ-9 measures as one of the online questionnaires; this measure is made up of 9 core questions on a Likert scale. The PHQ9 measure has been selected as this is a popular and commonly used clinical measure (Appendix F). Within this study the PHQ9 would be used to give an overall score of the levels of depression. The participants were asked to respond to questions based on their experience of mood over the last two weeks, the responses to each item range from 0 (Not at all) to 3 (Nearly every day). Higher scores indicate more severe depression symptoms. The scores between 5-9 are described as minimal symptoms, 10-14 mild or minor depression, 15-19 moderately severe depressive symptoms and a score of 20 and over as severe symptoms. Previous studies have not consistently controlled for depression (McCord et al., 2014).

The PHQ-9 has been found to have good internal consistency, with Cronbach alpha ranging from a=0.86 and a=0.89 (American Psychological Association, 2015). The PHQ9 was found to have 'excellent test re-test reliability (0.84)' (p.610, Kroenke et al., 2001), furthermore, the PHQ9 was found to have convergent validity with measures of healthy functioning (SF-20) within a non-clinical sample (Kroenke et al., 2001).

The Social Phobia Inventory (SPIN, Connor, 2000)

The Social Phobia Inventory (SPIN, Connor, 2000) is a 17 item self-rated scale which assesses fear and avoidance in social situations and was used to measure social anxiety (Appendix G). This measure was selected as it is recommended by NICE guidelines for the clinical assessment and diagnosis of social anxiety in

England and Wales (NICE, 2013).The participant was asked to give a rating to each question based on their experience in the past week. Each score was given between 0-4, with 0 meaning not at all and 4 equalling 'extremely'. The measure distinguishes between the level of social anxiety between none or below the clinical threshold (0-20), mild (21-30), moderate (31-40), severe (41-50) and very severe (51+), the clinical cut off score is 21 or more. The SPIN consists of three subscales including fear, avoidance and physiological questions. The SPIN has been found to have good construct validity, with a significant difference 'between participants with social anxiety total score on the SPIN of 41.1 and control participants total score of 12.1 (t=3.22; P<0.0001)' (p383, Connor et al., 2000). This would highlight a distinction of a discomfort of social interaction and actual measurable symptoms of social anxiety. The SPIN was also found to have good convergent validity with the Brief Social Phobia Scale (BSPS). With a high correlation found (r=0.57, p<0.0001), a similarly high correlation between sub-scale of SPIN was found with the BSPS (fear subscale r=0.61, avoidance subscale r=0.47 and physiological subscale r=0.66) (p383. Connors et al., 2000).

The SPIN has been reported as having a good internal consistency ranged from a= 0.8 to 0.94 within both socially anxious and control samples (Connor et al., 2000). Letamendi, Chavira and Stein's (2010) review of assessment of Social phobia also highlighted the SPIN's excellent internal consistency, test-retest reliability and construct validity. Permission has been sought from the copyright owner (Connors, 2000) and permission for use within this study has been granted.

The Facebook Questionnaire (FBQ, McCord, Rodebaugh & Levinson, 2014)

The Facebook Questionnaire (FBQ) was developed by McCord et al. (2014, Appendix H). This measure was chosen as a Measure of Facebook use, this was selected as it has been used and previous research and found to have adequate internal validity. There are an ever increasing number of ways that Facebook can be used, this includes in a passive manner, such as viewing others' profiles, photos and public conversations, to more active activities, such as messaging others, setting up groups, posting public comments and inviting others to events. There has been limited distinction in previous research between the different ways that people with social anxiety are more likely to use Facebook. This measure is a seven item questionnaire, using a seven point Likert scale. From the McCord et al. (2014) study, the internal consistency was found to be good (a = .86).

Furthermore, an analysis was undertaken to check the validity and consistency of a further adaptation which added the following two questions, focusing on the passive use of Facebook to the Facebook Questionnaire (FBQ):

'I look on an event, group or interest page without commenting'.

'I look at friends' profiles without commenting or responding in anyway'.

These two additional questions use the same 7 point Likert response scale as the original FBQ. Initially this measure focused on the active ways Facebook can be used. However, research by Verduyn et al. (in press) highlighted the importance of measuring the passive uses of Facebook, particularly with the growing interest around passive Facebook use and the correlation to negative affect. With this in mind, passive use questions were added at the end of the FBQ. The passive use of Facebook

was defined as looking at information, pictures, groups and status updates without actively responding to them, for example not 'liking' a photo or writing a response to something seen on Facebook.

This analysis allowed the internal reliability of the adapted FBQ and to see if there was any significant overlap with the newly added passive use items. Additionally, McCord et al. (2014) found there were not a significant correlation between the Social Interaction Anxiety Scale (SIAS) and FBQ, which would indicate that the measure has a clear and different focus.

Satisfaction with Life Scale (SWLS, Diener, Suh, & Oishi, 1997)

Satisfaction with Life Scale (SWLS) (Diener, Suh, & Oishi, 1997; Pavot & Diener, 1993) was chosen to measure Impact on life satisfaction. The measure consists of 5 questions using a 7 point Likert scale (Appendix J). The scale ranges from 1 (Strongly disagree) to 7 (Strongly agree). The questions focus on the participants' perspective of their life and how satisfied they were. The overall cut off scores are: 31-35 which indicates 'very satisfied', 26-30 indicating 'satisfaction', 21-25 'slightly satisfied, 20 being neutral, 15-19 'slightly dissatisfied, 10-14 'dissatisfied' and 5-9 which indicates extremely dissatisfied.

The SWLS has been used within a number of similar populations, such as Arrindell, Heesink & Feij's (1999) study which used the measure with 1700 young adults in the Netherlands. This paper was based on a non-clinical sample of young adults within a similar age frame. Therefore, this offers a helpful normative sample, which could be used to compare and contrast the outcomes for this study. Within Arrindell et al.'s study (1999), it was found that the 'mean SWLS score was 26.18 (S.D.=5.72, range: 5±35), which is comparable to corresponding figures reported by

Pavot and Diener (1993) 'for several different groups in Western countries' (p.820). This measure is within the public domain and free to use for research purposes. The SWLS has been found to have adequate convergent validity (0.45-0.82) within a normative population and when compared to other measures of wellbeing (Pavot & Diener, 2009).

The Internet Social Capital Scales (ISCS, Williams (2006)

The Internet Social Capital Scales (ISCS), (Williams, 2006) was used to measure Social capital and social interactions (Appendix I). The measure was used to identify the different types of relationships which are formed. For example, relationships with those who are geographically close or individuals' use of Facebook to seek out relationships based on interests with others who are not necessarily close by. The ISCS consists of 40 items, which are evenly distributed between the 4 subscales; online bridging, online bonding, face-to-face bridging and face-to-face bonding. The response options range from 1 definitely true, 2 probably true, 3 neutral, 4 probably false and 5 definitely false; with scores ranging from 40 to a possible total of 184. Therefore, a lower score would indicate a participant felt that they had helpful relationships readily available to them online, offline or both. For example, a relationship that was felt to be supportive, where they felt understood and offered a positive experience of social interaction.

A review of the internal consistency of the ISCS measure suggested a 'strong internal consistency, with the two factors being strongly positively correlated online scales $r = 0.492$, $p < 0.001$ and offline scales $r = 0.527$, $p < 0.001$' (Appel et al. in press, p.7). Appel et al. (in press) have challenged the ISCS convergent validity based on alternative structural measures of bonding or bridging social capital. However,

there are limited measures which explicitly differentiate between online and offline social interactions. The comparisons made by Appel et al. (in press) used the Name generators, Position generator and Resource generator which have not been adapted for use with social media.

The measures were based on the work conducted by Williams (2006). This research outlined 'bonding' relationships as interactions based on a more concrete idea such as a geographical location, this could include belonging to a group relating to schools or college. Whereas, 'bridging' were interactions and relationships based on personal interests which were not based on the geographical confines of your local face-to-face community. For example, this could include developing a 'relationship' with someone on the other side of the country based on a shared interest in music. This personal exchange may never take place in person, but can mean a great deal to those involved.

Research by Ellison et al. (2007), found in a sample size of 286 American University students, the separate items for the bridging and bonding had good internal consistency (bridging a=0.87 and bonding a=0.75, p.1152). This measure has been used within other western population, this study would be one of the few using the ISCS in the UK and would offer useful data. This measure is free to use and is in the public domain.

Sampling method

This study used a self-selecting, snowball sampling method, which together appeared the best way to facilitate wide access to the questionnaires. Data was collected from December 2015-April 2016. This allowed for the online questionnaires to be advertised on sites related to social anxiety, as well as Facebook pages not

related to social anxiety. Participants were free to forward the link to the online questionnaire to others who may be interested.

Sample size

Using a linear multiple regression model and based on a medium effect size ($f^2=0.15$) as outlined in Soper (2015), the minimum number of participants which would need to be recruited would be 118. This was based on α error probability of 0.05 and 8 independent variables including active Facebook use, passive Facebook use, bridging online (ISCS), bonding online (ISCS), bridging offline (ISCS), bonding offline (ISCS), number of friends on Facebook and estimated daily time spend on Facebook. The most participants needed within the study if a small effect size ($f^2=0.07$) would be 241. This was based on the standardised small effect size of 0.07 from McCord et al. (2014). The final sample size was 124 completed online questionnaires.

Inclusion criteria

The inclusion criteria for this study had been fairly open. However, the criteria which are in place were as follows:

- Participants have an active Facebook profile.
- Participants need to be fluent in English as the questionnaires were in English only. The possibility of using the questionnaires in other languages was not possible as not all of the questionnaires have been tested for their reliability and validity outside of English speaking communities, such as the FBQ, therefore the study could not be sure the same descriptions and constructs were being measured.
- Participants needed to be over the age of 18 years to take part

- Participant will need to be between the ages of 18-25 years old to participate. This age cap was later removed and opened up to those ages 18 years and above.

The study was advertised to individuals who would identify as having social anxiety, as well as those who do not experience social anxiety symptoms.

Participants

During the initial stage of the study the decision was made to remove the 25 year age cap from the initial inclusion criteria. This decision was taken after feedback posted on the online questionnaire, where a number of individuals who experienced social anxiety questioned the age cap. The age range was changed to 18 years and over (Appendix L). It was felt that this change would not have a negative impact on the original thesis aims. If any significant difference between ages was found, the data could still be stratified to further investigate the relationship between age and social anxiety, Facebook use and life satisfaction.

Furthermore, the study was based on a non-clinical sample. This decision was made as a number of those experiencing social anxiety may not seek medical or psychological support. For a number of individuals, they may use whatever resources they have available, such as online and social media support. For example, online discussion boards for those experiencing social anxiety. Additionally, as highlighted by Anxiety UK 'It is thought that social phobia affects approximately 2% of the population at any time' (p.2, 2015). However, it is also believed that '90% of people with social phobia are misdiagnosed so the problem of social phobia is thought to be much larger than current statistics show' (p.2, Anxiety UK, 2015). Therefore, in order to have a representative sample, with a variety of levels of social anxiety, it was felt

that a non-clinical sample would be the most suitable approach. Moreover, the study

is interested in those people who have experience of face-to-face relationships and

online relationships and comparing their satisfaction levels. With this in mind, there

would be a number of people who experience anxiety in their face-to-face interactions

but may not meet the thresholds for clinical support. For further clarification,

recommendations by IAPT highlight that the threshold for initiating treatment with a

client would be a score of 21 and above on the SPIN outcome measure (IAPT, 2008).

The impact of this is that individuals who may experience milder levels of social

anxiety, may not meet clinical thresholds as outlined by primary care psychological

services, such as IAPT, or may not receive a diagnosis.

Ethical considerations

Consideration was given to the sensitive nature which can arise from asking

individuals about their social networks, experience of anxiety and relationship

satisfaction. Furthermore, consideration was paid particularly when asking

individuals who experience social anxiety and therefore maybe socially isolated, with

limited social skills or minimal social resources. Therefore, debriefing information

was provided at the end of the questionnaire which provided links to NHS mental

health factsheets related to social anxiety, as well as, supportive online links where

participants can seek further online provisions (Appendix K). Participants were

informed that further face-to-face support could be sought by contacting their General

Practitioner (GP) who would be able to refer them to suitable primary care services,

such as IAPT, where necessary.

Informed consent

Furthermore, adult participants were approached as they would be able to give full and informed consent and may be more inclined to opt out of the questionnaires if they were unsure about any of the participation criteria. Before an individual could choose to participate, they needed to go via an information page which clearly outlined the aims of the study (Appendix D). This information had been approved by the University of Essex, Health and Human Science ethics committee (Appendix M). Moreover, before accessing the questionnaires individuals had to agree to the statements of consent prior to participating.

Monetary incentive

Participants had the opportunity to enter in a prize draw for one of two £20 Amazon vouchers. This amount would not have influenced someone to participate against their will as there was no guaranteed payment for participating. The participant could opt to provide an email address to enter into the prize draw or to remain completely anonymous.

Data protection

Additionally, participation was kept anonymous from the researcher, which was hoped to encourage more honest responses from participants. This may not have been possible if follow-up measures had been implemented, which may have impacted on the openness of participant's responses. Furthermore, any emails provided were not used to identify participants in the data set.

Pilot testing

An initial visual check was undertaken to see whether the questionnaires selected were suitable for completion via an online questionnaire platform, known as Qualtrics. Colleagues were asked to check whether the questionnaire appeared coherent in its online format, for example, to see whether the online questionnaire would be accessible on Smart phones and other mobile devices. Following feedback the format of the questionnaires was adapted to be more user friendly. These small adaptations meant the layout of the questionnaires allowed for more accurate data to be collected. Such adaptations included adding the response headers to the top, middle and bottom of the questions meaning participants did not have to scroll to the top to check the correct response.

Method of Analysis

The quantitative results were analysed using SPSS version 19. The analysis focused on the participants responses to questionnaires based on Likert scales as a means of understanding social communication and interaction when controlling for social anxiety. A Crombach's alpha was conducted to check the internal reliability within each of the measures used within the study. This was of particular interest when checking the internal reliability of the Measure of Facebook use (FBQ, McCord et al., 2014), which had been adapted to include passive Facebook use. Passive use had not been included in the original measure. Additionally, each variable was assessed for skewness and variance in responses.

Furthermore, a bivariate correlations was conducted, which compared the differences in scores of friendships, passive and active Facebook use, relationship

satisfaction (online and offline bridging and bonding), life satisfaction and social anxiety scores.

A multiple hierarchical regression analysis was used to identify the relationship between passive and active Facebook use and life satisfaction, when recognising the possible significance of social anxiety. Additionally a mediation analysis was conducted to investigate whether social anxiety was a significant mediating factor between active Facebook use and life satisfaction.

Finally, a bivariate correlations and a multiple hierarchical regression was conducted to assess whether there was a significant negative relationship between online bridging and bonding and Life satisfaction, when recognising the possible significance of social anxiety.

Dissemination

The results and outcome will be made available to the Facebook pages and websites that posted the link to the questionnaire. Furthermore, the Facebook page developed by the researcher for the purpose of the research will display an overview of the study findings. The research was also presented at a conference at the University of Essex, as a part of the School of Health and Human Sciences research conference.

Additionally, an executive summary will be sent to the authors who gave permission for their measures to be used within the study. The executive summary of the study will include an outline of how their measures were used and any significant or interesting findings which may add to the field of social anxiety, social media, communication and interpersonal relationships. The information will be made available as outlined above following formal examination of this thesis.

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Chapter 3

Results

This chapter reports and explores the data gathered from the 124 online completed questionnaires. Initially the data was analysed to assess whether the data met the necessary assumptions for parametric correlation and regression analyses. The six hypotheses will be tested to determine if each of them can be accepted or rejected.

Demographic data

The study consisted of 124 participants who provided completed online questionnaires. The mean age of participants was 29 years with a standard deviation of 9 and a range of 18 to 63 years in age. The percentage of female participants was 85.5% which equated to 106 females, with a total of 18 males which was 14.5% of the total participants. When gender was entered into a correlation analysis, it was found that gender was not significantly correlated with life satisfaction (r_s (122) = -.104, p =.250), neither was gender significantly correlated to any independent variable including social anxiety, online or face-to-face relationships, depression scores or passive or active Facebook use. Of participants who gave their ethnicity, a majority identified as white British. A full break down of ethnicity is shown in Table 3.1.

Table 3.1

Demographic data for participants' ethnicity

	Frequency	Percent
White British	95	76.6
White Irish	3	2.4
Other white background	10	8.1
White and black African	1	.8
White and Asian	5	4.0
Other mixed background	1	.8
Asian or Asian British	3	2.4
Indian	1	.8
Pakistani	1	.8
Bangladeshi	1	.8
Black or black British	3	2.4
Total	124	100.0

The educational level for participants ranged from 'Secondary education -
graduated without formal examination qualifications' to 'Graduate of any further
education College or University'. The mode score was 5, which represented
'Graduate of any Further Education College or University'. However, as the age
range for participants was from 18 years and above, some participants would not have
had the opportunity to progress onto certain levels of education, such as completing
higher College or University Master's Degree or doctorial training.

Table 3.2

Demographic data for participants' education level

	Frequency	Percent
Secondary education - graduated without formal examination qualifications	4	3.2
Secondary education - graduated at ordinary or lower examination level	6	4.8
Secondary education - graduated at advanced or higher examination level	9	7.3
Uncompleted Further Education College or University	11	8.9
Graduate of any Further education College or University	55	44.4
Masters	24	19.4
Doctorate	14	11.3
Post Doctorate	1	.8
Total	124	100.0

The mean length of time participants had been a member of Facebook was 7.8 years, with a range of 6 months to 12 years of membership. There was no significant correlation between age and length of membership to Facebook (r_s (116) = -.102, p = .272).

Time spent on Facebook was not normally distributed: the median score was 61 minutes of Facebook use per week with a range of 0-2700 minutes with an inter-quartile range of 100 which highlights a wide variation in time spent on Facebook. Furthermore, the mean number of Facebook Friends was 357 with a standard deviation of 303, highlighting a wide variation in the number of 'friends' participants have on Facebook.

Descriptive data of the questionnaires

The table below illustrates the central tendency for the measures used in the final statistical analysis. This included the Internet Social Capital Scales (ISCS, Williams, 2006) which consisted of four sub-categories the social anxiety measure (SPIN, Connor,, 2000), the Facebook Use Questionnaire (FBQ, McCord et al., 2014) and the additional passive questions, the measure for depression (PHQ-9, Kroenke et al., 2001) and finally, the life satisfaction measure (SWLS, Diener, Suh, & Oishi, 1997; Pavot & Diener, 1993).

Normality testing of measures

The data set was checked for its skewness and kurtosis, which could impact on whether the data was suitable for parametric statistical tests. Data was not found to be normally distributed as active Facebook use, total SPIN, total PHQ9, bridging face-to-face, bonding face-to-face and bridging online were all positively skewed. The impact of the extreme scores within the data set influenced the total score, producing a larger mean than the median score. Whereas the passive Facebook use, life satisfaction and online bonding were found to be negatively skewed. All of the measures use a total score, apart from the ISCS, which uses sub-categories. The data was not found to be normally distributed in the majority of the variables included; therefore a non-parametric method of Spearman correlation and median scores were reported.

Table 3.3

Skewness and Kurtosis for age, gender, life satisfaction, ISCS, PHQ9, SPIN, Passive Facebook use, Active Facebook use

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
age	124	1.733	.217	3.364	.431
gender	124	2.039	.217	2.194	.431
Total_SPIN	124	.805	.217	-.066	.431
Total_SWLS	124	-.502	.217	-.655	.431
Total_PHQ9	124	1.458	.217	2.099	.431
Total_active_use	124	1.138	.217	2.092	.431
Total_passive_use	124	-.207	.217	-.419	.431
Bridging_face	124	.933	.217	1.005	.431
Bonding_face	124	1.945	.217	3.458	.431
Bridging_online	124	.541	.217	-.012	.431
Bonding_online	124	-.048	.217	-.960	.431

The total number of participants, median scores, standard deviation, minimum and maximum scores and finally each variable's Cronbachs alpha scores were presented to indicate the internal consistency. The results are as shown in table 3.4 below.

Table 3.4

Cronbach's alpha, mean, minimum and maximum scores for ISCS, PHQ9, SPIN, Passive Facebook use and Active Facebook use.

Variable	Median	SD	Minimum	Maximum	Cronbach's Alpha
ISCS bonding Face	14.00	8.21	10	46	.931
ISCS bridging Face	19.50	8.04	10	50	.911
ISCS Total face relationship	33.00	14.27	20	96	.936
ISCS bonding Facebook	30.50	10.68	10	50	.935
ISCS bridging Facebook	22.00	9.21	10	50	.914
ISCS Total Facebook relationship	51.00	16.63	21	100	.926
PHQ9	13.00	5.35	9	33	.871
SPIN	35.00	14.56	17	79	.942
Passive Facebook use	9.00	3.10	2	16	.538
Active Facebook use	17.00	8.27	7	51	.658
Life Satisfaction SWLS	23.50	7.63	5	35	.912

The results of 124 participants showed a median total SPIN score of 35, with a significant number of participants being within the moderate social anxiety category.

The total SPIN score range was 62 points, which is the difference of two severity categories. The median score of life satisfaction was 23.5, with a range of 30 points. The online bonding median score was 30.5, with a range of 40 points. The bridging online had a median score of 22, with a range of 40 points.

Internal consistency of the scale

To assess the internal consistency for the measures used, Cronbach's alpha is presented in Table 3.4 for each measure. The Cronbach's alpha measures the reliability of the scale by 'creating two sets of items in every way possible and computing the correlation coefficient for each split', 'the average of these values' provides the Cronbach's alpha score (Field, 2015, p.708). Previous research has suggested that an acceptable indication for internal reliability scores is 0.7 (Bland & Altman, 1997). As table 3.4 illustrates, 9 of the 11 variables met the necessary internal consistency level. The only scales on the questionnaires that were lower than 0.7 were Passive Facebook use (.538) and Active Facebook use (.658). The results involving these subscales will be treated with caution.

Severity of social anxiety

The Social Phobia Inventory (SPIN, Connor, 2000) assesses the severity of social anxiety as a continuous measure but it also allows for categorisation of the scores into the following categories: 1. not reaching clinical threshold (score from 0-20), 2. mild (scores of 21-30), 3. moderate (scores of 31-40), 4. severe (scores of 41-50) and 5 very severe (scores of 51 and above) social anxiety symptoms.

Out of the total of 124 participants, 118 participants (95.16%) met the clinical cut off score of 21 for social anxiety and 112 participants (90.32%) met the clinical cut off score of 9 and above for depression.

Sample comorbidity

Out of the 124 total participants, 6 participants (4.83%) met cut off scores for depression (PHQ9) but not for social anxiety (SPIN), 12 participants (9.7%) met the clinical cut off for social anxiety but not depression.

Overall, only 3 participants (2.41%) did not meet the clinical cut off scores for either depression (PHQ9) or social anxiety (SPIN).

Hypotheses

H1. There will be a positive relationship between passive and active Facebook use and social anxiety.

When looking at the data, a moderate positive correlation was found between total SPIN scores and total passive Facebook use (r_s (122) = .374, p < .001). A statistically significant positive correlation was found between total SPIN scores and total active Facebook use (r_s (122) = .226, p <.05). The results support the first hypothesis, indicating that the more passive and active the participant were in their use of Facebook, the higher their social anxiety symptom scores.

Table 3.5

The correlation between Facebook use and social anxiety

		Passive Facebook use and life satisfaction	Active Facebook use and life satisfaction
Social anxiety	Coefficient	.374	.226
	Sig. (2-tailed)	.001**	.012*
	N	124	124

Note. **p<0.001, *p<0.05

H2. There will be a negative relationship between social anxiety and life satisfaction.

A moderate negative correlation was found between SPIN scores (social anxiety) and SWLS (life satisfaction), (r_s (122) = -.412, p < .001). These findings have supported the theory that life satisfaction is negatively correlated to social anxiety, in particular the higher the rates of social anxiety the lower the scores of life satisfaction, therefore, hypothesis two was supported.

Table 3.6

The correlation between social anxiety and life satisfaction.

Independent Variables		Life satisfaction
Social anxiety	Correlation Coefficient	-.412
	Sig. (2-tailed)	.001**
	N	124

Note. **p<0.001, *p<0.05

H3. There will be a negative relationship between active and passive Facebook use and life satisfaction.

A small-moderate negative correlation was found between Active Facebook use scores and SWLS (life satisfaction), (r_s (122) = -.239, p < .05). There was no significant correlation found between passive Facebook use and life satisfaction (SWLS), (r_s (122) = -.167, p < .064). These findings partially supported hypothesis three, life satisfaction was negatively correlated to active Facebook use, however, this does not appear to support the idea that passive Facebook use was associated with lower life satisfaction.

Table 3.7

The correlation between Facebook use and life satisfaction

		Passive Facebook use	Active Facebook use
Life Satisfaction	Coefficient	-.167	-.239
	Sig. (2-tailed)	.064	.008*
	N	124	124

Note. **p<0.001, *p<0.05

As there was no significant correlation between passive Facebook use and life satisfaction, passive Facebook use will not be tested any further within hypothesis four.

H4. Social anxiety will act as a significant mediating factor between Facebook use and life satisfaction.

As previously highlighted in hypothesis three, there was found to be a significant correlation between Active Facebook use and life satisfaction, but not

between Passive Facebook use and Life satisfaction. Therefore, it was not justified to include passive Facebook use in a mediation model relating to life satisfaction. It was predicted that social anxiety could be a significant mediating factor impacting on active Facebook use and life satisfaction.

A multiple regression analysis was conducted to test to see whether active Facebook use remained a significant independent variable when social anxiety was added into the regression model. Firstly, in model one, active Facebook use was added to the model, the model was significant ($F_{(1,121)} = 6.298$, $p<.05$), with an R^2 of .049, meaning that 4.9% of the variance in life satisfaction was associated to active Facebook use. This highlighted that active Facebook use had a significant, if not small, impact on the overall model on life satisfaction.

In model two social anxiety was added to active Facebook use, the model was significant ($F_{(2,120)} = 16.365$, $p<.001$), with an R^2 of .213 and an R^2 change score of .164 which was found to be a highly significant change within the model. The beta coefficient from model 2 indicated that social anxiety was significant (B= -.411, $p<.001$), but active Facebook use (B= -.150, $p=.07$) was no longer significant. This illustrated that participants' life satisfaction was most negatively affected by social anxiety. Active Facebook use was significantly related to life satisfaction, however, it did not continue to be significant when social anxiety was present in the model. Therefore, it was justified to conduct a mediation analysis to assess whether social anxiety was a significant mediating variable between active Facebook and life satisfaction.

Table 3.8

Hierarchical regression between active Facebook use and social anxiety in relation to life satisfaction.

	Predictor variables	Standard Coefficient (ß)	p-value	R²	ΔF	p-value
Model 1	Active use	-.222	.013*	.049	6.298	.013*
Model 2	Active use	-.150	.070			
	Social anxiety	-.411	.001**	.213	16.365	.001**

Note. **p<0.001, *p<0.05

A mediation analysis was conducted to test if social anxiety was a significant mediating factor between active Facebook use and life satisfaction. The mediation analysis followed the Baron and Kenny (1986) four step model, and tests whether social anxiety was a significant mediation between active Facebook use and life satisfaction. To analyses the data the Hayes statistical model (2016) was used. This analysis tested a number of linear regressions comparing the three variables. As demonstrated in hypothesis one, there was a positive significant relationship between active Facebook use and social anxiety (r_s (122) = .226, p <.05). Furthermore, there was a significant correlation between, Social anxiety and life satisfaction and Facebook use and life satisfaction. This demonstrated that all of the variables: active Facebook use, social anxiety and life satisfaction were significantly related to one another (See table 3.6 & 3.7). Therefore, the mediation was suitable.

Table 3.9

A regression analysis relating to Active Facebook use, with social anxiety as the outcome variable.

Outcome: Social anxiety

Model Summary

P	R	R-sq	MSE	F	Df1	Df2
.05*	.1748	.03	207.31	3.85	1.00	122.00

Model	coeff	se	t	p	LLCI	ULCI
Constant	33.42	3.15	10.62	.001 **	27.19	39.64
Active Facebook	.31	.16	1.96	.05 *	- .0029	.6182

Note. **p<0.001, *p<0.05

The next stage of the mediation analysis is to add social anxiety as a mediation variable between active Facebook and life satisfaction. This analysis is used to assess whether social anxiety changes the relationship between active Facebook use (as the independent variable) and life satisfaction (as the dependant variable). Social anxiety was found to be a significant mediating factor with the regression model (r_s (122) = -.22, p <.001), with active Facebook no longer a significant variable on its own (r_s (122) = -.14, p <.07). This would support the idea that social anxiety was a significant factor within the relationship between active Facebook use and life satisfaction. Therefore, hypothesis 4 was accepted as social anxiety was found to be a significant mediating factor between active Facebook use and life satisfaction.

Table 3.10

The mediation analysis regression model for social anxiety as a mediating factor,
with active Facebook use as the independent variable and life satisfaction as the
outcome variable.

Outcome: Life satisfaction

Model Summary

P	R	R-sq	MSE	F	Df1	Df2
.001**	.4614	.2129	46.649	16.36	2.0000	121.00

Model	coeff	se	t	p	LLCI	ULCI
Constant	33.12	2.071	15.991	.001**	29.01	37.208
Social anxiety	-.2155	.0429	-5.0185	.001**	-.3006	-.1305
Active Facebook	-.1381	.0756	-1.8273	.0701	-.2878	.0115

Note. **p<0.001, *p<0.05

H5. There will be a negative relationships between online and offline bonding, bridging and life satisfaction.

A Spearman's correlation was conducted to test whether there was significant relationships between Facebook bonding, Facebook bridging, face-to-face bonding or Facebook bridging relationships and life satisfaction.

Table 3.11

The correlation between online and offline, bridging and bonding relationships and life satisfaction

	Life satisfaction
Bonding online	
Correlation Coefficient	-.231
Sig. (2-tailed)	.010*
N	124
Bridging online	
Correlation Coefficient	-.028
Sig. (2-tailed)	.757
N	124
Bonding face-to-face	
Correlation Coefficient	-.531
Sig. (2-tailed)	.001**
N	124
Bridging face-to-face	
Correlation Coefficient	-.289
Sig. (2-tailed)	.001**
N	124

Note. **p<0.001, *p<0.05

There is a significant small-medium negative correlation between online bonding and life satisfaction ($r(122) = -.231$, $p < .01$). A low score on the ISCS indicates that participants reported having more of the relationship (bonding or

bridging) available to them. For example, a low score on the online bonding measure would indicate that the participant reported having close relationships online that they felt could be a helpful emotional or practical resource. There was no significant correlation between online bridging relationships and life satisfaction (r (122) = -.028, p = .757). There was a highly significant negative correlation between face-to-face bonding and life satisfaction (r (122) = -.531, p < .01) as well as between face-to-face bridging and life satisfaction (r (122) = -.289, p <.01). The face-to-face relationship types were found to have a stronger correlation to life satisfaction than that found between life satisfaction and online relationships.

H6. There will be negative relationships between online bridging and bonding, face-to-face bridging and bonding and Life satisfaction when controlling for social anxiety.

A multiple regression was conducted focusing on the relationship between face-to-face bonding, face-to-face bridging, online bonding, online bridging and life satisfaction. Firstly, social anxiety was controlled for, with a significant regression found between social anxiety and life satisfaction (F(1,122) = 28.839, p<.001), with an R² of .191 meaning that 19% of the variance in life satisfaction was explained by social anxiety.

In model two face-to-face bonding relationships was found to be a significant predictor of life satisfaction (F(2,121) = 36.531, p<.001), with an R² of .376, with an R² change of .185 which was found to be a significant change (p<.001).

In model three face-to-face bridging relationships were added and found to be significant (F(3,120) = 24.202, p<.001), with an R² of .377, with an R² change of

.000, suggesting that face-to-face bridging relationships has no influence on life satisfaction within the model.

In model four online bonding was added to social anxiety, face-to-face bonding relationships, face-to-face bridging relationships and life satisfaction as the dependant variable. In the fourth model, online bonding was found to be highly significant ($F_{(4,119)} = 18.000$, $p<.001$), with an R^2 of .377, with an R^2 change of .000, suggesting that online bonding relationship had no impact on the variance within life satisfaction.

In model five, online bridging relationship was added to the above model, this model was found to be highly significant ($F_{(5,118)} = 14.317$, $p<.001$), with an R^2 of .378, with an R^2 change of .001. This would suggest that variations in life satisfaction were not due to the availability of Facebook bridging interactions. Overall, the beta coefficient from model 5, highlighted that social anxiety scores (B= -.170, p=.057), face-to-face bridging (B= -.029, p=.754), online bonding (B= -.010, p=.911) online bridging (B= .027, p=.732) were not significant. The only significant beta coefficient was Face-to-Face bonding interactions (B= -.490, $p<.001$). This would suggest that the most significant predictor for life satisfaction was a perception of having access to face-to-face bonding relationships.

Overall hypothesis six was partially supported, as face-to-face bonding relationships were found to be the only significantly independent relationship variable related to life satisfaction in the sample.

Table 3.12

Regression model for ISCS and life satisfaction for the whole data set

	Predictor variables	Standard Coefficient (ß)	p-value	R²	ΔF	p-value
Model 1	Social anxiety	-.437	.001**	.191	28.839	.001**
Model 2	Social anxiety	-.173	.042*	.376	36.531	.001**
	Bonding Face	-.505	.001**			
Model 3	Social anxiety	-.168	.054	.377	24.202	.001**
	Bonding Face	-.493	.001**			
	Bridging Face	-.027	.761			
Model 4	Social anxiety	-.168	.058	.377	18.000	.001**
	Bonding Face	-.493	.001**			
	Bridging Face	-.027	.768			
	Bonding online	.001	.993			
Model 5	Social anxiety	-.170	.057	.378	14.317	.001**
	Bonding Face	-.490	.001**			
	Bridging Face	-.029	.754			
	Bonding online	-.010	.911			
	Bridging online	.027	.732			

Note. **p<0.001, *p<0.05

Results Summary

Reflecting on the results of the statistical analysis there was a mixture of outcomes. In hypothesis one, a positive correlation was found between social anxiety and total passive Facebook use and social anxiety and active Facebook use. Therefore, hypothesis one was accepted.

In hypothesis two, there was a significant negative correlation between social anxiety and life satisfaction, meaning that as the social anxiety scores increase, this correlated with a decrease in life satisfaction scores. Therefore, hypothesis two was accepted.

In hypothesis three, there was a significant correlation between active Facebook use and life satisfaction, however, there was no significant correlation between passive Facebook use and life satisfaction, meaning hypothesis three was partially accepted.

In hypothesis four, a mediation analysis was conducted to investigate whether social anxiety was a significant mediating factor between active Facebook use and life satisfaction. It was found that social anxiety was a significant mediating variable between active Facebook use and life satisfaction. Therefore, hypothesis four was accepted.

In hypothesis five, a significant negative correlation was found between online bonding, face-to-face bonding, face-to-face bridging and life satisfaction, but not with online bridging. Therefore, the results partially supported hypothesis five.

Finally in hypothesis six, a multiple hierarchical regression found that online bridging and bonding and face-to-face bridging relationships were not found to be significant predictors of life satisfaction. The only significant predictor variable relationship was between face-to-face bonding and life satisfaction. Therefore, hypothesis six was only partially accepted.

Chapter 4
Discussion

This chapter gives an overview of the results for each of the six hypotheses, as well as the theoretical and clinical implications of the current study. This chapter will highlight links relating to previous research and recommendations for future research. Furthermore, there is a reflection on the strengths and weaknesses within the study and areas for further exploration.

H1. There will be a positive relationship between passive and active Facebook use and social anxiety.

The first hypothesis was accepted, as a positive correlation was found between total social anxiety (SPIN) scores and total Facebook use, both active and passive. This would appear to partially support the work of Shaw et al. (2015), who argued that increased social anxiety was associated with an increase in passive use of Facebook. However, Shaw et al. (2015) did not find a significant association between active communication with others on Facebook and social anxiety.

When considering the research by Shaw et al. (2015) and the results from this current study, there were a number of similarities and differences which may have contributed to the contrasting findings. The participants in the study by Shaw et al. (2015) were undergraduate students between the ages of 17and 24, whereas the inclusion criteria for the current study had a minimum age of 18 years with no maximum age limit. Furthermore, the Shaw et al. (2015) study, 25% of their sample met the clinical criteria for a diagnosis of social phobia, the percentage meeting the basic clinical cut off for social anxiety in the current study was much higher at 95%.

The social phobia scale (SPS) differs slightly in its focus, as it assesses the 'anxiety when anticipating being observed or actually being observed by other people and when undertaking certain activities in the presence of others' (Brown et al., 1997, p.22). The SPIN is slightly different as this assesses an individuals' appraised fear and the related avoidance of direct social interactions, such as having a conversation with others. The SPIN also assesses the physiological symptoms of social anxiety. It could be argued that the SPIN is more inclusive of the different presentations of social anxiety, as it is not just focusing on the apprehension related to the performance aspect of social interaction but also the anxiety during the interaction. Therefore, the two measures may have overlapped but were not measuring the exact same aspects of social anxiety.

Within the current study the relationship between Facebook use and social anxiety does not infer causality, but highlights an interesting interaction. In particular, the use of Facebook appears to be far more nuanced and complicated than first thought. This supports the idea that future research would need to acknowledge the different ways social media platforms are used, including Facebook, and that use is accurately categorised and analysed. There may be small but significant differences in how social media use is measured, this could account for some of the contrasting research findings. The findings from this and previous research demonstrate that active and passive use may have different correlations with social anxiety, there does not appear to be a unanimous agreement on the positive and negative impacts of Facebook use.

Research by Fernandez, Levinson and Rodebaugh (2012) found no significant difference between social interaction anxiety and some types of active Facebook use. A limitation of Fernandez et al. (2012), was that the Facebook use measure consisted of a single self-report question relating to 'How often do you use Facebook' (p.708). All the other information regarding Facebook use was coded by researchers. The categories coded by researchers focused on the information posted by a participant. There does not appear to be a code for reciprocal communication or direct dialogue with others. There would be some overlap in the categorising of active Facebook use between this present study and Fernandez et al. (2012) such as adding 'friends' and making status updates, but their approach would not have been able to measure passive Facebook use. This clash in findings could relate to the varying ways Facebook use can be recorded or categorised. Furthermore Fernandez et al. (2012) and more recently Oldmeadow et al. (2013), take a different stance of understanding possible presentations of socially anxious difficulties.

Oldmeadow et al. (2013) emphasised the role of anxious attachment styles. Their alternative position highlighted a significant relationship between higher anxious attachment, more intensive use of Facebook, and the importance of wanting to connect with others. Those who were higher in avoidant attachment were found to be more likely to want to remove their profile and were reluctant to actively communicate with others (i.e. liking other profiles and posts). This would challenge the idea that those avoidant of close relationships may use Facebook as compensation for face-to-face relationships. Furthermore, this would link with research by Selfout et al. (2009). They argued there was no significant social compensation effect present

with those who reported social anxiety, who had limited social connections, and used the internet in a passive way to seek out new relationships.

Additionally, the correlation between active Facebook use and social anxiety would support the notion that communicating on Facebook may relate to individuals being anxious about how they are seen online by others. This would follow the theory outlined by Caplan (2007), who linked theory around social anxiety to better understand the use of social media communication. This approach could be applied to the understanding that individuals who have a higher score on social anxiety measures, and who may reach the clinical cut off scores for a social anxiety diagnosis, may seek a medium to communicate that offers less anxiety and a safe distance. This could include online chat sites or Facebook discussion groups, which are not face-to-face and where more time can be taken to consider responses. This theory could help to explain individuals' experience of social anxiety and how this may link to using Facebook. Furthermore, this sense of control and comfort within an online setting could help to understand how problematic behaviour online develops, such as spending excessive amounts of time controlling their Facebook profile and ruminating about other's responses. Moreover, this approach can help to understand how anxiety relates to an individual's need to carefully construct an idea of their lives. This online profile may not be a true reflection of their lived experience, but is edited in a way so the individual feels more accepted or connected to others.

H2. There will be a negative relationship between social anxiety and life satisfaction.

The second hypothesis was accepted, as a strong negative correlation was found between social anxiety (SPIN) scores and life satisfaction (SWLS): the higher the social anxiety score the lower the life satisfaction score. This would support previous research which demonstrates that social anxiety has a highly significant negative relationship with well-being (Indian & Grieves, 2014). Their results were based on a larger sample than the current study and had a higher mean age than previous studies, (28.35 years old), but closer to the mean age within the present study (29 years old). These findings support the premise that the tools used in the current study have measured the key components they set out to measure, while adhering to the theoretical understanding of social anxiety and its association with lower life satisfaction or well-being.

Furthermore, within their research Indian and Grieves (2014) compared participants who met the criteria for low and high social anxiety, however, it was unclear what clinical cut offs were used. Their categorisation of 'low social anxiety' may infer that social anxiety symptoms were present to a mild degree and individuals may be identified as meeting criteria for 'mild social anxiety'. It was also unclear if the social anxiety groups, high and low social anxiety, were clearly differentiated or whether the division between the two groups was arbitrary.

It was also noted that in previous research, the term 'well-being' has been used (Verduyn et al., in press; Indian and Grieves, 2014; Grieves et al., 2013), whereas other studies have used the description 'life satisfaction' (Chan, 2014). The

current study chose to measure and report 'life satisfaction'. As highlighted by Ny (2016), 'well-being' could include 'physical well-being or economic well-being' (p.4) and could be critiqued for being 'less precise' (p.4). In comparison 'life satisfaction' could be described as a term which is more 'comprehensive and clear in its meaning' (Ny, 2016, p.4). In conclusion, the choice to measure life satisfaction would be justified. This study did not focus on physical or mental 'well-being', but was interested in assessing the wider connections between overall life satisfaction, Facebook use, relationship types and social anxiety.

H3. There will be a negative relationship between active and passive Facebook use and life satisfaction.

Hypothesis three was partially supported as active Facebook use was negatively correlated to life satisfaction, however, there was no significant relationship between passive Facebook use and life satisfaction. This would stand in contradiction to Verduyn et al. (in press), who argued the presence of a negative correlation between passive social media use and well-being, but no significant relationship between active Facebook use and well-being. This presents an interesting conflict relating to the theories of Facebook use and life satisfaction. One possible reason, as explored later on in the chapter, is the limitations within the measures of the present study to assess passive Facebook use. There is the possibility that a significant relationship could be present in the current study between passive Facebook use and life satisfaction, but the measure was not sensitive enough. Previous findings and the limited internal reliability would highlight the limitations with the adapted FBQ measure. Furthermore, the present study and Verduyn et al. (in

press) utilised different data collection procedures, with Verduyn et al. (in press) using a rigorous laboratory based procedure to collect data from participants.

The contrast in findings relating to Facebook use and life satisfaction can be found in a number of previous research. This includes Chan (2014) who found no significant main effect between Facebook use and life satisfaction. Therefore, Facebook use was not found to have a positive or negative effect on life satisfaction. Whereas, Wiedman et al. (2012) found higher use of social media communication, also correlated to lower level of life satisfaction. Counter both Chan (2014) and Wiedman et al. (2012), Grieve et al. (2013) argued the positive impact of social media use. Grieve et al. (2013) proposed that the new opportunities found online could facilitate social connections to others online, which could in turn offer life satisfaction as an individual becomes connected with others. This connection would be a key component for building meaningful relationships.

When considering the relationship of active Facebook use and life satisfaction, it is also possible that those with higher life satisfaction are not preoccupied with comparing their lives with others online. Rather those with higher levels of life satisfaction are using Facebook in a different way. One possible motivation for using Facebook in a positive and active way was to facilitate a rewarding reciprocated communication to stay in contact with loved ones and friends; rather than using it to facilitate self-criticism.

H4. Does social anxiety act as a significant mediating factor between Facebook use and life satisfaction.

A mediating analysis was conducted to investigate whether social anxiety was a mediating factor in the relationship between active Facebook use and life satisfaction. It was found that social anxiety was a significant mediating variable between active Facebook use and life satisfaction. The initial strength of the direct relationship between active Facebook use and life satisfaction was reduced when social anxiety was added into the model. When social anxiety was included in the analysis as a mediator the previously statistically significant relationship between active Facebook use and life satisfaction was no longer statistically significant. Therefore, the hypothesis was supported as social anxiety was found to be a significant mediating factor.

The above results appear to produce a similar mediating factor model as Shaw et al. (2015). Shaw et al. (2015) previously tested brooding, using social phobia as a mediating factor for passive Facebook use. Social phobia was found to be the most significant factor between passive Facebook use and brooding. A key difference in this current study, is that it focused on active Facebook use as the independent variable and life satisfaction as the dependant variable. However, both this current study and Shaw et al. (2015) have found that social anxiety plays a significant mediating factor when considering Facebook use and its wider impact on an individuals' well-being. Additionally, both studies demonstrate the complex nature between Facebook use and possible negative outcomes, but do not simplify the relationship to blame social media use for all negative social and well-being outcomes.

Furthermore, this mediation analysis would help to highlight the complicated nature of Facebook use and other variables which may influence how and why social media is used. Social media has received significant criticism surrounding the negative outcomes associated with use. This hypothesis demonstrates that the relationship between Facebook use and a decrease in life satisfaction, is not necessarily a causal relationship. Social media platforms are open to use in a variety of ways, with each individual using their own idiosyncratic methods and with their own personal motivations. This study was not able to identify clear motivations for using social media, and would be an area for future research. This information would help to understand in more detail the mediating properties of social anxiety between social media use and life satisfaction.

H5. There will be a negative relationship between online and offline bonding, bridging and life satisfaction.

The fifth hypothesis was found to be partially supported, as there were statistically significant correlations between online bonding and life satisfaction and face-to-face bridging and bonding and life satisfaction. The decrease in bridging and bonding scores were associated with higher levels of life satisfaction. However, there was no significant correlation between Facebook bridging relationships and life satisfaction. This would challenge the idea that bridging relationships on Facebook offered a significant and meaningful alternative, or compensation, to face-to-face relationships. These findings could be seen to support the research by Morahan-Martin and Schumacher (2003), who highlighted the possible bonding properties of online relationships. This study found that those who identify as being lonely reported

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using online platforms to meet others and for emotional support. This could be described as finding bonding type relationships and not just a superficial interest in a topic. Both studies could be seen to support the idea that bonding type relationships are available online, although this current study found that face-to-face relationships had a stronger correlation to life satisfaction than the online bonding relationship.

Furthermore, this current study and the work by Morahan-Martin and Schumacher (2003) highlight the limitations of online bridging relationships (i.e. building a connection with those that are outside your immediate community) on well-being. Neither study found in favour of bridging type relationships online, producing a meaningful associated with life satisfaction. This could challenge the idea that all online communications provide a positive and meaningful social experience. These results help to develop a more complex picture, with important and distinct differences in connections individuals can have online.

Overall, the findings were in support of previous research which highlighted the positive correlation between some types of Facebook use and life satisfaction, where individuals are able to build interpersonal bonding relationships online (Indian & Grieves, 2014; Grieves et al., 2013; Valkenburg, Schouten & Peter, 2005; Morahan-Martin &Schumacher, 2003). This was highlighted by participants rating important social connections being made available via the online (Facebook) relationships. This included finding other people online they could try to establish both emotional and responsive support, such as seeking advice. The findings from this hypothesis, also highlighted that the strongest correlation with life satisfaction

was associated with face-to-face bonding, followed by face-to-face bridging relationships.

An area which needs further investigation is how relationships are defined as 'online' or 'offline' and whether it is possible for social relationships to be measured as distinct and separate relationships. It was not always clear if Facebook was facilitating an already established face-to-face relationship, or whether these relationships only occurred online. This questions the construct of different relationship types and their origins. Grieves et al. (2013) outline the complex nature of online and offline relationships being separate but 'related' in the sense of connectivity individuals can experience. It is not a simple dichotomous description of online or offline friendships. However, Grieves et al. (2013) also highlighted the positive impact on well-being when the individual experienced rewarding social connections online.

The findings from this hypothesis would support the idea that more meaningful connections, which could be described as bonding relationships, can occur online. However, the results from this and previous research would not completely support the arguments that Facebook offers complete 'social compensation' for the lack of face-to-face relationships. The meaningful bonding relationship could not be equalled by online interactions, because within this study face-to-face bonding relationships were most strongly correlated with positive life satisfaction. Furthermore, there has been no significant findings which would suggest that face-to-face relationships could be replaced by online Facebook relationships. There is an acknowledgement that Facebook can help individuals to make

connections with others, however, they must have to want to connect with others, have adequate social skills and an understanding of others to manage social interactions (Lin, 2015; Oldmeadow et al., 2013).

H6. There will be negative relationships between online bridging and bonding, face-to-face bridging and bonding and life satisfaction when controlling for social anxiety.

The sixth hypothesis was found to be partially supported, the multiple regression suggested the only significant predictive variable of relationship type, with life satisfaction, was face-to-face bonding. Overall, social anxiety, face-to-face bridging, online bridging or bonding relationships were not found to be significant predictors of life satisfaction. This would support the notion that face-to-face bonding would be the most influential factor on life satisfaction. This would highlight that face-to-face bonding relationships, or the meaningful connection provided by this contact, cannot simply be recreated or replaced with online communication. Furthermore, Fernandez et al. (2012) argued that those reporting social anxiety were not more likely to make meaningful connections online. It could be hypothesised that online bridging and bonding was not simply used as a replacement for face-to-face bonding relationships. Or that not all Facebook users find a meaningful connection online; it is a means to stay connected to others but the experience online is not a replacement for face-to-face relationships. This perspective would challenge the argument made by the 'social compensation' theory, regarding the use of online platforms to compensate for a lack of face-to-face relationships.

Although research has demonstrated the importance of bridging relationships, it appears that the more significant factor would be the presence of face-to-face bonding relationships. Bonding relationships could be understood as offering a more direct, conscious and possibly effortful connection between an individual and others. This connection could include both in proximity to a person, meeting them face-to-face, and having a deeper shared understanding of personal experience. The importance of proximity could challenge the idea that individuals who may never meet face-to-face could offer one another a meaningful relationship, beyond having a shared interest or hobby. However, it is not clear if Facebook is facilitating face-to-face relationships for some individuals, or whether these relationships are distinct and separate relationships which exist mostly online.

Finally, the decision was taken not to test whether social anxiety mediated the relationship between online and offline, bridging and bonding relationships and life satisfaction. This was based on the limited research on Facebook use, relationship types and life satisfaction. Therefore the main aim was to further investigate any possible significance of relationship types which occur via Facebook use.

Overall, some hypotheses were accepted and others partially accepted. The strongest correlation was found between passive and active Facebook use and social anxiety, as well as a strong negative correlation between social anxiety and life satisfaction. These outcomes have been found to support the findings of previous literature challenging the 'social compensation' theory of social media use. Additionally, a number of partial hypothesis were found. This included a negative regression relationship between active Facebook use and life satisfaction. There was

no significant relationship between passive Facebook use and life satisfaction. Furthermore, social anxiety was found to be a significant mediating factor between active Facebook use and life satisfaction. Therefore, other possible mediating factors may be present, which were not accounted for in this study. This model highlights the role social anxiety plays in relation to Facebook use within a complex picture which could relate to age, other mental health symptoms, or motivation for use. These other possible significant variables have not been the focus of this current study.

Strengths and limitations of the research

Procedure

An overall strength of this study was that its methodology was based on previous published research in the field of social psychology, communication and online media. The methodology replicated the measures used, which allowed for some comparison to previous research and validated clinical measures, such as the PHQ-9 and the SPIN. This study also offered further experimentation and analysis of measures which have a specific purpose and could be developed further, such as the FBQ.

Furthermore, Watt et al. (2002, in Nulty, 2008) highlighted that online questionnaires offer a means of overcoming time consuming administrative duties, such as the time taken to enter data and administering face-to-face questionnaires. However, the recruitment strategy for the online questionnaires was not without its limitations. For example, sources from multiple data points or from key associates known to the participants were not available, such as data from the participant's friends. Furthermore, more detailed and individual experiences of Facebook and

connectivity were not available, as quantitative data was used to measure the relationships between, social anxiety, Facebook use, relationship types and life satisfaction.

Sample size and participant demographics

A strength of this study, is that it was one of the few studies conducted with a UK population. Previous research has been conducted in the US, Eastern Europe and South Korea. Additionally, the participants were from a wide range of ages, education levels and levels of social media experience. This was in contrast to previous research which was predominantly based on undergraduate students between the ages of 18-25 years old. It could be argued that this study was more representative of the general population who regularly use Facebook, based on age and educational background.

Additionally, due to ethical approval to only recruit individuals aged 18 years and over, this current research was unable to investigate any generational difference in Facebook use between adolescents, young adults, adults and older adults. Moreover, there was not an equal distribution within the age categories included in the study, meaning that further statistical analysis based on age was not possible. There may be a significant difference in the way the younger or 'net-generation' are using the internet and particularly how they incorporate social media into their repertoire of social communication tools. This study was also found to have a majority white and female study sample. This could be related to where the research was advertised and whether it was made easily accessible to other groups of individuals.

Furthermore, this study was not based on University students and included participants from a wide range of educational levels. Research by Junco (2013) highlighted the link between digital inequality, socioeconomic status and education. University students would have more access to technology via their University and would have easier access to social media. Junco (2013) outlined the issues of 'inequalities in Facebook use', relating the opportunity of use and the patterns in use within lower and higher socio economic backgrounds. Individuals from lower socioeconomic backgrounds reported having less awareness of social media. Therefore, research based solely on students may not be representative of lower socioeconomic groups who may have more limited access to technology, and therefore less access to social media.

Inclusion criteria

The study was initially only open to individuals between the ages of 18-25 years old. This age cap was removed from the inclusion criteria as recruitment was hampered by this. Furthermore, this age range could have been described as arbitrary as previous research has slightly wider age ranges, with some having a mean age of 25 years old or above (Indian & Grieves, 2014; Grieves et al., 2013; Oldmeadow et al., 2013). In addition, as noted above, the age range of members on Facebook is large, the updated inclusion criteria could be more reflective of the population from which it was intended to sample. The rationale for selecting this age range relates to the 'digital native' and those who were found to be the most likely users of social media platforms, such as Facebook. Due to the difficulty in recruiting adequate numbers of participants, it was not possible to conduct a reliable statistical

comparison between different age groups, but initial data illustrated some interesting differences which could be further explored in future research.

Recruitment

When reflecting on the study's approach to advertising on social anxiety web pages and Facebook related interest pages, it would appear that this was a successful strategy for reaching individuals who may find it difficult to participate in face-to-face research.

As previously highlighted, the SPIN measure assessed the level of social anxiety reported by participants, with a large majority of participants meeting the clinical cut off for at least mild social anxiety. Furthermore, 90% of participants reported meeting at least the threshold for mild symptoms of depression. Additionally, the scores from the SPIN and the PHQ-9 were higher than the reported levels within the non-socially anxious normative scores. Therefore, this current study could be considered not representative of the general population. Furthermore, it may not be appropriate to generalise these findings to a general population, but are helpful when considering clinically anxious populations and their use of social media to connect with others.

A possible criticism of the SPIN is that the cut off for a clinical score for social anxiety could be considered to be somewhat low. With individuals who experience only low level discomfort could also be measured to be 'socially anxious'. Therefore the measure could be considered to be overly inclusive. It would be recommended that the clinical SPIN rating be treated with caution when used within clinical research. Within a clinical setting, other information, over a longer time

period would be used to collect a more in-depth understanding of an individuals' experience of social anxiety, before a diagnosis would be given.

Thinking about the self-selecting sample, participants within the study were predominantly found to be in a clinical range for social anxiety. It is possible that the recruitment strategy was focused on recruiting those who were socially anxious, such as posting on social anxiety support groups on Facebook. Alternatively, it could have been that those who experienced social anxiety were more willing to participate in the study as this was a topic important to them. Future research may wish to have a more even distribution in their sample allowing for a comparison between those who were not socially anxious, compared to those who met the clinical cut off for mild symptoms of social anxiety or above.

Research measures

The Social Phobia Inventory (SPIN, Connor, 2000)

A strength of the study is the measured used to assess the social anxiety symptoms were recommended within NICE guidelines (2013) and used clinically with the NHS. Therefore, this current study has been mindful in using measures which would be used within a real health setting. Furthermore, the measure may be familiar to clinicians and academics and the results more relatable to their practice. A general criticism of the SPIN measure and its inclusion in this study, is that the measure could be described as overly inclusive. Those individuals who were functioning well in many aspects of their life could still meet the criteria for a 'mild social anxious' threshold, if the measure was used as the only assessment tool for social anxiety.

Overall, participants within the current study were found to have high scores on the SPIN, with a significant number meeting clinical cut-off for social anxiety. Furthermore, the SPIN measure assessed participants' current experiences and difficulties. Some of the issues reported could be temporary, meaning that if formally assessed within a clinical service, the participant may not meet the required criteria based on the length of time their social anxiety symptoms have been present. Therefore, those who had been categorised as meeting the SPIN criteria for social anxiety within this study may not meet clinical criteria within a clinical setting. This study recognised and categorised the current symptoms reported, and did not claim to clinically diagnose participants.

As previously highlighted, the sample within this current study is more likely to represent a clinical sample. However, it could be argued that the undergraduate, highly educated and predominantly white participants who have often been the sample in previous research, would not be the most representative of the general population either. This is particularly so when considering mental health difficulties, such as social anxiety, have been found to have 'disproportionately' rate of incidence within disadvantaged socioeconomic groups (Mental Health Foundation, 2015). Therefore, a strength of this current study is that it has tried to recruit from groups other than undergraduate University students.

The Facebook Questionnaire (FBQ, McCord et al., 2014)

When considering the measures used within the study, careful thought was given to those measures used. For example, the FBQ in its original form was already

found to have good internal consistency and reliability. The FBQ had previously been developed by McCord et al. (2014). Furthermore, this study also aimed to address an area which appeared to be overlooked from much of the previous research. This included adding questions in an attempt to quantify passive Facebook use. However, the additional passive measures of Facebook, were not found to meet the minimum Cronbach alpha's score which may have impacted on the results of the study. The newly developed measure may not have reliably captured passive Facebook use and attention needs to be given to developing a more reliable measure of passive Facebook use. It was assumed that most participants using Facebook will at some point use both passive and active Facebook responses.

There does not appear to be a validated and agreed upon measure of Facebook use and use of online communication, with previous research using a variety of measures to categorise and analyse contrasting use of social media platforms. Although the passive questions were not found to be significantly related to life satisfaction, this study has raised some helpful questions about how Facebook was used and whether all Facebook use is the same.

Moreover, the results from this current study found a negative association with life satisfaction, which is in contradiction with some previous findings. This would raise questions around how Facebook use was measured and how a positive relationship to well-being was evaluated. The contradiction in research findings could be seen to illustrate that social media use cannot merely be dismissed as irrelevant to meaningful social interaction. The findings also suggest that social media use cannot simply be vilified as the cause of problems in developing intimate relationships. A

more in-depth understanding of the role social media plays in social interaction and connectedness still needs to be explored. With the development of social media, this understanding will continue to evolve over time.

Satisfaction with Life Scale (SWLS, Diener et al., 1997)

The life satisfaction and relationship type measures can also be critiqued for being culturally bound. This would influence how an individual perceived what pertains a 'satisfactory' life. Furthermore, this measure has a focus on an individualistic approach to life satisfaction; therefore other symptoms may be under or over reported. The satisfaction with Life scale focuses on the individual's perception of their life, which overlooks how some individuals based their evaluation on the direct feedback from others. This could have included questions relating to, 'others have commented that I have a fulfilling life'. Furthermore, in communities where the emphasis is less on the individual and more on collective satisfaction, questions may need to be adapted to include more collectivist appraisals of life satisfaction, for example 'So far my community has gotten what it wants in life'. The study may have benefitted from using a more detailed life satisfaction measure. The SWLS provides an overall score of life satisfactions and has been shown to be a valid and reliable measure of life satisfaction. However, this study could have benefitted from using a measure which was more explicit in identifying what made someone's life feel satisfying. This may have allowed a more causal relationship between Facebook use and relationship types to be investigated.

The SWLS measure also focuses on the idea of want and expectation. It could be argued this is built on western ideals of aspiration. This may overlook the more

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basic needs which a number of people may not have. There appears to be an expectation that individuals have what they need and the focus in more on the opportunity to obtain what they want.

The Internet Social Capital Scales (ISCS, Williams, 2006)

A strength of this study is that it acknowledged the different types of personal relationships and attempted to investigate how these relationships are experience online compared to in person. However, a potential limitation of the Internet Social Capital Scales (ISCS) relates to the constructs surrounding online and offline relationships (bonding and bridging) which often overlap and are difficult to define. What is defined as 'Facebook' verses 'face-to-face' relationships may not be clearly distinct. This overlap could be a source of potential confusion for participants completing the questionnaire. One participant requested clarification on the definition of 'online and offline' relationships. This supports previous research, which highlights the complicated nature surrounding online and offline bridging and bonding social connectivity. The boundaries for these constructs could be argued to have become blurred. With the introduction of Facebook, individuals can message in real time, video messaging where you are able to see visual cues for communication and getting an insight into others' lives. Therefore, it could be argued that the distinction between face-to-face and online communication is difficult to separate and measure accurately. It would be necessary to understand the motivation for using the different methods of online communication and whether there is a relationship with the other person outside of the social media platform (i.e. whether they meet up in person) and what they get from this relationship. There may be a need for a more clearly defined difference between what the study defined as a 'Facebook'

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relationship, compared to a 'face-to-face' relationship. This may be more so for younger generations who are increasingly encouraged and facilitated to use online tools to build online communities (Kahoot!, 2016).

Data collection and analysis

The strength of this study was that data could be easily collected and the researcher did not rely on third party information such as clinicians or family members, which would have been time consuming. This could also have been a challenge with those who are socially anxious, who may struggle to ask others to complete a questionnaire about them. However, the limitation was that it was not possible to collect triangulation data, which could have helped to develop a more detailed and accurate picture of someone's experience of Facebook use and social anxiety. An example of this could be someone who rated their Facebook use as a positive experience and a medium they use to connect with others. Clinicians or loved ones may have an alternative view and reports that Facebook was having a negative impact on their level of social connection as they were using it as an avoidance strategy. Alternatively, loved ones could have supported the idea that Facebook use has supported someone to build up their social connections and re-integrate into their community at a safe distance or had helped them find support through online group discussions.

The data collected was quantitative data. The strength of this approach was that it utilised validated measures, which had been successfully applied to other populations. The data allowed for statistical analysis which could be repeated by researchers who wished to replicate the study, with the model and measures being

possible to use in other settings relating to social anxiety and social media use. A limitation of using this approach was that it was not able to capture more in-depth information about individuals experience online. For example, the study was not able to capture rich lived examples on how Facebook relationships may have been helpful or problematic. It may have been possible to use some open text questions to ask people directly how their face-to-face relationships differ from those they have made online. Furthermore, the data was found to be skewed, with non-parametric statistical analysis used. Future research could test to see if there are similar significant relationships with more homogeneous samples, based on social anxiety scores, age and Facebook use.

It could be considered that Verduyn et al.'s (in press) approach more accurately captured how the participant felt in that moment in using Facebook, whereas the present study was focused more on an overall link between Facebook use and life satisfaction. A further strength of this study is that it investigated a real world phenomena within a real world environment, which could be argued as having more ecological validity. There may be a possible bias within the Verduyn et al. (in press) study relating to those in the passive Facebook use groups. This group were instructed not to actively use Facebook. For those within this group who are normally active in their use of social media, they may have felt uneasy; therefore the reported levels of anxiety and discomfort could be related to the artificial laboratory conditions, rather than their usual experience of using Facebook. Verduyn et al. (in press) does acknowledge the possible role of social anxiety as a factor which may relate to the use of social media and well-being. This acknowledges the possible role social anxiety had on the impact of using Facebook.

Unfortunately due to the unequal and underpowered number of participants, who could have been categorised as 'low' or 'highly' socially anxious, it was not possible to compare the reported relationship types between levels of social anxiety groups. This would be an aim for future research to investigate and compare levels of social anxiety on relationship types and life satisfaction. Therefore, it was not possible to identify any significant patterns in how socially anxious and non-socially anxious groups compare in their use of Facebook to connect with others.

Clinical implications

Within this study, the most significant factor in life satisfaction was face-to-face bonding. However, the study demonstrated that online experience did have significant correlations to participants' life satisfaction and social anxiety. Within a clinical setting the idea of online or digital lives should be considered by clinicians when working closely with a client. Much of the mental health assessments or talking therapies focus on the presence of face-to-face relationships and persons involved in a client's social network. However, the findings from this study would support the idea that clinicians should be curious about the client's online support networks and relationships. This would entail asking about what the client gets from these online relationships and how this may be similar and/or different from their face-to-face relationships.

The overall findings suggest that face-to-face bonding relationships have the most significant positive prediction to life satisfaction. The implications of this are that face-to-face relationships are still the most influential and important connection

an individual can make. This is particularly important for those individuals' who appear to have limited or deprived social networks. The finding would endorse the significance of supporting individuals to build positive face-to-face relationships; however, it would also suggest that the individuals' digital lives should be considered. It is possible that online experiences could offer opportunities to build on positive face-to-face relationships, such as staying in touch with others. Furthermore, it may be possible for the individuals to practice their social skills online, building up social experiences. This would be helpful as long as the online social interaction does not become a replacement for face-to-face relationships.

When relating these findings to clinical practice, these findings would support the idea of not considering all social media use to be problematic, but to consider with a client how much time they are spending on social media and how they are using social media (actively or passively). Additionally, it is possible to hypothesise that active Facebook use is related to life satisfaction using a Cognitive Behavioural theory to understanding social anxiety. This would include the emphasis of the 'other-self' relationship, particularly around external positive feedback and reinforcement. This would relate to the individual seeking confirmation about how they feel about themselves, rather than basing this on their own evaluation of their experiences. Furthermore, it is possible that active Facebook use was facilitating a negative cycle of comparison to others. This included seeking negative information which confirms their feeling of being a 'failure' compared to others online.

Findings related to theory

Social anxiety

Theories around social anxiety focus on the distress experienced when socialising or being in social situations. Furthermore, the definitions and understanding of social anxiety highlight the difficulties in making and maintaining intimate relationships, and the possible negative impact this has. This research has further added to the understanding of how social anxiety may impact an individual's life. This would include how social anxiety may impact on individuals seeking out support online and how these individuals use online connections, for example how passive and active Facebook use was correlated to social anxiety. This could include those who desire to have a connection to others and how social media is being used by those who experience social anxiety.

The findings support the idea that social media use cannot replace face-to-face relationships. Social media use was found to positively correlate to an increase in social anxiety symptoms, with active use found to have a significant negative correlation to life satisfaction. This could suggest that social media platforms do not change the individuals 'core beliefs' (Westbrook, Kennerley & Kirk, 1999) the person holds about themselves, others and the world. Social media use may however give them more of a sense of safety and control over the potential 'dangers' of interacting with others. This may come in the form of highly editing their profile information and pictures. This separate online platform gives them time to construct a narrative of themselves which may not be possible during face-to-face communications.

Life satisfaction

The study has supported the idea that active Facebook use has a significant negative correlation to life satisfaction. However, the study also found that the relationship between active Facebook use and life satisfaction was mediated by social anxiety. These findings highlight that the relationship between Facebook use and life satisfaction is not causal but is part of a wider understanding around life satisfaction and the impact of social anxiety and other forms of social isolation. For example, being connected to a community and feeling part of a group is an important and key part of a satisfying life. In a more traditional understanding the social connection happens face-to-face with people from your immediate local community. Social media has taken this connectivity on to a less tangible level, where a face-to-face meeting does not have to take place in order for a social connection to occur. However, this study and previous research has highlighted that not all online social connection is experienced as the same; this connection does not provide the same 'satisfaction'. The role of online communication and life satisfaction could be further investigated. The concepts of online relationships and how these are experienced by others is still relatively new. The understanding around online social communication is constantly evolving; therefore, the impact on individuals' lives may also change over time. It would be crucial to continue to look at how the evolving online platforms impact on individual's sense of life satisfaction and the role it plays in facilitating, or impeding, a feeling of meaningful connectedness and life satisfaction.

Social media use

The findings of the study demonstrate the significant relationships Facebook use has with social anxiety, life satisfaction and relationship types. The study

highlights the impact that Facebook has had on the richness of communication, as outlined in the communication theory (Daft & Lengel, 1984). With the invention of Facebook and other online platforms, individuals have access to a varied and vast amount of information about one another. This access is freely available at any time of the day, however, even though the available information on Facebook is detailed, it does not appear to offer the same experience as face-to-face relationships. It would also be helpful to question whether relationships online predictably develop into face-to-face relationships. Additionally, the role of social media use was mediated by social anxiety. It was not found to be a causal relationship but may highlight Facebook's capacity to facilitate, or exaggerate, the original motivations of use.

Furthermore, using psychodynamic approaches, social media is a means to practically act out what might be going on in someone's psychic or internal world (Balick, 2014). For example, an individual could act out any number of fantasies online which they would not be able to do in reality. Facebook could also be used to project an individual's internal conflicts, such as joining groups which may contradict how they may present themselves in person, but do not feel able to integrate in to their core identity or where it may not be socially acceptable to do so. Furthermore, Facebook could be argued to provide a space for an individual to perpetuate a split sense of self. This would include individuals who have not been able to, or had the opportunity to develop a more realistic integrated sense of self. Therefore, Facebook may be used to present the 'best' version of themselves to others which does not include or acknowledge the more imperfect aspects, which are excluded and seen as unwanted or unacceptable. This can perpetuate a cycle on Facebook where only the 'best' version of a person are acceptable, reinforcing the idea that anything imperfect

must be ignored or excluded. If this is the case, it is then possible to understand how bonding relationships online would be hard to develop, as it is difficult to be honest and open with others and have space to acknowledge the more painful or imperfect aspects of themselves.

Thinking about the future of social media use and how it may develop, it would be helpful to consider the possible use of social media as a means of offering short term support. With the demand for psychological support in the community, support via social media may be a way forward. This could include member only/closed support pages on Facebook which could be run by qualified mental health professionals who could signpost to other community support, facilitate online discussions between those who experience social anxiety or provide one-to-one 'instant chat' support. Alternatively, it would be helpful to explore how online relationships could be facilitated into more meaningful face-to-face connections within others in their community.

Future research

When considering further research there were a number of areas of possible exploration within the field of social anxiety and social media connectivity. Firstly, as highlighted above, future research could look at whether social media is having an impact on our understanding of 'bridging' and 'bonding' relationships. Particularly in younger generations where online socialising is becoming a normalised part of their social development, and it is becoming more common to identify a 'close friend' as someone primarily known via a social media platform. It would be worth exploring

whether the 'bridging and bonding' concepts could still be accurately used within social media networks.

Secondly, it could be helpful to investigate the ways in which social media sites, such as Facebook are used. This would build on the idea that passive and active use affects life satisfaction differently. However, it was not possible to infer causality for the impact of active or passive use from this study. Additionally, further research could modify the FBQ measure to improve the internal consistency of the current measures to include passive use of Facebook. The current adaptations were not found to be robust enough as they consisted of only two additional questions. It may also be possible to adapt for other social media forums, such as twitter, snapchat and Instagram.

Although the age of participants had been considered (Williams, 2014; Oblinger & Oblinger, 2005), there was not enough data to make clear comparisons based on different age groups. Future research could focus on significant differences between various age groups such as adolescents, young adults, adults and older adults, and compare the different uses of social media. These groups could then be compared on how they use social media, what their motivation is for using social media and what possible gains or costs they have noticed from this use.

Future research could consider individuals' motivations for using Facebook. This would include asking qualitative questions to establish the more conscious reasons for using Facebook, such as to contact a friend directly. Qualitative interviews could go some way into investigating the participants' reflections on

unhelpful and automatic behaviours relating to checking what others are posting online. The motivation behind Facebook use may help to add another level of understanding of why individuals seek support online, rather than in person and why individuals persist in looking at visual information which may offer only negative reinforcement. It would also be of interest to investigate how much of the individual's Facebook use is active and conscious, and how much is passive and an automatic act. Further research could explore how classical and operant conditioning may be present within social media use and how this may be shaping individual and societal changes, particularly with a focus on immediate reinforcement (Prensky, 2001).

Finally, it would be helpful to consider other co-morbid difficulties such as communication limitations (stammer, mutism, aphasia) and the influence this may have on the motivations for using Facebook and how Facebook is used. This could be a helpful area to consider in clinical practice and was a topic not considered in this initial study.

Final conclusions

The overall findings suggest that there is a significant relationship between Facebook use, social anxiety and life satisfaction. Active Facebook use was found to be positively correlated to social anxiety and negatively correlated to life satisfaction. However, these findings are not arguing a causal relationship. Therefore, further investigation would be needed to unpick what other variables may be present within social anxiety, Facebook use and the impact on life satisfaction.

Additionally, the study found a significant correlation between relationship types and life satisfaction. In particular, life satisfaction was most significantly correlated to face-to-face bonding and bridging relationships, with a less but still significant correlation to online bonding relationships. There were no significant correlations found between online bridging and life satisfaction. Furthermore, Face-to-face bonding found to be the most significant predictor variable to life satisfaction. These findings would challenge the idea that Facebook offers a platform for 'social compensation' for those have limited meaningful face-to-face relationships. However, Facebook may facilitate relationships for those who have successfully developed face-to-face interpersonal bonds.

It is important to note that the findings do not suggest that Facebook directly causes social anxiety or a reduction in life satisfaction. What this does suggest is, that Facebook use is more complex than may be initially thought. The ways of communicating online are nuanced, with active and passive means of using Facebook available to all. Furthermore, online communication is constantly evolving and these new ways, moving from leaving messages to being able to have live video messaging, should continually be considered. Although the findings do not argue that Facebook is the cause of social anxiety or a reduction on well-being, it would be helpful for clinicians to consider a client's online life within their clinical work. As suggested in this, and other previous research, some Facebook users have reported positive support available online, as online bonding was correlated to life satisfaction. Facebook use should not be disregarded because is it outside of the individuals immediate physical social network.

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Appendices

Appendix A. Summary of the articles investigating social anxiety, life satisfaction, relationship types and life satisfaction.
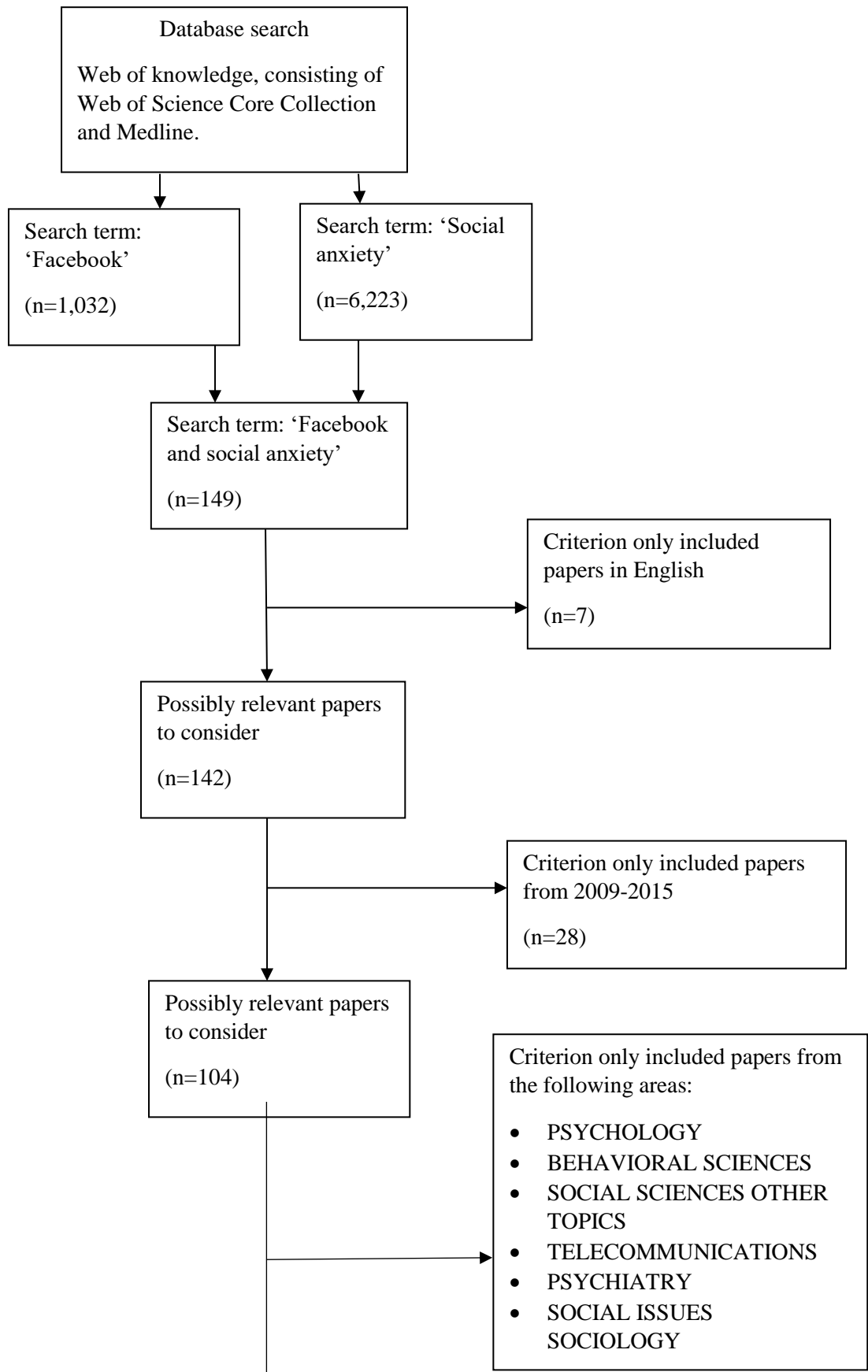
Study	Sample	Measures used	Methodology	Main findings	Notes
Grieve, Indian, Witteveen, Tolan and Marrington (2013)	Australian University students (N=344), with majority female sample. There was a mean age of 28.12 years.	The social connectedness scale-revised (offline connectedness), Facebook social connectedness.	Online questionnaire posted on Facebook pages and distributed via University email list.	Facebook connectedness was separate and different to offline connectedness. However, Facebook connectedness is complicated, with positive correlation to psychological well-being.	To further investigate the complicated nature of Facebook connectedness.
Rosen, Whaling, Rab, Carrier and Cheever (2013)	Adult participants, self-selecting sample. N=1335.	Millon Multiaxial Clinical Inventory (MCMI-III) Study specific measures developed for 'typical daily media and technology usage' (p.1246), attitudes toward technology use and technology related anxiety.	A web address for the online questionnaire was distributed by students (for course credit).	More time spent on Facebook managing their Facebook presentation had higher links to clinical symptoms. Generational differ in their anxiety when not able to check technology, with younger generation most anxious. There were both positive and negative	Further investigation of the impact of Facebook on psychological difficulties and interpersonal issues.

				impacts of Facebook use ie. Positive outcomes for having friends on Facebook.	
Oldmeadow, Quinn and Kowert (2013)	Adult participants, N=617, with equal male to female ratio. Both student and non-student population. Mean age 27.63 years.	Experience in Close Relationships Scale (ECR) Social Inventory Scale (SSI) Facebook usage and experience questions.	Online survey, recruited from both a student population (course credit) and others known to the authors via social media.	Facebook use significantly positively correlated to attachment anxiety. Attachment avoidant found to 'Use Facebook less, less likely to be open on Facebook' (p.1147)	Research investigating needed to further investigate the complexities of Facebook use, social interaction and social anxiety.
Indian and Grieve (2014)	A total of 299 participants, with 105 people meeting the threshold for high social anxiety. The average age of participates was 28.35 years. 86% of participants were female.	Mini-social phobia inventory (Mini-SPIN) (Connor et al., 2001) measuring social anxiety. Interpersonal support evaluation list (ISEL; Cohen et al., 1983) was used to assess offline and offline support.	Posted link to questionnaire on Facebook.	There were double the number of people within the study who has low social anxiety. No significant difference in perceived facebook use between the high and low anxiety. Strong positive correlation between offline social support	Recommendation: Looking at how online support (such as Facebook) may be used to maintain or develop social communication within other difficulties such as PTSD or OCD.

		The satisfaction with life scale (Diener et al., 1985) was used to assess subjective well-being.		and facebook support. Only offline support was found to a significant predictor of well-being in the low anxiety group only.	
Lee (2013)	Self-selected convenience sample. 368 Korean undergraduate students.	Adapted from the Adult Attachment Questionnaire (AAQ). Measures of bonding and bridging forms of social capital were developed based on the adaptation and modification of two five- item scales pre-validate d in a study by Ellison, Steinfield, and Lampe (2007).	Online survey, completed by Facebook users. Large scale online invitation sent to students.	Avoidance was the only significant predictor of bonding social capital. Anxiety attachment was not found to be significant predictor of social capital. Anxiety was not a significant predictor of social capital. The amount of facebook use was found to be significant for social bridging.	
McCord, Rodebaugh and Levinson (2014)	216 participants. Average age of 32.2 years. 86% of participants were female.	Facebook Questionnaire (FBQ). Social interaction Anxiety Scale and	Sample were from a University research volunteer group. A link to the online questionnaire was	Positive correlation between social anxiety and anxiety experienced in social facebook use. The	To better understand the link between Facebook use and social anxiety, to test

	83.3% of the participants were white.	Social phobia Scale-12 (SIAS-SPS12). Facebook-Social Interaction Anxiety Scale (F-SAIS).	sent via email to this group and contacts of the study lead.	level of social anxiety found to be a mediating factor. Social facebook use is only related to social anxiety when anxiety is present on facebook.	for any directs of causality. To test if Facebook offers positive outcomes for those experiencing social anxiety.

Appendix B. Database search

Database search

Web of knowledge, consisting of Web of Science Core Collection and Medline.

Search term: 'Facebook'

(n=1,032)

Search term: 'Social anxiety'

(n=6,223)

Search term: 'Facebook and social anxiety'

(n=149)

Criterion only included papers in English

(n=7)

Possibly relevant papers to consider

(n=142)

Criterion only included papers from 2009-2015

(n=28)

Possibly relevant papers to consider

(n=104)

Criterion only included papers from the following areas:

- PSYCHOLOGY
- BEHAVIORAL SCIENCES
- SOCIAL SCIENCES OTHER TOPICS
- TELECOMMUNICATIONS
- PSYCHIATRY
- SOCIAL ISSUES SOCIOLOGY

Possibly relevant papers to consider were organised by the number of times cites, with the highest number cited at the top.

(n=75)

Papers were excluded if 'Facebook use', 'Social anxiety', 'social relationships' or 'adult population' were not the main focus.

(n=6)

Papers selected	Times cited
Grieve, Indian, Witteveen, Tolan and Marrington (2013)	66
Rosen, Whaling, Rab, Carrier and Cheever (2013)	60
Oldmeadow, Quinn and Kowert (2013)	20
Indian and Grieve (2014)	19
Lee (2013)	21
McCord, Rodebaugh and Levinson (2014)	13

Appendix C. Information sheet

<u>Participant information</u>

Thank you for taking the time to read this information and considering participation in this study. The aim of this study is to better understand how individuals use Facebook as a means of making and using online friendships. This study is also interested in how satisfying these online relationships are experienced.

<u>What is involved?</u>

The study is asking anyone between the ages of 18-25 years old to complete questions around social anxiety, Facebook use and their online friendships. The reason the study is focused on the 18-25 year age group, is that this group are have been born since the creation of the internet and so have grown up during the most significant changes in communication. Furthermore, the questionnaire are only available in English, participants will need to be confident in their abilities to understand written English. The study is particularly interested in hearing from individuals who experience anxiety in face-to-face social situation.

<u>What are the benefits?</u>

Taking part in the study will help to develop a better understanding of the role Facebook plays in individual's social relationships. There have been conflicting approaches, some arguing Facebook, and other social media, has a negative effect on individuals' social networks and people can become more socially isolated. However, other's believe that online interaction is a helpful way to develop and build social relationships, particularly for individuals who experience anxiety in face-to-face social situation. There is no direct payment for participating in the study, however, you can opt to enter into a prize draw for one of five £10 amazon vouchers.

<u>Confidentiality</u>

There will be no confidential information about you collected in the study. The study will not ask for your name, date of birth, address or email address. Therefore, any information could not be traced back to you. If you choose to enter in the prize draw, your email address will not be linked to the data you have provided. Your email address will be deleted once the recipients of the vouchers have been assigned at random.

<u>How will the information you give be used?</u>

The information gathered from the questionnaires will be used to build a more detailed picture of how individuals use Facebook within their social networks. This data will be compared to the data provided by other participants to identify any significant similarities or differences. The findings will be used as a basis for a Clinical Psychology thesis and any findings may be used within future publications. There is no

<u>Who has approved this research project?</u>

This project forms part of a Clinical Psychology Doctorate thesis and ethical approvals has been granted from the University of Essex. This study has been found to be safe to participate in, with no expectation for harm to be caused to anyone who participates.

<u>Contact details</u>

If you would like to take part in this project, please contact either myself, Kirsty Collins, or one of the team from the School of Health & Human Sciences on the details below:

Kirsty Collins
Trainee Clinical Psychologist & researcher
University of Essex
kcollie@essex.ac.uk

Thank you for taking the time to read this information.

Appendix D. Consent form

Consent form

Thank you for taking to time to read the information. If you are willing to take part in this study please read each section and tick the box next to it to confirm you have read and agree with each statement. This will act as your consent to participate in the study. The questionnaire will follow.

1. I am over the age of 18 years old.	
2. I have an active Facebook account.	
3. I am proficient in written English.	
4. I understand that this project forms part of a Clinical Psychology Doctorate.	
5. I have read and understood the information sheet explaining the project.	
6. I understand that taking part in this project is voluntary and I can withdraw my information without giving a reason. **Please note**: -You can withdraw during the questionnaire by closing the window on which you have the questionnaire open on. - I understand that as the data is anonymous I will be unable to withdraw my data, the researcher with not be able to identify your data.	
7. I understand that my data will be kept safely, there will be no identifiable data collected and I will not be linked back to the study unless I wish to be.	
8. I understand the non-indefinable information may be used by the University of Essex for future large scale project.	
9. I give my permission for my anonymised information and the findings of this study, to potentially be used for publication purposes.	
10. I agree to take part in this project.	

Appendix E. Demographic measure

Age					
Gender	Female	Male	Prefer not to specify	Neutral	Trans
Ethnicity	A : White				
	British		Irish		Any other White background (please write in)
	B : Mixed				
	White and Black Caribbean	White and Black African	White and Asian		Any other mixed background (please write in)
	C : Asian or Asian British				
	Indian	Pakistani	Bangladeshi		Any other Asian background (please write in)
	D : Black or Black British				
	Caribbean		African		Any other Black background (please write in)
	E : Chinese or other ethnic group				
	Chinese		Any other (please write in)		Not stated
	F: Prefer not to state				
Highest level of education	Secondary education - graduated without formal examination qualifications				
	Secondary education - graduated at ordinary or lower examination level				
	Secondary education - graduated at advanced or higher examination level				
	Uncompleted Further Education College or University				
	Graduate of any further education College or University				
	Masters				
	Doctorate				
	Post Doctorate				

Amount of time (estimated) spend on Facebook (daily).	Hours		Minutes	
How long they have been a member of Facebook.	Less than a year 1-2 years 2-5 years 5-7 years More than 5 years.			
Estimate of the number of 'Facebook friends'.				
Do you consider yourself to suffer from social anxiety?	No	I'm not sure	Yes, sometimes	Yes, definitely

Appendix F. PHQ 9

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING _0_ + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Appendix G. Social Phobia Inventory

Social Phobia Inventory

Initials _____ Age _____ Sex _____ Date _____ ID# _____

Please check how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

	Not at all	A little bit	Somewhat	Very much	Extremely
1. I am afraid of people in authority.	0	1	2	3	4
2. I am bothered by blushing in front of people.	0	1	2	3	4
3. Parties and social events scare me.	0	1	2	3	4
4. I avoid talking to people I don't know.	0	1	2	3	4
5. Being criticized scares me a lot.	0	1	2	3	4
6. Fear of embarrassment causes me to avoid doing things or speaking to people.	0	1	2	3	4
7. Sweating in front of people causes me distress.	0	1	2	3	4
8. I avoid going to parties.	0	1	2	3	4
9. I avoid activities in which I am the center of attention.	0	1	2	3	4
10. Talking to strangers scares me.	0	1	2	3	4
11. I avoid having to give speeches.	0	1	2	3	4
12. I would do anything to avoid being criticized.	0	1	2	3	4
13. Heart palpitations bother me when I am around people.	0	1	2	3	4
14. I am afraid of doing things when people might be watching.	0	1	2	3	4
15. Being embarrassed or looking stupid are my worst fears.	0	1	2	3	4
16. I avoid speaking to anyone in authority.	0	1	2	3	4
17. Trembling or shaking in front of others is distressing to me.	0	1	2	3	4

Appendix H. The Facebook Questionnaire (FBQ) McCord, Rodenbaugh & Levinson (2014)

1. I send messages to friends
2. I send chat messages to friends
3. I write on group or event walls
4. I write on friends' walls
5. I send friend requests
6. I post comments on friends' status updates, pictures, etc.
7. I update my status

8. I look on an event, group or interest page without commenting

9. I look at friends' profiles without commenting or responding in anyway

Participants rated frequency of use on a seven-point Likert scale (1 =about once a month or less, 7=many times per day).

Appendix I. Williams (2006) Internet Social Capital Scales (ISCS)

Bonding subscale					
There are several people online/offline I trust to help solve my problems.	1	2	3	4	5
There is someone online/offline I can turn to for advice about making very important decisions.	1	2	3	4	5
There is no one online/offline that I feel comfortable talking to about intimate personal problems. (reversed)	1	2	3	4	5
When I feel lonely, there are several people online/offline I can talk to.	1	2	3	4	5
If I needed an emergency loan of £500, I know someone online/offline I can turn to.	1	2	3	4	5
The people I interact with online/offline would put their reputation on the line for me.	1	2	3	4	5
The people I interact with online/offline would be good job references for me.	1	2	3	4	5
The people I interact with online/offline would share their last dollar with me.	1	2	3	4	5
I do not know people online/offline well enough to get them to do anything important. (reversed)	1	2	3	4	5
The people I interact with online/offline would help me fight an injustice.	1	2	3	4	5
Bridging subscale					
Interacting with people online/offline makes me interested in things that happen outside of my town.	1	2	3	4	5
Interacting with people online/offline makes me want to try new things.	1	2	3	4	5
Interacting with people online/offline makes me interested in what people unlike me are thinking.	1	2	3	4	5
Talking with people online/offline makes me curious about other places in the world.	1	2	3	4	5
Interacting with people online/offline makes me feel like part of a larger community.	1	2	3	4	5
Interacting with people online/offline makes me feel connected to the bigger picture.	1	2	3	4	5

Interacting with people online/offline reminds me that everyone in the world is connected.	1	2	3	4	5
I am willing to spend time to support general online/offline community activities.	1	2	3	4	5
Interacting with people online/offline gives me new people to talk to.	1	2	3	4	5
Online/Offline, I come in contact with new people all the time.	1	2	3	4	5

Appendix J. Satisfaction with Life Scale (SWLS) Diener, Emmons, Larsen, & Griffin (1985)

Instructions: Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

_____ In most ways my life is close to my ideal.

_____ The conditions of my life are excellent.

_____ I am satisfied with my life.

_____ So far I have gotten the important things I want in life.

_____ If I could live my life over, I would change almost nothing.

Scoring:

Though scoring should be kept continuous (sum up scores on each item), here are some cutoffs to be used as benchmarks.

- 31 - 35 Extremely satisfied
- 26 - 30 Satisfied
- 21 - 25 Slightly satisfied
- 20 Neutral
- 15 - 19 Slightly dissatisfied
- 10 - 14 Dissatisfied
- 5 - 9 Extremely dissatisfied

Appendix K. Debriefing information

Thank you for taking part in this study. For many people completing the questions will not cause any distress. However, if you have felt upset or concerned after taking part in the study please do not hesitate to contact the researcher or research Supervisor:

Kirsty Collins   Frances Blumenfeld

kcollie@essex.ac.uk   fblume@essex.ac.uk

Furthermore, please contact your GP to discuss any concerns you have, your GP is a good person to speak with in order to refer you to support services if necessary.

If you would like further information about social anxiety you may find the following links helpful:

NHS information page http://www.nhs.uk/conditions/social-anxiety/Pages/social-anxiety.aspx

Anxiety Alliance: http://www.anxietyalliance.org.uk/home0

Anxiety UK: https://www.anxietyuk.org.uk/

Mood Juice: http://www.moodjuice.scot.nhs.uk/shynesssocialphobia.asp

Thank you for taking part in this study.

Appendix L. Ethics amendment form with regards to participant inclusion criteria

Ethics Approval: Amendment Request

Name Kirsty-Lee Colins

Date: 2™ February 2016

Signature:

Description of Amendment:

I am requesting the removal of the age cap for project Ref 5005, which is a doctoral thesis for the DClin program.

Reason for Amendment:

The study currently has ethical approval to recruit individuals between the ages of 18-25 years old. I would request that the study is open to individuals aged 18 years and older. The age restriction has reduced the number of individuals who have been able to participate. It is with consideration that this amendment has been requested. The increase in participants' age would not affect the overall thesis aims

(For office use only)

The amendment has been approved ☑

The amendment has not been approved ☐

Resubmission required ☐

Signature:

Name (in block capitals) WAYLNE WILSON

Department: S. HHS

Date 10/2/2016

Appendix M. Ethical Approval from the University of Essex.

University of Essex

School of Health and
Human Sciences
T 01 206 872814
F 01206 873765
E hhs@essex.ac.uk

Colchester Campus
Wivenhoe Park
Colchester CO4 3SQ
United Kingdom
T 01206 875908
F 01206 873598

www.essex.ac.uk

17 November 2015

Dear Kirsty,

Re: Ethical Approval Application (Ref 15005)

Further to your application for ethical approval, please find enclosed a copy of your application which has now been approved by the School Ethics Representative on behalf of the Faculty Ethics Committee.

Yours sincerely,

Lisa McKae
Ethics Administrator
School of Health and Human Sciences

cc,   Research Governance and Planning Manager, REO
        Supervisor

50 years
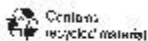
Appendix N. Spearman's Rho Correlations for all the variables.

		age	Total SPIN	Total active use	Total Passive use	Bridging face	Bonding face	Bridging online	Bonding online	Total SWLS	Total PHQ9
1	Correlation Coefficient	1.000	-.229*	-.015	-.267**	-.154	-.092	-.014	-.181*	0.01	-.237**
	Sig. (2-tailed)	.	.011	.868	.003	.089	.307	.873	.044	0.910	.008
	N	124	124	124	124	124	124	124	124	124	124
2	Correlation Coefficient		1.000	.226*	.374**	.366**	.370**	.049	.291**	-.412**	.568**
	Sig. (2-tailed)		.	.012	.000	.000	.000	.592	.001	.000	.000
	N		124	124	124	124	124	124	124	124	124
3	Correlation Coefficient			1.000	.165	.028	.143	-.226*	-.130	-.239**	.164
	Sig. (2-tailed)			.	.066	.759	.112	.012	.149	.008	.068
	N			124	124	124	124	124	124	124	124
4	Correlation Coefficient				1.000	.154	.143	-.077	.299**	-.167	.359**
	Sig. (2-tailed)				.	.088	.113	.395	.001	.064	.000

	N		124	124	124	124	124	124	124
5	Correlation Coefficient			1.000	.491**	.114	.404**	-.289**	.370**
	Sig. (2-tailed)			-	.000	.207	.000	.001	.000
	N			124	124	124	124	124	124
6	Correlation Coefficient				1.000	.036	.307**	-.531**	.379**
	Sig. (2-tailed)				-	.689	.001	.000	.000
	N				124	124	124	124	124
7	Correlation Coefficient					1.000	.372**	-.028	-.073
	Sig. (2-tailed)					-	.000	.757	.418
	N					124	124	124	124
8	Correlation Coefficient						1.000	-.231**	.235**
	Sig. (2-tailed)						-	.010	.009
	N						124	124	124
9	Correlation Coefficient							1.000	-.445**

	Sig. (2-tailed)		-	.000
	N		124	124
10	Correlation Coefficient			1.000
	Sig. (2-tailed)			-
	N			124

Note. **p<0.001, *p<0.05. 1= Age, 2 = social anxiety score (SPIN) scores, 3= Active Facebook use, 4= Passive Facebook use, 5= Bridging face-to-face relationships, 6= Bonding face-to-f ace relationships, 7= Bridging online relationships, 8= Bonding online relationships, 9=Life satisfaction scores (SWLS) and 10= depression (PHQ9) scores.

Appendix O. Scatter-plots for Residual testing homogeneity of variance.
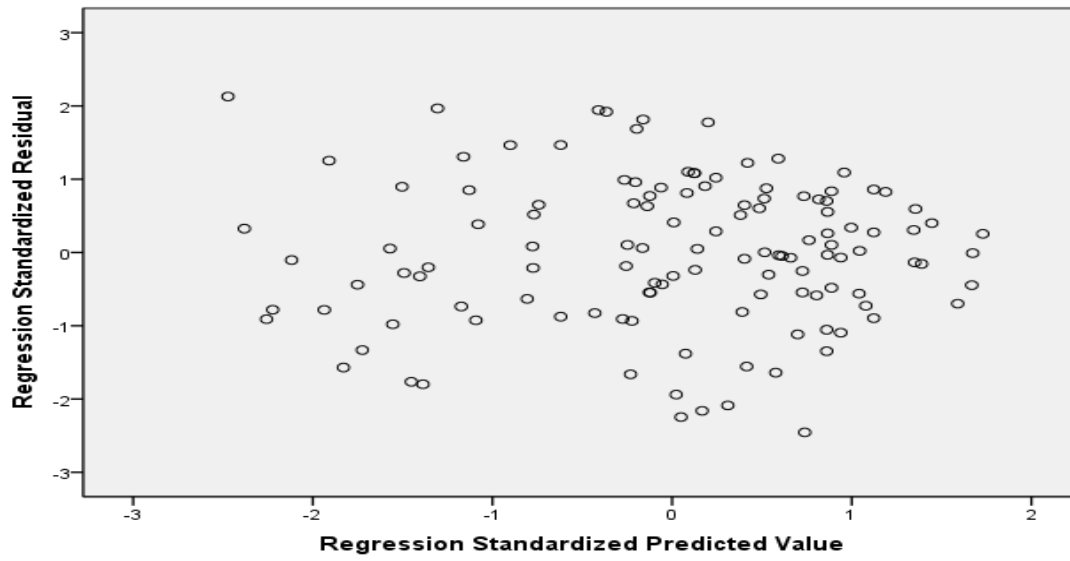
Figure O1. Scatter-plot for active Facebook use and life satisfaction residuals.
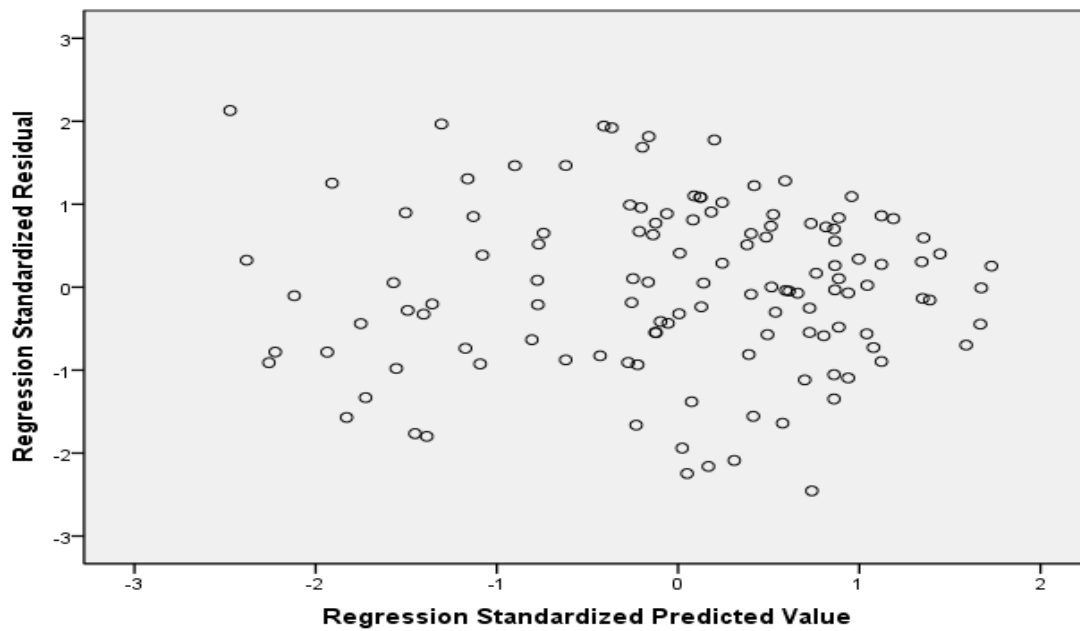
Figure O2. Scatter-plot for Social anxiety and life satisfaction residuals.

Appendix P. Histograms and Q-Q plots for each variable
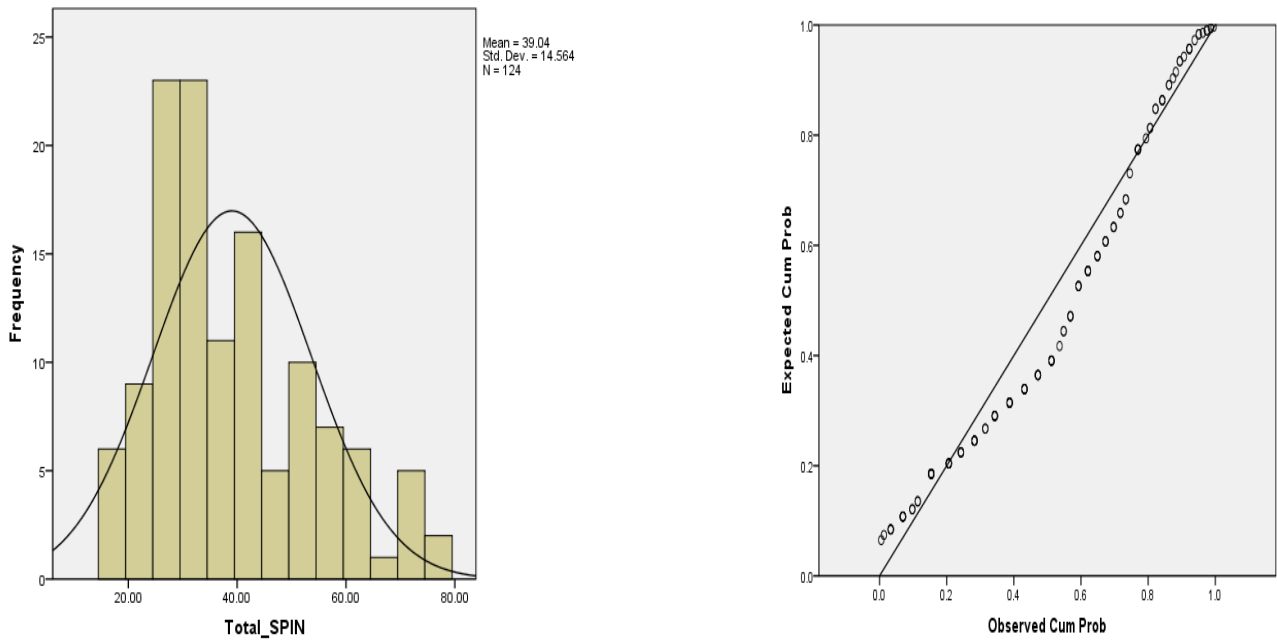
Figure P1. Histograms and Q-Q plots for social anxiety
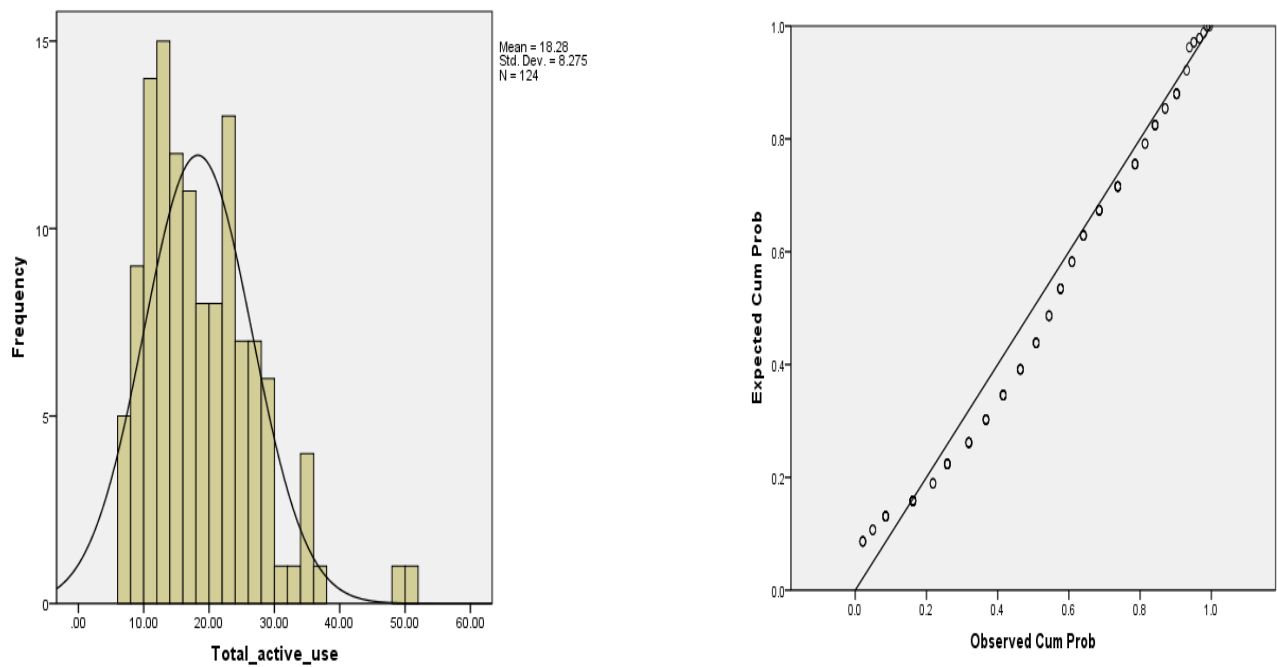
Figure P2. Histograms and Q-Q plots for active Facebook use
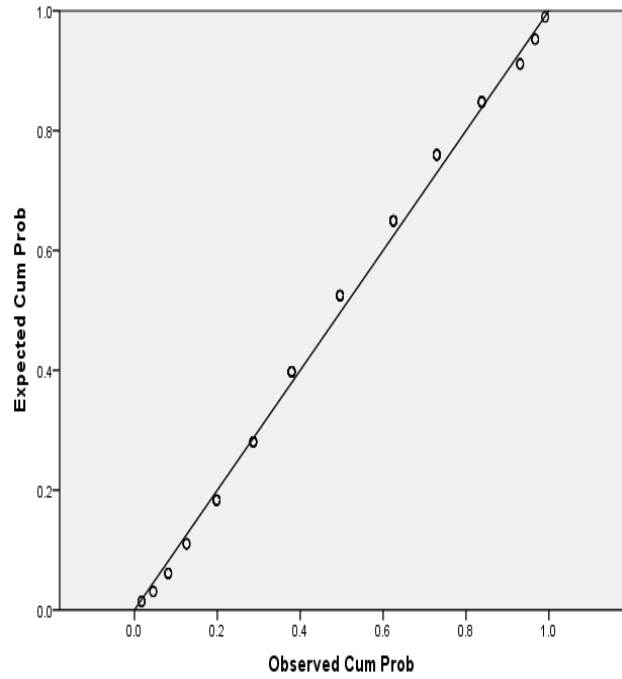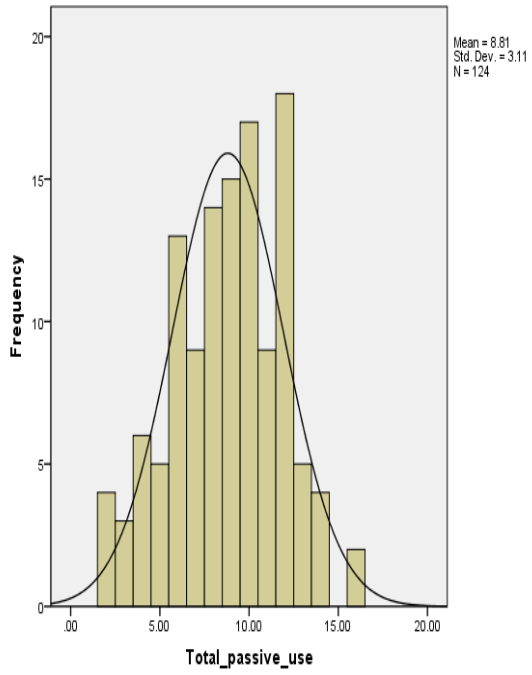
Figure P3. Histograms and Q-Q plots for passive Facebook use
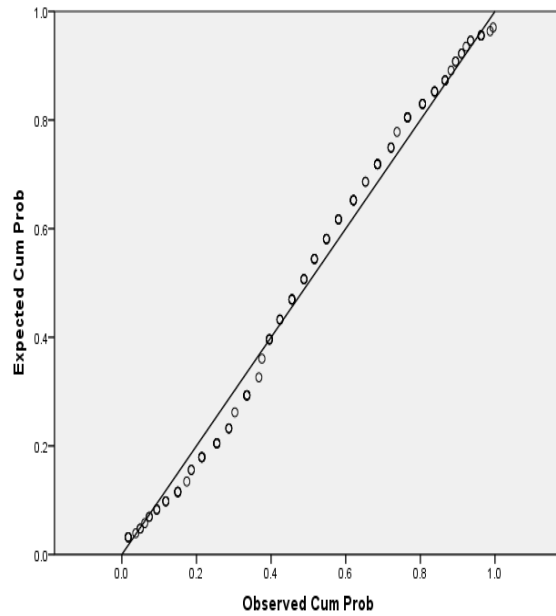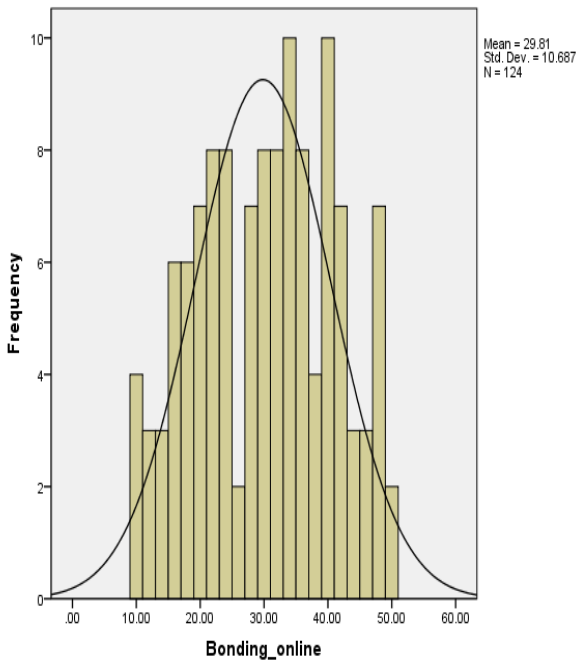
Figure P4. Histograms and Q-Q plots for online bonding relationships
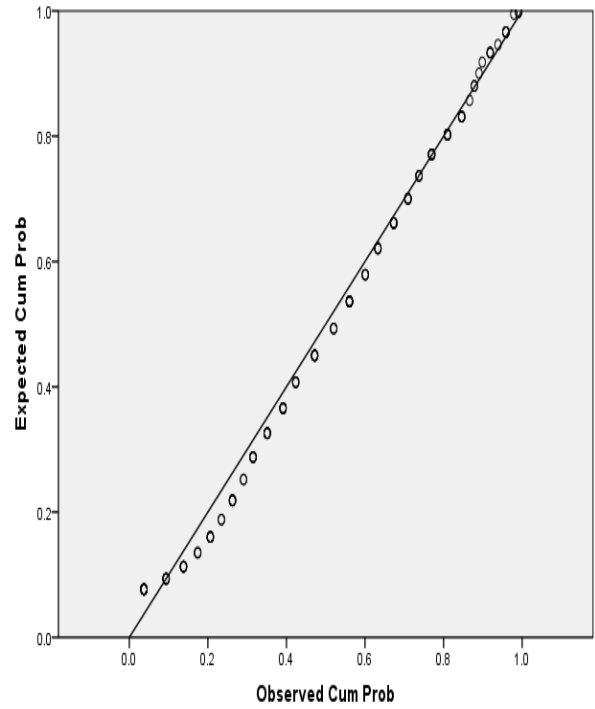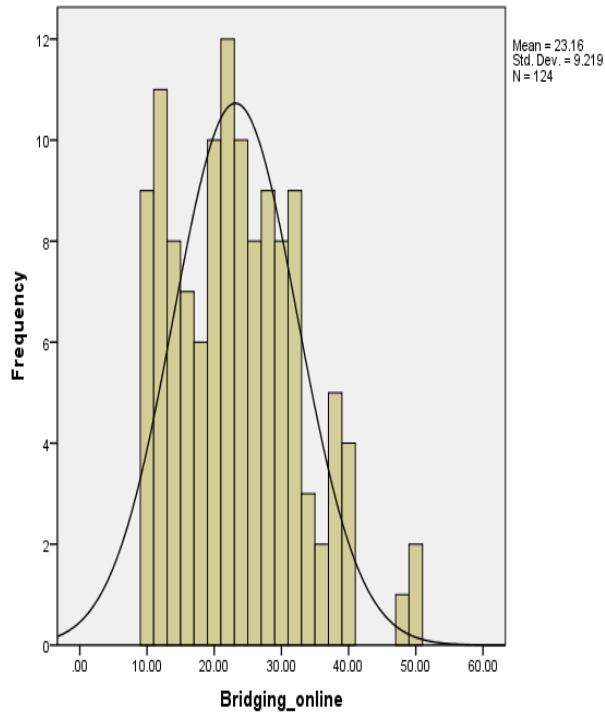
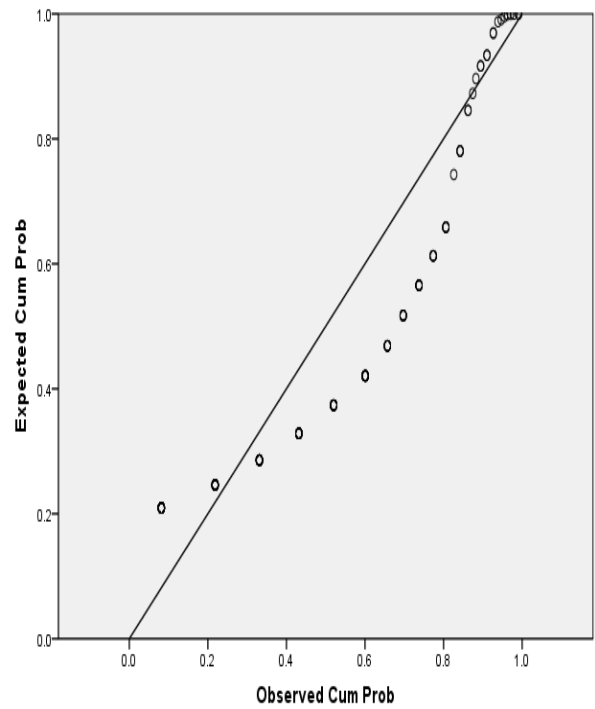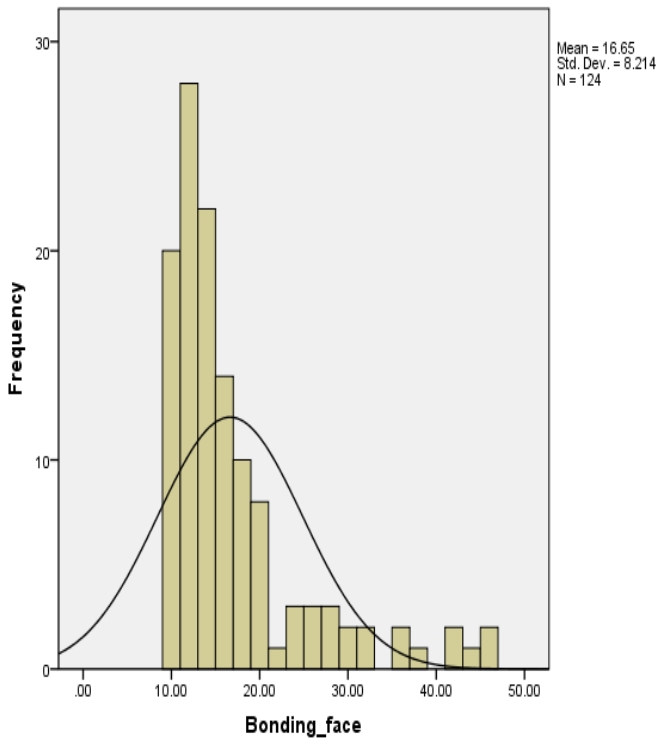**Figure P5. Histograms and Q-Q plots for online bridging relationships**

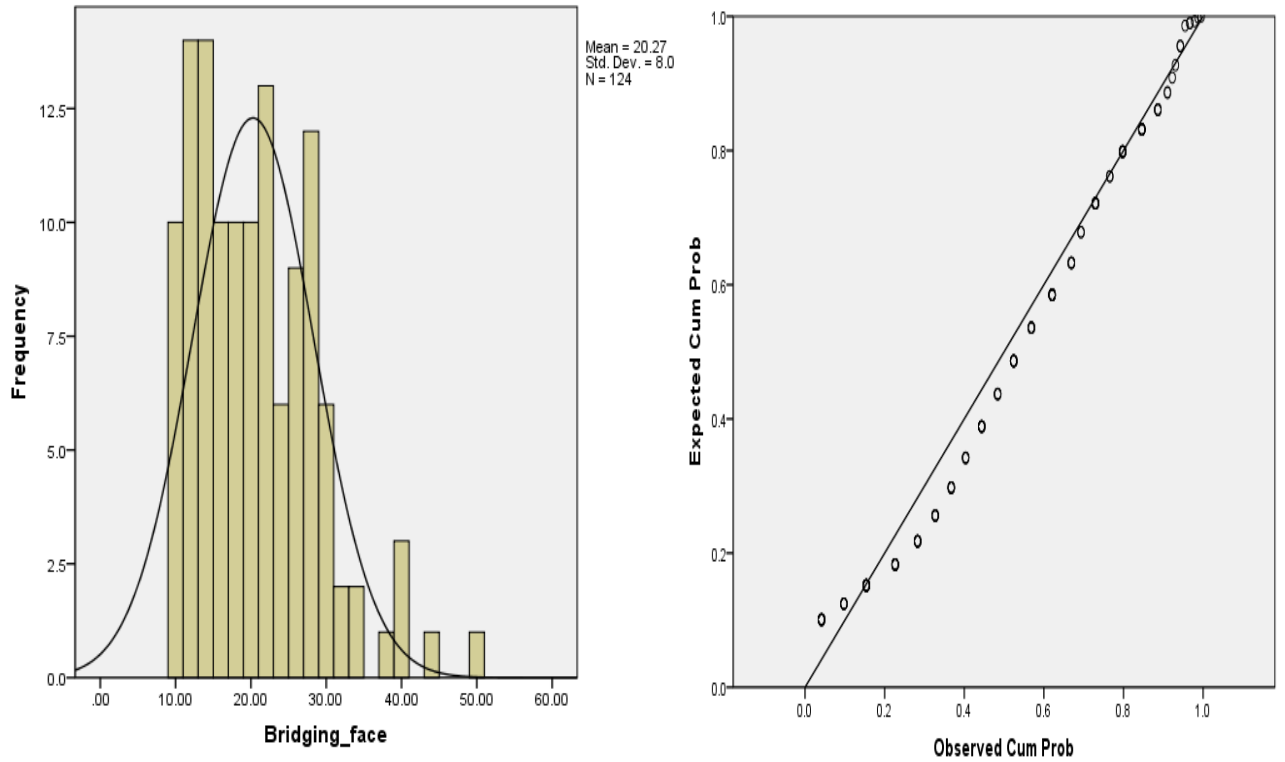**Figure P6. Histograms and Q-Q plots for Face-to-face bonding relationships**

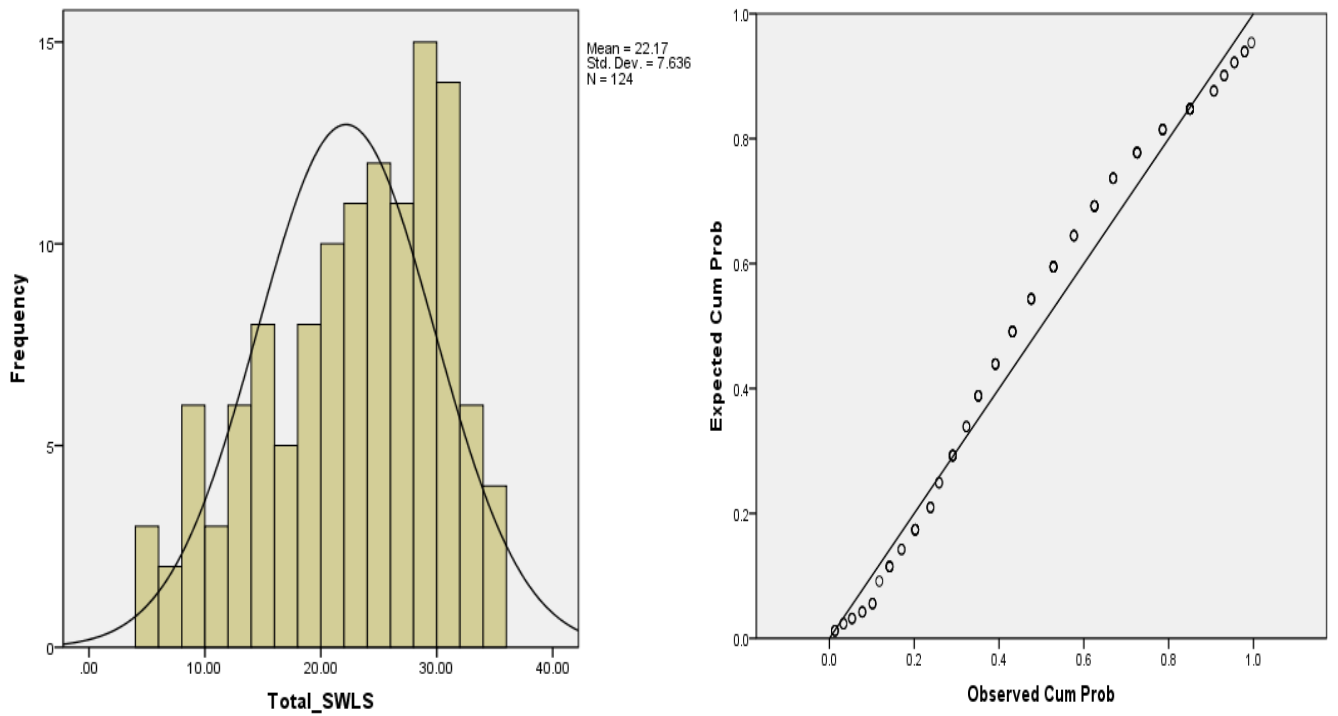**Figure P7. Histograms and Q-Q plots for Face-to-face bridging relationships**

Figure P8. Histograms and Q-Q plots for life satisfaction