
# From ‘likes’ to unfriending: The need to belong and relational information on Facebook

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**Abstract**

Humans are fundamentally social creatures, interacting with other people through face-to-face interactions and through the use of social media. According to the theoretical framework of the need to belong, interactions that are stable across time, and provide support and encouragement are necessary for people to psychological thrive. Therefore, threats to belonging pose a serious issue. Theoretically, when a person experiences a threat to their belonging, this then results in preferential processing of social cues relevant to relational information. While copious amounts of research have investigated the social cues that guide face-to-face interactions, to date, very little research has explored the social cues that provide relational information on Facebook, currently the largest social networking site. Therefore, the overall aim of this program of research is to use a mixed-method design to explore and understand the social cues that impart relational information on Facebook, specifically the social cues that indicate potential rejection and acceptance.

From the Study 1 qualitative findings, there were a number of social cues identified which underpinned 3 main themes of relational information, that is, social inclusion, social exclusion, and social comparison. Study 2 demonstrated that the social cues identified in Study 1 were generalisable to a wider population. Together, these results highlighted specific social cues, such as ‘likes’ which provided relational information relevant to both rejection and acceptance. Furthermore, Study 2 also identified four different motivations that people have for using Facebook, as well as establishing that need to belong and age are significant predictors for these motivations.

Finally, Study 3 took an innovative approach regarding experimental design and Facebook, with the development of artificial Facebook pages that incorporated the social cues identified in Studies 1 and 2. This then enabled investigation into the salience of the social cues after participants received either a threat to their need to belong or an affirmation of their relational worth. There were no differences found between the two conditions and the recall of social

cues and neutral information. Furthermore and contrary to theoretical expectations, when the social cues were further broken down into social cues of rejection and acceptance, only Experiment 2 demonstrated a significant difference between the two conditions and the recall of social rejection cues.

This thesis uniquely contributes to new knowledge in a number of ways. Firstly, this research provides comprehensive information regarding the identification of social cues that communicate relational information on Facebook. Additionally, Study 2 provides compelling evidence of the need to belong as a predictor of the motivations for Facebook use. Moreover, this research offers a unique method of investigating social cues on Facebook through the development of artificial Facebook pages. Finally, this program of research extends the existing literature on the need to belong and social monitoring to the on-line social environment, and subsequently finds that the very nature of the on-line environment means that the available social cues may be more subtle and more complex than ever imagined.

*Keywords:* Need to belong, social cues, social monitoring, Facebook

**Certification of Thesis**

I certify that the ideas, experimental work, results, analyses, software, and conclusions reported in this thesis are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

Tanya M. Machin 04/02/2016

ENDORSEMENT

This thesis has been electronically approved by the following supervisors:

Dr. Charlotte L. Brownlow (Principal Supervisor)

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## List of Conference Presentations

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# Chapter 1 - Introduction

## Research Rationale

It is hard to deny that humans are fundamentally social creatures. We live, work, and continually interact with other people through both face-to-face interactions and the use of technology (i.e., on social media sites). Indeed there is substantial literature demonstrating that the creation and maintenance of positive social connections (i.e., the need to belong) are essential for physical and mental wellbeing (Baumeister & Leary, 1995; Gere & MacDonald, 2010; Williams, 2009). Consequently, it follows that if the need to belong is not met, then an individual will experience a decline in their well-being. Given the importance of being accepted by others, it is unsurprising then that individuals monitor their social interactions and environments for cues that allow them to respond to potential rejection (Kawamoto, Nittono, & Ura, 2014; Leary, 2005a; Pickett, Gardner, & Knowles, 2004; Pickett & Gardner, 2005; Williams, 2009). Therefore, the processing of social cues and the relational information communicated, appears to be at the heart of all interpersonal interactions (Pitts & Giles, 2010).

From an evolutionary perspective, social cues provide a source of relational information that can help people to: (1) avoid rejection from others, (2) provide them with verification of their relational worth and value to others, and (3) help to guide their social interactions (Leary, 2005a; Pickett et al., 2004; Pickett & Gardner, 2005; Wesselmann, Nairne, & Williams, 2012; Williams, 2009). According to Leary and Baumeister (2000) and Leary and Downs (1995), people pay attention to how others view them in order to satisfy their need to belong. This focused attention ultimately determines whether they are important, valued, and accepted by others (Leary & Baumeister, 2000; Leary & Downs, 1995). Several lines of research have suggested that individuals evaluate their relationships as well as any potential rejection through a social monitoring system (MacDonald & Leary, 2005; Pickett &

Gardner, 2005; Spoor & Williams, 2006). While the exact way this monitoring system works is not well understood, and different researchers focus on different mechanisms of detection, what is agreed upon is that this social monitoring system scans the social environment for social cues that provide relational information, and then relays any threats back to the individual via a psychological process such as decreased self-esteem or through physiological process such as an increase in physical pain (Eisenberger, 2011; Kross, Berman, Mischel, Smith, & Wager, 2011; Leary & Cottrell, 2013; Williams & Zadro, 2005). This response to any threats to the need to belong typically drives a person to perform actions that involve repairing relationships or reconnecting with other people (Pickett & Gardner, 2005).

Therefore, the importance of social cues and the subsequent attending to those cues is a critical part of the need to belong process. Understanding the social cues in any given environment, and the information these cues provide, then directly impacts upon a person's psychological and physiological functioning in an effort to alert them to any threats to their need to belong. Indeed, Williams and Zadro (2005) have stated that the psychological system used to detect potential rejection is sensitive and "indiscriminate" (p. 19). In other words, any potential threats to a person's need to belong are processed quickly, with the subsequent effects of that threat motivating an individual to restore social connections (Gardner, Pickett, & Knowles, 2005). Furthermore, Gardner, Pickett, and Brewer (2000) demonstrated in their seminal study on social cue processing, that individuals who experience threats to the need to belong are more likely to attend to, and remember, social or relational information compared to non-social information.

Social cues also provide a person with information that guides them through their social interactions. That is, people use social cues as tools to help them navigate and provide relational context during their interactions with others. Indeed, there has been a copious amount of research on face-to-face interactions, the role of social cues (both verbal and non-

verbal), and social exclusion. For example, Wirth, Sacco, Hugenberg, and Williams (2010) found that lack of eye contact was enough to threaten the need to belong and increase negative mood. However, more and more social interactions are not taking place in face-to-face situations. Technology, social media, and increasingly social networking sites are changing how people communicate with others, maintain their existing relationships, and initiate new social connections; with one popular way to interact with other people through the use of the social networking platform Facebook.

Facebook is currently the largest on-line social networking site with approximately 1.04 billion people logging onto the site every day (Facebook, 2016a). Facebook users can stay in touch with, and interact with their friends or relatives regardless of location, as long as there is an internet connection. Furthermore Facebook allows individuals to interact with multiple people in multiple social relationships at the same time. This means that the way people interact with others in this on-line environment is different to the more traditional ways associated with face-to-face interaction (Abele, 2011; Matsumoto, 2010; Stasser, Dietz-Uhler, & Birchmeier, 2011). While there are many ways that can differentiate on-line interactions to those that take place face-to-face, the nature of the on-line environment is such that, there are minimal social cues available to provide relational information (Abele, 2011). Since the more traditional cues that people rely upon to guide their interactions can be missing or minimised, this can present a challenge in understanding the quality and state of a relationship. For example, when people interact with others face-to-face, they can gauge the state of their interactions through the use of both verbal and non-verbal cues, such as smiling and voice tone (Thibault, 2010). Since social cues serve to both monitor and guide social interactions, an understanding of the social cues on Facebook that communicate relational information is vital in this ever-expanding world of on-line social connection.

## Aims and research questions

Given the numbers of people that currently use Facebook, and considering that this environment has become a mature on-line platform for social engagement, it is important to understand how social connection operates in this environment. Indeed, bearing in mind the role of social cues in both guiding and monitoring social interactions, it is necessary to comprehend the types of relational information that they communicate on Facebook. Therefore, the overall aim of this thesis is to explore and understand the social cues on Facebook that impart relational information, specifically the social cues that may indicate potential rejection and acceptance. An understanding of both the social cues that communicate relational information and how these social cues impact on the need to belong provides a practical application of how this research can benefit Facebook users. Additionally, a second aim is to determine whether a threat to the need to belong results in attention to particular types of social cues on Facebook, that is, which cues become salient? For instance, does a potential threat to the need to belong result in attention to social cues that communicate relational information relevant to rejection or acceptance or neither?

The need to belong is the foundation and guiding framework of this thesis, along with the premise that the monitoring of social cues is an integral part of the need to belong process. Furthermore, this research is theoretically important to advancing the understanding of the need to belong to the Facebook environment, as well as extending research into the social monitoring process.

A diagram of the research design along with the different methods used for each study is depicted on the next page (see Figure 1.1), along with the overall aim, secondary aim, and research questions. These will also be discussed in more detail after the flow chart.

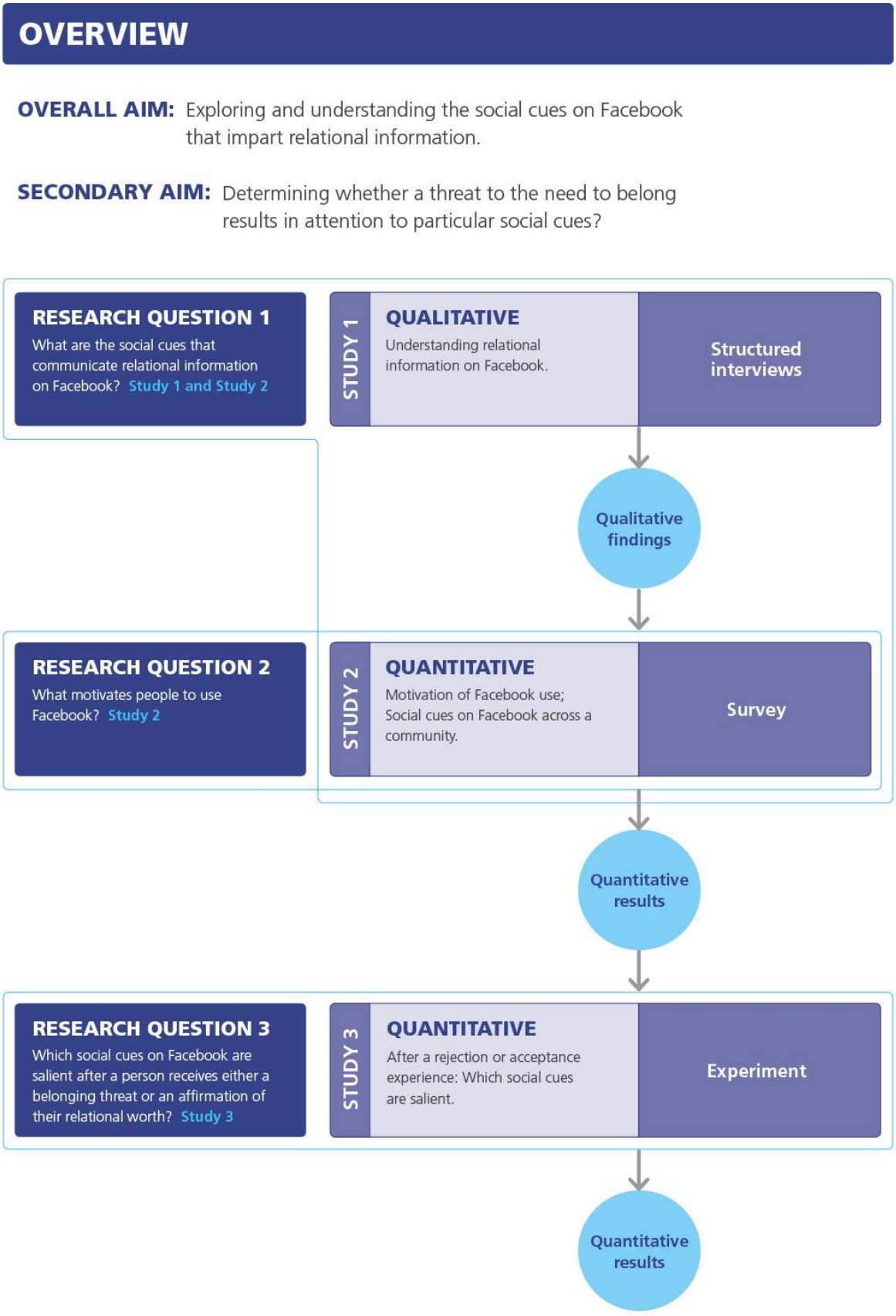



Figure 1.1. Flow chart of research design involving three studies with an exploratory sequential mixed method design. Model developed from Creswell and Plano Clark (2011).

Given that the overall aim of the thesis was to explore and understand the social cues on Facebook that impart relational information, specifically the social cues that may indicate potential rejection and acceptance, the first study allows for an initial exploration of the research. Such that, Research Question 1 is:

*What are the social cues that communicate relational information on Facebook?*

When there has been little research conducted on a topic, qualitative enquiry is a necessary place to start (Creswell & Plano Clark, 2011; Creswell, 2009; Hanson, Creswell, Clark, Petska, & Creswell, 2005). Structured interviews of a small purposive sample of known Facebook users will provide a useful starting point in addressing this research question. This method and approach is consistent with the recommendations of Marshall (1996) who stated that qualitative research is not only the best option when trying to understand social issues but also, that qualitative research needs participants who are "more likely to provide insight and understanding for the researcher" (p. 53). The findings of Study 1 will be analysed using Thematic Analysis and are reported in Chapter 3.

Study 2 extends on the findings from Study 1, and further investigates whether these findings are generalisable to a wider population. This will be done by taking the qualitative findings from Study 1 and developing a survey for relevant rejection and inclusion cues to confirm their importance, thereby increasing the validity of the social cues found in Study 1 (Greene, Caracelli, & Graham, 1989). Thus the second study continues to investigate Research Question 1:

*What are the social cues that communicate relational information on Facebook?*

However, an additional consideration of Study 2 is why people may be motivated to use Facebook. While Facebook has a mission statement that states people use Facebook to connect with other people (Facebook, 2016a), it is important to examine whether the need to belong predicts motivations to use Facebook. Therefore, Research Question 2 is:

*What motivates people to use Facebook?*

While this is not a new research question, the ever changing nature of Facebook as well as the features embedded in this platform, means that this is a question that needs to be investigated regularly. This research question is also consistent with the recommendations of Wilson, Gosling, and Graham (2012) who stressed the importance of the examination of this question regularly in light of the evolving nature of Facebook. Furthermore, Wilson et al. recommend that further research needs to examine the psychological processes that motivate Facebook use. This is also an important consideration of this research: if the need to belong does not underlie the motivation for people to use Facebook, then trying to understand the social cues associated with relational value would be difficult to undertake. The results of Study 2 are reported in Chapter 4.

Finally, Study 3 develops the findings from Studies 1 and 2 to investigate the role of social monitoring, Research Question 3 is:

*Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?*

Assuming Facebook is a social environment and people are motivated to use Facebook for social connection, then individuals should be utilising the available social cues to both guide their interactions and monitor the state of their relationships during their time on-line. In addition, it would be expected that when a person experiences a threat to their need to belong, they would be sensitive to the social cues and the relational information they communicate. Hence Study 3 uses the social cues identified from Study 1 and 2, and incorporates that information into an artificial Facebook page, which is designed to experimentally examine the social cues that are salient after either a threat to belonging or an affirmation of relational worth. This is similar to the experimental design used in the seminal study completed by Gardner, Pickett, and Brewer (2000) on social monitoring and the need to

belong. However, Study 3 will utilise features used within popular social networking sites, such as the ‘like’ button. Furthermore, the relationship between the need to belong and other psychological constructs (i.e., self-esteem, control, and meaningful existence), affect, and the type of social exclusion condition (belonging threat vs. affirmation) will also be examined. The results from Study 3 will be reported in Chapter 5.

## Outline of the Research Design

As previously shown in Figure 1.1, there are three main questions that guide these studies. The first question is qualitative in nature, whereas the other two questions are quantitative in nature. Therefore this research has used a mixed-methods design, specifically an exploratory sequential design. In this type of research design, the qualitative findings are used to inform the development of the quantitative components of the research (Creswell, 2009). In addition, when different types of research questions are asked, mixed-methods design is the best way to address this (Creswell & Plano Clark, 2011; Greene et al., 1989; Hanson et al., 2005). Therefore, this mixed-methodology allows for an initial understanding of the social cues that communicate relational value on Facebook, before using these findings to allow for further testing of those social cues in a survey and two experiments (Creswell & Plano Clark, 2011).

## Thesis structure

This thesis will have the following structure. This chapter provides an overview of the research giving a brief outline of the rationale and overall research design. Chapter 2 is used to provide a literature review of the need to belong, including the effects of social exclusion and the role of social monitoring, before summarising the prominent theories of social exclusion and the methods used to study social exclusion.

To further aid readability, each subsequent chapter after the literature review in Chapter 2 will start with the flowchart detailing the research questions addressed in that

specific chapter. The flowchart will highlight the type of methodology (i.e., qualitative or quantitative), as well as the type of method (i.e., interviews, survey, experiments).

Therefore, Chapter 3 will report the findings of a qualitative study, which used structured interviews to examine Research question 1 (*What are the social cues that communicate relational information on Facebook?*). Chapter 4 will report the results of a quantitative study, which used a survey to investigate Research question 1 (*What are the social cues that communicate relational information on Facebook?*) and 2 (*What motivates people to use Facebook?*). Chapter 5 will report the results of a pilot study and two experiments, which address Research question 3 (*Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?*). Chapters 3 to 5 will also contain a brief rationale and a mini-literature review that is specific to that chapter and associated study. Chapter 6 will provide an overall discussion on the findings and contributions of each study to the overall aim of the research as well as limitations of the present research, implications and suggested future research directions.

# Chapter 2 – Literature review of need to belong

The need to belong is both the foundational concept and guiding framework of this thesis. This chapter will provide an overview of the need to belong ("belonging") including conceptual challenges surrounding terminology, which is followed by a review of the physiological and psychological consequences that occur when a person is excluded. Following this, will be a discussion of the role that social monitoring plays as well as a summary of the prominent theories of social exclusion (i.e., Belonging Regulation Model, Sociometer Theory, and Williams Temporal Model of Ostracism). Finally, there will be a discussion of the methodological approaches typically used to examine threats to the need to belong and their limitations.

## Need to belong

One of the fundamental positions in social psychology is the importance of the need to belong, with people who do not show interest in social relationships consistently diagnosed as having psychological dysfunction (Baumeister & Leary, 1995; Leary & Kelly, 2009; Maslow, 1943). The need to belong can be defined as an essential motivation that drives all humans to create and maintain mutually satisfying relationships (Baumeister & Leary, 1995). These relationships are characterised by positive and encouraging interactions that are stable across time and give meaning to one's life (Baumeister & Leary, 1995). A large and growing body of literature provides strong evidence that the need to belong affects a person's thoughts, feelings, and behaviour (Baumeister & Leary, 1995; Gere & MacDonald, 2010; Leary, 2001). Furthermore, when examining contemporary understandings of psychological needs, the need to belong consistently appears as a fundamental need that people are required to satisfy to psychologically thrive (Deci & Ryan, 2000; Gebauer & Maio, 2012; Sheldon, Elliott, Kim, & Kasser, 2001). Indeed, it makes intuitive sense that if a person has strong interpersonal relationships that are characterised by encouragement and support, this leads to better

psychological outcomes. In addition, the benefits of having positive and stable interpersonal relationships are emphasised in research investigating social support, such that, satisfying social connections are a protective factor to a person's well-being. For example, in the health literature, people who report having important and supportive relationships in their life are more likely to report less cancer pain, decreased chest pain after heart surgery, and in general require less medication for pain (King, Reis, Porter, & Norsen, 1993; Kulik & Mahler, 1989; Langford, Bowsher, Maloney, & Lillis, 1997). Furthermore, the role of supportive relationships in the workplace provides a buffer against stress and burnout (Baruch-Feldman, Brondolo, Ben-Dayan, & Schwartz, 2002). Therefore, relationships that are characterised by stable, encouraging, and positive interactions provide a person with many benefits across different parts of their life.

From an evolutionary perspective, having successful interpersonal relationships played an important role in physical survival. Being part of meaningful, social relationships, as well as being a valuable group member, meant that other people successfully contributed towards the meeting of physiological (i.e., finding food and creating shelter), safety (i.e., protection from predators), and reproduction needs (Lakin & Chartrand, 2005; Leary & Cottrell, 2013; Spoor & Williams, 2006; Wesselmann et al., 2012). Put in a different way, a person without stable and supportive relationships had an *evolutionary disadvantage* compared to someone accepted and supported from a group and had others to share the load (Leary & Cottrell, 2013).

Nevertheless, for the need to belong to be satisfied there needs to be more than just social connection with a multitude of other people, leading to the conclusion that the *quality* of the relationship is paramount. This is why the need to belong is different and distinctive from affiliation (Leary, 2010). Affiliation can be described as merely interacting with other people, and therefore affiliation gives no indication of the exact quality, duration, or nature of

the relationship (Leary, 2010). While recent research has shown that minimal social contact such as exchanging pleasantries with a stranger can provide a person with positive benefits, it appears that these interactions only temporarily satisfy the need to belong (Sandstrom & Dunn, 2013). Perhaps the role of affiliation has more to do with the initiating of relationships, with people looking to create and start new relationships more likely to seek out opportunities to interact with others (Leary, 2010).

### Conceptual issues involving social exclusion

Before proceeding further, it is important to consider the conceptual issues surrounding social exclusion that is, where a person is rejected or ostracised by others. Various lines of research have focused on specific types of exclusion experiences and use quite specific terminology, notably ostracism (see Williams & Zadro, 2005; Williams, 2001a), rejection (see Leary & Cottrell, 2013; Leary, 2005b), and exclusion (see Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007; Twenge, Catanese, & Baumeister, 2003), although on occasion, the terms have been used interchangeably by the same researcher. While there has been some attempt made by researchers to empirically differentiate between the terms there appears to be fundamentally little difference in research outcomes (Williams, 2007). Indeed, the differences and similarities between all three terms is the subject of ongoing debate (Williams, 2009). Therefore, in this thesis the terms rejection, (social) exclusion, and ostracism will be used interchangeably in an approach similar to that of other literature (see Leary, Twenge, & Quinlivan, 2006; Williams, 2007).

Another important point involves the conceptualisation of rejection, and how this is often phrased dichotomously, that is rejection versus acceptance (Leary, 2001). By discussing exclusion as a dichotomous state, researchers often overlook that there can be degrees of rejection or inclusion (Leary, 2001; Williams & Zadro, 2005). Therefore, Leary (2001) suggested that a more helpful way to think of rejection is that this exclusionary state should

be viewed more as a continuum of relational value. This then allows for recognition of the differences in the type of relationships, and the importance that a person can place on them (Leary, 2001). For instance, acceptance is regarded more as

> a state of relatively high relational evaluation in which a person regards his or her relationship with another individual to be very valuable or important, whereas rejection is a state of low relational evaluation in which a person does not regard his or her relationship with another individual as particularly valuable or important (Leary et al., 2006, p. 112).

Therefore, when a person evaluates a relationship and feels that the other person does not value the relationship, they would feel rejected, whereas if they felt the other person valued the relationship, they would feel accepted. Thus, while the terms used to describe exclusion may vary, an important consideration regarding the *quality* or value a person places on the relationship needs to be acknowledged.

The use of the term relational value then acknowledges that people can view their relationships differently (Leary, 2001). For example, if an individual going on their morning walk goes past a group of strangers and says hello but no one responds, they may feel momentarily rejected but think no more of it. However, when that same person arrives home, greets their family and is ignored, this rejection may affect them more deeply, as their familial relationships would be more important to them than a group of strangers. Therefore, the individual experiences rejection not because they may have been ignored, but rather that their perception of relational value (e.g., reaction from family) is lower than they would desire.

Relational evaluation can also encompass different types of rejection experiences (Leary, 2001). Indeed, since exclusion can range from more subtle (i.e., use of language) to complete exile (i.e., banishment), this is an important consideration (Williams & Zadro,

2005). These examples acknowledge that there are different types of rejection experiences, but ultimately, all rejection occurs because people do not *value* the relationship they have with the other person (Leary et al., 2006; Leary, 2001). Therefore, the concept of relational evaluation offers a way to unify all research which has investigated exclusion (Leary et al., 2006).

**Social exclusion and the need to belong.**

Social exclusion occurs when a person is deprived of social contact by another individual or a group, and is demonstrated by a range of actions from being ignored to being completely cut out of another person's life (Blackhart, Nelson, Knowles, & Baumeister, 2009; Leary, 2010; Williams, 2007). Indeed, most people will experience rejection many times throughout their lifespan (Leary, 2010). Exclusion can be experienced by behaviours as simple and subtle as no response to a greeting, to more serious situations such as banishment from a family unit. To add to the complexity of rejection, individuals may also feel excluded by others even when they are included in groups or other activities (Bourgeois & Leary, 2001; Leary et al., 2006; Leary, 2010). For instance, when a person is included in group activities but perceives that the other people in the group do not like, respect, or value them. Indeed, another common theme of rejection is that of interpersonal expectations (Kelly, 2001). That is, when a person is involved with another in a relationship, there is an expectation that they will be included, encouraged, and supported, and when they are excluded their expectations are not satisfied or fulfilled (Kelly, 2001).

Throughout history, excluding individuals was seen as a 'death sentence', as ostracism meant that the person's basic needs went unsatisfied, and without the support of other people, a person's life-span would have been shortened (Catanese & Tice, 2005; Williams, Forgas, von Hippel, & Zadro, 2005). Indeed, excluding someone from a group or community could also be seen as a method to enforce social and group norms on those who deviated from

societal expectations (Leary & Cottrell, 2013; Wesselmann & Williams, 2013). Furthermore, exclusion appears to be a universal phenomenon, occurring across cultures (including ethnic, organisational, educational, and religious cultures), age ranges (e.g., childhood and adulthood), historical time, and medium (e.g., on-line) (Killen, Rutland, & Jampol, 2008; Williams, Cheung, & Choi, 2000; Williams, 2007). Rejection can be also be experienced in a variety of settings and interactions including physical exclusion from others (e.g., being exiled), being ignored or excluded when in the company of other people, and through the use of electronic media, also known as Cyberostracism (Williams et al., 2000). Regardless of where social exclusion takes place, the impact of rejection has wide ranging consequences.

**Physiological consequences of social exclusion**

It would seem reasonable to argue that when an individual is excluded from social situations or relationships that this would cause a negative emotional response such as hurt feelings, anxiety, or even sadness. A meta-analysis, containing 192 studies published before March 2007, has shown that participants placed in a rejection condition in experimental research, had significant mood shifts from positive mood or affect to a more negative feeling state (Blackhart et al., 2009). Furthermore, there seems to be an association between the emotional pain of rejection and physical pain, with a growing body of research finding that the same brain areas (e.g., dorsal anterior cingulate cortex: dACC), are active with both types of pain (Chen, Poon, & DeWall, 2015; Eisenberger, 2012; Eisenberger, Jarcho, Lieberman, & Naliboff, 2006; Eisenberger, Lieberman, & Williams, 2003).

The emotional response that occurs when a person is rejected from a relationship or when they experience declining relational value, is called social pain (MacDonald & Leary, 2005). Initial research by Eisenberger, Lieberman, and Williams (2003) investigated ostracism through neuroimaging of participants' brains while they played an on-line ball-tossing game known as Cyberball, a common paradigm used to threaten the need to belong in experimental ostracism research. They found that when participants were excluded from the

game, there was greater activity in the dACC region of the brain, the same brain region often associated with physical pain (Eisenberger et al., 2003). In a more recent example, Kross et al. (2011) used functional MRI scanning to examine physical pain and social pain experienced by a recent and unwanted break-up, and similarly found the same brain areas that support physical pain became active when participants viewed photographs of their ex-partner. Therefore, it appears that there is a connection in how the brain processes physical and social pain, with the brain understanding social pain in a similar manner to that of physical pain (Eisenberger, 2011). Indeed, given the similarity in brain functioning between social and physical pain it is therefore not surprising that the pain of rejection is often referred to using physical pain metaphors, such as "my heart is broken" (MacDonald & Leary, 2005).

While physical pain can be debilitating it appears that social pain may have longer lasting effects, and be more easily recalled than episodes of physical pain. For instance, in a series of experiments by Chen, Williams, Fitness, and Newton (2008), participants were asked to relive experiences of either physical pain or social pain or both types of pain, which were then rated on a 10-point pain scale. Participants were also asked to note the distance of time between pain events as well as how intense the pain was at the time and how often they recounted this experience to others (Chen et al., 2008). Chen et al. found that while participants could easily relive the social pain they experienced, physical pain was not as easily recalled. This research suggests that while social pain may actively trigger the same areas of the brain as physical pain, social pain is distinctive in that it can be easily recalled and re-experienced.

Since social exclusion actively affects the brain, researchers have turned their attention to whether rejection also interferes with cognitive functioning. In a series of experiments, Baumeister, Twenge, and Nuss (2002), found that participants who were told they would end up alone later in life experienced significant cognitive decline in tasks

involving logic and reasoning, compared to those participants who were told they have physical misfortune, or would end their life with stable and meaningful relationships. This threat to a person's future social exclusion did not impact on tasks such as reading or rote memory (Baumeister et al., 2002). Given the findings of the relationship between increased activity in specific brain areas (i.e., the posterior cingulate cortex, prefrontal cortex, dorsal anterior cingulate cortex, and medial frontal cortex) and ostracism, it seems likely that there is a link between the executive functioning of the brain and exclusion (Baird, Silver, & Veague, 2010; Buelow, Okdie, Brunell, & Trost, 2015; Campbell et al., 2006; Eisenberger et al., 2003; Kross, Egner, Ochsner, Hirsch, & Downey, 2007). Indeed, Buelow et al. (2015) concluded that even a single experience of rejection can negatively affect executive functions such as, problem solving and cognitive flexibility in both short and long term experiences of ostracism, and speculated that chronic and repeated exclusion experiences could lead to critical declines of executive functioning. The effects of social exclusion on cognitive decline is certainly cause for concern when considering that executive functioning controls attention processes, decision-making, and intelligence (Doty, 2012).

Recent advances in the field of endocrinology have also led to a growing interest in the effects that ostracism can have on a person's physiological functioning. Cortisol is a hormone that is associated with novelty and lack of control, but is also secreted when there are threats to an individual's need to belong (Dickerson & Kemeny, 2004). Stroud, Tanofsky-Kraff, Wilfley, and Salovey (2000) examined the effects of rejection on blood pressure and cortisol levels and found that participants who were ignored from conversations reported significant increases in blood pressure and cortisol levels. Since this study, more research has been conducted focusing on the impact rejection can have on other hormones (e.g. progesterone) as well as cortisol. The results so far have been mixed, with some studies showing an increase in cortisol and progesterone levels but other studies showing no

meaningful changes in baseline hormonal levels (Blackhart, Eckel, & Tice, 2007; Dickerson & Kemeny, 2004; Gaffey & Wirth, 2014; Maner, Miller, Schmidt, & Eckel, 2010; Weik, Maroof, Zöller, & Deinzer, 2010; Zwolinski, 2008, 2012). Researchers have also begun to broaden their investigations of physiological functioning and rejection into other biological responses. For instance, Gunther Moor, Crone, and van der Molen (2010) found that unexpected rejection produced a slowing of cardiac activity, which is associated with attention to, and orienting of aversive social cues (Bradley, 2009). While the results are as yet inconclusive in regard to the relationship between physiological functioning and social exclusion, there is enough evidence to suggest that there are physiological effects to rejection. However, while researchers still have a lot to learn in regards to social exclusion and the consequences to physiological functioning, as technology, neuroimaging equipment, and techniques improve, this will no doubt contribute towards more conclusive results.

### Psychological consequences of social exclusion

There is considerable research that documents and supports the idea that threats to the need to belong not only have an impact on physiological functioning, but also has consequences for psychological processes such as declines in self-esteem, the meaning a person experiences in their life, severity of depressive symptoms, and social anxiety (Brown, Silvia, Myin-Germeys, & Kwapil, 2007; Leary & Baumeister, 2000; Williams, 2009).

Self-esteem has been of interest to researchers as a fundamental psychological construct for a number of decades (Tafarodi & Swann Jr., 2001). Indeed there are copious amounts of literature on the benefits of a healthy self-esteem versus the difficulties that people face when they have low self-esteem (Leary & Baumeister, 2000; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995; Tafarodi & Swann Jr., 2001). Self-esteem is defined as the subjective appraisal that a person has about themselves (Heatherton & Wyland, 1998; Leary & Baumeister, 2000; Tafarodi & Swann Jr., 2001). A person’s self-esteem, either high or low, not only has a direct impact on their relationships but also has the potential

to influence every part of their lives (Leary & Baumeister, 2000). However, there is a great deal of controversy about the role and function of self-esteem, as well as how self-esteem might relate to the need to belong. For instance, one predominant theory, Sociometer Theory, states that self-esteem has no real purpose apart from monitoring the quality of interpersonal relationships, that is, self-esteem changes are used as an indicator of a person's relational value to other people (Leary, 2005a; Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995). However, Terror Management Theory asserts that people are motivated to seek out self-esteem because self-esteem functions as a buffer or protection against their fear of death (Harmon-Jones et al., 1997; Leary, 2004; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). Regardless of theoretical orientation, there is considerable evidence that supports the premise that self-esteem is associated with social interactions, such that when people experience threats to the need to belong, their self-esteem decreases (Knowles, Lucas, Molden, Gardner, & Dean, 2010; Leary et al., 1995; Sommer, Williams, Ciarocco, & Baumeister, 2001; Williams et al., 2000; Williams, 2009; Zadro, Williams, & Richardson, 2004).

Another psychological construct that appears to be affected by social exclusion is the need people have to maintain *control* over the social environment (Williams, 2009; Williams & Zadro, 2005). While the link between threats to the need to belong and self-esteem play an important and dominant role in social exclusion research, control has not generally been well researched or acknowledged in the great belonging literature (Williams & Zadro, 2005). This is surprising given the nature of some types of social exclusion. For instance, if a person stops taking a friend's phone calls then that friend has very little control over that situation, and there is very little they can do to either determine what went wrong or persuade the person to re-establish contact. In this type of scenario, the person who stopped the social contact maintains all the control over the situation (Williams & Gerber, 2005). Control also plays a

role in the aftermath of being excluded, with aggressive behaviour demonstrated to occur in some situations after a person has been rejected (Leary, Springer, Negel, Ansell, & Evans, 1998; Williams, 2009). It may be that aggression is done in retaliation to being rejected, such that, this type of behaviour takes place in an effort for the person to regain some sense of control over the situation (Warburton & Williams, 2004).

The final psychological construct discussed in the greater need to belong literature is that of meaningful existence, that is, thwarted belonging has the ability to threaten a person's morality and significance (Lambert et al., 2013; Twenge, Catanese, & Baumeister, 2003; Williams & Zadro, 2005; Williams, 2009, 2012). Indeed, some forms of exclusion are so severe, that the person undergoing rejection has an experience similar to that of being invisible or dead, with family and friends forbidden to interact with that person (Leary & Cottrell, 2013; Williams, 2009). While this type of ostracism appears cruel and unyielding, many cultures have used this form of exclusion as a form of punishment for deviant behaviour (Leary & Cottrell, 2013). Given that the need to belong is likely to support and promote meaning in life, it makes sense then that when a person feels that they are invisible to others this would certainly lead to feelings of isolation and helplessness, and ultimately impact on their sense of purpose and meaning in life (Lambert et al., 2013; Williams, 2012).

All of these psychological constructs (i.e., the need to belonging, self-esteem, control, and meaningful existence) are immediately affected when a person is rejected and have been shown to have significant correlations with each other (Gerber & Wheeler, 2009: Williams, 2009). Given the damaging effects of exclusion on both physiological and psychological outcomes, it is critically important that individuals monitor and respond to what is occurring in their social environment.

### Monitoring for rejection

Several different lines of research into threats to the need to belong and social exclusion, have all argued that human beings have an in-built monitoring system to detect the

social cues that provide important relational information. Williams (2009), and Wesselmann and Williams (2013) have stated that this monitoring system is so sensitive that it is set to notice the most minimal and insignificant cues of exclusion. Social cues provide the relational information that people need to assess the value that others place on their relationships (Leary, 2005a; Pickett et al., 2004; Pickett & Gardner, 2005; Tyler, 2008; Wesselmann et al., 2012; Williams, 2009). Furthermore, social cues also provide the relational information necessary to guide a person through the complexities of the social environment, such that people can then behave in ways that can reduce potential rejection (Leary, 2004; Leary & Baumeister, 2000; Pickett & Gardner, 2005).

In their seminal work on the need to belong and memory for social events, Gardner et al. (2000) investigated the effect that rejection would have on the recall of both social and non-social information. Participants who had their need to belong threatened recalled significantly more social information, compared to participants in the inclusion condition (Gardner et al., 2000). Furthermore, the type of social cue (e.g., positive or negative social information) did not make any significant difference in attending to, or remembering the relational information (Gardner et al., 2000). Therefore, when a threat to the need to belong is experienced, this then creates a sensitivity towards observing relational information.

This concept of social monitoring is further exemplified in work on facial expressions as social cues. In a number of studies examining the need to belong and the ability to accurately decode both verbal and non-verbal social cues, Pickett et al. (2004) demonstrated that participants' need to belong scores were positively correlated with greater accuracy in the correct identification of facial expressions and emotional voice tones. Later work by Bernstein, Young, Brown, Sacco, and Claypool (2008) showed that rejection enhanced the ability to detect differences between genuine versus fake smiles. Similarly, Dewall, Maner, and Rouby (2009) conducted a series of studies that focused on whether a threat to a person's

need to belong would create a greater sensitivity to smiling faces in a variety of methods (e.g., eye-tracking) and found supporting evidence that threats to the need to belong increased a participants attention to social information, in this case smiling faces. However, while the research on facial expressions and the need to belong do provide evidence for attention to social cues, there is also some debate as to whether facial expressions are an innate process or a social cue (Leary & Guadagno, 2004).

Pickett et al. (2004) suggested that understanding and correct decoding of social cues, requires an awareness of the meaning of a particular cue, which then impacts on the correct decoding of more complex or novel social cues. In face-to-face interactions, individuals are exposed to a number of verbal and nonverbal cues that provide them with the relational information necessary to determine their relational value to the other person. For example, in a face-to-face discussion a smile indicates social acceptance, whereas a scowl indicates anger or even rejection (DeWall et al., 2009; Kerr & Levine, 2008).

The specific mechanisms behind social monitoring are not well understood, although a sensitivity to social cues is typically discussed (Leary & Cottrell, 2013). Indeed, since reactions to potential exclusion are immediate, there can also be an over-detection towards social cues, to ensure that no cues are missed (Williams, 2009; Williams & Zadro, 2005). Furthermore, a person does not need to be actively taking place in social interactions for social monitoring to occur (Williams, 2009). For instance, Zadro et al. (2004) found that when participants were led to believe they were being rejected by computer-generated players during Cyberball, they still experienced a decrease in their need to belong, self-esteem, control, and meaningful existence scores as well as a less positive mood. These results suggest that even the most minimal cues of exclusion are powerful enough to create an adaptive response (Zadro et al., 2004).

MacDonald and Leary (2005) suggested that the social pain experienced by exclusion provides an emotional cue prompting a person to react to rejection and subsequently take action to remedy the situation. This reaction to potential threats is adaptive, in that social pain serves not only as a signal to alert the individual that something is wrong, but that they need to immediately attend to the situation (Williams, 2009, 2012). Indeed, there appears to be a number of similarities between the regulation of basic needs such as hunger, and the role of social cues to the need to belong (Pickett & Gardner, 2005). For instance, just as a person's stomach might rumble when they are hungry, social cues that signal potential rejection also cause a physiological or psychological response that brings attention to the situation (Pickett & Gardner, 2005). Therefore, social monitoring plays a critical role in the need to belong process. Clearly, social cues provide the relational information necessary for a person to determine whether there is a threat to the need to belong, with the detection of these cues creating an immediate physiological or psychological response.

## The need to belong and theories of social monitoring

As discussed earlier, it is well-established that social exclusion has a negative impact on a person's physiological and psychological well-being. To avoid rejection, human beings monitor their social environment for social cues that provide the relational information necessary to help them understand the state and quality of their relationships. Indeed, the leading theories of social exclusion all consider social monitoring as a vital first step in evaluating any potential threat to the state of those relationships. Therefore, while the need to belong provides a framework for understanding *why* individuals monitor social cues, social exclusion theories provide a framework for *how* individuals notice social cues. In the section below the prominent theories of social exclusion - Belonging Regulation Model, Sociometer Theory, and Williams Temporal Model of Ostracism, will be discussed and summarised as well as a description as to how social monitoring occurs in each theory.

***Belonging regulation model.*** Pickett and Gardner (2004) proposed a regulatory system for monitoring an individual's need to belong. The Belonging Regulation Model (BRM) addresses the processes and mechanisms of the need to belong and social exclusion, as well as proposing what actions occur after rejection to re-establish inclusion (Pickett & Gardner, 2005). The overriding premise of this theory is that as the need to belong is a fundamental need, and that a regulatory system is required to monitor belonging levels (Pickett & Gardner, 2005). This monitoring process may occur through the 'sociometer' (Leary & Downs, 1995; Leary & Baumeister, 2000) or some other type of monitor (Pickett & Gardner, 2005). If this monitor indicates that a person's belonging levels are satisfactory, then the system would be balanced and no further action would be needed (Pickett & Gardner, 2005). However, if the need to belong is assessed as unsatisfactory or a threat is detected, then the 'social monitoring system' is engaged (Pickett & Gardner, 2005).

Once the social monitoring system (SMS) is activated, an evaluation of the social environment is completed (Gardner, Pickett, Jefferis, & Knowles, 2005; Pickett & Gardner, 2005). This scan of the environment looks for social cues to provide information related to both the need to belong, as well as identifying any current opportunities to renew or establish interpersonal connection (Pickett & Gardner, 2005). That is, people will 'tune in' to cues that help them both anticipate and respond to their social interactions (Knowles et al., 2010). Hence, when an individual decodes the available social cues correctly, they are then able to reduce social exclusion and its effects, by evaluating if opportunities for any positive social interaction are available (Gardner, Pickett, & Knowles, 2005). If an opportunity for positive social interaction is present, the individual would then engage in pro-social or inclusionary behaviours, such as mimicry (Gardner, Pickett, & Knowles, 2005). Thus, the BRM proposes that the social monitoring system allows for a person to respond to any social cues of acceptance and rejection on an ongoing basis, with the SMS responding to potential threats to

the need to belong motivating an individual to perform behaviours that support relational value with others.

However, if there is no opportunity for positive social interaction, Gardner, Pickett, and Knowles (2005) suggest that other interim strategies such as 'social snacking' or 'social shielding' may occur. Social snacks are physical items that provide reminders of social connections (e.g. letters or photos), which are then used as a 'social resource' (Gardner et al., 2005). If no such reminders are available, then social shielding may then occur (Gardner et al., 2005). Social shielding provides a more protective strategy by defending against threats to belonging (Gardner et al., 2005). For example, if an individual has experienced social exclusion on Facebook, they may look through on-line photos of themselves with others as a reminder of their social connections (social snack) or log off Facebook (social shielding).

***Sociometer Theory.*** The core principle of Sociometer Theory (Leary & Baumeister, 2000; Leary & Downs, 1995) is that self-esteem is used as the 'sociometer' or monitor of the "degree to which people perceive that they are relationally valued and socially accepted by other people" (Leary, 2012, p.146). Relational value can be defined as the level to which an individual considers their relationships as important or significant (Leary, 2010, 2012). For instance, a person high in relational value would experience support and encouragement from others simply because the other person values the relationship (Leary, 2005). The sociometer operates subconsciously until a person detects a threat to their relational value (Leary, 2010).

There are then three psychological components that make up the 'sociometer': the monitor (i.e., unconsciously scans the environment and is sensitive to relational cues), the output (i.e., assesses the cues to the degree to which they affect relational value and acceptance by others) and the motivator (i.e., once the cues have been assessed, and the individual decides on a course of action) (DeAndrea, 2007). For instance, when a person observes social cues that are indicative of rejection (e.g., frowning) then a fluctuation would

occur to a person's state self-esteem as a social cue detecting potential rejection has been noticed, before motivating a person to behave in ways that would maintain their relational value (Leary, 2005, 2010; Leary et al., 1995). State self-esteem is then suggestive of a person's *immediate* relational value with other people, whereas trait self-esteem reflects the *typical* degree of acceptance that person would experience by others (Leary, 2012). Therefore, when a person is accepted, encouraged, and supported by a particular individual or group, that person's self-esteem would increase, they would regard their relational value as high and they would experience relational satisfaction (Buckley, Winkel, & Leary, 2004; Kelly, 2001; Leary, 2010). Conversely, when a person experiences rejection they would experience a decline in their self-esteem as their relational value to others decreases, and they would feel unsatisfied and unfulfilled in their relationships (Kelly, 2001; Leary, 2012).

Sociometer Theory has a similar premise to that of the BRM, in that both theories propose a monitoring system that alerts a person to any threats to the need to belong. That is, when people are concerned about their relational value to others, they become sensitive to the social cues in the environment that provide information regarding both the state and quality of the relationship (Leary, 2010). This relational information then aids them in either maintaining or restoring their relationships (Leary, 2010). It is important to note that some individuals may respond to potential threats by acting in anti-social ways, by either becoming aggressive or even withdrawing from those who have devalued them, but this would specifically depend on whether that individual values the relationship (Leary & Cottrell, 2013; Smart Richman, 2013).

***Williams temporal model of ostracism.*** Consistent with that of the other theories already discussed, the starting point of this model is that an individual detects a threat to their need to belong (Wesselmann & Williams, 2013; Williams, 2007, 2009; Williams & Zadro, 2005). Importantly, this detection system is highly sensitive, and detects even the slightest

cue of exclusion, with over-detection likely in order to avoid rejection (Spoor & Williams, 2006; Williams, 2009). This is followed by a reflexive response, which is characterised by pain, negative affect (i.e., sadness), and the depletion of the need to belong, self-esteem, control, and meaningful existence (Reflexive stage; Spoor & Williams, 2006; Wesselmann & Williams, 2013; Williams, 2007, 2009; Williams & Zadro, 2005). This response occurs regardless of the type of ostracism (i.e., cyberostracism or face-to-face), whether the ostracism is experienced or observed, and can occur even when it comes from a despised out-group such as the KKK (Gonsalkorale & Williams, 2007; Wesselmann, Bagg, & Williams, 2009; Wesselmann & Williams, 2013).

The second stage of the model (i.e., reflective stage) concentrates on how an individual responds to the ostracism threat, such as the motive, meaning, and relevance they give to the social exclusion threat (Wesselmann & Williams, 2013; Williams, 2009). This stage also incorporates "need fortification", that is, where individuals think, feel, and behave in ways that will protect them against the identified threat (Williams, 2009, p. 296). For example, if the need to belong or self-esteem is threatened, then that individual will display prosocial actions (e.g., being helpful) that will facilitate social inclusion, whereas threats to control and meaningful existence will result in aggressive behaviour (Williams, 2009). Interestingly, behaving in anti-social ways may indeed prolong a person's social exclusion (Twenge, Baumeister, Tice, & Stucke, 2001).

If however, ostracism continues over a prolonged period of time, then the individual would move to the resignation stage of the model (Wesselmann & Williams, 2013; Williams, 2007, 2009). In this stage, the person has failed to resolve the threat to their basic needs, there may be no positive interaction possible, or has accepted that there will be no end to their exclusionary state (Wesselmann & Williams, 2013). Indeed, Williams (2009) suggested that for each chronically thwarted need, there is a different outcome. For instance, depletion of the

need to belong contributes toward alienation and isolation, depletion of self-esteem contributes towards depression, depletion of control contributes towards learned helplessness, and depletion of meaningful existence contributes towards feelings of unworthiness (Wesselmann & Williams, 2013; Williams, 2009). While research on this stage of the model is limited, initial research has been encouraging and lends support to this stage of the model (Wesselmann & Williams, 2013; Williams, 2001a; Zadro, 2005).

***Rejection sensitivity theory.*** Another theory that proposes a social monitoring system that operates during interpersonal interactions is that of rejection sensitivity theory (Downey & Feldman, 1996). Downey and Feldman (1996) proposed that individuals who are predisposed to rejection, will monitor their environment for social exclusion cues only. In other words, people who are sensitive to the possibility of rejection and are anxious in social situations, will be hyper-vigilant for social cues indicating potential exclusion (Romero-Canyas & Downey, 2005). However, the difference between rejection sensitivity theory and the previously mentioned social exclusion theories, is that the monitoring system proposed by rejection sensitivity theory only scans for *social cues of exclusion* not those that indicate inclusion. In a similar way, people who are high in rejection sensitivity, are more likely to 'see' threats to their need to belong in behaviours or actions that may be present as ambiguous social cues (Downey & Feldman, 1996). Indeed, this preoccupation of people high in rejection sensitivity to see rejection everywhere can undermine their social relationships to the point of their behaviour leading to the thing they fear the most, that of social exclusion (Levy, Ayduk, & Downey, 2001).

## Methods for studying threats to the need to belong

In this section the different research paradigms used in social exclusion and ostracism studies will be discussed. These types of paradigms are typically used to threaten belonging in experimental research and are listed below. These paradigms may also manipulate other factors such as mood (Blackhart et al., 2009).

***Reliving rejection.*** This paradigm involves either asking participants to recall and write about a time they experienced rejection (Gardner et al., 2000) or when participants are primed with exclusion-related words (Sommer & Baumeister, 2002). This paradigm often uses different conditions as part of the experiment including an acceptance condition (i.e., where participants recall and write about times where they felt included (Bernstein et al., 2008), an academic failure condition (i.e., where participants recall and write about a time of academic failure (Pickett et al., 2004), and control conditions (i.e., recall and write about your drive/walk to campus today (Pickett et al., 2004). The problem with this type of paradigm is that rejection is generated from episodes involving the participants' past, but not their present experience (Gerber & Wheeler, 2009). For instance, some participants may have found a way to deal with their past rejection in a meaningful way, potentially minimising the effect of the paradigm on the participant's need to belong. Furthermore, this paradigm also fails to acknowledge the role of relational value in that, by asking participants to recall and write about a rejection experience, they could potentially recall a range of rejection experiences from not being selected for a job interview to that of a spouse refusing to engage in conversation. However, more recent research using this paradigm (for an example see Bastian et al., 2012) has corrected this oversight by asking participants to write about a time where they were rejected by another person.

***Future rejection.*** In this paradigm, participants complete a personality questionnaire where they receive feedback about their personality (Twenge et al., 2001). Initially, feedback is given concerning the participant's level of extraversion and is an accurate description, before moving onto made-up feedback about the other parts of their personality (Twenge et al., 2001). In the inclusion condition, participants are told that they will have flourishing relationships, a long-lasting, secure marriage, and life-long friendships, whereas participants in the exclusion condition are told they will end up alone towards the end of their life, their

current relationships will end, and they will have several brief marriages (Twenge et al., 2001). Often a third condition (e.g., accident prone) is used as a control condition where participants are told they will end up having many accidents and injuries throughout their life (Twenge et al., 2001). Potential issues with this type of paradigm are that participants could easily dismiss the predictions about their future as something that may or may not occur, depending on different circumstances.

***Ball toss.*** Participants arrive at a lab and are seated in a room with two other 'participants', who are actually confederates, while they await further instructions from a research assistant (Williams & Sommer, 1997). During this waiting period, one of the confederates observes a ball in the room, and start throwing this to the other people waiting there (Williams & Sommer, 1997). In the acceptance or inclusion condition, the participants all throw the ball to each person in the room for an equal number of ball-tosses, whereas in the ostracism condition after a specified length of time (e.g., 1 minute) the confederates only throw the ball to each other and completely exclude the participant (Williams & Sommer, 1997). While this type of paradigm allows for obvious and immediate rejection or inclusion of participants, it is restricted to the laboratory environment and involves training and using confederates.

Other paradigms have also been developed to create threats to the need to belong but rather than taking place in a laboratory, these paradigms can be run in an on-line environment.

***Cyberball.*** Cyberball is a virtual or on-line version of the ball tossing paradigm (Williams et al., 2000). Participants are told that they will complete a mental visualisation task, and that they will be playing with two or three other participants over the internet (Williams, 2007). In the inclusion condition, the participants receive the ball about a third of the time, where as in the rejection condition the participants only receive a couple of tosses at

the start of the game (Williams et al., 2000). The game lasts between 30 and 50 tosses (Williams, 2007). Cyberball can also manipulate the degree of rejection through the number of tosses the participant receives. Cyberball has been successfully used in over 120 studies investigating ostracism (Hartgerink, van Beest, Wicherts, & Williams, 2015) with large effect sizes. While these results bode well for researchers looking for social exclusion paradigms, the consideration that this is a well-used paradigm is also reason for concern in that participants may be familiar with what occurs in the game.

***Ostracism Online.*** Ostracism Online (Wolf et al., 2014) is a relatively new paradigm that uses symbols commonly associated with social networking norms to signify 'likes'. Participants are initially told they will be completing an on-line task with other people, but firstly, they will need to choose an avatar to represent themselves, and provide a short introduction to describe themselves to the other 'participants'. They are also told that the task will take 3 minutes and during this time they can read and interact with the other 'participants'. During the 3 minutes, the participant will receive different amounts of 'likes' depending on the condition they have been randomly assigned to. For example, 1, 5, or 9 'likes' although this can be changed through the programming. This paradigm was developed as an alternative to Cyberball, however at the time of writing, this paradigm had not yet been used in published research, making it difficult to know if it is effective beyond what the authors have found.

The paradigms listed above are the ones typically used by researchers interested in manipulating the need to belong. However, there are other types of manipulations used less frequently in research such as: Get acquainted paradigm (Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997), chat rooms (Gardner et al., 2000), mobile phone text messaging (Smith & Williams, 2004), immersive virtual environments (Kassner, Wesselmann, Law, & Williams,

2012), webcams (Godwin et al., 2014) and the O-Train (Zadro, Williams, & Richardson, 2005).

Each of the paradigms described above have been used to manipulate a participant's need to belong. However, there are differences between the types of paradigms, as well as some research limitations. For instance, the majority of the studies using these methods are restricted to the laboratory setting thereby, potentially limiting the participant demographic and ecological validity, although some paradigms such as Cyberball and the more recent Ostracism Online, have the potential for experimental research to take place in an on-line setting. Therefore, capturing a broader participant demographic as well as improving ecological validity.

Furthermore, the 'timing' of the rejection is different. For example, in Cyberball or ball-tossing paradigms the exclusion happens immediately, whereas in the future alone paradigm the participant has to manage the prospect of future rejection. Moreover, imagined or recalling previous episodes of rejection may produce different results from paradigms where participants are faced with current and immediate exclusion. These variances in research paradigms may have contributed towards inconsistencies found in the previous research.

Although there has been a vast amount of research into the need to belong, the research to date has mainly focused on threats to the need to belong within face-to-face interactions, without a full appreciation of what occurs in an on-line environment. However, in today's modern society, technology and social media play a critical role in helping people connect and communicate with others (McFarland & Ployhart, 2015). There are some similarities between face-to-face and on-line interactions, in that both environments do allow for people to communicate and interact with others. However, findings from previous research concerning the need to belong and face-to-face interaction have yet to be fully

examined regarding whether these results transfer across to the on-line environment. Indeed, given the many differences between on-line and face-to-face communication, it is quite likely that existing theories may need to be modified to 'fit' with the changes that are occurring within on-line relationships, and this may pose challenges to existing theoretical frameworks (McFarland & Ployhart, 2015).

It is therefore important to bear in mind that both forms of communication are unique. Indeed, if researchers want to a complete picture of the need to belong then investigating on-line interactions is an important consideration. There has been some work on social exclusion in an on-line setting, including seminal works on Cyberostracism such as Williams et al. (2000) that do provide important information regarding threats to the need to belong in an on-line environment. However, in light of the current technologies and ways that people interact with others on-line, previous research findings do need to be re-evaluated. For instance, Facebook, the most popular, global, social networking site, has only been available to the public since 2006, well after Williams et al.'s ground-breaking and oft quoted research. Indeed, Facebook, along with other social networking sites, have significantly changed the world of social interaction, and researchers need to ensure that they keep up with these changes.

As previously discussed, social cues provide relational information that people need to both assess their relational value to others, as well as guiding social interactions. In a similar manner to the existing literature on the need to belong, previous research on social cues has focused on verbal and non-verbal social cues in the face-to-face context. While more researchers are venturing into the on-line world to examine this unique social environment, there is little published data on the social cues that communicate relational information in an on-line environment. Given the many differences between on-line and face-to-face

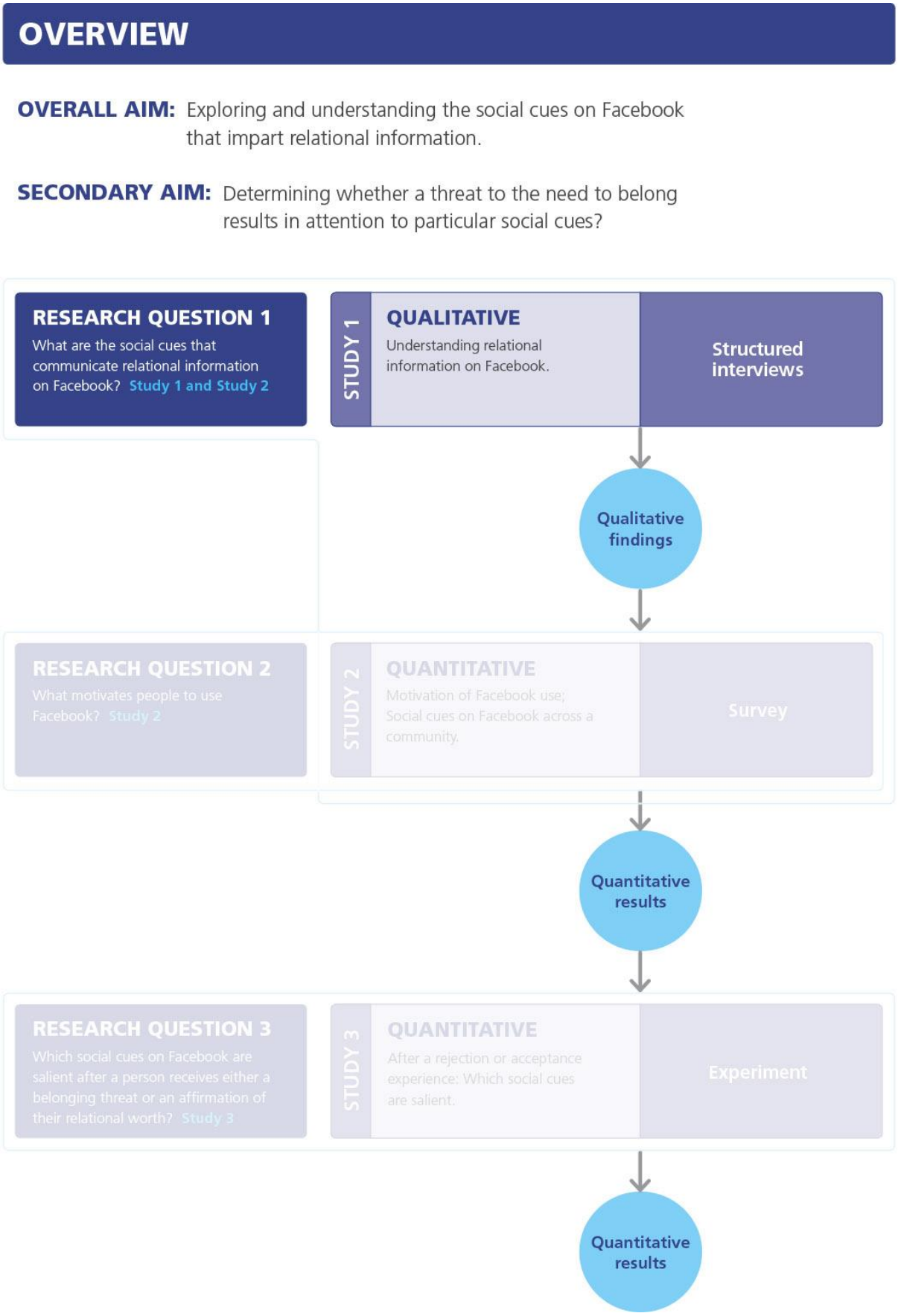
interactions, it is likely that social cues that provide relational information in this on-line world are also different to those that occur in the more traditional face-to-face context.

Despite researchers not yet embracing on-line interactions in as much depth as face-to-face interactions, there are paradigms currently being used by researchers that can manipulate participant's need to belong in on-line studies, most notably Cyberball and more recently, Ostracism Online. Furthermore, most research continues to be done in the laboratory environment and quantitatively, although a notable exception is Williams (2001) and Zadro's (2005) research involving interviewing targets of the silent treatment.

A major criticism levelled at social psychology, is that laboratory research may be far removed from a participant's familiar environment and therefore limits ecological validity (Jost & Kruglanski, 2002; Stasser et al., 2011). Research conducted using social networking sites and social media allows for an opportunity to conduct 'virtual' field research (Deters & Mehl, 2013), that is, using a participant's natural on-line environment. Furthermore, while a quantitative methodological approach does provide further insight into the need to belong, repeatedly using the same methods in the same way, means that researchers fail to capture the all of the complexities and richness of the construct (Zadro, Arriaga, & Williams, 2008).

Therefore, in summary, there are gaps in the research concerning the need to belong and the on-line social environment. Specifically, understanding the social cues that communicate relational information that is relevant to rejection and social acceptance in on-line environments, and whether existing social monitoring premises hold true to social networking sites. To address these gaps, this program of research explores the social cues found on Facebook, the largest global social networking site and relational information, specifically, the cues that indicate potential rejection and acceptance on Facebook. Given the importance of the need to belong, this thesis will extend the knowledge and research regarding the need to belong using an innovative methodological approach. Furthermore, to

increase ecological validity, this research will use both a paradigm based on manipulating the need to belong through a 'like,' as well as the construction of artificial Facebook pages to provide understanding of the social cues and relational information found on Facebook. This will be done through the creation of three types of artificial Facebook pages (i.e., Timeline, Newsfeed, and private message). These pages will incorporate specific social cues found on Facebook that convey relational information indicative of both increases and declines in relational value. Studies 1 and 2 will be undertaken to *identify* the social cues that are relevant to relational information on Facebook. Study 1 will be discussed in more detail in Chapter 3, and Study 2 will be discussed in Chapter 4. A description of the process and creation of these Facebook pages, including ethical considerations will be described in more detail in Chapter 5.


OVERVIEW
OVERALL AIM: Exploring and understanding the social cues on Facebook that impart relational information.
SECONDARY AIM: Determining whether a threat to the need to belong results in attention to particular social cues?
RESEARCH QUESTION 1
What are the social cues that communicate relational information on Facebook? Study 1 and Study 2
STUDY 1
QUALITATIVE
Understanding relational information on Facebook.
Structured interviews
Qualitative findings
RESEARCH QUESTION 2
What motivates people to use Facebook? Study 2
STUDY 2
QUANTITATIVE
Motivation of Facebook use; Social cues on Facebook across a community.
Survey
Quantitative results
RESEARCH QUESTION 3
Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth? Study 3
STUDY 3
QUANTITATIVE
After a rejection or acceptance experience: Which social cues are salient.
Experiment
Quantitative results

# Chapter 3 – Facebook: A platform for social connection (Study 1)

## Rationale

The previous chapter provided an outline of the need to belong and the consequences that occur when people are social excluded. The prominent theories outlining the need to belong and the importance of the role of social monitoring were also discussed. The importance of being socially connected to other people seems difficult to deny and in today's world the use of technology, in particular social media seems to be playing a bigger role than ever in helping people to create and maintain their relationships with other people. Indeed, on face value, the interactions that occur in the on-line world appear to be similar to those that occur face-to-face in that, the internet provides a platform for creating new relationships as well as providing space for maintaining relationships (Stasser et al., 2011). However, social media platforms can include different on-line environments including chat rooms, blogging sites, video sites, computer-based simulated worlds (e.g., Second Life), as well as social networking sites such as Facebook.

Facebook's mission statement is to "give people the power to share and make the world more open and connected" (Facebook, 2016a), making this an ideal environment to look at social connection and the cues that signify relational value. In December 2015, Facebook had an average of 1.59 billion monthly active users with 1.04 billion users accessing Facebook daily (Facebook, 2016a), making this the largest on-line social networking site on the internet. Indeed, Facebook also provides an alternate method of social connection for those people who are unwilling or unable to contribute to social interactions in more traditional ways (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013). Of course connecting with other people on-line also means that there is still the potential for people to experience rejection (Gross, 2009; Williams et al., 2000; Williams, 2002; Williams et al., 2002). Since Facebook became available to the public in 2006, the numbers of users have

increased exponentially. For instance, in 2006 there were 6 million users on Facebook compared to 2016 when the number of people using Facebook daily has changed to 1.04 billion active users (Facebook, 2016a). Given the number of people using Facebook, and the current gap in the need to belong literature, it is imperative that research is conducted investigating the impact that Facebook is having on relationships, specifically what a threat to belonging "looks like" in this particular social media environment.

As outlined in Chapter 1, this research involves an exploratory sequential mixed-method design, with a flow chart outlining the research depicted in Figure 1.1. As shown at the start of this chapter, Study 1 is a qualitative study that will provide an initial understanding of the social cues. Research Question 1 is:

*What are the social cues that communicate relational information on Facebook?*

The overall aim of this thesis is to explore and understand the social cues on Facebook that impart relational information, specifically the social cues that may indicate potential rejection and acceptance. In this chapter, the issue of social cues and relational information will be addressed by 1) reviewing what Facebook is, particularly as a means of social connection; 2) reviewing what social cues have been previously examined in an on-line setting; and 3) reporting the results from qualitative interviews that seek to understand specific social cues that communicate relational information, with a specific focus on the social cues that communicate rejection and acceptance.

## Facebook

Facebook was originally designed as a social networking site for Harvard University dormitory students, but since 2006 anyone over 13 years of age with a current email address can access the site (Stern & Taylor, 2007; Wilson et al., 2012). Facebook originated in the United States, but has expanded across the world, and is currently available in over 70 languages, with over 83.6% of regular users based outside of the United States and Canada

(Facebook, 2016a). Facebook users ("Facebookers") can log onto the website via apps on mobile devices (i.e., smart phones or tablets) as well as on personal computers (e.g. desktops or laptops). Currently there are on average, 934 million daily active users and 1.44 million monthly active users who access the site through mobile devices, and 1.04 billion daily users and 1.59 billion monthly active users (Facebook, 2016a).

When an individual joins Facebook they create a Facebook profile, which can contain personal details such as their name, gender, birthday, and a contact email address. They can also add facts about themselves such as personal interests (e.g. what television shows they like), add a profile photo as well as a cover photo, their current residential city, and other personal information (e.g. relationship status). Two important caveats should be noted at this time. Firstly, profile information is flexible in that Facebook users can update and change details and photos at any time, and users can choose to complete as much, or as little personal information as they like. For example, there is no requirement that users upload a profile photo, although most people do. Secondly, a Facebook user can choose privacy settings that can restrict who has access to the profile information. For instance, privacy settings can range from only Friends[1] viewing profile information to anyone completing a Google search for a particular person.

To promote social connection, Facebookers can search for Friends to network with, and then initiate Friend requests. Indeed, Facebook offers users the option of accessing and using a person's email and phone contacts and then searching for these people on Facebook. While individuals can assign familial labels to those people they are related or connected to (e.g. mother or brother), all social connections are simply referred to as Friends and are displayed as such. Friends can be off-line friends who may be well-known (e.g., school

[1] As per boyd and Ellison's (2007) recommendations, the term Friend will be used throughout this thesis to differentiate social connections made on Facebook to those relationships made off-line.

friends or work colleagues), or members of Facebook groups whom individuals have not met face-to-face. Once a Friend request has been accepted, these Friends are then added to a Friend list, which is then publicly displayed on the Facebooker's profile. This means that connected Friends can scroll through all of an individual's social connections, thus allowing Friends to search and connect with mutual Friends, and grow their own social networks. Once a Friend request is accepted, individuals can then communicate with their Friends by writing on their Timeline, inviting them to events, privately messaging them, 'chatting' with them or even 'tagging' them in photos or including them in public status updates and 'check-ins'.

A Facebook user can keep track of their Friends lives by viewing the Facebook Newsfeed, which is the first screen that appears when logged into Facebook. The Newsfeed is a regularly updated list of stories from Friends where Facebookers can 'like' or comment on their Friend's status updates, as well as updating their own status and uploading photos. When a person updates their status, this then alerts their Friends to where they are, what they are doing, the mood they are in, or thoughts that they have. For example, an individual may update their status to say they are having a bad day or they may 'check-in' with a group of Friends at a local restaurant or movie.

### On-line communication cues

The previous chapter discussed three prominent theories of social exclusion that is Sociometer Theory, the Belonging Regulation Model, and Williams Temporal Theory of Ostracism. All of these theories focus on the importance of social cues in terms of monitoring interactions as well as providing information that can guide interactions. That is, social cues provide a rich source of relational information that can help people to: (1) avoid being rejected, (2) affirm their relational worth and value to others, and (3) guide their social interactions (Leary, 2005a; Pickett et al., 2004; Pickett & Gardner, 2005; Wesselmann et al., 2012). Given that Facebook is an on-line environment which encourages and facilitates social

connection, it is therefore important to understand what social cues in *this* setting provide relational information that is necessary to both guide and monitor social interactions.

Face-to-face communication research has identified a wealth of cues, both verbal and non-verbal that an individual can use to interpret social information (Thibault, 2010). However, on-line communications are different from face-to-face communications for a number of reasons including: (a) physical presence of the person communicating or location, (b) the type of communication is usually typed text, (c) different degrees of synchronicity (e.g., simultaneous interactions in a chat room or a delayed response from email communication), and (d) communications between others can include options such as animations and multimedia (Abele, 2011; Barak, 2007; Thimm, 2010). While on-line communications may be richer in one way (i.e., the use of multimedia), in other ways on-line communication can result in potential miscommunication, usually through ambiguity (Barak, 2007; DeAndrea, 2007; Williams, 2001). Indeed, Williams (2001) has stated that ambiguity in interpersonal communications makes a rejection experience stronger, as the person lacks important information needed for a full understanding of the situation. Similarly, Mantovani (2002) argued that when ambiguity was present during on-line communication, social interactions lacked context, thereby contributing to potentially problematic and misinterpreted interactions. Consider the following example of the differences between on-line and face-to-face communication. In a face-to-face interaction where one person approaches another person and says “What a Friend you are,” observation of the other person’s verbal cues of voice tone (i.e., raised and exaggerated voice tone, deliberate emphasis on certain syllables), facial expression (i.e., eye rolling), and body presentation (i.e., tense or exaggerated movements) can allow an interpretation that what they are saying is sarcastic, and that they probably mean the opposite of what was said. However if someone received that same private message on Facebook, it is likely that in the absence of social cues,

a person could take this message to mean that the other person values their Friendship. Clearly, when it comes to on-line social cues, there may be more opportunities for miscommunication of relational information and potential increases in interpersonal conflicts. Therefore a difficulty with on-line interactions is that there are minimal social cues available in an on-line environment (Abele, 2011; Walther, Loh, & Granka, 2005). Indeed, Wesselmann and Williams (2011) proposed two significant differences between face-to-face and on-line communication; anonymity and the lack of available social cues to guide relational information. In the following section, details regarding the cues that have already been investigated in on-line environments will be discussed in more depth.

**Silence.**

An on-line social cue that can be ambiguous and also contribute to problematic interpersonal difficulties is silence. This lack of response to any form of on-line communication, makes it difficult for an individual to determine what is happening, as they are unable to seek clarification from the source (Panteli & Fineman, 2005; Thimm, 2010). When individuals are subjected to on-line silence it may lead to feelings of isolation and/or frustration, trust can be eroded in the other person, and these feelings may consequently contribute to relational difficulties (Panteli & Fineman, 2005). Furthermore Williams et al. (2000) argue that the way in which an individual interprets a given situation and gives meaning to on-line silence also has the potential to threaten belonging. For example, if a person sends a private message to a Facebook Friend and receives no response, the way they attribute this silence can pose a threat to their need to belong. That is, if the person attributed the lack of response to the other person not being on-line and thought that they would reply when they could, they would not feel ignored or rejected. However, if they attributed the lack of response to disinterest or rejection, they would be more likely to feel hurt and upset, and subsequently experience a decline in their relational value.

Tobin, Vanman, Verreynne, and Saeri (2014) investigated the impact of receiving no feedback on Facebook status updates compared to receiving feedback on Facebook status updates. Participants who received no response to their status updates experienced lower scores on their need to belong, self-esteem, control, and meaningful existence compared to participants who did receive a response. These results demonstrate strong and consistent support for a wide body of work on ostracism and the effects of the 'silent treatment' (for examples of the effects of silence, see Chen et al., 2008; Smith & Williams, 2004; Williams, Shore, & Grahe, 1998; Williams & Gerber, 2005).

**Photos.**

Another cue which is helpful in on-line communications are photos (Toma & Hancock, 2010; Wang, Moon, Kwon, Evans, & Stefanone, 2010; Young, 2011). Facebook allows all users to create a profile, which may include the addition of profile and cover pictures or photos. There has been research to suggest that visual cues such as photos play a role in communicating social information in an on-line environment. For example, Wang et al. (2010) found the attractiveness of a profile photo chosen was an important visual cue when Facebookers were choosing who to initiate friendships with, when other visual cues were reduced (i.e., if there was no personal photo uploaded). Similarly, research examining on-line dating sites, has demonstrated that attractive profile photos are important in relationship initiation (Toma & Hancock, 2010). Indeed, attractive individuals are more likely to be perceived as likeable and therefore would be seen as having high relational value by other people (Leary & Baumeister, 2000). However, while photos may provide relational information about a person, photos may also be more closely associated with impression management and self-affirmation than the need to belong.

In regards to what is contained within the photo, Milyavskaya, Reoch, Koestner, and Losier (2010) examined the role of photos as a cue indicating a person's social connectedness or relational value. In a study investigating impression formation and photos, they found that

when photos contained two people, then the person in the photo was perceived more positively than when only one person was in the photo (Milyavskaya et al., 2010). Photos also provide information about character traits. For instance, Toma (2013) demonstrated that a Facebook profile photo of someone who was smiling, increased other peoples' perception of how "trustworthy" that person was. So while these two studies provide information into how particular characteristics may be perceived by others, how relevant this is to social cues and relational information on Facebook, has yet to be fully identified by research.

**Emoticons.**

Given how ambiguous on-line interactions can be, a visual cue can provide context to social interactions. Emoticons are described as icons that show emotion (e.g., ☺), and are typically used in text-based communications, with research indicating that these visual symbols do enhance text-based statements (Derks, Bos, & Grumbkow, 2007; Skovholt, Grønning, & Kankaanranta, 2014; Thimm, 2010). Given that asynchronicity is a notable difference between face-to-face and on-line communication, the use of emoticons in messages demonstrate a thoughtful and deliberate action that can provide clarity in social situations. In 2012, Facebook added emoticons to the private messaging system in order to assist users in bringing their 'conversations to life' (Facebook, 2016a). While the use of emoticons on Facebook has not been thoroughly investigated, the use of emoticons in emails has successfully demonstrated that as a communication tool, emoticons do increase message clarity (Skovholt et al., 2014). Furthermore, emoticons can also be used to 'soften' negative feedback or as a mark of humour (Skovholt et al., 2014). Thus, emoticons do provide a measure of social context beyond merely being used to identify emotional content (Derks et al., 2007; Skovholt et al., 2014).

More recently emojis (e.g., 😻) have evolved to further expand the emotional content available through the use of emoticons (Negishi, 2014). In a number of interviews about the use of technology in computer-mediated conversations, Kelly and Watts (2015) found that

emojis kept ‘coming up’ as a method people use to satisfy their on-line communication needs. While the study was not focused on the role of emojis in communication per se, Kelly and Watts suggested the range and selection of emojis in on-line communication means they can be used as a tool to enhance relational value through playfulness or intimacy within on-line social interactions.

**Likes.**

Facebook has created a brief way for their users to positively communicate with their Friends. A ‘like’ (i.e.,  ) acknowledges that a Friend has enjoyed what has been written or posted, without having to leave any comments (Facebook, 2016b). In recent research investigating the phenomenology of Facebook use through the use of interviews and diaries, Ferrucci and Tandoc (2015) found that ‘like’ was used as a method to handle expectations in regards to how others understood personal actions. For instance, ‘likes’ can be seen as a response to a Friends’ updates or uploaded photos but ‘likes’ can also be used as a way to fulfil social obligations. That is, ‘likes’ can be used as a sign of social support for what a Friend is going through (Ferrucci & Tandoc, 2015).

‘Likes’ can also be used as an evaluative tool for Friends and other users to gather information, that is ‘likes’ can be used to assess how valued a person is by others (Ferrucci & Tandoc, 2015). Similarly, Toma (2013) found that ‘likes’ were used as a self-presentation tool, in that ‘likes’ can be seen by other users as confirmation that this person is someone who is surrounded by people who support and approve of them. Organisations have also taken note of the ‘like’ and embraced the concept as an evaluation tool and marketing strategy regarding brand loyalty (Wallace, Buil, de Chernatony, & Hogan, 2014). Indeed the ‘like’ is seen as a powerful communication tool, such that Facebook is currently investigating other types of empathy-reflecting features (Smith, 2015).

### Profile information.

Facebook user profiles contain a large amount of information that can be used by others to form impressions about that particular user. As previously discussed, this type of cue can be more closely related to self-presentation, although Facebook profiles do contain important information about the existing relationships the person has. For instance, even the number of birthday wishes that a person receives can be seen as a public indication of whether a person is valued by others (Greitemeyer, Mügge, & Bollermann, 2014). Furthermore, information such as the number of Friends a person has can be used to determine whether a person is likeable and popular to others (Utz, 2010). However, if a person has too many friends that can be seen as being ingenuine, with those Friendships perceived as superficial rather than as real (Donath & boyd, 2004; Tong, Van Der Heide, Langwell, & Walther, 2008). Indeed, given the asynchronicity of on-line communication, people can spend a large amount of time crafting responses to others, choosing flattering profile pictures, or writing comments in an attempt to present the Facebook user as likeable and attractive to others (Lampe, Ellison, & Steinfield, 2007; Toma, 2013).

### Unfriending.

Defriending or unfriending is when a person deliberately choses to delete a Friend from their Friend list (Facebook, 2016b). This termination action does not require any interaction or permission from the other person (Facebook, 2016b; Sibona & Walczak, 2011). There can be a number of reasons that someone might choose to deliberately delete a Friend from Facebook, but one of those reasons is a change in the relationship (Sibona & Walczak, 2011). While unfriending appears harsh, the Pew Internet and American Life Project report on privacy management on social media sites, found that unfriending is not uncommon with 63% of survey respondents deleting people from their Friend's list (Madden, 2012). Bevan, Pfyl, and Barclay (2012), and Sibona (2013) found that Facebook users who were unfriended, often experienced a decline in mood.

While Facebook activity can play a role in supporting existing relationships, unfriending would seem to indicate that the relationship has no further value. At the time of writing this thesis, an Australian Fair Work Commission has found that unfriending someone on Facebook can constitute bullying within the workplace, with a chief business executive declaring that actions that take place on social media are the same as those that occur in a face-to-face environment (Ogilvie, 2015). More importantly, these types of comments reflect the cross-over and consequences of managing relationships in both on-line and face-to-face settings.

### Overview of Study 1

The overall aim of this research is to explore and investigate social cues on Facebook, specifically the social cues that may provide relational information regarding potential rejection or acceptance. Research question 1 asks:

*What social cues on Facebook communicate relational information?*

Currently, the research examining on-line social cues is in its infancy, with a scarcity of research examining specific social cues on Facebook that communicate relational information regarding rejection and acceptance. Therefore, qualitative enquiry is a necessary place to start to create an initial step in the understanding of this topic (Creswell, 2009; Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005). This research was therefore exploratory, and will be used to develop and inform Study 2.

## Method

### Recruitment and participants

Ethics approval was received from the University of Southern Queensland (USQ: approval number H13REA067) before any research was commenced. Initially, 25 email or Facebook private messages were sent to members of the researcher's wider acquaintance network. This purposive sample was chosen as it allowed easy access to participants who

were active on Facebook (and so are familiar with the Facebook platform), had a wide range of ages and occupations, had good gender representation, and lived in various parts of Australia. Marshall (1996) has stated that purposive sampling is an appropriate choice as these participants are able to give a richer understanding of the phenomena of interest. Participation was voluntary and the first 20 people who replied were the ones chosen. Twenty participants are considered an acceptable number to be able to identify any patterns or themes in the data when using thematic analysis (Braun & Clarke, 2013). There was no incentive offered for participation.

Twenty Facebook users (7 males, 13 females) participated in the study. The participants ranged in age from 18 to 69 ($M$ = 37.4, $SD$ = 15.70). All the participants lived within Australia, with the majority living in Southern or South East Queensland ($n$ = 15). The mean amount of time spent on Facebook each day was 39 minutes and the mean number of times Facebook was accessed each day was 5.08. Two participants stated they were constantly connected to Facebook via smart phones, but were able to say how often they accessed the site. To ensure participant anonymity, pseudonyms will be used throughout the subsequent results and discussion (Braun & Clarke, 2013).

## Design and Procedure

Structured interviews took place either face-to-face at a place of the participants choosing (e.g., university refectory) or over the telephone. For those participants whose interviews took place over the telephone, consent forms and study information (see Appendix A) were emailed to the participant and received back via email, before the interview commenced. The information sheet outlined the research, participation procedures, confidentiality, withdrawal of data, and data security. The participants who were interviewed over the telephone also confirmed their participation and information verbally before the interview commenced.

Each participant was asked in a structured interview, two open-ended questions regarding their rejection and inclusion experiences on Facebook. The specific questions asked were "What experiences on Facebook make you feel socially included?" and "What experiences on Facebook make you feel socially rejected?" These two questions were asked to identify the social cues on Facebook that communicated relational information, specifically social cues imparting information regarding social inclusion and exclusion. Participants were asked one question at a time, and were prompted to give specific examples if they could. Every second participant interviewed had the second question asked first. Answers were recorded using paper and pen, as the researcher was experienced in the manual recording of structured interviews. Furthermore, responses were read back to participants to ensure accuracy. Interviews lasted between 15 minutes to one hour, and were immediately transcribed into Microsoft Excel after the interviews. Using a largely deductive process, the data were analysed using thematic analysis, which was informed by Braun and Clarke (2006).

Thematic analysis (TA) approaches have an advantage over other types of qualitative analysis methods as TA allows for theoretical flexibility, and provides a method for reporting patterns in the data and interpretation of the data (Braun & Clarke, 2006). Indeed thematic analysis methods are the qualitative equivalent of factor analysis (Pistrang & Barker, 2012). As such, thematic analysis is appropriate for this study, which was to explore and investigate the social cues that communicate relational information and consequently to identify specific themes or categories within the data.

There are six steps completed during a thematic analysis. The initial step was to become familiar with the data (Braun & Clarke, 2012), and this was done by reading the interview notes multiple times to become familiar with the participants' responses. During this step the data was also transcribed from the handwritten notes taken during the interviews to an Excel spreadsheet.

The second step involved generating initial codes to aid with the interpretation of the data (Braun & Clarke, 2012). The interview questions focused on the participant's experiences of social inclusion and exclusion on Facebook, but also allowed for other further interpretation within the need to belong framework. Thus, the type of relational information was firstly determined, and then the specific type of social cue. An example of this coding process is when coding participant's responses, a corresponding main theme was firstly given, and then subsequent sub-themes were identified. For instance, the response "when someone doesn't respond to my messages or requests", would firstly be coded as *Social exclusion* (main theme- relational information) and then *Silence* (sub-theme).

The third step involved searching for the main themes identified by the data as well as the creation of sub-themes (Braun & Clarke, 2012). Taken together, the main themes and sub-themes informed the overall story of social cues and relational information on Facebook (Braun & Clarke, 2012). For example, *Social inclusion* was established as one of the main themes of relational information, with *Relationship affirmation* categorised as a sub-theme specifying a particular type of relational information informed by specific social cues.

The fourth step reviewed the coded responses in each sub-theme against each main theme to ensure those items 'fit' (Braun & Clarke, 2012). For this step, each coded response was firstly assessed for 'fit' against the definition of each identified main theme, before further examination to ensure this response supported a specific sub-theme. This was a particularly important step when coding those responses that addressed the Facebook experience, rather than being directly relating to relational information. For example, the comment "Do lurkers not comment on posts due to exclusion or rejection? The same people comment all the time, do others not care?" was considered an observation of rejection rather than specifically informing any main themes. At this point it became apparent that there were 3 main themes or types of relational information: *Social inclusion*, *Social rejection*, and

*Social comparison*. There were also a number of sub-themes that identified specific social cues that informed each main theme, that is, there 5 sub-themes in *Social inclusion,* 5 sub-themes in *Social rejection,* and 2 sub-themes in *Social comparison*.

The fifth step was defining and naming the 'essence' of each main theme and sub-theme (Braun & Clarke, 2012). This step allowed for detailing the distinctiveness about each main theme and sub-theme, so as to inform the overall story of the data (Braun & Clarke, 2012). The final step was to write the report of the analysis which is recorded in the following section (Braun & Clarke, 2012).

## Findings

As the two questions asked were about quite specific experiences, it was unsurprisingly that *Social inclusion* and *Social rejection* were two of the main themes of relational information identified from the interviews. Unexpectedly, a third main theme of relational information was identified, that of *Social comparison.* A table of the main findings is presented below (see Table 3.1). Each main theme and consequent sub-themes are accompanied by relevant quotes from the participants to further clarify each sub-theme, and are found after the table.

Table 3.1
*Summary of Study 1 main findings*

| Main theme | Sub-theme | Key activities |
|---|---|---|
| Social inclusion | Relationship acknowledgement | Inclusion in status updates, tagging, invitations - event and groups, relationship updates |
| | Thinking of me | Receiving messages, birthday wishes, receiving interesting posts |
| | Relationship affirmation | Receiving 'Likes' and comments |
| | Relationship initiation | Receiving Friend requests, Friend requests accepted |
| | Supportive relationship activities | Support for existing relationships |
| Social rejection | Being omitted from friendship activities | Not being included/invited to offline activities, not acknowledged in activities even if there |
| | Criticism | Judgements or negative views that are made public |
| | Relationship betrayal | Trust is broken, disloyalty to relationship |
| | Silence | No response or acknowledgement |
| | Relationship termination | UnFriending |
| Social comparison | Positive social comparison | More Friends than others, "busy" Wall, more 'Likes' |
| | Negative social comparison | Friends have more 'Likes' than you, others going to places that you wish to go, more positive comments |

## Social Inclusion on Facebook

This main theme described types of positive relational information, such that participants' perceived they were social included on Facebook. Therefore, *Social inclusion* was broadly defined as relational information that demonstrated that an individual was directly or actively included, involved or accepted in relational or social activities when using Facebook. Each sub-theme emphasises a particular type of relational information that was conveyed by specific social cues found within Facebook. Within the *Social inclusion* main theme there were 5 distinct sub-themes that were identified: *Relationship acknowledgement, Thinking of me, Relationship affirmation, Relationship initiation,* and *Supportive relationship activities*.

### Relationship acknowledgement.

The first sub-theme that emerged was *Relationship acknowledgement*. This sub-theme emphasised social cues that showed how an individual's relationship with another Facebook user was acknowledged through inclusion in status updates, tagging, event invitations, or relationship updates. For example, thirteen participants spoke about feeling socially included when they are invited to events, as well as being tagged in check-ins or tagged in photos with others.

It may be that the recognition of a relationship through particular public actions (i.e., being tagged in a status update) signalled to others that, this individual was highly valued by another person. An example of a public declaration of a relationship included the change in off-line relationship commitments:

> When my boyfriend changes his relationship status to "in a relationship" (Alexia).

Another aspect of this sub-theme was group membership, either when participants were invited to join groups by others with similar interests or, the participant requested and was accepted into groups that restricted membership (i.e., a closed group). For example:

> When I get included in a closed group like a group of Friends from school (Penny)

> Group messages, both private and on my time-line (Daniel).

These quotes showed the importance of group membership as part of social relationships.

### Thinking of me.

The second sub-theme identified social cues that indicated relational information that others were *Thinking of me*. This sub-theme emphasised cues that were initiated by Friends, without pressure or prompting from the individual. For example, many participants felt included when Friends posted messages to them via their Timeline or privately through the

messenger function. These messages were viewed as supportive or encouraging particularly when an individual was going through a difficult time. For example:

> When I receive private messages from people going through a similar situation such as a breakup, I feel like I am receiving a virtual hug, which gives me validation from others (Pixie)

> When I receive private messages from others when I am not as active as I usually am like “Are you okay?
> (Mason).

Other social cues reflected activities initiated by Friends included posting birthday wishes on an individual’s Timeline or links of something a Friend thought that the individual may be interested in. For example:

> When people put links to my wall of things they think I will like e.g., shoes
> (Belle).

All of these quotes suggested that these types of social cues demonstrated relational value, such that, other people acted in ways that would successful enhance and thus, maintain the relationship they had with a person.

### Relationship affirmation.

The third sub-theme that emerged was *Relationship affirmation*. This sub-theme emphasised social cues that provided affirmation from Friends for something the participant had done on Facebook. An example of this type of social cues was when a participant uploaded a photo or posted a status update and Friends ‘liked’ or commented on those actions. For example:

> When you express your opinion and you get lots of positive comments and ‘likes’ you feel like you've been heard
> (Erin).

Affirmation from others showed to an individual that they are valued, particularly when participants received ‘likes’ from Friends who held differing values or who did not typically engage with others on Facebook. For example:

> When people who rarely comment or 'like' or respond to anything like your status, particularly when they hold an opposing viewpoint to you
> (Mason).

Other types of affirmations include receiving responses from Friends in a more practical and off-line interaction. For example:

> When people post that they need something, like a ride to the doctors, and people respond and take them
> (Jane).

### Relationship initiation.

The fourth sub-theme that emerged was *Relationship initiation*. This sub-theme emphasised social cues that demonstrated the initiation or creation of new Facebook connections. Overwhelmingly, this was regarded as receiving a Friend request, regardless of whether this was from someone already known in the off-line world or a stranger. For example:

> When my photos or check-ins result in a Friend request
> (Alexia).

This sub-theme also included social cues where a participant sent a Friend request and it was accepted. Both types of initiation actions signalled that when an individual sends a Friend request, which is accepted or receives a Friend request from another person, that other people were interested in having a relationship with them. Therefore, suggesting that they have high relational value to other people.

### Supportive relationship activities.

The fifth sub-theme that emerged was *Supportive relationship activities*. This sub-theme emphasised social cues where either the participant or their Friends initiated actions that supported existing relationships. For example:

> I feel included by keeping in contact with old Friends through posts, messages, and comments. I feel like I am still part of their life even if I live away from them
> (Alisha)

> Chat with family members on 'Chat' when you live far away from them
> (Luke).

These quotes expressed the importance of maintaining social connections regardless of geographical distance, something that Facebook is ideally suited for.

## Social Rejection on Facebook

This main theme described negative relational information, such that participants' perceived that they were being socially rejection. *Social rejection* is defined as relational information that indicated an individual was directly or actively deprived of relational or social activities by individuals or groups when using Facebook. However, given the nature of social exclusion and the complexity involved with the perception of rejection and on-line interactions, this theme also incorporated when a participant *read* about events or situations on their newsfeed from which they have been excluded. Within the *Social rejection* main theme there were 5 sub-themes that were identified: *Being omitted from friendship activities, Criticism, Relationship betrayal, Silence,* and *Relationship termination.* In a similar manner to *Social inclusion*, the social cues that indicate specific types of relational information were used to form a picture of *Social rejection.*

### Being omitted from friendship activities.

The first sub-theme that was identified was that of *being omitted from friendship activities*. This sub-theme involved a participant reading on their Timeline about activities to which they were not invited or included. This sub-theme also emphasised situations where a participant's Facebook Friend/s were acknowledged but they were not recognised even if they did take part in an event. For example, many participants shared rejection experiences where mutual Friends were tagged in check-ins or photos but they were either not invited to the event or not acknowledged in the tag even if they did go to the event. For example:

> When my Friends are tagged in a check-in or a photo and you weren't invited (Alexia)

> Group photos where you are not tagged even if you're in them (Jake)

> I feel really rejected when my Friends all check-in somewhere but I am not invited even though they knew I was free
> (Erin).

Most of these responses related to experiences where the participant read about their Friend's social activities on Facebook. However, the nature of the Facebook site is such that when Friends publically post about their social events and include information about who else was involved in those activities, their Friends become acutely aware that, not only have they been excluded from those events or situations, but who else has been included in the activity. Perhaps this sub-theme can be summed up by the following:

> You realise that you are only superficially catching up on Facebook, you miss out on details of Friends lives and when announced on Facebook, you are unaware of what's going on, and don't feel a part of their life
> (Malcolm).

This response as well as the other responses indicated that, if a Friend valued the relationship then that Friend would be included in both off-line and on-line activities, and therefore, be an active and important part of that Friend's life. This is particularly pertinent when a Friend lives geographically close to the Facebook user. Subsequently realising that a person is not included in local friendship activities, and only reading about those events on-line, really does emphasise how little value and time is given to the relationship.

### Criticism

The second sub-theme that emerged was *Criticism*. Criticism can be described as judgements or negative views of the individual or denigration of their family. This sub-theme emphasised social cues where there was public confrontation, disagreement, or censure from others. This disapproval can be done in a passive-aggressive manner or a more overt manner For example:

> When quotes go up and you know it is a dig at you
> (Kylie)

> Comments that are mean to others, thoughtless, negative conversations or arguments
> (Jane)

> I feel rejected when others disagree with you on-line in front of everyone, particularly with controversial topics
> (Mason).

These quotes demonstrate that public criticism not only diminishes a relationship, but publically shows other people how poorly the relationship is regarded.

**Relationship betrayal.**

The third sub-theme that emerged was *Relationship betrayal*. This sub-theme emphasised social cues where the participant felt that trust in the relationship had been broken at some level. For example, this could be in respect to parental expectations regarding accessing and viewing a child's Facebook site or when people considered Friends limited the access that was available on their Facebook page.

> When my children don't let me see what is on their page
> (Karen)

> Being blocked by a Friend
> (John).

These quotes indicated that people expected their Friends to share all parts of their on-line life with them, rather than some parts being off-limits. This sub-theme also showed a similarity to *Omitted from friendship activities*, such that, limits on access and social information indicated low relational value. Another aspect to this sub-theme was disloyalty to the relationship such as when individuals had privately communicated information to another Friend but, it was subsequently discussed publically or gossiped about. For instance:

> When people enquire about something on my Timeline that I shared with them privately
> (John)

> When gossip about me is shared by a third party on posts
> (Daniel).

These quotes showed that actions where Friends disclosed personal information to others portrayed that person as unreliable or untrustworthy. This can then be interpreted as the Friend not valuing the relationship.

### Silence.

The fourth sub-theme that emerged was *Silence*. This sub-theme emphasised no acknowledgement or response from Facebook Friends, either by a specific individual or by every Friend an individual had. For example, when there was no public response from others (i.e., 'likes' or comments) to status updates or uploaded photos. For example:

> When nobody likes my photos or comments
> (Alexia).

Another aspect of silence was when there was no acknowledgement, either publically or privately, to event invitations, Friend requests, or private messages.

> When you post a private message or post on someone's wall and you get no answer, it's like they are saying see my life but don't talk to me
> (Malcolm).

Again, this quote indicated that silence demonstrated that an individual has little or no relational value to their Friends, such that they are not worthy of a response or reply.

### Relationship termination.

The fifth sub-theme that emerged was *Relationship termination*. This sub-theme emphasised social cues that showed the relationship had ended. For example, unFriending (also known as deFriending) was a powerful rejection cue, with participants who recalled this response doing so before talking about any other exclusion experience. These participants did not spend any time thinking about their answers, but responded promptly with "defriending" or "being deleted". The act of unFriending implies that the individual has no relational worth to their Friends, and as a result the Friend has ended the relationship.

## Social Comparison on Facebook

This main theme described relational information in which the participants compared themselves to other Friends as a way to evaluate how their own interactions with others, measured up against a similar criteria (e.g., amount of 'likes') to their Friends' interactions.

Within this main theme there were two types of relational information, that of *Positive social comparisons* and *Negative social comparisons*.

*Positive social comparisons* emphasised relational information where participants compared themselves to other Friends, such that the participants perceived themselves as relationally better off than others on an interaction of a similar criteria.

> I have a lot of friends
> (Alisha)

> My wall looks busier than other friends. I have more 'likes' than others
> (Erin).

These quotes illustrated that comparing friend counts or number of 'likes' is an important indicator of relational information. These observations do provide a person with an evaluation of their own relational worth, with regards to where they might 'fit' on a social hierarchy with their Friends. However, these responses may also indicate impression management concerns or self-affirmation opportunities, rather than positive relational information that is specific to acceptance.

In addition, *negative social comparisons* emphasised relational information where participants compared themselves to other Friends in such a way that the participant perceived themselves as worse off than others on similar interactions.

> When you see photos of other people on holidays and you can't afford to go there
> (Toby)

> Others get more 'likes'
> (Penny).

There was also an element of self-comparison in this sub-theme:

> When I don't get as many birthday wishes as last year
> (Alisha)

> When pretty photos of other girls get lots of 'likes' and I'm in my pyjamas at home feeling awful
> (Erin).

Similar to the comments that informed *Positive social comparisons*, these experiences may be more closely related to impression management concerns than relational information specific to rejection. Ultimately though, these comments illustrated that while social comparison may indeed serve as a cue that communicates relational value, not all social comparisons are related to belonging. Rather, social comparisons on Facebook appear to be a complex mixture of relational value, envy, and impression management.

## Discussion

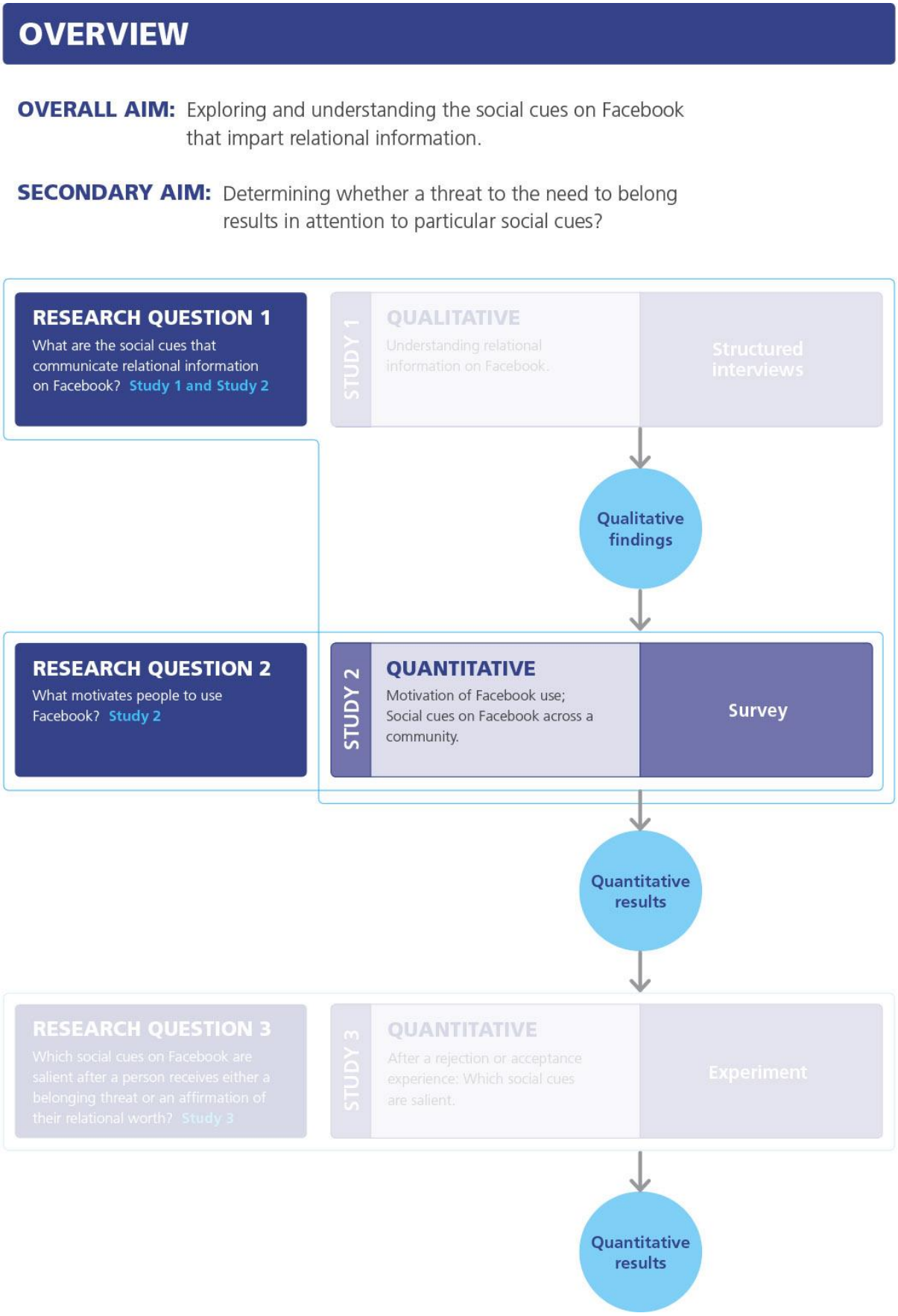
Study 1 examined social inclusion and social rejection experiences on Facebook as an initial step in understanding the social cues that provide relational information, specifically relational information that is relevant to rejection and acceptance. These social cues offer an individual a way of monitoring their relational value to others. That is, are they at risk of being rejected, as well as providing signals that can guide interactions with Friends. For instance, if a person updates their status and many Friends 'like' or comment on the status, this then provides the person with positive relational information indicating that other Friends value the relationship. The interviews allowed participants to describe their experiences and interviews are considered an appropriate data collection method when little is known about a phenomena (Gill, Stewart, Treasure, & Chadwick, 2008). Furthermore, the findings of Study 1 will be used to inform the development of Study 2, which will be reported in the following chapter.

Study 1 identified three main themes of relational information, *Social inclusion*, *Social rejection* and *Social comparison.* Within the main theme of *Social inclusion* there were five specific sub-themes or types of relational information which were informed by specific social cues and relevant to *Social inclusion*: *Relationship acknowledgement, Thinking of me, Relationship affirmation, Relationship initiation*, and *Supportive relationship activities*. These findings demonstrated that people can identify the social cues that provide positive

relational information such that, they feel included by their Friends on Facebook despite the traditional cues (i.e., facial expressions such as smiling) associated with acceptance being missing.

Additionally, Study 1 identified five specific sub-themes related to *Social exclusion*: *Being omitted from friendship activities, Criticism, Relationship betrayal, Silence,* and *Relationship termination*. These findings also provide addition support for *Silence* as a social cue indicating social exclusion, in both face-to-face and on-line settings. Furthermore, Study 1 has demonstrated that people are able to identify the specific social cues on Facebook that are used to both evaluate and monitor their relationships.

Given the exploratory nature of Study 1, and the specific questions asked of the participants, it was expected that this questioning would provide an initial understanding of the types of social cues that provide relational information on Facebook. What was unanticipated was the identification of a main theme of relational information that reflected *Social comparison*. While *Social comparison* may provide relational information about where a person may 'fit' in their social hierarchy, in this case *Social comparison* contained a complex mixture of relational value, envy, impression management, and self-affirmation. Study 1 was able to provide an initial understanding of the social cues and types of relational information available on Facebook, which will be further investigated in Study 2.


OVERVIEW
OVERALL AIM: Exploring and understanding the social cues on Facebook that impart relational information.
SECONDARY AIM: Determining whether a threat to the need to belong results in attention to particular social cues?
RESEARCH QUESTION 1
What are the social cues that communicate relational information on Facebook? Study 1 and Study 2
STUDY 1
QUALITATIVE
Understanding relational information on Facebook.
Structured interviews
Qualitative findings
RESEARCH QUESTION 2
What motivates people to use Facebook? Study 2
STUDY 2
QUANTITATIVE
Motivation of Facebook use; Social cues on Facebook across a community.
Survey
Quantitative results
RESEARCH QUESTION 3
Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth? Study 3
STUDY 3
QUANTITATIVE
After a rejection or acceptance experience: Which social cues are salient.
Experiment
Quantitative results

# Chapter 4 – Understanding the need to belong and Facebook use (Study 2)

## Rationale

In summary, the overall aim of this program of research is to explore and understand the social cues that communicate relational information on Facebook, specifically the social cues that indicate potential rejection and acceptance. Study 1 detailed the qualitative aspect of the research project and was designed to provide an initial exploration of the social cues, specifically the cues that communicated relational information relevant to rejection and acceptance. From Study 1, the qualitative findings of specific social cues were used to inform and develop a survey (Study 2) as well as a pilot study and 2 experiments (Study 3 – Chapter 5). Study 2 also investigates whether the social cues identified in Study 1 can be generalised beyond the first sample and is representative of a wider group of Facebook users. Indeed, Creswell and Plano Clark (2011) pointed out that it is important to examine the "extent to which the quantitative results generalise or expand on the initial qualitative findings" (p. 87). Thus, Study 2 continues to address Research Question 1:

*What are the social cues that communicate relational information on Facebook?*

This current study also allows for investigation of an additional research question. Research Question 2 is:

*What motivates people to use Facebook?*

It is important to identify whether the motivations for using Facebook are primarily concerned with social connection and are therefore underpinned by the need to belong. For example, are people motivated to use Facebook to meet new people or to maintain their existing relationships, or for other reasons not related to social connection? If social connection was not a motivator for people to use Facebook then there would be no need for people to interpret the available social cues or understand the relational information those cues provide. Furthermore, this would mean that Facebook as a social environment would be

an inappropriate place to investigate the need to belong. In this chapter, the issue of motivations for Facebook use will be addressed by (1) providing a brief overview on the literature examining motivations for Facebook use, and (2) reporting the results of a survey (Study 2) that examined both the motivations for Facebook use, and the specific social cues that are relevant to rejection and acceptance on Facebook.

## Motivations for using Facebook

In Australia, the typical Facebook user spends an average of 8 and a half hours a week on Facebook, with a recent media marketing report reporting a number of different reasons why people use Facebook (Sensis social media report, 2015). These motivations range from social connection to researching travel options, brands and products, following celebrities, or engaging with government departments (Sensis social media report, 2015). However, previous empirical research has suggested two main motivations for using Facebook, that of the need to belong and self-presentation (Nadkarni & Hofmann, 2012). The following overview of the literature continues to explores the current literature regarding social connection and hence the need to belong, underpinning the motivations for Facebook use.

According to Facebook (2016a), the site was developed to support and assist social connection. Indeed, early research investigating why people used Facebook found that Facebook was primarily used for the formation and maintenance of relationships (Ellison, Steinfield, & Lampe, 2011; Joinson, 2008), a key contributor to the satisfaction of the need to belong (Baumeister & Leary, 1995; Gere & MacDonald, 2010; Williams, 2009). Certainly Facebook appears to be an ideal medium for social connection with many features of the platform specifically designed for interacting with other people (i.e., the ability to comment on Friend's activities and uploaded photos) regardless of geographic location. This means that people can easily stay in touch with their Friends if either one of them moves towns or even goes on holidays to a different locality. Facebook then enables people to maintain their

relationships with their family and friends regardless of geographic distance. Furthermore, Grieve et al. (2013) suggested that Facebook was an important social resource as the site provided an alternate environment for people who find face-to-face social communication difficult or anxiety provoking. Therefore, a person being able to maintain their social contacts through the usability of the social features available within Facebook could motivate a person to use Facebook.

A review of 78 studies conducted between 2006 and January 2011 examined why people used Facebook and found the most common reason for using Facebook was related to social connection (Wilson et al., 2012). However, while the studies used for the review all investigated motivations for using Facebook, there were different theoretical frameworks and scales used. For example, some studies examined *external* motivations (e.g., using Facebook to be reminded of birthdays) while other studies investigated *internal* motivations (e.g., to relieve boredom) (Wilson et al., 2012). Indeed, other researchers have shown that people are motivated to use Facebook for a variety of different reasons ranging from entertainment (i.e., using games and other applications found within Facebook), self-image interests (i.e., social comparison), and social surveillance (Joinson, 2008; Sheldon, 2008a; Wilson et al., 2012).

While the review conducted by Wilson et al. (2012) provides indications of the motivations that drive people to use Facebook, a limitation of the studies used was the participant demographic, with the majority of the research using convenience samples of undergraduate students in the 18 to 23 year age range living in either Canada or the United States (Joinson, 2008; Park, Kee, & Valenzuela, 2009; Quan-Haase & Young, 2010; Sheldon, 2008a; Tosun, 2012: Wilson et al., 2012). Thus, two initial drawbacks of these studies are initially evident: that of geographic location and age. McAndrew and Jeong (2012) stated that demographic information provided important information about Facebook use and with over 83% of Facebook users living outside the US and Canada (Facebook, 2016a) further

investigation into whether people living in other parts of the world may have different motivations for using Facebook is warranted. Furthermore, the Pew Research Center (Madden, 2012) has found that even within the US, teens from different cultural backgrounds have different patterns of internet and social networking use, with African-American and Hispanic teens reporting more frequent internet use than white teens. Thus, the issue of whether we can generalise motivations for Facebook use to different population groups outside of the US and Canada needs to be examined further.

Furthermore, the age range of participants used in the review studies is another demographic factor to consider regarding motivation for using Facebook, as younger Facebook users may have different motivations for using Facebook than someone who is older. Indeed, McAndrew and Jeong (2012) found that older people use Facebook differently from younger people. For instance, the older a person was, the less likely they were to engage in searching their peers' Facebook pages for social comparison information but were instead more likely to engage in family activities such as looking at Facebook pages of their family members (McAndrew & Jeong, 2012). Indeed Bell et al. (2013) found that people over 50 and living in Atlanta were motivated to use Facebook for maintaining their *existing* relationships rather than initiating new relationships.

In contrast, Valenzuela, Park, and Kee (2009) found four different motivations of Facebook use (socialising, entertainment, self-status seeking, and information seeking) in their study involving 18-29 year olds living across Texas in the US. Additionally, Tosun (2012) found Turkish undergraduates aged between 17 and 42 used Facebook for a number of social reasons such as managing long-distance social connections, starting or ending romantic relationships, establishing new connections, but also for other non-social and passive activities (i.e., looking at photos), photo-related activities (i.e., actively adding photos), amusement, and finally for organising events. Therefore, when reflecting on the motivations

for using Facebook it is clear that different age ranges may have different motivations for using Facebook. Additionally, other geographical locations need to be further investigated to examine whether people using Facebook in countries outside the US and Canada are motivated to use Facebook for social and/or non-social reasons.

A further disadvantage of the review was the timeframe used, and how that reflects the nature of the Facebook site. Facebook has only been publically available since 2006 and since that time the features available within the platform, as well as the usability of the site have evolved rapidly. For instance, initially the newsfeed was very basic and contained little in the way of interactive features, but currently video streaming is being trialled for use in status updates (Facebook, 2016a). While more recent research has supported and extended on the motivations of Facebook use previously identified in the meta-analysis (see McAndrew & Jeong, 2012; Quan-Haase & Young, 2010; Tosun, 2012; Vasalou, Joinson, & Courvoisier, 2010), other researchers have reported different motivations not reported in the meta-analysis such as identity management (Mehdizadeh, 2010). Therefore, it could be that what motivates people to use Facebook in 2016 could be more complex than the motivations identified in earlier research.

While Facebook continues to develop new innovations to extend what their users can do on the Facebook site (i.e., transportation apps requesting rides on Uber, researching artificial intelligence, or developing immersive virtual reality technologies for gaming apps), the central focus of Facebook continues to be that of social connection with many of the existing features enabling social connection (e.g., messenger) being enhanced (Facebook, 2016a). In summary, while Facebook offers their users the option of using many different functions that can be used within the site, social connection remains the fundamental focus. Given this emphasis on relationships, it therefore follows that the need to belong could be an important predictor of why people are motivated to use Facebook. Indeed, early research

conducted into the attitudes of college students joining social networking sites found that the need to belong had a positive effect on a person's willingness to join social networking sites, and proposed that future research look more closely at the role of the need to belong on social networking sites (Gangadharbatla, 2008). Furthermore, Gangadharbatla (2008) suggested that websites that provided opportunities to satisfy the need to belong was a "recipe for success" with increased membership numbers and marketing participation (p. 12). Therefore, the need to belong could play an important role in predicting the motivations for using Facebook.

### The need to belong as a predictor of motivation for Facebook use

There is an extensive amount of evidence that demonstrates that the need to belong underpins the motivation people have to maintain positive and encouraging relationships (Baumeister & Leary, 1995). Indeed Leary and Kelly (2009) proposed that the desire for acceptance and belonging underpins much human social behaviour. Therefore, it would be expected that since Facebook offers an environment where social connections can be easily maintained as well as offering users many social networks to join or engage with, that the need to belong would be a primary predictor of a person's motivation to use Facebook.

Knowles, Haycock, and Shaikh (2015) conducted four studies that examined whether the use of social media such as Facebook, could offset chronic and acute belonging needs, and found that when participants were faced with a threat to their need to belong, they were more likely to engage in social behaviours such as looking at Facebook compared to other non-social activities such as reading a comic book. Therefore, it appears that participants' increased belonging need not only motivated social media use but also moderated the effects of social exclusion (Knowles et al., 2015). In other words, the participants who experienced rejection may have been motivated to use Facebook as a reminder of their social connections and relational value. Indeed the research on 'social snacking' would indicate that when a belonging threat is detected that people would be motivated to seek out reminders of social

connection (Gardner et al., 2005; Knowles, 2013). Since Facebook users can easily access previous interactions with others by reading through their Timeline, this may serve as a reminder of their social worth. It therefore makes sense that when people experience a threat to their belonging, they may be motivated to use Facebook as a 'social resource' (Knowles et al., 2015)

In a series of studies, Sheldon, Abad, and Hinsch (2011) investigated whether the degree of social relatedness a person felt motivated the frequency of Facebook use; that is would people who lacked social connections be motivated to more frequently use Facebook to find opportunities to affirm their relational value, or conversely, would people who had rewarding social connections be motivated to use Facebook frequently as they received positive relational benefits. Similarly to Knowles et al. (2015), Sheldon et al. found the effect of unfulfilled belonging needs was mediated by a coping strategy of using Facebook, as well as finding that the effect of greater satisfaction of the need to belong was mediated by having positive social experiences on Facebook. That is, when people have poor or unsatisfactory social relationships in an offline environment, they are motivated to use Facebook to satisfy their relatedness needs. Indeed, taken together, these studies suggest that the need to belong underpins the motivation of people with both chronic belonging needs and frequent Facebook users (Knowles, 2009; Leary & Kelly, 2009; Sheldon et al., 2011).

While loneliness is different from the need to belong, it could be said that a person who has unmet belonging needs may experience more intense feelings of loneliness (Mellor, Stokes, Firth, Hayashi, & Cummins, 2008). Indeed, Burke, Marlow, and Lento (2010) found a negative correlation between the number of Facebook Friends and loneliness, indicating that the more Facebook Friends a person has, the less lonely they feel, thus suggesting that Facebook is an environment where the need to belong can be met. Similarly, Ryan and Xenos (2011) found that not only do lonely people spend more time on Facebook each day, they

prefer using passive communication features available in Facebook (e.g., looking at photos). This study provides further support for Knowles' (2009) findings that people may be motivated to use Facebook as a social resource. Interestingly, Deters and Mehl (2013) demonstrated that updating a status, a more active way of communicating on Facebook, reduced feelings of loneliness, and increased one's sense of social connection. Thus, taken together, these studies indicate that for people with unmet belonging needs, Facebook provides an effective way to satisfy the need to belong. Therefore, it would be expected that the need to belong would predict social motivations for a person to use Facebook.

## Overview of Study 2

The overall aim of this program of research is to explore and understand the social cues on Facebook that communicate relational information, specifically the social cues that may indicate potential rejection or acceptance. However, it is also important to understand the motivations that people have in using Facebook, so therefore Study 2 seeks to investigate two related issues: 1) *What motivates people to use Facebook?* and, 2) *What are the social cues that communicate relational information on Facebook?*

In order to examine the research question, *What motivates people to use Facebook?,* a factor analysis will be conducted on responses to a comprehensive list of motivational items taken from several studies that examined motivations for Facebook use (notably Joinson, 2008; McAndrew & Jeong, 2012; Park, Kee, & Valenzuela, 2009; Stern & Taylor, 2007; Tosun, 2012). This will help to identify the primary motivations for using Facebook, and specifically, whether social connection is a primary motivation. Once the primary motivational factors for using Facebook are identified, two hypotheses are proposed. Firstly:

*H1: That need to belong will predict motivations for Facebook use.*

In the overview provided in Chapter 2, there are three other important psychological constructs that are strongly associated with the need to belong, that is self-esteem, control, and meaningful existence (Williams, 2009). Therefore the second hypothesis is:

*H2: That self-esteem, control, and meaningful existence will uniquely predict motivations for Facebook use.*

Self-esteem plays an important role in alerting a person to potential declines in relational value, thus a scale that measures self-esteem was included in the research. Given that Study 2 is a survey with no direct threat to a participant's need to belong, self-esteem will be measured using a valid and reliable measure of trait self-esteem. A trait self-esteem measure will be used as this will provide a reflection of a more typical assessment of a person's relational value and acceptance by other people (Leary, 1999). The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is an appropriate scale as it has also been used extensively in research on both social exclusion and Facebook (see Greitemeyer, Mügge, & Bollermann, 2014; Kalpidou, Costin, & Morris, 2011; Leary, Haupt, Strausser, & Chokel, 1998).

Williams and Zadro's (2005) work on ostracism also identified control and meaningful existence as important psychological measures to include when examining the need to belong. The Four Basic Needs Satisfaction Scale (Williams, 2009) has been used extensively in experimental ostracism research. However, given that this study will be a survey, one of the items in the sub-scale assessing control was adapted. For example, the item "I felt I had control over the course of the game" was changed to "I feel like I am in control over my Facebook interactions".

In order to examine the other research question of Study 2, *What are the social cues that communicate relational information on Facebook?,* targeted further analyses were conducted. Firstly, the social cues identified by participants in Study 1 were developed into items, which were subsequently factor analysed to examine whether similar factors to those sub-themes of relational information identified in Study 1 would emerge. For example, in the main theme of *Social rejection* that was identified in Study 1, there was a sub-theme identifying a type of relational information named *Criticism*. An example of a social cue

within this sub-theme was “I feel rejected when a Facebook Friend leaves mean comments on my timeline”. From Study 1, a total of 34 social cues identified as rejection and 39 social cues identified as acceptance were developed as items for the subsequent survey. The means of each items were also examined to determine which social cues were salient in regards to communicating relational information for inclusion in Study 3.

To aid readability of the results of Study 2, the results will be divided into two sections, which will be described under the relevant research question.

## Method

### Participants

Two hundred and eleven participants (44 Male and 167 Female) were recruited through either a Facebook message invitation to the researcher’s networks, an email invitation to a postgraduate network in the university, or the USQ School of Psychology and Counselling survey website. Inclusion criteria were that the participants had to be over 18 years (although USQ students could be 16 or 17) and have a Facebook account. Two participants did not meet the inclusion criteria and their data was deleted reducing the number of participants to 209. The mean age of the participants was 28.19 years, with a range of 17 to 69 years. University of Southern Queensland student participants who volunteered to take part in this survey received course credit, while community participants who volunteered to take part received one entry in a cash prize draw run by the Faculty of Health, Engineering, and Sciences at USQ. A detailed summary of the participant demographic information can be found in Table 4.1. More detailed information regarding the participants internet, Facebook, and status update information can be found in the Results section (descriptive statistics).

Table 4.1

*Participant Demographics of Study 2 (n=209)*

| Variable | | Number | Frequency |
|---|---|---|---|
| Gender | Male | 44 | 21.10 |
| | Female | 165 | 78.90 |
| Age | <20 | 66 | 31.50 |
| | 21-30 | 74 | 35.30 |
| | 31-40 | 32 | 15.20 |
| | 41-50 | 27 | 13.00 |
| | 51-60 | 5 | 2.50 |
| | 61-70 | 2 | 1.00 |
| | Missing | 3 | 1.40 |
| Employment status | Full-time | 57 | 27.30 |
| | Part-time | 48 | 23.00 |
| | Casual | 44 | 21.10 |
| | Unemployed | 36 | 17.20 |
| | Other | 22 | 10.50 |
| Student status | Full-time | 113 | 54.10 |
| | Part-time | 69 | 33.00 |
| | Not a student | 27 | 12.90 |
| Marital status | Single | 108 | 51.70 |
| | Married | 58 | 27.80 |
| | Engaged | 10 | 4.80 |
| | De Facto | 15 | 7.20 |
| | Divorced | 7 | 3.30 |
| | Separated | 5 | 2.40 |
| | Same-sex partnership | 3 | 1.40 |
| | Other | 3 | 1.40 |
| Ethnicity | Anglo-Australian | 156 | 74.60 |
| | Aboriginal/Torres Strait Islander | 6 | 2.90 |
| | Other Australian | 11 | 5.30 |
| | Other Pacific region | 9 | 4.40 |
| | Asian | 8 | 3.80 |
| | European | 13 | 10.50 |
| | American or Canadian | 2 | 1.00 |
| | African | 1 | 0.50 |
| | Other | 3 | 1.40 |

## Procedure

Before any data collection took place, ethical clearance was obtained (HREC Approval Number: H13REA067). An on-line survey was created and uploaded to the USQ School of Psychology and Counselling survey website. To complete the on-line survey the participants firstly had to read an information page outlining what the survey was investigating (i.e., social cues on Facebook), participation procedures, confidentiality, time to complete the survey, withdrawal of data, and data security. Participants then read a consent page and had to confirm their agreement before being able to continue to the survey. Participants also had to nominate whether they wanted to receive course credit or receive one entry in a cash prize raffle at the end of the survey. Once the survey was completed, the on-line responses were sent to a secure server until analysis was to be completed at the close of the survey. The web-site and server were administered by a university technical staff member.

## Measures

A copy of the complete survey questionnaire is found in Appendix B. The first part of the survey asked for demographic information such as age, gender, employment status, student status, marital status, cultural/ethnic group as well as how the participant had heard about the survey**.** In relation to the survey the measures that were included were: Facebook use items, motivations for Facebook use items, a Need to Belong scale, a trait Self-Esteem scale, sub-scales of control and meaningful existence, and finally items describing cues of rejection and acceptance. Each participant's response to the items within a scale was averaged to provide an overall scale score.

**Facebook usage.** These 11 items asked about general social networking of the participants as well as Facebook practises and are typically used in Facebook research

(Jenkins-Guarnieri, Wright, & Johnson, 2013). An example item is "How many hours per day would you typically spend surfing the web?"

**Motivations for Facebook use.** These 39 items assessing motivations for Facebook use were collated from previous studies (notably Joinson, 2008; McAndrew & Jeong, 2012; Park et al., 2009; Stern & Taylor, 2007; Tosun, 2012). An example of an item is "I use Facebook to procrastinate". Participants responded to items on a scale of 1 (*Never*) to 5 (*Always*). Higher scores indicated the more motivation the person has to use Facebook for that particular reason. These items, and their factor analysis results will be further discussed in the results section. The factor analysis was exploratory as no clear set of motivations was evident as well as the items from a number of studies were combined.

**Need to Belong Scale.** The 10-item measure of the Need to Belong Scale (NTBS; Leary, Kelly, Cottrell, & Schreindorfer, 2005) is a widely used scale in social exclusion experiments that relates to the level of belonging a participant is currently experiencing. Recent research (see Leary et al., 2013), has demonstrated this scale measures constructs related to the degree to which individuals desire to interact and connect with others (i.e., Need to Belong) rather than the need to affiliate, sociability, or extraversion. Additionally this scale has been used in studies that demonstrate an association between high scores in this scale and socially relevant information (Leary et al., 2013). An example of an item is "I try hard not to do things that will make other people avoid or reject me." Participants responded to items on a scale of 1 (*Strongly disagree*) to 5 (*Strongly agree)* with higher scores indicating greater belonging. Three items are reversed scored. Cronbach alpha in the current sample was .85 and was deemed to be adequate.

**Rosenberg Self-Esteem Scale.** The 10-item measure of self-esteem (RSE: Rosenberg, 1965) is the most commonly used measure of global self-esteem (Boyle, Saklofske, & Matthews, 2014; Zeigler-Hill, 2010). According to Blaskovich and Tomaka (1991), the RSE

has good predictive validity and is a reliable measure of self-esteem. Participants responded to items on a scale of 1 (*Strongly Disagree)* to 4 (*Strongly Agree*) with five items being reverse scored. Higher scores indicate greater self-esteem. An example of an item is "On the whole, I am satisfied with myself." Cronbach alpha in the current sample was .78 and was deemed to be adequate.

**Control and meaningful existence.** These 10 items of meaningful existence and control were taken from the Four Basic Needs Satisfaction Scale (Williams, 2009) and were included to assess participant's feelings of control and meaningful existence. The control sub-scale consists of 5 items that relate to the level of control a participant is currently experiencing, while the meaningful existence sub-scale consists of 5 items that relate to a participant's meaningful existence, that is, the meaningfulness of a person's life. Participants responded to items on a scale of 1 (*Not at all*) to 5 (*Extremely*) with two control items and three meaning items being reverse scored. Higher scores indicate greater control and meaning respectively. An example of a meaningful existence item is "I feel important", while an example of a control item is "I feel that others decide everything." As this scale is typically used in experimental ostracism paradigms one item was modified from "I felt I had control over the course of the game" to "I feel like I am in control over my Facebook interactions". Cronbach alpha in the current sample was .63 and .86 for the control and meaningful existence scales respectively. Cronbach alphas in previous studies using this scale varied from .60 to .79 for the control subscale and .66 to .81 for the meaningful existence scale, and therefore these scales were deemed to be adequate (Smith & Williams, 2004; Wirth et al., 2010; Zadro et al., 2004).

**Rejection and acceptance items.** Through the thematic analysis of interviews conducted and reported in Study 1 (see Chapter 3), a set of statements regarding social cues that were relevant to social rejection and social inclusion on Facebook were compiled. The

sub-themes identified from the interviews, as well as specific examples taken from the interviews were translated into short statements to be used within the scale. Participants were given a list of 34 rejection cues and asked to indicate the degree to which they felt rejected for each rejection cue. This was followed by a list of 39 inclusion cues and participants were asked to indicate the degree to which they felt accepted for each cue. All rejection items were rated on a five point Likert scale of 1 (*Not at all rejected*) to 5 (*Extremely rejected*) and all inclusion items were rated as 1 (*Not at all accepted*) to 5 (*Extremely accepted*). An example of a social cue indicating rejection is "I feel rejected when my Facebook Friends do not respond to my event invitations" and an example of a social cue indicating inclusion is "I feel accepted when a Facebook Friend 'likes' my status updates". Participants were also told that if a situation did not apply to them, to imagine how they would feel if the situation did apply. These items were subsequently factor analysed and will be discussed further in the results section.

## Results

### Descriptive statistics

Approximately 47% of participants spent between 1 hour but less than 3 hours per day typically surfing the web, with the nearly half of the participants (48.8%) belonging to only one social networking site, specifically Facebook. While all participants had a Facebook account, other social networks belonged to included Twitter, LinkedIn, Pinterest, and Instagram. Approximately 55% of participants joined Facebook more than 4 years ago but less than 7 years. A detailed summary of the participant internet usage can be found in Table 4.2.

Table 4.2

*Internet information of survey participants of Study 2 (n=209)*

| Variable | | Number | Frequency |
|---|---|---|---|
| Hours on the web | Less than 1 hour | 42 | 20.10 |
| | More than 1 hour but less than three hours | 98 | 46.90 |
| | More than 3 hours but less than 8 hours | 55 | 26.30 |
| Hours on the web | More than 8 hours | 14 | 6.70 |
| Number of SNS belong to | 1 | 101 | 48.30 |
| | 2 | 54 | 25.80 |
| | 3 | 36 | 17.20 |
| | 4 | 10 | 4.80 |
| | more than 5 | 8 | 3.80 |
| Type of SNS sites belong to | MySpace | 13 | 6.20 |
| | LinkedIn | 24 | 11.50 |
| | Pinterest | 26 | 12.40 |
| | Twitter | 51 | 24.40 |
| | FourSquare | 1 | 0.50 |
| | Instagram | 25 | 12.00 |
| | Other | 18 | 8.60 |

With regards to how often participants accessed Facebook, approximately 30% of participants were constantly connected to Facebook during the day while 14.2% of participants accessed the Facebook site more than 6 times per day. Twenty seven percent of participants spent between 6 and 20 minutes per day being active on Facebook, with a quarter of participants (25.6%) having between 151 and 250 Facebook Friends.

A detailed summary of the participants Facebook usage is shown in Table 4.3.

Table 4.3

*Facebook information of survey participants of Study 2 (n=209)*

| Variable | | Number | Frequency |
|---|---|---|---|
| Joined Facebook | Less than a year ago | 6 | 2.90 |
| | More than one year ago but less than two years ago | 7 | 3.30 |
| | More than two years ago but less than four years | 64 | 30.60 |
| | More than four years ago but less than seven years | 117 | 56.00 |
| | Can't remember | 15 | 7.20 |
| Number of times Facebook is accessed throughout the day | 1 | 25 | 12.00 |
| | 2 | 24 | 11.50 |
| | 3 | 24 | 11.50 |
| | 4 | 19 | 9.10 |
| | 5 | 23 | 11.00 |
| | More than 6 | 30 | 14.40 |
| | Constantly connected | 64 | 30.60 |
| Minutes per day spent on Facebook | Less than 5 minutes | 21 | 10.00 |
| | 6-20 minutes | 56 | 26.80 |
| | 21-45 minutes | 50 | 23.90 |
| | 46-60 minutes | 37 | 17.70 |
| | More than one hour per day | 45 | 21.50 |
| Number of Friends on Facebook | Less than 20 | 13 | 6.20 |
| | 20-75 Friends | 13 | 6.20 |
| | 76-150 Friends | 46 | 22.00 |
| | 151-250 Friends | 54 | 25.80 |
| | 251-450 Friends | 44 | 21.10 |
| | 451-750 Friends | 26 | 12.40 |
| | 751-1000 Friends | 11 | 5.30 |
| | More than 1000 Friends | 2 | 1.00 |
| Number of times a status is updated on Facebook | More than once a day | 4 | 1.90 |
| | Once a day | 14 | 6.70 |
| | Every couple of days | 37 | 17.70 |
| | Once a week | 33 | 15.80 |
| | Once a month | 26 | 12.40 |
| | Hardly ever | 75 | 35.90 |
| | Never | 18 | 8.60 |
| | Other | 2 | 1.00 |

**Research question: What motivates people to use Facebook?**

## Factor analysis: Motivation for using Facebook

An exploratory factor analysis was conducted in order to identify the factors underlying an individual's motivation for using Facebook. There were no missing or out of range data. The minimum amount of data for factor analysis was met, with a minimum of five participants per variable and a total amount of more than 200 participants (Allen & Bennett, 2010). The Kaiser-Meyer-Olkin (KMO) measured sampling adequacy of .84, and Bartlett's test of sphericity was significant ($\chi^2$ (741) = 4419.96, $p$<.01). Finally, the communalities were all above .3, except for the item "I use Facebook to comment on photos" confirming that the items shared common variance. Given all these indicators, the current data met all requirements for factor analysis.

Maximum Likelihood extraction was used as it allows for a goodness of fit solution for the factors, as well as allowing for statistical inferences (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Field, 2009). The initial eigenvalues showed the first factor explained 27% of the variance, the second factor 10% of the variance, and the third and fourth factor just over 11 % of the variance. The fifth, six, seventh, eighth, ninth, and tenth factors all had eigenvalues just over one, each factor explaining 3% or less of the variance. Four, five and six factor solutions were examined using Oblimin rotation. The four factor solution was preferred due to the "levelling off" of eigenvalues on the Scree Plot after four factors.

To further justify the four factor solution a parallel analysis was also conducted to determine how many factors should be retained. A parallel analysis creates a random dataset similar to the original data (Gorsuch, 2003). The parallel analysis indicated that four factors should be retained.

During numerous steps, a total of 11 items were eliminated as they failed to meet the minimum criteria of .4 on factor loading. A factor analysis with a Maximum Likelihood

solution and Oblimin rotation was conducted to explore the factor structure of the remaining 28 items, with the four factors explaining 48% of the variance. The factor loading matrix for this solution is presented in Table 4.4.

Table 4.4

*Factor Loading for Exploratory Factor Analysis with Oblimin Rotation of Motivational Items for using Facebook (N=209)*

| | Pattern Co-efficient | | | | |
|---|---|---|---|---|---|
| Items | 1 | 2 | 3 | 4 | Communalities |
| I use Facebook to meet people who are more interesting than the people I meet face-to-face | .92 | | | | .74 |
| I use Facebook to meet like-minded people | .78 | | | | .64 |
| I use Facebook to meet interesting people | .69 | | | | .65 |
| I use Facebook to meet new Friends | .68 | | | | .56 |
| I use Facebook to share my feelings with someone that I would not say to them in person | .62 | | | | .48 |
| I use Facebook to meet new romantic partners | .53 | | | | .36 |
| I use Facebook to avoid uncomfortable face-to-face situations | .43 | | | | .32 |
| I use Facebook to keep in touch with Friends living long-distance | | -.94 | | | .74 |
| I use Facebook to maintain relationships with people I may not get to see very often | | -.93 | | | .76 |
| I use Facebook to stay in touch with people I know e.g. send messages | | -.70 | | | .50 |
| I use Facebook to reconnect with people I have previously lost contact with (e.g. school Friends) | | -.56 | | | .41 |
| I use Facebook to share/add photos | | -.51 | | | .34 |
| I use Facebook to comment on photos | | -.51 | | | .28 |
| I use Facebook to find out what old Friends are doing now | | -.49 | | | .38 |
| I use Facebook to make plans with Friends (e.g. weekend activities) | | -.43 | | | .38 |
| I use Facebook to check up on Friends | | | .74 | | .57 |
| I use Facebook to check up on family members | | | .73 | | .44 |
| I use Facebook to check up on my current partner | | | .69 | | .46 |
| I use Facebook to check up on my ex-partner | | | .64 | | .44 |
| I use Facebook to procrastinate | | | .41 | | .40 |

| Item | Pattern Co-efficient 1 | 2 | 3 | 4 | Communalities |
|---|---|---|---|---|---|
| I use Facebook to get information about university-work courses from others | | | | .85 | .59 |
| I use Facebook to learn more about on-campus events | | | | .81 | .55 |
| I use Facebook to develop my career through group participation (e.g. students in psychology) | | | | .72 | .61 |
| I use Facebook to look cool to Friends | | | | .48 | .36 |
| I use Facebook to advertise academic resources/other items e.g. selling a car | | | | .45 | .33 |
| I use Facebook to fit in with my peer group | | | | .43 | .78 |
| I use Facebook to recruit members for a club/group I belong to | | | | .41 | .26 |

All four factors showed moderate to strong correlation; with items in factor 2 being negatively correlated with the other three factors, that is, higher scores on factor 2 are associated with lower scores on the other three factors. The items for each of the four factors suggest that they seem to measure motivations for meeting people, relationship maintenance, monitoring relationships, and seeking information on Facebook.

Internal consistency for each factor was examined using Cronbach's alpha. As the Cronbach's alphas range from .80 to .87, this indicated acceptable internal reliability.

Four scales were formed from the 28 items as follows: Factor 1 (Meeting People) contained 7 items and had an alpha of .87, Factor 2 (Relationship Maintenance) contained 9 items and had an alpha of .87, Factor 3 (Monitoring Relationships) contained 5 items and had an alpha of .80, and Factor 4 (Seeking Information) contained 7 items and had an alpha of .83. No substantial increases in Cronbach alpha in any factor could have been achieved by deleting any items.

**Correlations with motivations for Facebook use.**

To understand both the direction and magnitude of the associations between the motivational factors and the demographic variables of age and gender, as well as the psychological variables of need to belong, self-esteem, control, and meaningful existence, the correlations among the variables were examined (see Table 4.5). These results indicate that age is significantly negatively correlated with meeting people, relationship maintenance, monitoring relationships, and seeking information but is positively correlated with self-esteem and meaningful existence. Gender was not significantly correlated with motivational factors, need to belong, self-esteem, control, and meaning and was subsequently excluded from further analyses.

With regard to the motivational factors, meeting people is significantly positively correlated with the other motivational factors as well as need to belong but is significantly

negatively correlated with control and meaningful existence. Relationship maintenance is significantly positively correlated with the other motivational factors as well as need to belong. Monitoring relationships is significantly positively correlated with the other motivational factors and need to belong but is significantly negatively correlated with control and meaningful existence. Seeking information is significantly positively correlated with the other motivational factors and need to belong but significantly negatively correlated with meaningful existence.

Table 4.5

*Pearson correlations between motivational factors, age, gender, and predictor variables (N=209)*

| | Age | Gender | Meeting people | Relationship maintenance | Monitoring relationships | Seeking information | RSE | NTB | Control |
|---|---|---|---|---|---|---|---|---|---|
| Gender | .13 | | | | | | | | |
| Meeting people | -.29** | -.03 | | | | | | | |
| Relationship maintenance | -.27** | .07 | .35** | | | | | | |
| Monitoring relationships | -.44** | .09 | .34** | .45** | | | | | |
| Seeking information | -.26** | -.01 | .54** | .27** | .30** | | | | |
| RSE | .20** | .05 | -.11 | .04 | -.13 | .02 | | | |
| NTB | .01 | .09 | .21** | .25** | .17* | .21** | -.16* | | |
| Control | .14 | .06 | -.31** | <.01 | -.16* | -.09 | .60** | -.22** | |
| Meaning | .24** | .01 | -.36** | <.01 | -.21** | -.15* | .61** | -.22** | .68** |

*Note.* Significance levels are ** $p$ <.01, and,* $p$ <.05

**Regressing motivations for Facebook use on Need to Belong.**

To examine Hypothesis 1 (*That need to belong will predict motivations for Facebook use*) and Hypothesis 2 (*That self-esteem, control, and meaningful existence will uniquely predict motivations for Facebook use*), four hierarchical multiple regression analyses were conducted. Before any multiple regressions were performed, the independent variables were examined for collinearity. Results of the variance inflation factor (all less than 2.2) and collinearity tolerance (all greater than .46) suggest that the estimated β's are all well established in the following regression models (Field, 2009).

Variables included in the model to explain motivation for Facebook use were entered in three steps. At step 1, age was entered as a predictor to control for the relationship between participant's age and their motivations for Facebook use. At step 2, need to belong was entered as a predictor to assess the first hypothesis. At step 3, self-esteem, control, and meaning were entered as predictors to assess the second hypothesis. Due to a small amount of missing data, the sample sizes were $N = 206$ for these analyses.

The results of step 1 for the regression of meeting people indicated that age accounted for a significant 8% of the variance ($R^2 = .08$, $F(1, 204) = 18.06$, $p < .001$). At step 2, need to belong accounted for an additional 5% of the variance ($\Delta R^2 = .05$, $\Delta F(1, 203) = 10.63$, $p < .01$). At step 3, self-esteem, control, and meaningful existence were entered into the regression variable, and collectively accounted for an additional 11% of the variance in meeting people ($\Delta R^2 = .11$, $\Delta F(3, 200) = 9.67$, $p < .001$). The unstandardized coefficients ($B$), the standardized regression coefficients ($\beta$), and semi-partial correlations ($sr^2$) for the full model for the factor of meeting people are reported in the Tables 4.6.

*Table 4.6*

*Hierarchical Multiple Regression Analysis of Meeting People on Age, Need to Belong, Self-Esteem, Control, and Meaningful Existence (N=206)*

| Variable | | *B* | 95% CI | β | *sr²* |
|---|---|---|---|---|---|
| Step 1 | | | | | |
| | Age | -0.14*** | (-0.21, -0.08) | -.29 | .08 |
| Step 2 | | | | | |
| | Age | -0.14*** | (-0.21, -0.08) | -.29 | .09 |
| | NTB | 2.27*** | (0.90, 3.64) | .21 | .05 |
| Step 2 | | | | | |
| | Age | -0.12*** | (-0.18, -0.06) | -.24 | .05 |
| | NTB | 1.55* | (0.22, 2.88) | .15 | .02 |
| | RSE | 2.98*** | (0.95, 5.01) | .24 | .03 |
| | Control | -1.74* | (-3.24, -0.23) | -.20 | .02 |
| | Meaning | -1.80** | (-2.94, -0.66) | -.28 | .04 |

*Note.* CI = confidence interval. Significance levels are *** $p < .001$, ** $p < .01$, and,* $p < .05$

Interestingly, the need to belong and self-esteem positively predicted the level of motivation for meeting people. Whereas age, control, and meaningful existence negatively predicted the level of motivation for meeting people. In other words, the higher a person's need to belong and self-esteem, the more motivated they are to use Facebook to meet people, whilst lower scores of age, control, and meaningful existence indicate higher motivation to use Facebook for meeting people.

The results of step 1 for the regression of relationship maintenance indicated that age accounted for a significant 7% of the variance ($R^2 = .07$, $F(1, 204) = 16.02$, $p < .001$). At step 2, need to belong accounted for an additional 6% of the variance ($\Delta R^2 = .06$, $\Delta F(1, 203) = 14.33$, $p < .001$). At step 3, self-esteem, control, and meaningful existence accounted for an additional 2% of the variance in relationship maintenance ($\Delta R^2 = .02$, $\Delta F(3, 200) = 1.93$, $p = .13$). The unstandardized coefficients (*B*), the standardized regression coefficients ($\beta$), and squared semi-partial correlations ($sr^2$) for the full model for the factor of relationship maintenance are reported in Tables 4.7.

*Table 4.7*

*Hierarchical Multiple Regression Analysis of Relationship Maintenance on Age, Need to Belong, Self-esteem, Control, and Meaningful Existence (N=206)*

| Variable | | *B* | 95% CI | B | *sr²* |
|---|---|---|---|---|---|
| Step 1 | | | | | |
| | Age | -0.16*** | (-0.24, -0.08) | -.27 | .07 |
| Step 2 | | | | | |
| | Age | -0.16*** | (-0.24, -0.09) | -.27 | .07 |
| | NTB | 3.15*** | (1.51, 4.79) | .25 | .07 |
| Step 2 | | | | | |
| | Age | -0.19*** | (-0.27, -0.11) | -.31 | .09 |
| | NTB | 3.57*** | (1.89, 5.24) | .28 | .08 |
| | RSE | 1.65 | (-0.91, 4.21) | .11 | <.01 |
| | Control | -0.08 | (-1.98, 1.82) | -.01 | <.01 |
| | Meaning | -0.61 | (-0.83, 2.05) | .08 | <.01 |

*Note.* CI = Confidence Interval. Significance levels are *** $p$ <.001.

In regards to relationship maintenance, need to belong was a positive predictor whereas age was a negative predictor. This means that the higher a person's need to belong the more motivated they are to use Facebook for reasons of relationship maintenance, with younger people also more likely to be report higher motivation to use Facebook for relationship maintenance.

The results of step 1 for the regression of monitoring relationships indicated that age accounted for a significant 19% of the variance ($R^2$ = .19, $F$(1, 204) = 49.65, $p$ < .001). At step 2, need to belong accounted for an additional 3% of the variance ($\Delta R^2$ = .03, $\Delta F$(1, 203) = 8.49, $p$ < .01). At step 3, self-esteem, control, and meaningful existence accounted for an additional 1% of the variance in monitoring relationships ($\Delta R^2$ = .01, $\Delta F$ (3,200) = .65, $p$ = .59). The unstandardized coefficients ($B$), the standardized regression coefficients ($\beta$), and the semi-partial correlations ($sr^2$) for the full model for the factor of monitoring relationships are reported in Tables 4.8.

*Table 4.8*

*Hierarchical Multiple Regression Analysis of Monitoring Relationships on Age, Need to Belong, Self-esteem, Control, and Meaningful Existence (N=206)*

| Variable | | *B* | 95% CI | β | *sr²* |
|---|---|---|---|---|---|
| Step 1 | | | | | |
| | Age | -0.19*** | (-0.25, -0.14) | -.44 | .20 |
| Step 2 | | | | | |
| | Age | -0.19*** | (-0.25, -0.14) | -.44 | .20 |
| | NTB | 1.63*** | (0.53, 2.74) | .18 | .04 |
| Step 3 | | | | | |
| | Age | -0.19*** | (-0.24, -0.13) | -.43 | .17 |
| | NTB | 1.45* | (0.31, 2.59) | .16 | .02 |
| | RSE | 0.39 | (-1.36, 2.13) | .04 | <.01 |
| | Control | -0.45 | (-1.75, 0.84) | -.06 | <.01 |
| | Meaning | -0.31 | (-1.29, 0.67) | -.06 | <.01 |

*Note.* CI = Confidence Interval. Significance levels are *** $p$ <.001, and * $p$ <.05.

Similar to motivations of relationship maintenance, need to belong positively predicted monitoring relationships whilst age negatively predicted monitoring relationships. In other words, the higher a person's need to belong, the more motivated they are to use Facebook for monitoring relationships, with older people less likely to report lower motivation to use Facebook for monitoring relationships.

The results of step 1 for the regression of seeking information indicated that the age had a significant 7% of the variance ($R^2$ = .07, $F(1, 204) = 14.65$, $p < .001$). At step 2, need to belong accounted for an additional 5% of the variance ($\Delta R^2$ = .05, $\Delta F(1, 203) = 10.44$, $p$ = .001). At step 3, self-esteem, control, and meaningful existence accounted for an additional 3% of the variance in seeking information ($\Delta R^2$ = .03, $\Delta F(3, 200) = 2.01$, $p$ = .11). The unstandardized coefficients ($B$), the standardized regression coefficients ($\beta$), and the semi-partial correlations ($sr^2$) for the full model for the factor of seeking information are reported in Table 4.9.

*Table 4.9*

*Hierarchical Multiple Regression Analysis on Seeking Information on Age, Need to Belong, Self-esteem, Control, and Meaningful Existence (N=206)*

| Variable | | *B* | 95% CI | β | *sr²* |
|---|---|---|---|---|---|
| Step 1 | | | | | |
| | Age | -0.12*** | (-0.18, -0.06) | -.26 | .07 |
| Step 2 | | | | | |
| | Age | -0.12*** | (-0.18, -0.06) | -.26 | .07 |
| | NTB | 2.09*** | (0.81, 3.36) | .21 | .05 |
| Step 3 | | | | | |
| | Age | -0.12*** | (-0.18, -0.06) | -.26 | .06 |
| | NTB | 2.02** | (0.71, 3.32) | .21 | .04 |
| | RSE | 2.36* | (0.38, 4.35) | .20 | .03 |
| | Control | -0.37 | (-1.84, 1.11) | -.05 | <.01 |
| | Meaning | -0.80 | (-1.91, 0.32) | -.14 | <.01 |

*Note.* CI = confidence interval. Significance levels are *** $p$ <.001, ** $p$ <.01, and * $p$ <.05.

In regards to the motivation of seeking information, the need to belong and self-esteem positively predicted seeking information, whereas age negatively predicted seeking information. That is, the higher a person's need to belong and self-esteem the more motivated they are to use Facebook for seeking information, whereas younger people more likely to report higher motivation to use Facebook for seeking information.

**Discussion of motivations for Facebook use**

The first research question to be addressed in this chapter was: *What motivates people to use Facebook?* This is an important question to consider as Facebook was developed to enable social connection, but research investigating the motivations people have for using Facebook have found different types of motivations, that is, external motivations such as using Facebook to be reminded of birthdays or internal motivations such as relieving boredom. Prior research has identified a range of different types of motivations with some motivations being socially oriented while other motivations are more to do with self-image concerns or entertainment (Joinson, 2008; McAndrew & Jeong, 2012; Quan-Haase & Young, 2010; Sheldon, 2008; Tosun, 2012; Vasalou et al., 2010). Given the ever changing nature of

Facebook, it was important to examine whether identified motivations from previous research remain relevant in 2016, as well as the role of the individual's need to belong in predicting these motivations. Thus, motivational factors were identified from previous research, and a range of items were used included in an exploratory factor analysis which were then regressed on need to belong, self-esteem, control, and meaningful existence. The first hypothesis was that *need to belong would predict motivations for Facebook use* and the second hypothesis was that *self-esteem, control, and meaning would uniquely predict motivations for Facebook use*.

The factor of meeting people showed that need to belong and self-esteem were significant positive predictors, whereas control and meaningful existence were significant negative predictors. Given that the need to belong is described as an essential motivation that drives all humans to create and maintain mutually satisfying relationship (Baumeister & Leary, 1995), using Facebook to meet people makes intuitive sense. Furthermore, if the role of self-esteem is that of a monitor providing feedback regarding the quality of relationships, then meeting new people would be an activity where self-esteem would be actively engaged in monitoring the level of acceptance provided by other people. Additionally, choosing to meet new people on Facebook is a situation where the outcome is uncertain, that is, a person has very little control over whether someone will accept your Friend request. Similarly, if a person has little meaning in their life, using Facebook to meet people provides them with more opportunities for social relationships.

Individuals who are motivated to use Facebook for meeting people are generally interested in meeting people who are interesting or like-minded, but are also looking for new friends or romantic partners. Meeting people also includes behaviours such as sharing feelings or avoiding uncomfortable situations. This factor of meeting people contained similar items to shared identities (Joinson, 2008), social browsing (Vasalou et al., 2010),

virtual community (Sheldon, 2008a), sociability (Quan-Haase & Young, 2010), initiating or terminating romantic relationships and establishing new relationships (Tosun, 2012), and interpersonal utility (Baek, Holton, Harp, & Yaschur, 2011).

The factor of relationship maintenance had need to belong as a significant positive predictor but not self-esteem, control, and meaning. These results support that higher need to belong not only underpins the motivation people have to create relationships, but to also maintain their existing relationships. What is a surprising finding is that meaningful existence was not a predictor of relationship maintenance, that is, if a person had a low level of meaning in their life, it would be expected that this would predict a strong motivation to maintaining their relationships with other people.

Individuals who use Facebook to maintain their relationships do so to keep in touch with friends who may not live locally and are not seen face-to-face. People also maintain their relationships by seeking out those people they had previously lost contact with, such as old school friends, or by sharing and commenting on photos or making plans for social activities. This factor of maintaining relationships contains similar items to other factors previously identified such as social connections and photographs (Joinson, 2008), social searching and photographs (Vasalou et al., 2010), relationship maintenance and entertainment (Sheldon, 2008a), pastime and social information (Quan-Haase & Young, 2010), managing long-distance relationships, passive activities, and active forms of photo related activities (Tosun, 2012), and photo activity (McAndrew & Jeong, 2012).

Similar to maintaining relationships, need to belong was a significant positive predictor of the motivation of monitoring relationships but again, self-esteem, control, and meaning were not significant predictors. Initially it could be thought that this result is surprising given the suggestion that the role and function of self-esteem is that of monitoring for relational value (Leary & Baumeister, 2000; Leary & Downs, 1995). However, these

results do lend further support to the automaticity of self-esteem, that is, self-esteem operates at an unconscious level until a threat to the need to belong is detected (Leary, 2010; Leary & Baumeister, 2000; Leary & Downs, 1995).

Individuals who use Facebook to monitor their relationships do so by checking out what is happening with their family, friends, as well as previous partners. Included in this factor was also an item regarding using Facebook for procrastination. Similar items were found in factors identified in previous research such as passing time (Sheldon, 2008), seeking personal information about others and family activity (McAndrew & Jeong, 2012), and convenience and entertainment (Baek et al., 2011).

The final motivational factor of seeking information had both the need to belong and self-esteem as significant positive predictors. Again, these results make sense as this factor contained statements such as using Facebook to learn about work or university events, for advertising items for sale, recruiting members to clubs, and more importantly, for information about their peer group so they can "fit in". This factor of seeking information contained similar items contained in factors identified in previous research such as coolness (Sheldon, 2008), self-seeking status and information seeking (Park et al., 2009), and promoting work (Baek et al., 2011).

Age and gender were also investigated as variables of interest. However, gender was not significantly correlated with any motivational factors and so was excluded from the final regression analyses. Age was a significant negative predictor of all motivations for using Facebook. In other words, the older a person is the less likely they are to report motivations of using Facebook for reasons of meeting people, relationship maintenance, monitoring relationships, or seeking information. Although Bell et al. (2013) found that people over 50 were more likely to log onto Facebook to maintain relationships, it may be that in this sample there were different motivational reasons that were not adequately captured by using items

from previous research. Additionally, the number of people over 50 in this study was small (3.5%) which may have impacted on these results.

**Research question: What are the cues that communicate relational information on Facebook?**

As previously discussed, social cues play an important role in providing individuals with information about what is occurring in the social environment, that is, social cues provide people with relational information about the quality and state of their relationships. Understanding the social cues that can occur in a given environment not only help people to ward off potential threats to their belonging, but also help provide verification that a person is valued by others. The first part of Study 2 investigated and found compelling evidence that the need to belong positively predicts a person's motivations for using Facebook that is, to meet people, maintain their relationships, monitor their relationships, and seek information. It is therefore appropriate to further investigate the social cues that provide relational information.

### Social rejection cues on Facebook

There were 34 social cues identified as communicating negative relational information in Study 1. These cues were subsequently developed into items and participants were asked to indicate to the degree to which each statement made them feel rejected. An example was "I feel rejected when a Friend leaves mean comments on my Timeline". Participants ranked these items on a 5-point Likert scale of 1 (*Not at all rejected*) to 5 (*Extremely rejected*). Initial analysis ranked these items from those items with the highest means to those items with the lowest means to determine which social cues generated greater feelings of rejection. Please refer to Table 4.10 for each social cue indicating potential rejection in descending order of means, including the standard deviations.

*Table 4.10*

*Rejection items in descending order of means (N = 209)*

| Items | Means | SD |
|---|---|---|
| A FB Friend comments negatively about me or my family | 3.44 | 1.31 |
| A FB Friend deliberately brings up issues on my timeline they know will upset me | 3.26 | 1.37 |
| A FB Friend posts gossips about me on other FB Friends timelines (e.g. did you hear X is dropping out of uni?) | 3.16 | 1.45 |
| A FB Friend leaves mean comments on my timeline | 3.15 | 1.43 |
| A FB Friend posts comments that I have told them in private | 3.10 | 1.35 |
| A FB Friend is no longer listed on my Friend list (e.g. defriended) | 3.03 | 1.48 |
| A FB Friend posts status updates (e.g. some people need to get a life) that I know are directed at me | 3.03 | 1.45 |
| I send a private message to a FB Friend through chat and they do not respond | 2.83 | 1.25 |
| A FB Friend posts a public event but does not invite me | 2.78 | 1.38 |
| A FB Friend has a rant about how nobody likes them even thought I had spent time with them | 2.74 | 1.33 |
| Nobody responds to my status updates | 2.57 | 1.33 |
| I post on a FB Friends timeline and they do not respond | 2.57 | 1.24 |
| My FB Friend request is ignored | 2.54 | 1.24 |
| FB Friends are tagged in a check-in and you were not invited to go with them | 2.52 | 1.28 |
| A FB Friend is critical of my opinion and we argue on a comment thread | 2.51 | 1.29 |
| I am not invited to an event that other FB Friends are discussing | 2.50 | 1.26 |
| I am blocked from viewing some features on a FB Friends profile | 2.48 | 1.40 |
| FB Friends post critical comments about values that are important to me (e.g. Atheist comments when I have religious views) | 2.47 | 1.27 |
| FB Friends do not respond to my event invitations | 2.45 | 1.26 |
| My partner likes sexy FB sites (e.g. big breasted women or sexy firemen) | 2.44 | 1.34 |
| I see my FB Friends tagged in a photo of something I was not invited to | 2.44 | 1.23 |
| Nobody likes my photos | 2.40 | 1.29 |
| I am left out of a status update or check-in by a FB Friend when I am with them | 2.38 | 1.31 |
| A FB Friend posts photos of an event I was at, but there are no photos of me | 2.27 | 1.24 |
| A FB Friend announces something important and you realise you do not know the details of their life (e.g. an engagement) | 2.10 | 1.10 |

| Items | Means | SD |
|---|---|---|
| My ex updates their FB relationship status as in a new relationship | 2.07 | 1.27 |
| A FB Friend uses language that they know I do not like (e.g. swearing) | 1.91 | 1.11 |
| Someone sends other FB Friends a friend request but I am excluded | 1.88 | 1.04 |
| I am in a photo with my FB Friends but I am not tagged | 1.79 | 1.07 |
| I was invited to go to an event by a FB Friend but had to refuse, and they take another Friend and upload positive comments/photos | 1.79 | 1.03 |
| FB Friends upload photos of places that I want to visit but cannot afford | 1.68 | 0.95 |
| A FB Friend uses words I am unfamiliar with (e.g. LAWL) | 1.67 | 0.96 |
| A FB Friend posts a photo of themselves and other Friends comment positively about their appearance | 1.60 | 0.93 |
| Other FB Friends have more Friends than me | 1.40 | 0.80 |

**Factor analysis on social cues of rejection.**

A factor analysis on the social rejection cues was also conducted to determine whether similar sub-themes of social rejection identified from Study 1, would be generated from the 34 rejection social cue items.

There were no missing or out of range data. The minimum amount of data for factor analysis was met, with a minimum of five participants per variable and a total amount of more than 200 participants (Allen & Bennett, 2010). The KMO measured sampling adequacy of .94, and the Bartlett's Test of Sphericity was significant ($\chi^2$ (561) = 5215.66, $p$ <.001). Finally, the communalities were all above .3 confirming that the items shared common variance. Given all these indicators, the current data met all requirements for factor analysis.

Maximum Likelihood extraction was used as it allows for a goodness of fit solution for the factors, as well as allowing for statistical inferences (Fabrigar et al., 1999; Field, 2009). The initial eigenvalues showed the first factor explained 45% of the variance, the second factor 8% of the variance, and the third, fourth and fifth factor just over 12% of the variance. Three, four and five factor solutions were examined using Oblimin rotation. The

five factor solution was preferred due to the “levelling off” of eigenvalues on the Scree Plot after four factors. To further confirm a five factor solution a parallel analysis was also conducted to determine how many factors should be maintained.

During several steps, a total of 7 items were eliminated as they failed to meet a minimum criterion of a primary factor loading of .4 or above. A factor analysis with a Maximum Likelihood solution and Oblimin rotation was conducted to explore the factor structure of the remaining 26 items, with the five factors explaining 64% of the variance.

The factor loading matrix for this solution is presented in Table 4.11.

Table 4.11

*Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation of Facebook Rejection Cues (N = 209)*

| | Pattern Co-efficient | | | | | |
|---|---|---|---|---|---|---|
| Items | 1 | 2 | 3 | 4 | 5 | Communalities |
| A FB Friend posts gossip about me on other FB Friends Timelines | .87 | | | | | .81 |
| A FB Friend leaves mean comments on my timeline | .86 | | | | | .81 |
| A FB Friend deliberately brings up issues on my timeline they know will upset me | .80 | | | | | .71 |
| A FB Friend posts status updates (e.g. some people need to get a life) that I know are directed at me | .79 | | | | | .79 |
| A FB Friend comments negatively about me or my family | .77 | | | | | .61 |
| A FB Friend is critical of my opinion and we argue on a comment thread | .75 | | | | | .65 |
| A FB Friend posts comments on my timeline that I have told them in private | .65 | | | | | .59 |
| A FB Friend has a rant about how nobody likes them even thought I had spent time with them | .58 | | | | | .50 |
| A FB Friend is no longer listed on my Friend list e.g. defriended | .45 | | | | | .61 |
| Nobody responds to my status updates | | -.99 | | | | .90 |
| Nobody likes my photos | | -.89 | | | | .80 |
| I post on a FB Friends timeline and they do not respond | | -.47 | | | | .62 |
| My FB Friend request is ignored | | -.46 | | | | .49 |
| A FB Friend uses words I am unfamiliar with | | | .80 | | | .71 |
| A FB Friend uses language that they know I do not like | | | .76 | | | .66 |

| | Pattern Co-efficient | | | | | |
|---|---|---|---|---|---|---|
| Items | 1 | 2 | 3 | 4 | 5 | Communalities |
| FB Friends post critical comments about values that are important to me | | | .49 | | | .58 |
| I see my FB Friends tagged in a photo of something I was not invited to | | | | .76 | | .73 |
| FB Friends are tagged in a check-in and you were not invited to go with them | | | | .74 | | .71 |
| I am not invited to an event that other FB Friends are discussing | | | | .71 | | .76 |
| FB Friends do not respond to my event invitations | | | | .60 | | .51 |
| A FB Friend posts a public event but does not invite me | | | | .54 | | .65 |
| I am left out of a status update or check-in by a FB Friend when I am with them | | | | .45 | | .58 |
| A FB Friend posts a photo of themselves and other Friends respond positively about their appearance | | | | | .67 | .52 |
| I was invited to go to an event by a FB Friend but had to refuse and they take another Friend and upload positive comments/photos | | | | | .62 | .54 |
| FB Friends upload photos of places that I want to visit but cannot afford | | | | | .62 | .59 |
| Other FB Friends have more Friends than me | | | | | .42 | .30 |

All five factors showed moderate to strong correlation; with items in factor 2 being negatively correlated with the other three factors, that is, higher scores on factor 2 are associated with lower scores on the other four factors. The items for each of the five factors suggest that they seem to measure *Criticism, Silence, Relationship incongruity actions, Being omitted from friendship activities,* and *Social comparison*. These factors are similar in structure to three of the sub-themes identified in Study 1, specifically the sub-themes of *Being omitted from friendship activities, Criticism,* and *Silence.*

Internal consistency for each factor was examined using Cronbach's alpha. As the Cronbach's alphas range from .78 to .94, this indicated acceptable internal reliability. Factor 1 (*Criticism*) contained 9 items and had an alpha of .91. Factor 2 (*Silence*) contained 4 items and had an alpha of .88. Factor 3 (*Friendship incongruity actions*) contained 3 items and had an alpha of .81. Factor 4 (*Being omitted from friendship activities*) contained 6 items and had an alpha of .91 and finally factor 5 (*Social comparison*) contained 4 items and had an alpha of .78. No substantial increases in the Cronbach alpha in any factor could have been achieved by deleting any items.

**Social inclusion cues on Facebook**

There were 39 social cues identified as communicating positive relational information in Study 1. These cues were subsequently developed into items and participants were asked to indicate to the degree to which each statement made them feel accepted. Participants were asked to indicate the degree to which each statement made them feel accepted. Participants ranked these items on a 5-point Likert scale of 1 (*Not at all accepted)* to 5 (*Extremely accepted*). An example item was "I feel accepted when a Facebook Friend likes a photo I am in". Initially, this data was ranked from the statements with the highest means to those with the lowest means to determine the cues, which generated greater feelings of acceptance or

inclusion. Please refer to Table 4.12 for each item in descending order of means, including the standard deviations.

Table 4.12

*Acceptance items in descending order of means (N=209)*

| Item | Mean | SD |
|---|---|---|
| A Facebook Friend comments positively on a photo I am in e.g. You look great | 3.93 | 1.00 |
| A Facebook Friend posts a positive comment to my timeline | 3.82 | 0.93 |
| A Facebook Friend shares exciting news with me privately through 'chat' e.g. I've got a promotion | 3.81 | 0.97 |
| A Facebook Friend affirms me e.g. you are a great person | 3.80 | 0.99 |
| A Facebook Friend positively comments on my responses and we have an on-line conversation thread | 3.80 | 0.92 |
| My partner changes their Facebook relationship status to “In a relationship” | 3.79 | 1.12 |
| A Facebook Friend positively comments on my status updates | 3.73 | 0.91 |
| I get a comment from a Facebook Friend that is encouraging or supportive | 3.73 | 1.05 |
| I post a need for support (e.g. I need a lift to the doctor, my car is not working) and my Facebook Friends respond | 3.73 | 0.95 |
| A Facebook Friend changes their profile picture/cover photo to one that I am in | 3.67 | 1.00 |
| I post an opinion and my Facebook Friends respond with lots of comments and 'likes' | 3.67 | 0.95 |
| A Facebook Friend shares a link on my timeline they think I will like e.g. new album released by favourite artist | 3.67 | 0.98 |
| A Facebook Friend privately shares stories of their struggles with me through 'chat' when we both have the same issue e.g. both going through a breakup | 3.66 | 1.05 |
| A Facebook Friend messages me e.g. Facebook chat | 3.66 | 0.95 |
| A Facebook Friend notices that I am not as active with my status updates and privately messages me e.g. Are you okay? | 3.65 | 1.10 |
| A FB Friend likes a photo I am in | 3.64 | 0.98 |
| A Facebook Friend makes a time to 'chat' with me on-line | 3.64 | 1.02 |
| A FB Friend likes a photo/comment I have made | 3.64 | 0.96 |
| A FB Friend likes my status updates | 3.64 | 0.94 |
| I post a controversial viewpoint consistent with my values (e.g. gay marriage) and Facebook Friends respond positively | 3.63 | 1.04 |
| I get an invitation to an event, and only a small number of Facebook Friends are also invited | 3.58 | 1.05 |
| A Facebook Friend wishes me a Happy Birthday | 3.57 | 1.10 |
| A Facebook Friend who does not 'like' or post many comments, 'likes' my status update | 3.55 | 1.05 |
| A FB Friend tags me in their status update | 3.50 | 0.98 |
| A Facebook Friend 'tags' me in their photos | 3.46 | 0.98 |

| Item | Mean | SD |
|---|---|---|
| I get issued invitations based on my status updates e.g. "I'm downtown" and a Facebook Friend comments "Where are you, let's hang out" | 3.45 | 1.03 |
| A Facebook Friend 'tags' me in a check-in | 3.42 | 1.03 |
| I get an invitation to an event | 3.38 | 0.98 |
| I start a closed group and my Facebook Friends accept my invitations to join | 3.35 | 1.06 |
| I am invited to join a closed group | 3.34 | 1.07 |
| Someone accepts my Facebook Friend request | 3.27 | 0.94 |
| I am part of a group message | 3.20 | 1.03 |
| Someone sends me a Facebook Friend request | 3.20 | 0.96 |
| I apply to join a closed group and I am accepted | 3.20 | 1.03 |
| My timeline has more comments than my other Facebook Friends | 2.98 | 1.08 |
| A Facebook Friend 'pokes' me | 2.75 | 1.04 |
| Someone I do not know wants to be my Facebook Friend based on my comments | 2.68 | 1.12 |
| Someone I do not know wants to be my Facebook Friend based on my photo | 2.53 | 1.16 |

**Factor Analysis on social cues of inclusion.**

A factor analysis on the social inclusion cues was conducted to determine whether similar sub-themes from Study 1 would be generated from the 39 inclusion items.

There were no missing or out of range data. The minimum amount of data for factor analysis was met, with a minimum of five participants per variable and a total amount of more than 200 participants (Allen & Bennett, 2010). The KMO measured sampling adequacy of .95, and the Bartlett's Test of Sphericity was significant ($\chi^2$ (741) = 8747.83, $p$ <.01). Finally the communalities were all over .3, confirming that each item shared common variance with other items. Given these indicators, a factor analysis was conducted on all 39 items.

Maximum Likelihood extraction was used because it allows for a goodness of fit solution for the factors, as well as allowing for statistical inferences (Fabrigar et al., 1999; Field, 2009). The initial eigenvalues showed the first factor explained 55% of the variance,

the second factor 7% of the variance, and the third and fourth factor just over 9% of the variance. The fifth factor had an eigenvalues of just over one, explaining 3% of the variance. Four, five and six factor solutions were examined using Oblimin rotation. The five factor solution was preferred due to the "levelling off" of eigenvalues on the Scree Plot after five factors. To further confirm a five factor solution a parallel analysis was conducted to determine how many factors should be maintained.

During several steps, a total of 5 items were eliminated because they failed to meet a minimum criterion of having a primary factor loading of .4 or above. A factor analysis with a Maximum Likelihood solution and Oblimin rotation was conducted to explore the factor structure of the remaining 28 items, with the four factors explaining 48% of the variance. The factor loading matrix for this solution is presented in Table 4.13.

Table 4.13

*Factor Loadings for Exploratory Factory Analysis with Oblimin rotation for Facebook Acceptance Cues (N=209)*

| Items | Pattern Co-efficient | | | | | Communalities |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| A FB Friend affirms me | .76 | | | | | .72 |
| I post a need for support and my FB friends respond | .65 | | | | | .69 |
| A FB Friend shares exciting news with me privately through 'chat' | .63 | | | | | .74 |
| A FB Friend positively comments on my responses and we have an on-line conversation thread | .63 | | | | | .73 |
| A FB Friend posts a positive comment to my timeline | .61 | | | | | .77 |
| A FB Friend comments positively on a photo I am in | .60 | | | | | .78 |
| A FB Friend comments positively on my status updates | .55 | | | | | .77 |
| I post an opinion and my FB Friends respond with lots of comments and likes | .55 | | | | | .73 |
| My partner changes their FB relationship status to "in a relationship" | .54 | | | | | .56 |
| I post a controversial viewpoint consistent with my values and FB Friends respond positively | .54 | | | | | .58 |
| A FB Friend privately shares stories of their struggles with me through 'chat' when we both have the same issue | .50 | | | | | .61 |
| A FB Friend makes a time to chat with me on-line (e.g. are you free at 7pm?) | .44 | | | | | .60 |
| A FB Friend tags me in one of their comments | | -.98 | | | | .98 |
| A FB Friend tags me in a check-in | | -.89 | | | | .89 |

| | Pattern Co-efficient | | | | | |
|---|---|---|---|---|---|---|
| Items | 1 | 2 | 3 | 4 | 5 | Communalities |
| A FB Friend tags me in their status update | | -.87 | | | | .93 |
| A FB Friend tags me in their photos | | -.86 | | | | .90 |
| A FB Friend likes a comment I have made | | | -.88 | | | .91 |
| A FB Friend likes my status updates | | | -.84 | | | .89 |
| A FB Friend likes a photo I am in | | | -.79 | | | .85 |
| A FB Friend messages me (e.g. FB chat) | | | -.41 | | | .66 |
| Someone I do not know wants to be my FB Friend based on my photo | | | | .95 | | .76 |
| Someone I do not know wants to be my FB Friend based on my comments | | | | .93 | | .79 |
| Someone send me a FB Friend request | | | | .43 | | .46 |
| My timeline has more comments than my other FB Friends | | | | .42 | | .37 |
| I apply to join a closed group and I am accepted | | | | | -.87 | .79 |
| I am invited to join a closed group | | | | | -.85 | .79 |
| I am part of a group message | | | | | -.77 | .69 |
| I start a closed group and my FB Friends accept my invitations to join | | | | | -.54 | .65 |
| I get issued invitations based on my status updates | | | | | -.49 | .69 |
| I get an invitation to an event and only a small number of FB Friends are also invited | | | | | -.47 | .66 |
| I get an invitation to an event | | | | | -.46 | .59 |
| A FB Friend pokes me | | | | | -.44 | .39 |
| I get a comment from a FB Friend that is encouraging or supportive | | | | | -.42 | .70 |
| A FB Friend wishes me a happy birthday | | | | | -.41 | .51 |

All five factors showed moderate to strong correlation: with items in Factor 2, 3 and 5 being negatively correlated with the other two factors, that is, higher scores on factors 2, 3, and 5 are associated with lower scores on the other two factors. The items for each of the five factors suggest that they seem to measure *Supportive relationship activities, Relationship acknowledgement, Affirmation from others, Relationship initiation,* and *Contributing to relationships*. This is very similar to the sub-themes of Study 1, that is the sub-themes named *Being acknowledgement of relationship, When others think of me, Affirmation from others, Relationship initiation,* and *Relationship maintenance.*

Internal consistency for each factor was examined using Cronbach's alphas. The Cronbach alphas ranged from .80 to .98, and this indicated acceptable internal reliability. Factor 1 (*Supportive relationship activities*) contained 12 items and had an alpha of .96. Factor 2 (*Friendship acknowledgement*) contained 4 items and had an alpha of .98. Factor 3 (*Affirmation from others*) contained 4 items and had an alpha of .94 although if the item (A FB Friend messages me e.g. FB chat) was deleted it would increase the alpha to .96. Factor 4 (*Relationship initiation*) contained 4 items and had an alpha of .80. Factor 5 (*Contributing to relationships*) contained 10 items and had an alpha of .94. With the exception of Factor 3, no substantial increases in the alpha in any factor could have been achieved by deleting any items.

### Discussion of relational cues

An additional research question investigated in this chapter related back to the overall aim of the thesis: *What are the social cues that communicate relational information on Facebook?* This part of Study 2 examined whether the qualitative findings from Study 1 could be generalised beyond the first sample and would be representative of a wider group of Facebook users. Furthermore the means of the items were also examined to determine which social cues were more recognisable at communicating greater feelings of rejection or

acceptance. Identifying these social cues of rejection and acceptance was a critical step for the development of the artificial Facebook page to be used in Study 3, and will be discussed in more detail in Chapter 5.

Understanding the relational information that is found on Facebook helps individuals to evaluate their relationships in the on-line social world, as well as providing them with information about the quality and state of their relationships. Existing studies have shown that individuals are sensitive to social cues that threaten their need to belong (Gardner et al., 2000), and while previous research has demonstrated what verbal and non-verbal cues occur in face-to-face situations, the research investigating on-line social cues is only in its infancy. Study 1 was conducted to explore the social cues recognised by Facebook users as providing relational information. From the interviews conducted with a purposive sample, five sub-themes of *Social rejection* (*Being omitted from friendship activities, Criticism, Relationship betrayal, Silence,* and *Relationship termination*) were identified along with five sub-themes of *Social inclusion* (*Relationship acknowledgement, Thinking of me, Relationship affirmation, Relationship initiation,* and *Supportive relationship activities*). In addition, another main theme related to *Social comparison* was also identified.

In the current analysis, there were five factors of social exclusion identified (*Criticism, Silence, Friendship incongruity actions, Being omitted from friendship activities,* and *Social comparison*) and which were extracted in the factor analysis. There were also five factors of inclusion identified (*Supportive friendship activities, Friendship acknowledgement, Affirmation from others, Relationship initiation,* and *Contributing to relationships*) through extraction in the factor analysis. Given the survey was developed from the social cues identified from Study 1, it would be expected that a similar pattern of response to the sub-themes from Study 1 would appear, however a slightly different pattern of factor characteristics were found.

With respect to the social rejection cues on Facebook, the factor analysis showed that 3 of the 5 factors identified in Study 2 (i.e., *Being omitted from friendship activities, Silence*, and *Criticism*) had similar *characteristics* across both studies. That is, similar social cues were found within these sub-themes (Study 1) or factors (Study 2). For example, in Study 1 the sub-theme *Silence* emphasised social cues where there was no acknowledgment from Facebook Friends, either by a specific individual or by every Friend an individual had. In Study 2, the social cues found within the factor of *Silence* had the same social cues as the sub-theme of Study 1. However, two remaining sub-themes from Study 1, that of *Relationship betrayal* and *Relationship termination*, did not translate across as similar factors in Study 2. Instead, the two remaining factors in Study 2 contained social cues more closely related to that of *Friendship incongruity actions* and *Social comparison*.

In Study 1, *Relationship betrayal* emphasised actions were an individual felt that their trust had been broken at some at some level, and *Relationship termination* was defined as actions where a relationship ended. In Study 2 social cues regarding *Relationship betrayal* (e.g., "A Facebook Friend posts comment on my timeline I had told them in private") were grouped into the *Criticism* factor. However, two social cues describing *Relationship betrayal* in Study 1, "A Facebook Friend uses language that they know I do not like" and "Facebook Friends post critical comments about values that are important to me" were located in the factor named *Friendship incongruity actions*. The social cue "A Facebook Friend is no longer listed on my Friend list, e.g., defriended" was included in the *Criticism* factor. Thus, some of the social cues found within the *Criticism* factor from Study 2, were strongly related to the sub-themes of *Relationship betrayal* or *Relationship termination* sub-themes in Study 1.

In the matter of social inclusion or acceptance cues on Facebook, the factor analysis showed that 4 out of the 5 factors (i.e., *Relationship acknowledgement*, *Relationship affirmation*, *Relationship initiation*, and *Supportive relationship activities*) had similar

*characteristics* to the same sub-themes found in Study 1. For instance in Study 1, *Supportive relationship activities* emphasised social cues that supported existing relationships, and the similarly named factor in Study 2 contained the same social cues. However, one factor identified in Study 2, *Contributing to relationships*, contained a different pattern of response to the remaining sub-theme from Study 1, *Thinking of me*.

In Study 1, *Thinking of me* emphasised social cues with positive relational activities initiated by Facebook Friends without pressure from the individual. However in Study 2, social cues that made up the factor *Contributing to relationships,* included social cues from both the sub-themes of *Thinking of me* (e.g., A Facebook Friend wishes me a happy birthday) and *Relationship acknowledgement* particularly social cues concerning group membership (e.g., I am part of a group message). Therefore, it appears that social cues identified in Study 1 that included unprompted actions from Friends, are strongly related to actions that contribute positively to their relationships.

**Summary and implications of Study 2**

Study 2 set out to investigate two things: *What motivates people to use Facebook?*, and to provide further evidence for understanding *what social cues impart relational information on Facebook?* Firstly, this study demonstrated that even though previous research has found many different motivations for people to use Facebook, social concerns are a primary motivator. This is encouraging given the ever-changing and evolving nature of the Facebook site. Furthermore, Study 2 extends the previous research into the motivation for using Facebook to include a wider age range, as well as extending the research to include Australian Facebook users. A cautionary note however, is that the motivational items used in Study 2 came from previous research dated between 2008 and 2012, and it is therefore possible due to the evolving nature of Facebook, that motivations for using Facebook may

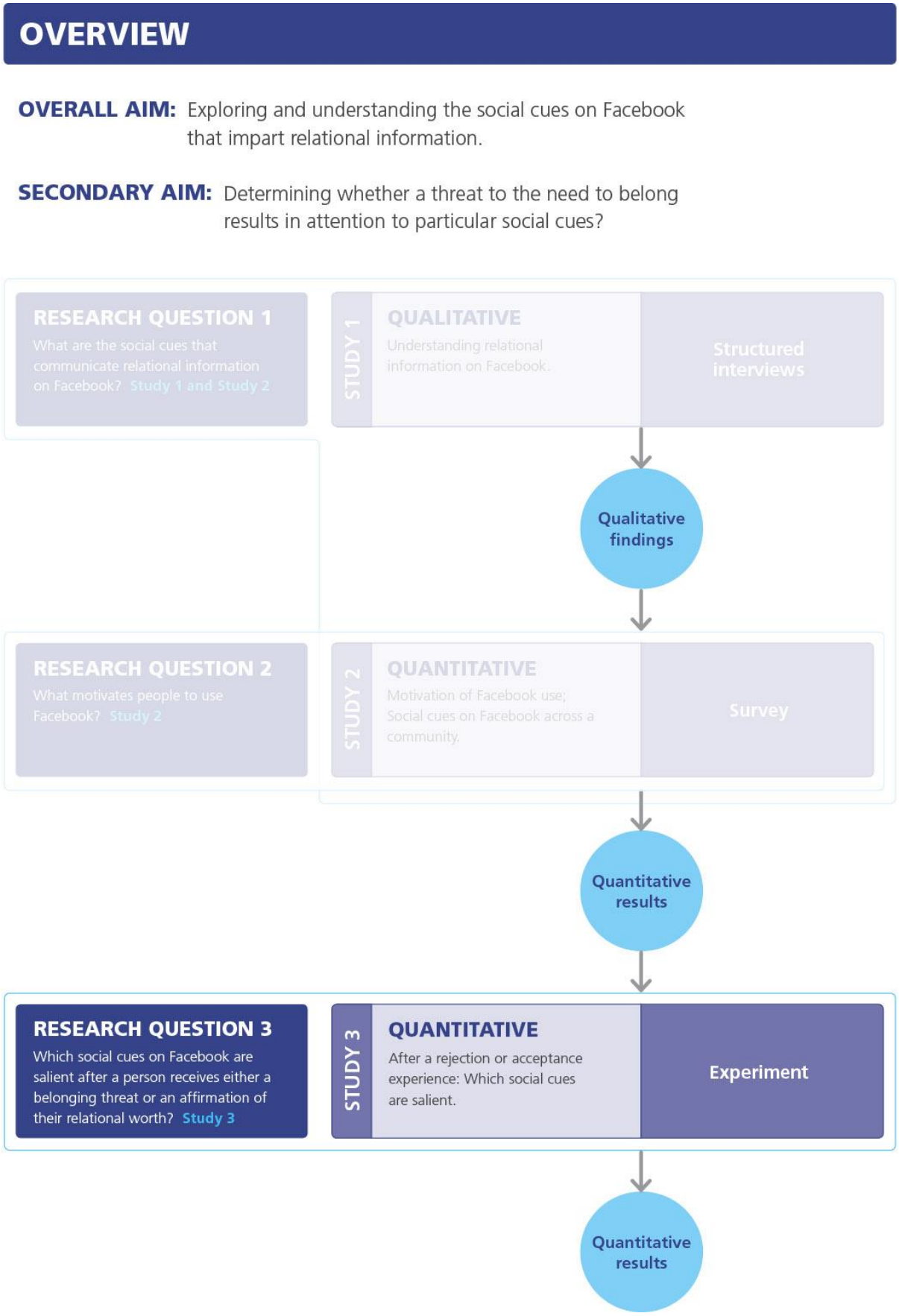
change in the future. Future research should continue to investigate what motivates people use Facebook as the site evolves and incorporates different technologies and features.

Of significance, is that the results of Study 2 provided compelling evidence that the need to belong is a significant predictor of people's motivation for use Facebook. Importantly, the results from Study 2 opens up Facebook as a place of exploration and investigation for researchers interested in examining the role of the need to belong in an on-line environment.

With regards to the social cues that provide relational information, the results from Study 2 strongly support the sub-themes of relational information that were identified in Study 1. It should be remembered though that some of the *characteristics* or social cues contained within the factors in Study 2 were, in some cases slightly different from those identified in Study 1. However, both Study 1 and Study 2 do indicate that not only are people paying attention to the socially relevant information that is available on Facebook, but they are also able to articulate specific cues that are used to signify rejection or inclusion. Nevertheless, it should be remembered that the social cues used in Study 2, although based on the findings from Study 1, were given to the participants and they were asked the degree to which those cues may them feel rejected or accepted. This limitation means that there may be some social cues that communicate important relational information that are not included in this analysis. Indeed, since a pre-determined list of social cues was used, this may well limit any other potential social cues the participants may *actually* be aware of. Further research should be conducted to establish which social cues individuals are sensitive to when they are actually looking at or reading Facebook pages.

In conclusion, the need to belong is an important concept in social psychology, indeed when it comes to understanding social connections, the need to belong appears to play a fundamental and critical role. For instance, Baumeister and Leary's (1995) seminal paper has

been cited close to 7000 times according to Google Scholar. However the majority of research based on the need to belong uses rejection manipulations in a controlled environment (i.e., laboratory manipulations) using Cyberball, the Life Alone paradigm, the Get Acquainted paradigm, or the participants relieving previous rejection experiences (Nezlek et al., 1997; Twenge et al., 2001; Williams et al., 2000). While these rejection paradigms have been shown to be effective, it is also important for participants to engage in social exclusion research in *familiar* environments. Thus, Study 3 will extend the research into the understanding of social cues through an experimental manipulation of the need to belong with a simulated Facebook context.


OVERVIEW
OVERALL AIM: Exploring and understanding the social cues on Facebook that impart relational information.
SECONDARY AIM: Determining whether a threat to the need to belong results in attention to particular social cues?
RESEARCH QUESTION 1
What are the social cues that communicate relational information on Facebook? Study 1 and Study 2
STUDY 1
QUALITATIVE
Understanding relational information on Facebook.
Structured interviews
Qualitative findings
RESEARCH QUESTION 2
What motivates people to use Facebook? Study 2
STUDY 2
QUANTITATIVE
Motivation of Facebook use; Social cues on Facebook across a community.
Survey
Quantitative results
RESEARCH QUESTION 3
Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth? Study 3
STUDY 3
QUANTITATIVE
After a rejection or acceptance experience: Which social cues are salient.
Experiment
Quantitative results

# Chapter 5 – Recognising social cues on Facebook (Study 3)

## Rationale

Study 1 identified specific themes of rejection and acceptance among a purposive sample of Facebook users. From this study, five sub-themes of *Social rejection* (i.e., *being omitted from friendship activities, criticism, relationship betrayal, silence,* and *relationship termination*) and five sub-themes of *Social inclusion* (i.e., *relationship acknowledgement, thinking of me, relationship affirmation, relationship initiation,* and *supportive relationship activities*) on Facebook were identified. In addition, Study 2 then further investigated these sub-themes and the social cues identified within them, through the identification of factors in a factor analysis. Therefore, these findings confirm the *characteristics* of the relational information comprising the identified factors within social rejection (i.e., *criticism, silence, friendship incongruity actions, being omitted from friendship activities,* and *social comparison*), and social inclusion (i.e., *supportive relationship activities, relationship acknowledgement, relationship affirmation, relationship initiation,* and *contributing to relationships*) on Facebook.

In regards to the importance of relational information, research has demonstrated that individuals are sensitive to social cues that indicate potential changes to the quality of a relationship (Leary & Baumeister, 2000; Leary & Downs, 1995; Pickett & Gardner, 2005; Williams & Zadro, 2005; Williams, 2009). Within on-line environments, social cues may be ambiguous, missing, or minimised, however, it would still be expected that social cues indicating changes to a person's relational value would be attended to as part of the social monitoring system.

## The current study

As outlined in Chapter 1, this research involves an exploratory, sequential, mixed-method design, with a flow chart outlining the research depicted in Figure 1.1. As shown in

the graphic representation immediately before the start of this chapter, Study 3 is a quantitative study that will provide further understanding of social cues and relational information. The overall aim of this thesis is to explore and understand the social cues on Facebook that impart relational information, specifically the social cues that may indicate potential rejection and acceptance. However, in this chapter, a secondary aim will be addressed:

*To determine whether a threat to the need to belong results in attention to particular social cues.*

As discussed in Chapter 2, social monitoring plays an important role in the need to belong process. Although human beings are unconsciously monitoring their social environments all the time, it is only when a threat to the need to belong is detected, that conscious attention to social cues becomes essential. While there is significant research supporting the premise that people are attuned to social cues of rejection and acceptance in face-to-face interactions, there is a scarcity of research investigating this in an on-line social environment. Given that the social environment for many people in today's contemporary society occurs through the use of technology, it is vital that research examines social monitoring in an on-line environment. More specifically an on-line social environment that focuses on interpersonal relationships, and in this case of this research, that is Facebook. Indeed, when considering that Gardner et al.'s (2000) seminal study on social monitoring was conducted before the advent of Facebook, it is past time to re-evaluate and extend this research to an on-line context.

Therefore, Study 3 was adapted from the procedure used by Gardner et al.'s (2000) influential study which investigated "how the need to belong influenced memory for social events" (p. 486). Since the need to belong is a fundamental human motivation (Baumeister & Leary, 1995), a belonging threat should activate a psychological or emotional response that

will lead to people monitoring their social environment. Theoretically, this monitoring should occur regardless of whether the interaction takes place face-to-face or on-line. Therefore, the Research Question examined in Study 3 is:

*Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?*

In this chapter a number of issues will also need to be addressed, before Study 3 is conducted. Firstly, there may be unique concerns when research is conducted on-line, and some of these will be discussed in the following section. This will be followed by an overview of development of several Facebook pages which will be used in Study 3, before discussing and reporting on a pilot study and two experiments.

**Unique concerns about on-line research**

One of the main criticisms of social psychology is that behaviour is often studied in artificial environments rather than more natural settings, thus impacting the ecological validity of the research findings (Jost & Kruglanski, 2002; Stasser et al., 2011). The use of social media sites in research helps to address concerns regarding ecological validity, as well gaining additional insight into human behaviour, which is occurring in this important and under-researched context. In addition, on-line environments have unique characteristics, which are different from those that occur in face-to-face interactions. For example, in the on-line environment people can deliberate over how, when, or even whether they may respond to an interaction (Abele, 2011). Therefore, meanings and processes that occur on social networking sites have significant implications for existing theories, as well as presenting much potential for psychology research (British Psychological Society, 2013; McFarland & Ployhart, 2015).

Facebook represents an environment where a significant portion of peoples' social interactions, from the mundane to the important, occur. Indeed, social networking sites such as Facebook have revolutionised the way people socially interact, as well as changing the

way people communicate (McFarland & Ployhart, 2015). Researchers however, can struggle with the evolving nature of both the Facebook platform and policies that govern the site (Wilson et al., 2012). A further issue centres on whether current ethical frameworks sufficiently address research conducted on-line, or whether modifications of ethical procedures are necessary.

Any type of research that uses human subjects involves evaluating the risk to the participants as a key consideration. Facebook research does have the potential for privacy violations dependent on the type of research undertaken (Zimmer, 2010). For instance, Lewis, Kaufman, Gonzalez, Wimmer, and Christakis (2008) publically released the dataset of their research which used Facebook users enrolled in a US college and living in university housing as participants in a research project. While steps were taken to de-identify the students and university, some participants were unfortunately identified (Zimmer, 2010). The Lewis et al. study is an example of what can go wrong when researchers use participants and their information from existing social networking sites, as well as the challenges that are associated with maintaining privacy when using social media as a research environment. Clearly, any researcher looking at Facebook as a research environment needs to not only carefully consider the methods used, but also be concerned with participant protection, thereby ensuring good ethical practice.

On-line research can also create a blurring of the distinction between public and private spaces (British Psychological Society, 2013). For instance, it is not unusual in Facebook research for participants to be asked whether researchers can access the participant's Facebook pages (for examples, see Deters & Mehl, 2013; Mehdizadeh, 2010; Weisbuch, Ivcevic, & Ambady, 2009). On the surface, this does not appear to be a bad thing. But when further considering that psychology students are often used as participants, and given course credit as an incentive to take part in many research studies, this can bring a

different dimension to issues regarding privacy, anonymity, and confidentiality (Zimmer, 2010). For example, it may be the case that a staff member from courses in which the student is currently enrolled are involved in the data collection. This then means that people who have access to the participant's Facebook pages, could potentially access specific personal information that is available on the participant's Facebook page, and which the student might not want the teaching staff to know. Therefore, putting the participant's privacy at risk (Zimmer, 2010).

Another matter concerns privacy issues regarding a participant's Friends. For instance, Weisbuch et al. (2009) and Mehdizadeh (2010) both required their participants to give consent for researchers to access their Facebook pages. While again, this consent process seems to address privacy concerns and participant protection, what is not taken into consideration is the amount of personal information about Friends that can be included on a Timeline or in photos. In Mehdizadeh, the first 20 photos in the participant's photos section were analysed by the researchers. However, photos can include location information, as well as identification of the names of other people in the photos, including that of children. While participants were assured that their details would be anonymous (Mehdizadeh, 2010), there was no mention of how other peoples' information would be dealt with. While Friend information may be considered 'incidental information' by researchers, this information can still pose a risk to the Friends who may have interacted recently with that participant, and whose information is displayed. It is however acknowledged that researchers may have taken additional measures to address ethical concerns but that those details were not included in the articles.

To address ethical concerns, a different approach for Study 3 was taken with the development of artificial Facebook pages that would have the look and feel of genuine Facebook pages. This meant that there would be no risk attached to a 'real' participant, their

personal information, or that of their Friends, but would still enable investigation into social cues on Facebook.

## Development of the Facebook pages

Facebook is a popular social networking site and as such, its image assets are a recognisable brand (Facebook, 2014). Therefore to conduct Study 3, two major issues need to be addressed. Firstly, permission from Facebook to use the Facebook elements (i.e., Newsfeed) and image assets (i.e., Like button), and secondly, to design the Facebook pages so that these pages would have the look and feel of a genuine Facebook page, but would also contain the identified social cues from Study 1 and 2.

### Facebook branding.

Facebook has a branding centre that gives direction and guidance for how to recreate Facebook pages for film and broadcasting (Facebook, 2014), as well as including policies related to the use of Facebook pages. There are no clear guidelines regarding the use of Facebook pages and research, with some researchers (for example Hall & Pennington, 2013; Karlen & Daniels, 2011) using Facebook screen shots, with no disclaimer noted in these studies regarding whether permission from Facebook was sought. More importantly, the terms and conditions of Facebook use specifically mention that the use of an alias is a violation of terms and conditions, thus ruling out the use of a bogus on-line profile located on the Facebook site for this research. Consent to use Facebook branding and image assets in this research was therefore applied for, and accepted from the Facebook branding site (Facebook branding approval #3240).

### Facebook pages.

To successfully investigate the salience of social cues found on Facebook, it was critical to ensure that the artificial Facebook pages were found to be genuine by the participants. In addition, to meet Facebook conditions for brand approval, the Facebook pages had to be representative of an actual Facebook page, by, for example, using the same

colours, format, and layout. Therefore, for the creation of the Facebook pages a programmer was employed to "build" the artificial Facebook pages on the advice of the researcher regarding what to include (discussed in more detail below). Once the pages were built, the images and/or photos used also had to meet Australian copyright regulations. Each image or photo was either selected from the researchers own photo collection or downloaded through the Creative Commons website and made available for public use. All image creation and editing was completed by the researcher through photo editing software such as Photoshop.

***Construction of the Facebook pages.*** Three Facebook pages were constructed for Study 3: a Timeline, Newsfeed, and a private message. The Timeline and Newsfeed were created to be a typical representation of what a desktop newsfeed would look like, whereas the private message was similar to that seen on a mobile device.

In order to create a gender-neutral page and reduce any gender stereotypes (Hall, 1978), the name given to the 'Facebook owner' was CJ Stewart. On the Timeline, the cover photo was a beach scene and the profile photo was of two people who were in ski clothing with their faces obscured to further reduce gender stereotypes. Photos chosen to represent other Friends on both the Timeline and Newsfeed, included photos of objects (e.g., space shuttle or flowers), groups of people, or animals. Only one photo of a Friend was included which was a single person. The names of the Friends were made-up combinations of popular names from a variety of eras (i.e., John Taylor) taken from multiple Google searches. There were four advertisements shown on the Timeline. Two advertisements were of real companies (i.e., Colmac Computers and USQ) and permission was obtained to include their details. The other two advertisements (i.e., cheap online flights and work from home) were made-up for the Timeline. Trending stores that appeared on the Newsfeed were taken from current news stories around the time that the Facebook pages were built.

***Social cues on the Facebook pages.*** Studies 1 and 2 identified different sub-themes and factors of social rejection and inclusion (e.g., supportive relationship activities). In Study 3, the social cues identified as communicating relational information in Studies 1 and 2 had to be integrated in the artificial Newsfeed, Timeline, and private message. Both the Timeline and the Newsfeed contained social cues indicating social rejection, social inclusion, as well as neutral cues. The private message contained social cues that could communicate relational information of both social rejection and inclusion.

Study 1 and 2 identified the social cues that communicated relational information. These social cues provided a multitude of different types of relational information, which could be incorporated into the Facebook pages. For example, *Criticism* was identified as a category of relational information, specific to social exclusion. To further break that down, there were nine social cues identified that informed the characteristics of *Criticism*. For instance, Study 1 identified social cues such as "A Facebook Friend leaves mean comments on my timeline" or "A Facebook Friend posts gossip about me on other Facebook Friends timeline" as communicating relational information specifically relevant to rejection, and more explicitly, informing *Criticism.* In Study 2, these same social cues were also identified as a form of *Criticism*, as well as these statements having the highest means of all the rejection social cues. In terms of developing the Facebook pages, these types of cues could be integrated to indicate both social rejection and criticism. An example in Table 5.1 highlights how some specific categories of relational information and social cues were used in the development of the Facebook pages.

Table 5.1

*Example of relational information and social cues found on artificial Facebook pages*

| Relational information | Type of relational information | Social cue incorporated in Facebook page |
|---|---|---|
| Social rejection | Criticism | Sarcastic memes |
| | Silence | No comments or 'likes' to status updates |
| | Friendship Incongruity | LOL used in status updates |
| Social inclusion | Supportive relationship activities | Friends giving encouraging and supportive comments on a photo |
| | Friendship acknowledgement | Friends tagged in check-ins |
| | Contributing to relationships | Happy birthday wishes |
| Neutral | | Trending stories on a Newsfeed |
| | | Changing current location |

Please see Appendix C for a copy of the original mock-up of the Facebook Timeline, Newsfeed, and private message.

### Technical concerns

There were also three concerns that needed to be addressed before the full study was run, that of software compatibility, internalisation of a threat to the need to belong, and genuineness of the experiment. Firstly, while the chosen paradigm is able to be used in an on-line environment, the programming of Ostracism Online was created to be used within Qualtrics survey software, whereas USQ used a different survey software, that of SurveyMaker. Given this software difference, it was necessary to investigate whether the programming was compatible, and the manipulation could be done effectively.

An essential element of experimental research is that the participant's need to belong has to be manipulated, such that, a participant either experiences a threat to their belonging or has their relational value affirmed. For example, Gardner et al. (2000) used a chat room to manipulate social inclusion and belonging in their on-line study. However, to be consistent with the premise of Facebook as the research environment, a chat room was discarded as the paradigm to be used. Given that Studies 1 and 2 identified that a 'like' provides relational

information concerning both rejection and inclusion, a decision was made to use a paradigm that could manipulate a ‘like’.

The Ostracism Online program offered a number of different conditions for the need to belong and two conditions were chosen to manipulate the need to belong, (1) a belonging threat condition where participants receive 1 ‘like’ from another participant, and (2) an affirmation of relational worth condition where participants receive 9 ‘likes’ from other participants. Since this paradigm has not been tested extensively in research, it was also necessary to investigate whether the two conditions (i.e., belonging threat vs. affirmation of relational worth) were internalised by the participants (i.e., such that they could identify low vs. high likes) before the final data collection began.

Finally, a third consideration was with respect to the genuineness of both the paradigm and Facebook pages. This meant that for both the paradigm and Facebook pages, participants had to regard the social interactions as similar to what they would encounter in an on-line environment. When people are typically involved in on-line discussions they would normally have some way of representing themselves, such as a photos. In the research paradigm, an avatar would be used as a visual representation for each participant. Thus, 40 different avatars were created by the researcher for participants to choose as a visual representation of themselves. The avatars created were male, female, or no identifiable gender, indeed some avatars were made to look less human. The avatars had different skin shades ranging from pale to darker natural skin tones, but also included colour options such as blue. The avatars had a number of different hairstyles from bald to long hair, as well as avatars wearing headscarfs or glasses. Another element of the paradigm were the descriptions of the other ‘participants’ found in the task. During the task, participants had to interact with other ‘participants’ who also had an avatar and personal description, with some descriptions including geographical location. Therefore, it was important that the descriptions of the

avatars used within the paradigm reflected an Australian context. For example, the avatar 'George' had his geographic location as Roma, a well-known, geographically close town to USQ, found in southern Queensland that most participants would be familiar with.

With regards to the Facebook pages, the social cues incorporated in the Facebook pages were taken from Studies 1 and 2. This meant the status updates and interactions of the Friends, were designed to replicate typical interactions observed on a Facebook page, and were based on interactions discussed by participants in Study 1. To gauge how genuine participants felt both the Facebook pages and social media task were, at the end of the experiment participants were given the opportunity to provide feedback. This meant that any participants who expressed suspicion could have their data excluded from the final dataset.

### Coding of social cues

A critical element of the design of Study 3 was whether the different conditions impacted on the participants' recall of social cues. It was therefore imperative to devise a method of coding participants' responses of the recalled social cues, and the different categories of cues: social cues vs. neutral information, and social cues of inclusion vs. exclusion. Miles and Huberman (1994) stated that it is important to have a structured approach to the analysis of the recalled cues including the definition of specific codes based on the theoretical framework, to aid in interrater agreement as well as a more straightforward method of organising and sorting of the codes. A codebook assists with this type of sorting or categorising of cues, and is also a good way to ensure high interrater agreement between coders (DeCuir-Gunby, Marshall, & McCulloch, 2010). Although the Facebook pages were specifically designed from the identified themes of rejection and inclusion from Study 1 and 2, an essential part of the pilot study was to develop a codebook that not only reflected the earlier findings, but also to address any unexpected or unforeseen responses from participants.

## The pilot study

In summary, it was decided that a pilot study would be conducted for four reasons. Firstly, to assess whether the social media paradigm would work in the survey software used by the researcher. Secondly, to confirm that the participants internalised the information given during the ostracism task, and finally to ensure that the paradigm and Facebook pages were seen as genuine. In addition, the pilot study was conducted to collect preliminary data on the open-ended questions on social cues to assist with the development of a coding manual.

## Method – Pilot study

### Participants

The pilot study participants were a convenience sample taken from the acquaintance circle of the researcher. There were 11 participants (7 Female, 4 Male) between the ages of 19-51 who took part in the pilot study (age mean = 30.73). There was no incentive for the participants to take part in this research.

### Procedures

An on-line experiment was created and uploaded to the USQ School of Psychology and Counselling survey website. To complete the survey the participants had to read the information page outlining what the survey was investigating (i.e., Impression formation in a social media setting), time the survey would take, and confidentiality protocols. Participants then confirmed their agreement before being allowed to continue with the survey. Please see Figure 5.1 below for a summary of the experiment. A full description will be included after the figure.

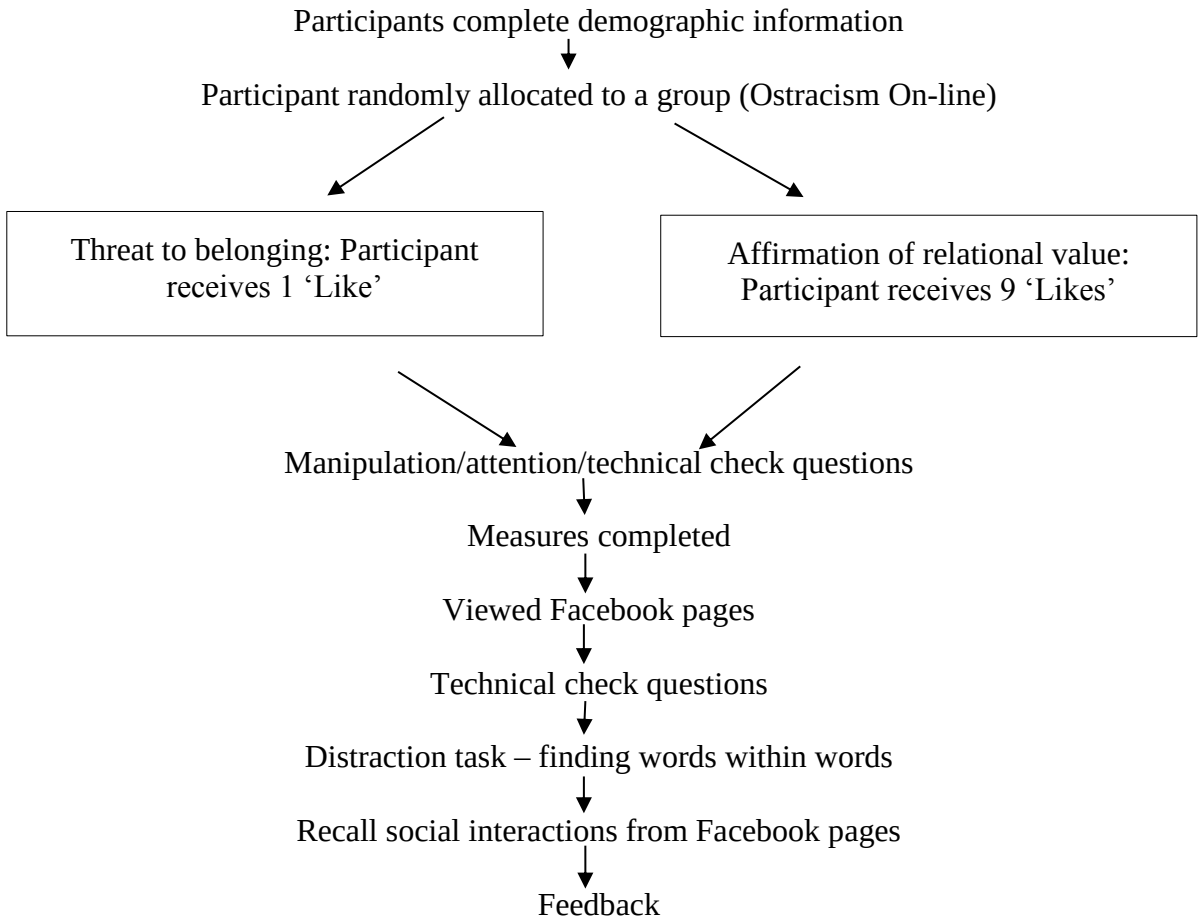



*Figure 5.1.* Flow chart summarising Study 3: Pilot Study

Participants were initially told there were five sections to the survey: demographic information, a social media task, questions about their mood and personal traits, viewing of a Facebook newsfeed, timeline, and private message, and finally a timed verbal task. After completing their demographic information, the participants then proceeded to the social media task, where the manipulation of their need to belong would occur. During the social media task, participants were told that they would be completing a number of simple tasks with other people. However, before the task started, they would need to choose an avatar and write a personal description of themselves, which would serve as an introduction to the other people completing the task. Participants were then given instructions that they would have 3 minutes to read and interact with the other participants. The next screen showed the participant's avatar and description, as well as 11 other avatars with descriptions (Please see

Appendix E for screenshots of the avatars and participant descriptions). Participants could interact with the other 'participants' by 'liking' their descriptions. The participants who were randomly assigned to the social inclusion condition, had their description 'liked' 9 times by the other participants, whereas participants who were randomly assigned to the social exclusion condition, had their description 'liked' once. When a participant received a 'like', a prompt would come up on the screen alerting them to which other person had 'liked' their description. Participants were unable to exit this task until the 3 minutes were over, and were then prompted to move to the next screen.

Participants were then asked questions about their experience in the social media task. For example, "Were you able to see the descriptions of the other participants and their avatars during this task?" The manipulation check was included here and participants were asked "Consider that there was an average number of 'likes' in this task, how would you consider the number of 'likes' you received?" The participants could only respond as either 'under average' or 'above average'. This manipulation check was designed to understand whether the participants internalised the condition they were placed in. Participants were also asked how accepted they felt in the social media task.

After the social media task, participants then completed the PANAS, Need to Belong scale, State Self-Esteem scale, and measures of control and meaningful existence. Participants were then reminded that the study was interested in how people form impressions of others in an on-line setting and were advised that they would be viewing a person's Facebook Newsfeed, Timeline and private message. Participants could take as long as they wanted to read each page, and were told that all hyperlinks had been disabled and they were unable to leave any comments or 'likes' for the person.

After the Facebook pages there were a number of questions, which were similar to those found after the social media task. There was a question used to gauge participant

attention “Did the Facebook pages you viewed belong to the same individual”, as well as gauging any technical issues about viewing the Facebook pages.

Following this, the participants completed a verbal ability task, which was done as a distraction task and was unrelated to the experiment. The first task went for 2 minutes and participants had to identify as many words with four or more letters from the word Crustacean. At the 2 minute mark, the screen automatically moved to a new word, Librarian, with participants having another 2 minutes to identify as many words as they could.

Participants were then surprised with a question, which asked them to recall and write all the social interactions they could remember from the Newsfeed, Timeline and private message. They were told they could not navigate back to the Facebook pages to check the details, and had 5 minutes to complete this task. Finally, participants were asked if there was any feedback they wanted to share about either the social media task or Facebook pages. This question was used to assess suspicion with the social media task and Facebook pages. Participants then read extensive debriefing information regarding the social media task and Facebook pages, and asked not to discuss the experiment with others until after the semester ended. Please see Appendix D for full copy of the survey.

## Results (pilot study)

The pilot study was completed for four reasons:

1. To assess whether the social media paradigm would work within different survey software;
2. To confirm that the participants internalised the information given during the ostracism task
3. To ensure the paradigm and Facebook pages were seen as genuine, and
4. To collect preliminary data on the open-ended question to assist with the development of a coding manual.

Therefore, the results will be discussed within the framework of these four reasons.

**Survey software.**

To ensure that the paradigm software was successfully working in another software program, the participants were asked "Were you able to see the description of the others participants and their avatars during the social media task?" with the options of the participants answering 'yes' or 'no'. This was done as a technical check to ensure that participants could see the descriptions and avatars of the other 'participants', and used as an indication that the software worked correctly. Of the eleven participants who completed the experiment, 10 responded that they were able to see the avatars and the written descriptions. The one participant who was not able to view the social media task emailed the researcher during completion of the survey and also included a screen shot of what they could actually see. In this particular case, the majority of text describing the avatars was seen, although the final line of text was partially obscured, but still readable. No other participants notified the researcher of any difficulty viewing the descriptions or avatars, nor gave any feedback indicating any technical difficulties within the social media task. Therefore, it was determined that the paradigm worked successfully within the survey software.

**Internalisation of the ostracism task**

There were two conditions used for Study 3. In the belonging threat condition, participants only received 1 'like' from the other participants, whereas in the affirmation of relational worth condition, participants received 9 'likes'. To understand whether the participants internalised the social inclusion manipulation, and that their need to belong was impacted, participants were asked "Considering there was an average number of 'likes' in the introduction task, how would you consider the number of 'likes' you received." and were given a choice of either "under average" or "above average" responses (Wolf et al., 2014). Participants were also asked to estimate the *amount* of 'likes' they received (Wolf et al.,

2014). For the pilot study, the inclusion of these two questions meant that the responses could be examined with regard to the social inclusion condition (i.e., belonging threat vs. affirmation of relational worth) and the estimated number of likes.

Seven out of 11 participants were correctly able to estimate the number of likes (i.e., 1 or 9 'likes') they had received. When this information was examined against the responses to the choice of whether this was an under-or-above average 'like', only 6 participants' responses matched the amount of 'likes' received with either under-or-above average 'likes'. Therefore, 5 participants were unable to correctly estimate the number of 'likes' they received in the social media task, along with identifying this number as either under-or-above average 'likes'. Feedback from the pilot participants indicated that their responses to this question was based on a pre-determined amount of 'likes' they considered under-or-above average, based on their *own* social network experiences and expectations. Therefore, the wording for the final survey was changed to aid participants in understanding what average means in *this* specific task. Thus, the wording in this item was changed to "Consider that 5 'likes' was the average number of 'likes' in this task; how would you consider the number of 'likes' you received, with the choice of under average or above average as the responses.

### Genuineness of the paradigm and Facebook pages

There was no feedback received from any participant to indicate any suspicion or artifice about either the social media task or Facebook pages. Neither was there any feedback indicating there was any difficulty in reading or viewing the Facebook pages. Therefore, it was determined that the paradigm and Facebook pages were perceived as being genuine.

### Codebook

Participants were asked to "Recall and write down all the social interactions or social information you can remember from the Facebook newsfeed, timeline and private message". Developing a codebook was done to ensure that there would be consistency in the coding of recalled cues (i.e., both social and neutral cues) in the final dataset. Furthermore, developing

a codebook based on the results from Study 1 and 2 was done to reduce bias from the researcher (Miles & Huberman, 1994).

The procedure taken to develop the codebook were informed by Creswell and Plano Clark (2011), DeCuir-Gunby et al. (2011), and MacQueen, McLellan, Kay, and Milstein (1996). Firstly, each response item was coded in three broad themes of social rejection, inclusion, or neutral social cues. These cues were coded by already identified themes or factors from Study 1 and 2, as well as the language used by the participant (Creswell & Plano Clark, 2011). For example, words such as 'liked a comment' had been identified in Studies 1 and 2 as an *acceptance* factor, and was coded as such.

To ensure that the codebook was useful in reducing bias, two additional coders helped with refining the coding process. The initial coding and codebook was developed by the researcher and contained information including: an overview of the study, definitions of social inclusion and exclusion, information regarding language choice of the participants, newsfeed coding with specific examples, timeline coding with specific examples, private message coding with specific examples, information about how participants may segment their responses, and how to enter the coding responses into a database. The codebook was written in simple, easy-to-understand language. Each additional coder was also given the opportunity to discuss the coding process, to read the codebook, and ask any questions before starting to code the recalled cues from the pilot data.

In addition to the codebook, each coder was given an Excel file that had been set up with the pilot data. The coders also attended a moderation meeting and information session with the researcher on how to code using Excel. At these meetings, the coders could raise any issues about differences in coding, as well as the use of Excel in the coding process. To determine inter-rater agreement between the three coders, Cohen's Kappa was used. Cohen's Kappa provides an indication of interrater agreement when using more than two coders

(Allen & Bennett, 2010). In regards to both social cues and neutral information, coders one and two had significant agreement (inclusion $\kappa = .66$, rejection $\kappa = .67$, and neutral $\kappa = .47$), coders one and three had significant agreement (inclusion $\kappa = .67$, rejection = 1, and neutral $\kappa = .65$), and coders two and three had significant agreement (inclusion $\kappa = .46$, rejection $\kappa = .64$, and neutral $\kappa = .57$). Therefore, it was determined that each coder had a good understanding of the coding needed for the final dataset.

## Discussion - Pilot study

A pilot study is often conducted before a full-scale experiment to assess elements of the study design before the full-scale experiment. In this case, the pilot study was conducted for three reasons. Firstly to ensure that the paradigm programming could be run successfully within different survey software than originally intended (i.e., Qualtrics). The information received from the majority of the pilot participants demonstrated that this was the case. With the exception of one participant, the other participants had no difficulty viewing or using the program within the survey software. Therefore, it was decided that the paradigm programming could be included for the final experiment with no technical issues expected.

Secondly, it was important to confirm that participants internalised the social inclusion manipulation, as well as ensuring both the social media task and Facebook pages were viewed as genuine. Feedback from the pilot participants indicated that the meaning of average number of 'likes' means different things to different people when it comes to social media. The participants understanding of average numbers of 'likes' was based on what they would like to see on *their* Facebook pages rather than what would be average for the included social media task. For example, one participant gave feedback that she would expect at least 30 'likes' on her comments or posts on Facebook, so even though she received 9 'likes' on this task, she did not consider that above average but instead regarded this amount of 'likes' under average. Given that the exclusion paradigm is new and has not been used much in

experimental testing, the wording of the initial manipulation check question was changed to clarify what *average* might mean. It was anticipated that by clearly stating the average number of 'likes' that this would focus the participant on what was happening in this task and in this situation, rather than what they may consider average in their usual social networking experiences. Thus, the manipulation check wording was changed to "Considering that 5 'likes' was the average number of 'likes' in this task; how would you consider the number of 'likes' you received", with the choice of under average or above average as the responses. Thirdly, there were no comments or feedback expressing suspicion by participants in regards to the social media task or the Facebook pages. Therefore, no changes were made to these elements.

Furthermore, to ensure higher interrater agreement on coding items, a codebook was developed and used for the pilot data. This codebook was then further developed to reflect suggestions from the additional coders. Small changes such as typographical errors were picked up by the coders, as well as clarity issues surrounding some of the cues. For example, recalled cues such as "someone likes a meme" was coded as inclusion to reflect acknowledgement of the 'liking' of a post. However, if a participant recalled the same cue as "passive aggressive meme", then this was coded as exclusion to reflect the theme of criticism. The high level of interrater agreement demonstrated the benefits of using a codebook to assist with the coding of the recalled cues.

As a final note, the social media paradigm was programmed for only two conditions: that of belonging threat and affirmation of relational worth. That means that there was no control condition for this experiment. For that reason and to more strongly differentiate between conditions, future research could potentially investigate whether people were positively affected by 'over-inclusion' or negatively affected by 'rejection'.

### Changes to the Facebook pages

Based on the responses given to the recalled items in the pilot study and a review of the themes of rejections and acceptance identified in Studies 1 and 2, two changes were made to the Facebook pages before the final data were collected.

Firstly, a friend request was added to the Facebook pages. A friend request was identified in Study 1 (sub-theme *Relationship initiation*) and Study 2 (factor *relationship initiation*) as an inclusive social cue. However, when reviewing the Facebook pages there were no clear indications of any other relationship initiation cues. Therefore, this social cue was added to the Facebook pages.

Finally, on the Facebook newsfeed there was a photo/comment of a Friend sharing a photo of the Eiffel tower, which was considered a neutral cue. As many neutral cues were contained in the Facebook pages, this photo was removed and replaced with a status update of culling Facebook friends. In Study 1 (sub-theme *Relationship termination*) and Study 2 (factor *Criticism*) this type of Facebook cue, also known as 'unfriending' was identified as a social cue that communicated social rejection. However, in the Facebook pages this particular cue had not been included, thus, this was addressed by this change. See Appendix F for the final Facebook page changes.

## Study 3: Experiment 1

The primary aim of Study 3 was to investigate the relationship between the need to belong and social monitoring. In line with research showing that when people receive a threat to their need to belong, they pay more attention to the social cues in their environment, a secondary research aim was included:

*To determine whether a threat to the need to belong results in attention to particular social cues.*

To examine this secondary aim, Research question 3 specifically asks:

*Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?*

In the two previous studies, an *identification* of the social cues that communicated relational information was undertaken, with a particular focus on the social cues that communicated relational information relevant to social inclusion and exclusion. Therefore this study will investigate the effects of threatened belonging, and directly compares the effect of social exclusion (i.e., belonging threat) and social inclusion (i.e., an affirmation of relational worth) on the recall of relational information. Therefore the hypotheses were:

1. That participants who received a threat to their need to belong would recall more social cues than neutral cues from a Facebook page, compared to participants who received an affirmation of relational worth.
2. That participants who received a threat to their need to belong, would recall more rejection and acceptance cues, compared to participants who received an affirmation of relational worth.

Given that the paradigm used was relatively new, a number of secondary hypotheses were also proposed to ensure the manipulation worked.

3. Participants who received a belonging threat would report lower scores on need to belong, self-esteem, control, and meaningful existence, compared to participants who receive an affirmation of relational worth.
4. Participants who received a belonging threat would report lower average scores on the positive PANAS scale and higher average scores on the negative PANAS scale compared to participants who receive an affirmation of relational worth.

## Method – Study 3: Experiment 1

### Participants

Two hundred and twenty-seven participants (56 Male and 171 Female) were recruited through either a Facebook message invitation from the researcher's acquaintance network, an email invitation to a postgraduate student group, or the USQ School of Psychology and Counselling survey website. To take part in this research, participants had to be over 18 years (USQ students could be 16 or 17 years old). The mean age of the participants was 33.78 years, with an age range of 17 to 70 years. Two participants did not include their age. University of Southern Queensland student participants who volunteered to take part in this survey received course credit, while community participants who volunteered to take part received one entry in a cash prize draw run by the Faculty of Health, Engineering, and Sciences at USQ. Of the 177 participants (78%) identified as Anglo-Australian or Caucasian, with the rest of the participants identifying with other smaller sub-groups of Australian, for example, African Australian (5 participants) or Indigenous Australian (6 participants). The majority of the participants were employed on a part-time basis (59 participants or 26.3%) followed by full-time employment (56 participants or 25%) and casual employment (49 participants or 21.6%). Eighty four percent of participants were students who completed the survey for course credit.

More detailed demographic information regarding the participants' internet, Facebook, and status update information can be found in the Results section (descriptive statistics).

### Procedures

The procedures followed in this study are identical to those described in the pilot study and a detailed procedure was found on pages 129 to 131. A summary of the procedure is shown in a flowchart below.

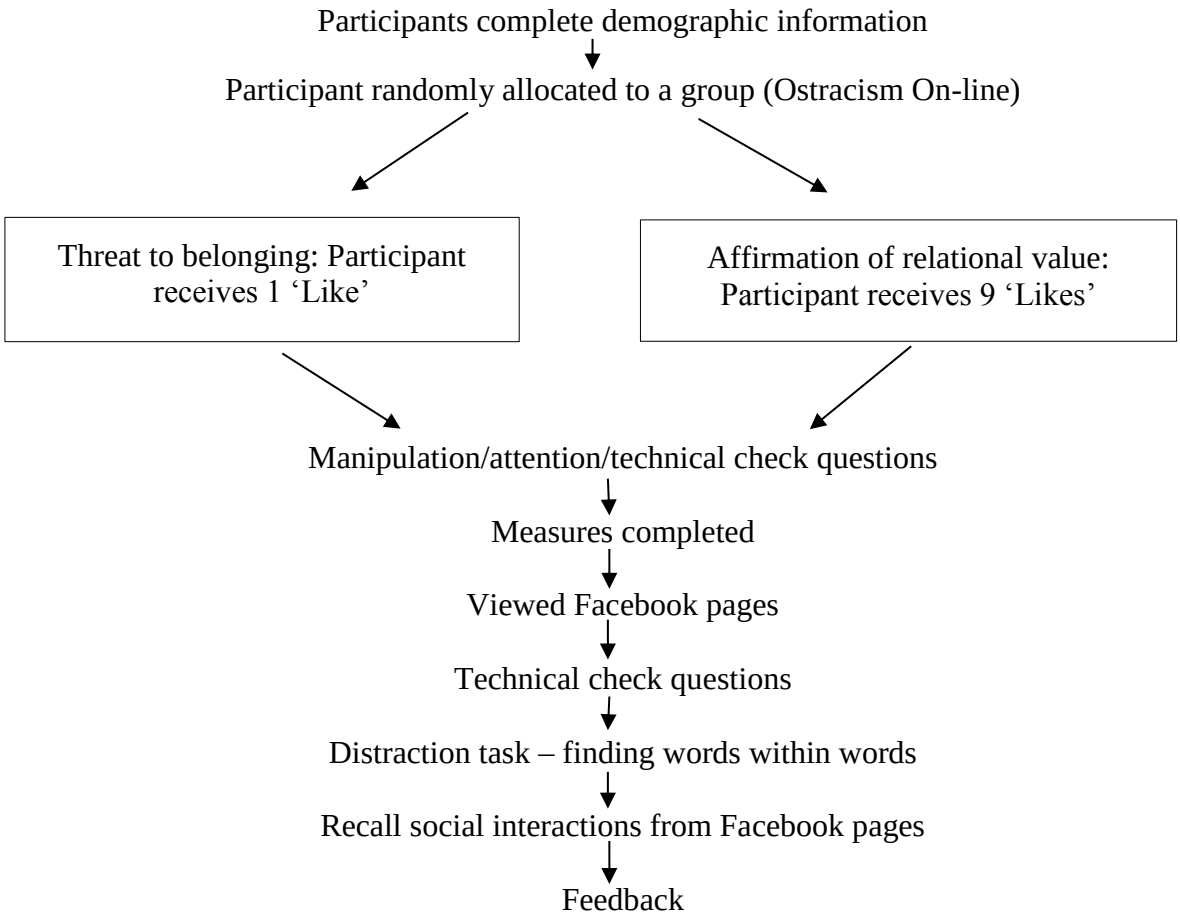



*Figure 5.2.* Flow chart summarising Study 3: Experiment 1.

## Measures

**Demographics.** The first part of the survey asked for demographic information such as age, gender, employment status, student status, marital status, cultural/ethnic group as well as how the participant had heard about the survey**.**

**Facebook usage.** These 11 items asked about general social networking of the participants as well as Facebook practices and are typically used in Facebook research (see Jenkins-Guarnieri et al., 2013). An example item is "How many minutes per day (total) do you typically spend on being active on Facebook?"

**Need to Belong Scale**. The 10-item measure of the Need to Belong Scale (NTBS; Leary et al., 2013) was included to assess participant's need to belong. Three items were reverse scored. Participants responded to items on a scale of 1 (*Strongly disagree*) to 5 (*Strongly agree)* with higher scores indicating greater belonging need. An example of an item

is “I try hard not to do things that will make other people avoid or reject me.” Cronbach alpha was .84 and deemed adequate.

**State Self-Esteem Scale.** This 20-item measure of State Self-Esteem (SSE: Heatherton & Polivy, 1991) is a multi-dimensional scale that assesses immediate fluctuations of self-esteem on three dimensions that of social self-esteem, performance self-esteem, and appearance self-esteem. Given that this experiment was looking at the way people react in social environments, a decision was made to only use the 7-item social subscale. The social subscale measures the degree to which an individual will feel self-conscious towards others and their concern regarding how other people will view them (Heatherton & Polivy, 1991: Heatherton & Wyland, 2003). This scale has been used in other social exclusion research as this scale is sensitive to experimental manipulations of self-esteem (Heatherton & Wyland, 2003). Indeed, Zeigler-Hill (2010) stated that this is a suitable measure of the type of self-esteem represented in social interactions. Participants responded to items on a scale of 1 (*Not at all)* to 5 (*Extremely*) with all items being reverse scored. An example of an item is “I am worried about what other people think of me.” Cronbach alpha in the current sample was .92 and deemed adequate.

**Control and Meaningful existence.** These 10 items of meaningful existence and control were taken from the Four Basic Needs Questionnaire (Williams, 2009) and was included to assess participant’s feelings of control and meaningful existence. Participants responded to items on a scale of 1 (*Not at all*) to 5 (*Extremely*) with two control items and three meaningful existence items being reverse scored. Higher scores indicated greater control and meaningful existence. An example of a meaningful existence item is “I feel important”, while an example of a control item is “I feel that others decide everything.” One item was modified from “I felt I had control over the course of the game” to “I feel like I am in control over my online interactions”. Cronbach alphas in the current sample were .51 and

.80 for the control and meaningful existence scales respectively. It should be noted that closer examination of the items indicated that no items could be deleted to increase the Cronbach alpha. Cronbach alphas in previous research that used this scale varied from .60 to .79 for the control subscale and .66 to .81 for the meaningful existence scale (see Smith & Williams, 2004; Wirth et al., 2010; Zadro et al., 2004). Given the low Cronbach alpha for the control subscale, any results used should be interpreted with caution. The meaningful existence subscale was deemed to be adequate.

**Positive and Negative Affect.** The 20-item measure of Positive and Negative Affect (PANAS: Watson, Clark, & Tellegen, 1988) is widely used in the research literature and can be used as a trait or state measure depending on the instructions the participants are given. For this study, participants were given the instructions "Indicate to what extent you feel this way right now, that is, at the PRESENT MOMENT" to get a state measure of affect. The PANAS measures the emotional experience of the participants by responding to an emotional word (i.e., strong, interested, upset) on a scale of 1 (*very slight or not at all*) to 5 (*extremely).* Positive affect is characterised by the degree to which an individual feels enthusiastic, energetic and engaged whereas negative affect is reflective of the extent to which an individual feels aversive moods such as fear or hostility (Watson et al., 1988). The Cronbach alpha for positive affect was .92 and for negative affect was .85. These alphas were deemed adequate.

## Experimental manipulation

Ostracism On-line (Wolf et al., 2014) was used to manipulate social inclusion and therefore, a participant's need to belong. To manipulate the need to belong, participants were randomly assigned to either: (1) a condition where the participant received one 'like' for their description (i.e., belonging threat), or (2) a condition where the participants received nine

'likes' for their description (i.e., affirmation of relational worth). Comprehensive details of this paradigm are included in Chapter 2, as well as in the pilot study.

## Results

### Descriptive statistics: Internet and Facebook activity

The majority of participants (48%) spent more than 1 hour but less than 3 hours a day on the web, followed closely by participants spending more than 3 hours but less than 8 hours a day on the web (31%). Thirty nine percent of participants belonged to only one social networking site, which was identified as Facebook. Only 11 participants (less than 5%) identified as not having a Facebook account.

The majority of participants (60%) had joined Facebook more than 4 years ago but less than 7 years. There were 39% of participants who were constantly connected to Facebook via smart phones or other technologies. Twenty three percent of participants stated they spend between 21 and 45 minutes per day on Facebook, 22% stated they spend between 46 and 60 minutes per day on Facebook whilst 21% stated they spent more than 1 hour per day on Facebook. Twenty four percent of participants had between 151 and 250 Friends, and 21% had between 76 and 150 friends. A detailed summary of the participants' internet and Facebook activity can be found below in Table 5.2.

Table 5.2

*Internet and Facebook activity of survey participants (n=227)*

| Variable | | Number | Frequency |
|---|---|---|---|
| Hours per day on the web | Less than 1 hour | 30 | 13.2 |
| | More than 1 hour but less than 3 hours | 109 | 48.0 |
| | More than 3 hours but less than 8 hours | 71 | 31.3 |
| | More than 8 hours | 17 | 7.5 |
| Number of SNS | 1 SNS | 88 | 38.8 |
| | 2 SNS | 61 | 26.9 |
| | 3 SNS | 54 | 23.8 |
| | 4 SNS | 11 | 4.8 |
| | 5 SNS | 8 | 3.5 |
| | More than 6 SNS | 5 | 2.2 |
| Joined Facebook | Less than 1 year | 7 | 3.1 |
| | More than 1 year but less than 2 years | 5 | 2.2 |
| | More than 2 years but less than 4 years | 47 | 20.7 |
| | More than 4 years but less than 7 years | 137 | 60.4 |
| | Can’t remember | 20 | 8.8 |
| Times per day Facebook is accessed | Less than once a day | 23 | 10.1 |
| | Once per day | 15 | 6.6 |
| | Twice a day | 19 | 8.4 |
| | Three times a day | 26 | 11.5 |
| | Four times a day | 15 | 6.6 |
| | Five times a day | 9 | 4.0 |
| | More than 6 times a day | 20 | 8.8 |
| | Constantly connected | 89 | 39.2 |
| Minutes per day spent on Facebook | Less than 5 minutes | 23 | 10.1 |
| | Between 6 and 20 mins | 43 | 18.9 |
| | Between 21 and 45 mins | 53 | 23.3 |
| | Between 46 and 60 mins | 49 | 21.6 |
| | More than 1 hour | 48 | 21.1 |
| Friends on Facebook | Less than 20 | 11 | 4.8 |
| | Between 20 and 75 | 28 | 12.3 |
| | Between 76 and 150 | 48 | 21.1 |
| | Between 151 and 250 | 54 | 23.8 |
| | Between 251 and 450 | 36 | 15.9 |
| | Between 451 and 750 | 19 | 8.4 |
| | Between 751 and 1000 | 9 | 4.0 |
| | More than 1000 | 11 | 4.8 |

## Manipulation checks

In order to establish whether the manipulations of the need to belong (i.e., belonging threat vs. affirmation of relational worth) was successful a number of analyses were conducted.

### Social inclusion manipulation check.

Participants were asked "Consider that 5 'likes' was the average number of 'likes' in this task; how would you consider the number of 'likes' you received?" with a choice between under average or over average 'likes' as their response. This was done to determine whether they had internalised the information contained within the manipulation (i.e., the number of 'likes' they received). The effect of social inclusion (i.e., belonging threat vs. affirmation of relational worth) was significant, with the percentage of respondents who reported receiving above average 'likes' increasing from 2.7% in the belonging threat condition to 94% in the affirmation of relational worth condition $\chi^2(1) = 189.01$, $p < .001$, $\eta^2 = .83$. Therefore, the manipulation between the social inclusion conditions (i.e., belonging threat vs. affirmation of relational worth) was considered successful in that the participants were able to internalise the average number of 'likes' they received.

### Feelings of acceptance manipulation check.

In addition, participants were also asked "How accepted did you feel in the social media task?" to further determine whether the social inclusion manipulation had been successful (i.e., belonging threat vs. affirmation of relational worth). The effect of social inclusion (i.e., belonging threat vs. affirmation of relational worth) was significant, with the percentage of participants who reported feeling accepted increasing from 45.0% in the belonging threat condition to 99.1% in the affirmation of relational worth condition $\chi^2$ (1) = 83.60, $p<.001$, $\eta^2 = .37$. Therefore, the manipulation between the social inclusion conditions (i.e., belonging threat vs. affirmation of relational worth) was considered successful in that

participants in the belonging threat condition felt significantly less accepted by others in the social media task, than people in the affirmation of relational worth condition.

### Attention checks

An attention check was placed after the participant had viewed the Facebook pages. Participants were asked if the Facebook pages belonged to the same individual and participants could answer either yes or no. Based on the answer to this question, participant responses to other parts of the experiment were then investigated further as a way to indirectly assess participant engagement. For example, five participants responded "No" to the attention check and also responded in gibberish (e.g. yyysjsldneiend) to the distractor task and Facebook recall task. Other participants who responded "No" also reported not reading the Facebook pages or misreading the instructions for the distractor task. For these reasons, the thirty-six participants who indicated that the Facebook pages belonged to different individuals were excluded from further data analysis. Thereby, reducing the dataset to 191 participants.

### Technical checks

Further technical checks were also included regarding participants viewing the avatars in the social media task and also viewing the Facebook pages. Five participants reported that they could not see the avatars ("No, I could not see any of the descriptions of the other participants and avatars") or could not view the Facebook pages ("No, I could not view the timeline, newsfeed and private message") and their data was excluded from the data set. Four participants reported that they did not read any Facebook pages ("No, I did not read any of the timeline, newsfeed and private message") and one participant said they did not read any avatar descriptions ("No, I did not read any descriptions") in the social media task. Given that these ten participants did not actively participate in the research, a decision was made to delete their data from the data set. This further reduced the data set to 181 participants.

### Revised demographics

As a number of participants had been deleted through the attention and technical checks, revised demographics are as follows. There remains 181 participants (44 male and 137 female) in the dataset. There were 92 participants in the belonging threat condition and 89 participants in the affirmation of relational worth condition. Eighty six percent of the participants were students and 14% were members of the general community.

### Recall of social cues

In this experiment, each participant was asked to recall and write as many social details as they could from the Facebook pages they had viewed. The number of correctly recalled social events in each of the three categories (i.e., inclusion, exclusion, neutral), was determined by three coders. The use of additional coders was used to determine interrater reliability. Two of the coders were unfamiliar with the study or the manipulation paradigm used, and so were given a codebook to help them with deciding which category of cue the recalled cue answers belonged to (see Appendix E). Coders were asked to look at each word or phrase to identify particular words and to use the surrounding words (if available) to help guide the analysis (Braun & Clarke, 2013; Onwuegbuzie & Combs, 2010). The first 50 responses were checked for adequate interrater reliability before coders completed the entire dataset. Excel was used for organising and coding the data.

Cohen's Kappa was run to determine whether there was agreement between the three coders on the social cues (inclusion and exclusion) and neutral cues recalled by the participants. In regard to social inclusion cues, coders one and two had significant agreement ($\kappa = .79$), coder one had significant agreement with coder three ($\kappa = .54$), and coder two and three had significant agreement ($\kappa = .55$). Furthermore a similar result occurred in regard to the social exclusion cues with coders one and two having significant agreement ($\kappa = .82$), coder one had significant agreement with coder three ($\kappa = .60$) and coder two and three had

significant agreement (κ = .62). Comparably, when it came to neutral cues, the results were also similar with significant agreement between coder one and two (κ = .79), significant agreement between coder one and coder three (κ = .52), and significant agreement between coder three and coder two (κ = .50). Therefore, the agreement between the coders was considered acceptance.

To calculate the number of correctly recalled social cues for further analysis, an average number of recalled cues was calculated for each participant cross the two different categories of cues (i.e., social cues and neutral information). To calculate each number of cues, the average number of recalled cues between the three coders in the categories of recalled inclusion cues, recalled exclusion cues, and recalled neutral information was completed. For example, for Participant 1, coders one and two identified 1 inclusion cue, whereas coder three identified 2 inclusion cues. Thus, Participant 1 received a calculated amount of 1.33 recalled inclusion cues. Furthermore, to calculate the total social cues recalled, the number of each participant's inclusion and exclusion cues were summed.

## Main analyses

***Effect of social inclusion on the type of cues recalled.*** A between groups ANOVA was conducted in order to examine the impact that the social inclusion conditions i.e., belonging threat (BT) vs. affirmation of relational worth (ARW), had on the recall of social cues versus neutral cues. It was hypothesised the participants who received a belonging threat would recall more social cues than neutral cues, compared to participants who received an affirmation of relational worth (Hypothesis 1). Contrary to this hypothesis, there was no impact of social inclusion on either the neutral cues recall (BT: $M = 2.84$, $SD = 1.72$ and ARW: $M = 3.00$, SD = 1.88, $F(1,179) = .39$, $p = .54$, $\eta^2 = .00$) or the recall of total social cues (BT: $M = 3.74$, $SD = 2.22$ and ARW: $M = 3.72$, SD = 2.07, $F(1, 179) < .05$, $p = .95$, $\eta^2 = .00$). Thus, participants who had previously experienced a belonging threat in the social media task

did not differ in their recall of social or neutral cues from participants who experienced an affirmation of their relational worth.

***Effect of social inclusion on social cues of rejection and acceptance.*** A between groups ANOVA was conducted to investigate the impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on the cues of social rejection and acceptance cues (hypothesis 2). Again, there was no impact of social inclusion on recall of inclusive social cues (BT: $M = 1.89$, $SD = 1.02$ and ARW: $M = 1.86$, $SD = 1.36$, $F(1, 179) = .02$, $p = .88$, $\eta^2 = .00$) or rejection social cues (BT: $M = 1.85$, $SD = 1.02$ and ARW $M = 1.86$, $SD = 1.13$, $F(1, 179) < .05$, $p = .93$, $\eta^2 = .00$). Consequently, participants who had experienced a belonging threat in the social media task did not differ in their recall of inclusion or exclusion cues from participants who experienced an affirmation of their relational worth.

***Effect of social inclusion on the need to belong, self-esteem, control, and meaningful existence.*** Several between groups ANOVAs were conducted in order to examine whether participants who received a belonging threat would report a lower score on their need to belong, self-esteem, control, and meaning. Contrary to hypothesis 3, there was no impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on the need to belong (BT: $M = 30.96$, $SD = 6.40$ and ARW: $M = 30.99$, $SD = 6.78$, $F(1,179) = .001$, $p = .97$, $\eta^2 = .00$), self-esteem (BT: $M = 25.55$, $SD = 6.71$ and ARW: $M = 25.20$, $SD = 6.82$, $F(1,179) = .12$, $p = .73$, $\eta^2 = .00$), control (BT: $M = 16.63$, $SD = 3.70$ and ARW: $M = 16.92$, $SD = 2.74$, $F(1,179) = .36$, $p = .55$, $\eta^2 = .00$), or meaningful existence (BT: $M = 19.04$, $SD = 3.85$ and ARW: $M = 19.21$, $SD = 3.28$, $F(1,179) = .37$, $p = .75$, $\eta^2 = .00$). Therefore, participants who received a threat to their need to belong in the social media task did not differ in their scores of belonging, self-esteem, control, and meaningful existence, compared to participants who received an affirmation of their relational worth.

***Effect of social inclusion on affect.*** Two between groups ANOVAs were conducted in order to examine whether participants who received a belonging threat reported lower scores on their positive affect and a higher scores on their negative affect compared to participants who received an affirmation of relational worth (Hypothesis 4). There was no impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on negative PANAS scores (BT: $M = 13.14$, $SD = 4.05$ and ARW: $M = 12.52$, $SD = 3.84$, $F(1,179) = 1.13$, $p = .29$, $\eta^2 = .01$). However, there was an impact of social inclusion on positive PANAS scores ($F(1,179) = 5.22$, $p = .02$, $\eta^2 = .03$) with participants in the belonging threat condition ($M = 24.50$, $SD = 7.25$ ) scoring lower on their positive PANAS scores than participants in the affirmation of relational worth condition ($M = 27.37$, $SD = 9.54$). Therefore, participants in the two conditions of threatened belonging versus affirmation of relational worth differed on their scores on the positive PANAS scales.

## Discussion

Many of the results of Experiment 1 were unexpected. Participants in both social inclusion conditions (i.e., belonging threat vs. affirmation of relational value) reported that they had internalised the manipulation, which was confirmed through manipulation checks involving the number of likes they received and the differences in their feelings of acceptance. However, in contrast to Gardner et al. (2000), there were no differences between the two conditions and the recall of any social or neutral social cues (Hypothesis 1). Furthermore, when the social cues were broken down into cues of rejection or cues of acceptance there remained no differences between the two conditions (Hypothesis 2). Given these results, further investigation was conducted.

There was also no significant difference between the two conditions (i.e., threatened belonging vs. affirmation of relational worth) and the participants' scores on the need to belong, self-esteem, control, and meaningful existence (Hypothesis 3). This is surprising given that Wolf et al. (2014) did find significant differences between the different types of

conditions and participant's scores of belonging, self-esteem, control, and meaningful existence. These results would suggest that the manipulation used (i.e., Ostracism Online) was *not* successful at affecting the participant's need to belong, self-esteem, control, and meaningful existence.

Thus, an explanation of the non-significant results between the two groups could be as a result of the type of manipulation used to threaten belonging. While Ostracism On-line shows promise as a new way to manipulate rejection, at the time of writing no other published research has used Ostracism On-line to either threaten the need to belong or affirm relational value. Since the results were non-significant, it may be that Ostracism On-line does not affect the need to belong in the way other more extensively used rejection paradigms, such as Cyberball, do.

With regards to Hypothesis 4, there was no effect of social inclusion on negative PANAS scores, however there was a significant difference between the two conditions (i.e., belonging threat vs. affirmation of relational worth) on positive PANAS scores. However, this result could be linked to a reflection of participants' feelings of acceptance in the manipulation check question directly after the social media task, rather than as a direct impact of the need to belong.

To further examine the need to belong, self-esteem, control, meaningful existence, and the PANAS scores, participants' feedback from the social media task was studied to explore whether any comments left could help explain what had occurred. Participants did appear to internalise the social media task, and this was demonstrated by comments such as "I'm pretty awkward, so that's probably why my things didn't get many likes" (Participant 129) and "I got the most likes, YEAH" (Participant 19). So while participants' feelings of acceptance in the manipulation check were significantly different between the two social inclusion groups (i.e., belonging threat vs. affirmation of relational worth), their need to

belong did not appear to be affected or aroused. However, another explanation could be that the participants' need to belong may have been aroused but perhaps not adequately captured by the measure used.

In addition, the social inclusion paradigm developed by Wolf et al. (2014) contained a different measurement of the need to belong and self-esteem from the one used in this experiment. Experiment 1 used Leary et al.'s (2013) Need to Belong scale, which has been shown to have good psychometric properties and has been used extensively in social exclusion research. However, further investigation of the items in this need to belong scale indicated that perhaps this scale measured a more generalised construct of belonging. For example the item, "It bothers me a great deal when I am not included in other people's plans" could have been interpreted by participants as asking about the participant's own relational group rather than the 'people' in the social media task. Furthermore, the stem of the scale asks participants for how "true or characteristic" the items are (Leary et al., 2013, p. 15). Consequently, it may mean that immediate changes to the participant's need to belong did occur during the social media task, but was not adequately captured by the scale used. Wolf et al. used the Four Basic Needs questionnaire (Williams, 2009) to measure participants' need to belong and self-esteem. This scale has also been used extensively in on-line social exclusion manipulations, particularly in experiments using Cyberball (see Chapter 2 for more detail about this paradigm). The items found in this scale are very specific to the immediate task that a participant has just completed, and perhaps this methodological difference may explain why no difference in the need to belong scores between the two conditions was observed.

A similar argument could also apply to the self-esteem measure used. In Experiment 1 the social subscale of the State Self-esteem Scale (Heatherton & Polivy, 1991) was used, whereas Wolf et al. (2014) used the self-esteem subscale of the Four Basic Needs

questionnaire (Williams, 2009). Again the measure used to capture state self-esteem in Experiment 1, may not have adequately captured any changes in self-esteem that occurred.

The Need to Belong scale (Leary et al., 2013) was originally used in Experiment 1 for consistent measurement between this experiment and Study 2. However, given the results of Experiment 1, it appears that a scale is needed that may measure the specific experiences in the social media task. Therefore, a scale that is specific to a completed task as well as being suited to an on-line environment, should be used in future research to effectively capture any differences between social inclusion conditions.

Given the results of Hypotheses 3 and 4, it is not surprising that no differences occurred in the recall of the social cues and the two conditions (Hypothesis 1 and 2). These results could have occurred because of the previously discussed measurement issue, or they could have occurred because the manipulation was not successful at affecting the need to belong. If indeed there was no threat to a participant's belonging, then according to the theoretical framework of the need to belong, the social monitoring system would not have been engaged. That is, since the current state of belonging was satisfactory, there would have been no need for the participant to monitor their social environment.

The findings of Experiment 1 did not support the hypotheses, and there are two possible explanations for the results. Firstly, it is possible that Ostracism On-line did not manipulate the participant's need to belong or secondly, it could have been a measurement issue. It was therefore decided to replicate the experiment with two changes. Firstly, it was decided to keep Ostracism On-line would be kept as the paradigm used to manipulate belonging. This was done as the environment had similar elements to Facebook, such as the 'like'. Therefore, the need to belong and self-esteem scales would be changed to measures that had been previously used in other on-line social exclusion experiments. The Four Basic Needs Questionnaire (Williams, 2009) has been effective at assessing "perceptions of

inclusion and being ignored" and measures participant responses for what they experienced during a task (p. 290). Specifically, the participant is asked "How they felt during the social media task" as a way to focus the participant on their perceptions of acceptance or rejection during the social media task rather than in a more general sense. Secondly, the question directly after the social media task, which asked participants about how accepted they felt in the task, would be changed to a Likert scale rather than a dichotomous response. This change was made in order to gain a better understanding of the degree of acceptance the participant felt. Thus, Experiment 2 was re-designed to include the same scales of belonging, self-esteem, control, and meaningful existence that had been used in other studies investigating Cyberostracism. It was hoped that changing the scales would result in a more sensitive measurement of the need to belong, which would then allow for further investigations into social monitoring on Facebook.

Therefore the same hypotheses were investigated with changes to the previous scales of Need to Belong scale and the State Self-Esteem scale to the belonging and self-esteem subscales of the Four Basic Needs Questionnaire (Williams, 2009).

Therefore the following hypotheses were investigated:

1. That participants who received a threat to their need to belong would recall more social cues than neutral cues from a Facebook page, compared to participants who received an affirmation of relational worth.
2. That participants who received a threat to their need to belong, would recall more rejection and acceptance cues, compared to participants who received an affirmation of relational worth.
3. Participants who received a belonging threat would report lower average scores on need to belong, self-esteem, control, and meaningful existence, compared to participants who receive an affirmation of relational worth.

4. That participants who received a belonging threat would report lower average scores on the positive PANAS scale and higher average scores on the negative PANAS scale compared to participants who receive an affirmation of relational worth.

## Study 3: Experiment 2

### Participants

Two hundred and thirty-eight participants (36 Male and 202 Female) were recruited through either a Facebook message invitation, an email invitation, or the USQ School of Psychology, Counselling, and Community survey website. To take part the participants had to be over 18 years (USQ students could be 16 or 17 years old). The mean age of the participants was 32.39 years, with a range of 16 to 63 years. University of Southern Queensland student participants who volunteered to take part in this survey received course credit, while community participants who volunteered to take part received one entry in a cash prize draw run by the Faculty of Health, Engineering, and Sciences at USQ. There were 191 participants (80%) who identified as Anglo-Australian or Caucasian, with the rest of the participants identifying with other smaller sub-groups of Australian. For example, Indigenous Australian (10 participants). The majority of the participants were employed on a part-time basis (60 participants or 25.2%) followed by full-time employment (55 participants or 23.1%) and casual employment (44 participants or 18.5%). Approximately 95.8% of participants were students who completed the survey for course credit.

More detailed demographic information regarding the participants' internet, Facebook, and status update information can be found in the Results section (Descriptive statistics).

**Procedure**

The procedure for this study was identical to both the pilot study and Experiment 1, with two changes. As previously discussed, the scales measuring the need to belong and self-esteem were changed. The question "How accepted did you feel in the social media task?" was changed from a dichotomous response to a 7-point Likert scale in order to gain a better understanding of participant's degree of acceptance in the task. The social media task, Facebook pages, recall task, measures, manipulation, attention, and technical checks were identical to Experiment 1 and the procedure can be found in detail on pages 129-131. For a brief recap of the procedure, please see Figure 5.3.

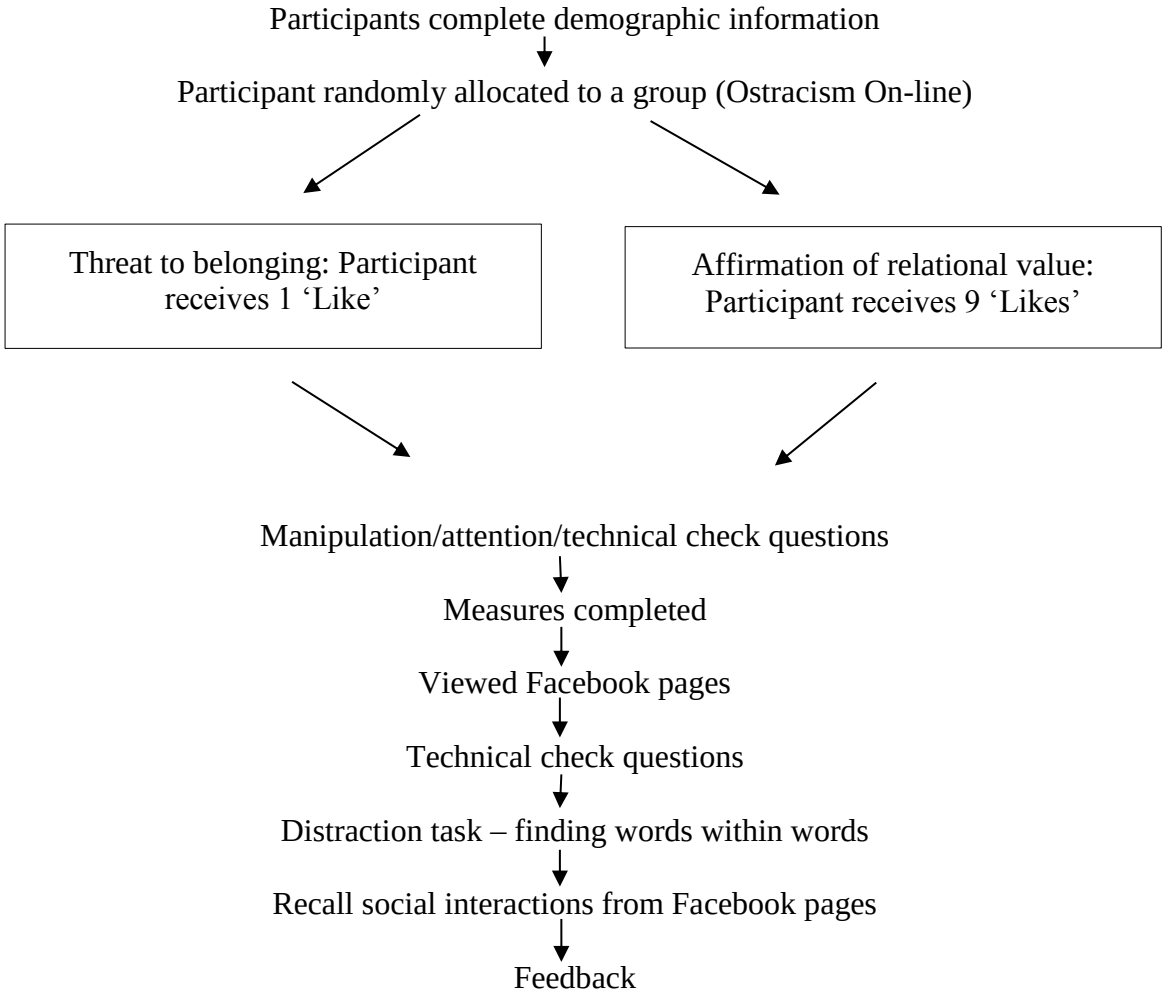



Figure 5.3. *Flow chart summarising Study 3: Experiment 2*

## Measures

**Four Basic Needs Questionnaire.** This self-report questionnaire measures a participant's satisfaction levels with belonging, self-esteem, control, and meaningful existence (Williams, 2009) on a 5-point Likert scale ranging from 1 (*Not at all*) to 5 (*Extremely*). The belonging subscale (α = .79) has 5 items including 3 items, which are reverse scored (i.e., I felt "disconnected", "I felt rejected", and "I felt like an outsider"). Higher scores represented higher belonging need. There was no increase in the Cronbach alpha by deleting any items in this subscale. The self-esteem subscale (α = .88) has 5 items including 1 item, which was reverse scored (i.e., "I felt insecure"). Higher scores represented higher self-esteem need. Although this alpha can be deemed adequate for the study, a closer examination of the questionnaire item-total statistics indicated that alpha would increase to .93 if item 4 were removed. Consequently this item was dropped from the questionnaire and all subsequent analyses are based on the remaining four items. The control subscale (α = .38) has 5 items including 2 items which were reverse scored (i.e., "I felt I was unable to influence the actions of others" and "I felt the other participants decided everything"). Higher scores represented greater control need. However, deleting the two reverse scored items resulted in the Cronbach alpha increasing to .69. Therefore, these items were dropped from the analysis. The meaningful existence subscale (α = .76) also has 5 items including 3 items which were reversed scored (i.e., "I felt invisible", "I felt meaningless", and "I felt non-existent"). Higher scores represented greater meaningful existence need. There was no increase in the Cronbach alpha by deleting any items in this sub-scale. The alphas for this scale were deemed adequate.

**Positive and Negative Affect.** The 20-item measure of Positive and Negative Affect (PANAS: Watson, Clark, & Tellegen, 1988) was given to the participants. The same instructions that were given to participants in Experiment 1, were given to these participants. That is, the instructions were "Indicate to what extent you feel this way right now, that is, at

the PRESENT MOMENT". The PANAS measures the emotional experience of the participants by responding to an emotional word (i.e., strong, interested, upset) on a scale of 1 (*very slight or not at all*) to 5 (*extremely).* The Cronbach alpha for positive affect was .92 and for negative affect was .89. These alphas were deemed adequate.

## Results

### Descriptive Statistics

The majority of participants (43%) spent more than 1 hour but less than 3 hours a day on the web, followed closely by participants spending more than 3 hours but less than 8 hours a day on the web (29%). Forty one percent of participants belonged to only one social networking site, which was identified as Facebook. Twenty four participants (10%) did not have a Facebook account.

The majority of participants (63%) had joined Facebook more than 4 years ago but less than 7 years. There were 36% of the participants that were constantly connected to Facebook via smart phones or other technologies. Twenty two percent of participants stated they spend between 5 and 20 minutes per day on Facebook, 20% stated they spend between 21 and 45 minutes per day on Facebook whilst 21% stated they spend more than 1 hour per day on Facebook. Twenty three percent of participants had between 76 and 150 Friends, and 21% had between 251 and 450 friends. A detailed summary of the participants' internet and Facebook activity can be found below in Table 5.3.

Table 5.3

*Internet and Facebook activity of survey participants (n=238)*

| Variable | | Number | Percent |
|---|---|---|---|
| Hours per day on the web | Less than 1 hour | 53 | 22.30 |
| | More than 1 hour but less than 3 hours | 103 | 43.30 |
| | More than 3 hours but less than 8 hours | 70 | 29.40 |
| | More than 8 hours | 12 | 5.00 |
| Number of SNS | 1 SNS | 98 | 41.20 |
| | 2 SNS | 70 | 29.40 |
| | 3 SNS | 43 | 18.10 |
| | 4 SNS | 17 | 7.10 |
| | 5 SNS | 5 | 2.10 |
| | More than 6 SNS | 5 | 2.10 |
| Joined Facebook | Less than 1 year | 4 | 1.70 |
| | More than 1 year but less than 2 years | 2 | 0.80 |
| | More than 2 years but less than 4 years | 38 | 16.00 |
| | More than 4 years but less than 7 years | 149 | 62.60 |
| | Can’t remember | 21 | 8.80 |
| Times per day Facebook is accessed | Less than once a day | 33 | 13.90 |
| | Once per day | 22 | 9.20 |
| | Twice a day | 20 | 8.40 |
| | Three times a day | 17 | 7.10 |
| | Four times a day | 14 | 5.90 |
| | Five times a day | 9 | 3.80 |
| | More than 6 times a day | 13 | 5.50 |
| | Constantly connected | 86 | 36.10 |
| Minutes per day spent on Facebook | Less than 5 minutes | 30 | 12.60 |
| | Between 6 and 20 mins | 52 | 21.80 |
| | Between 21 and 45 mins | 48 | 20.20 |
| | Between 46 and 60 mins | 34 | 14.30 |
| | More than 1 hour | 50 | 21.00 |
| Friends on Facebook | Less than 20 | 11 | 4.60 |
| | Between 20 and 75 | 25 | 10.50 |
| | Between 76 and 150 | 54 | 22.70 |
| | Between 151 and 250 | 36 | 15.10 |
| | Between 251 and 450 | 51 | 21.40 |
| | Between 451 and 750 | 21 | 8.80 |
| | Between 751 and 1000 | 7 | 2.90 |
| | More than 1000 | 9 | 3.80 |

## Manipulation checks

In order to establish whether the manipulations of participant belonging (i.e., social inclusion or social exclusion) was successful, a number of analyses were conducted.

### Social inclusion manipulation.

Participants were asked "Consider that 5 'likes' was the average number of 'likes' in this task; how would you consider the number of 'likes' you received?" to determine if they had internalised the information contained within the manipulation (i.e., the number of 'likes' they received). The effect of social inclusion (i.e., belonging threat vs. affirmation of relational worth) was significant, with the percentage of respondents who reported receiving above average 'likes' increasing from 1.8% in the belonging threat condition to 91.2% in the affirmation of relational worth condition, $\chi^2(1) = 189.98$, $p < .001$, $\eta^2 = .80$. Therefore, the manipulation between the social inclusion conditions (i.e., belonging threat vs. affirmation of relational worth) was considered successful in that the participants were able to internalise the average number of 'likes' they received.

### Feelings of acceptance manipulation.

In addition, participants were also asked "How accepted did you feel in the social media task?" on a 7-point Likert scale (1=*Not at all accepted*, 7 = *Extremely accepted*) to further determine if the manipulation had been successful (i.e., belonging threat vs. affirmation of relational worth). The impact of the social inclusion manipulation on of feelings of acceptance was significant, $F(1, 236) = 271.18$, $p < .001$, $\eta^2 = .54$. Participants in the belonging threat condition felt less accepted ($M = 3.10$, $SD = 1.46$) compared to participants who had their relational worth affirmed ($M = 5.94$, $SD = 1.20$). These results suggest that the manipulation of the social inclusion conditions (i.e., belonging threat vs affirmation of relational worth) was successful.

### Attention checks

An attentiveness check was placed after the participant had viewed the Facebook pages. Participants were asked if the Facebook pages belonged to the same individual and could answer either yes or no. Seventy nine percent of the participants said the Facebook pages belonged to the same individual. In Experiment 1, participants who answered no to this question were excluded as further investigation of other responses indicated they had not engaged fully in the study. Similarly in this study, some participants who responded "No" to this item were also found to have written nonsense comments or incorrectly completed the distractor tasks. Therefore, participants who indicated that the Facebook pages belonged to different individuals were excluded from further data analysis, thereby reducing the dataset to 187 participants.

### Technical checks

Further checks were also included regarding participants viewing the avatars in the social media task and also viewing the Facebook pages. To maintain a similar protocol to Experiment 1, any participants who reported that they could not view the Facebook pages ("No, I could not view the timeline, newsfeed and private message") or that they did not read any of the avatar descriptions or other participant's descriptions ("No, I did not read any descriptions") in the social media task had their data deleted from the data set. Therefore, the data set was reduced to 169 participants.

### Revised demographics

As a number of participants had been deleted through the data screening through the attention and technical checks, revised demographics are as follows. There remained 169 participants (24 Males and 145 Females) aged between 16 and 61 years ($M$ = 31.62, $SD$ = 10.90). There were 85 participants in the belonging threat condition and 84 participants in the affirmation of relational worth condition. Ninety six percent of the participants were students and 4% were members of the general community.

### Recall of cues.

Similarly to Experiment 1, each participant was asked to recall and write as many social details as they could from the Facebook pages. The Facebook pages were the same Timeline, Newsfeed, and private message as previously used. For these reasons, only one coder from Experiment 1 was used to code all responses. To assess inter-rater reliability a second, independent coder was asked to code 10 percent of the participant's responses. This coder was given the same codebook that had been developed for Experiment 1.

Cohen's Kappa was used to provide an indication of interrater agreement. With regard to social cues, coders one and two had significant agreement regarding social inclusion cues ($\kappa = .70$) and social exclusion cues ($\kappa = .83$). A similar result occurred in regard to the neutral cues with coders one and two also having significant agreement ($\kappa = .65$).

### Main analyses

***Effect of social inclusion on the type of cue recalled.*** It was hypothesised that participants who received a belonging threat (BT) would recall more social cues than neutral cues from a Facebook page, compared to participants who received an affirmation of their relational value (ARW; Hypothesis 1). A between groups ANOVA was conducted to investigate the impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on the recall of cues. Contrary to the expected result, there was no impact of social inclusion the on recall of neutral cues recall (BT: $M = 2.40$, $SD = 1.52$ and ARW: $M = 2.79$, SD = 2.16, $F(1,167) = 1.80$, $p = .18$, $\eta^2 = .01$) or the recall of total social cues (BT: $M = 3.92$, $SD = 2.19$ and ARW: $M = 3.61$, SD = 2.28, $F(1, 167) = .82$, $p = .37$, $\eta^2 = .01$). Therefore, participants who had previously experienced a belonging threat in the social media task did not differ in their recall of social or neutral cues from participants who experienced an affirmation of their relational worth.

***Effect of social inclusion on social cues of rejection and acceptance.*** It was hypothesised that participants who received a threat to their need to belong, would recall

more rejection and acceptance cues, compared to participants who received an affirmation of relational worth (Hypothesis 2). A between groups ANOVA was conducted to investigate whether there were any differences in social inclusion (i.e., belonging threat vs. affirmation of relational worth) and the *type* of social cues recalled (i.e., rejection cues vs. acceptance cues). There was no impact of social inclusion on the recall of acceptance cues (BT: $M$ = 1.93, $SD$ = 1.66 and ARW: $M$ = 1.99, SD = 1.68, $F(1, 167) = .05$, $p = .82$, $\eta^2 = .00$). However, there was an impact of social inclusion on the recall of rejection cues (BT: $M$ = 1.99, $SD$ = 1.27 and ARW: $M$ = 1.62, SD = 1.14, $F(1, 167) = 3.96$, $p = .05$, $\eta^2 = .02$). Therefore, the participants who received a threat to their need to belong, recalled significantly more rejection cues from the Facebook pages than participants who had their relational worth affirmed. Given that the test statistic was only .05, these results while significant, should still be interpreted with caution.

***Effect of social inclusion on the need to belong, self-esteem, control, and meaningful existence.*** Several between groups ANOVAs were conducted to investigate the impact that social inclusion (i.e., belonging threat vs. affirmation of relational worth) had on the need to belong, self-esteem, control, and meaningful existence (Hypothesis 3). There was an impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on the need to belong (BT: $M$ = 15.14, $SD$ = 3.80 and ARW: $M$ = 20.21, SD = 2.78, $F(1,167)$ = 97.81, $p$ <.001, $\eta^2 = .37$), self-esteem (BT: $M$ = 9.12, $SD$ = 3.39 and ARW: $M$ = 12.95, SD = 4.26, $F(1,167) = 42.03$, $p$ <.001, $\eta^2 = .20$), control (BT: $M$ = 5.33, $SD$ = 2.09 and ARW: $M$ = 6.14, SD = 2.78, $F(1,167) = 4.63$, $p = .03$, $\eta^2 = .03$) and, finally, on meaningful existence (BT: $M$ = 15.62, $SD$ = 4.24 and ARW: $M$ = 19.65, SD = 2.57, $F(1,167) = 55.74$, $p < .001$, $\eta^2 = .25$).

There was a change made to the scales used to measure the need to belong and state self-esteem for Experiment 1. Furthermore, the changed scales included items that were more

specific to the social media task. These significant results demonstrated that the new scales were sensitive enough to capture changes to belonging, self-esteem, control, and meaningful existence.

However, questions also need to be raised regarding the control and meaningful existences scores. In both experiments the same sub-scales (i.e., Four Basic Needs questionnaire) was used to measure control and meaningful existence. In Experiment 1, there were no differences in the main effect of social inclusion on control and meaning, whereas in Experiment 2 there was a significant main effect of social inclusion on control and meaning. A possible explanation for this might be the effect of the first two scales, specifically the flow-on effect of having more general scales at the start of the items rather than specific, task-related items and scales. Certainly this is an important issue for future research, in that scale choice and the order the scale appears may impact on *all* subsequent responses.

***Effect of social inclusion on affect.*** It was hypothesised that participants who were in the belonging threat condition would report lower scores on the positive PANAS scale and higher scores on the negative PANAS scale compared to participants who were in the affirmation of relational worth condition (Hypothesis 4). A between groups ANOVA was conducted to investigate the impact of social inclusion (i.e., belonging threat vs. affirmation of relational worth) on affect. Unlike Experiment 1, there was no impact on either positive PANAS scores (BT: $M = 24.89$, $SD = 8.47$ and ARW: $M = 27.05$, SD = 9.06, $F(1,167) = 2.55$, $p = .11$, $\eta^2 = .02$) or negative PANAS scores (BT: $M = 13.16$, $SD = 4.98$ and ARW: $M = 12.73$, SD = 4.09, $F(1,167) = .39$, $p = .53$, $\eta^2 = .00$). Therefore, the participants who experienced a threat to their need to belong did not differ in either their positive or negative affect, compared to participants who experienced an affirmation of their relational worth.

## Discussion

The overall aim of this program of research was to explore and understand the social cues on Facebook that impart relational information. Study 3 develops the findings from the

previous two studies by the introduction of a secondary aim, that is, to determine whether a threat to the need to belong results in attention to particular types of social cues found on Facebook. Previous seminal research showed evidence that when a person experienced a threat to their need to belong that they would consciously pay attention to the social cues that were available in their social environment (Gardner et al., 2000). Indeed, since the need to belong is fundamental to a person flourishing psychologically (Baumeister & Leary, 1995), it would be expected that a belonging threat would naturally lead a person to monitor their social environment for cues that provide relevant relational information, regardless of whether that takes place face-to-face or on-line. Therefore, the research question for this study asked:

*Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?*

To investigate this research question, a number of hurdles had to be overcome, in particular, how to ethically produce the social cues on a Facebook page without exposing participants and their Friends to any risk. To do this, three artificial Facebook pages were created. This meant that ecological validity would be sound, and ethical risk would be minimised.

Study 3 was adapted from Gardner et al.'s (2000) seminal research on social cues, but given a fresh new look incorporating Facebook, a social environment that people now extensively use to interact with their family and friends. On a more important note, this study offered a novel way to extend the knowledge of social cues, relational information, and social monitoring into the on-line environment.

The first hypothesis predicted that *participants who received a belonging threat would recall more social cues than neutral cues from a Facebook page, compared to participants who received an affirmation of their relational worth*. An initial step to exploring this

question was to successfully ensure that participants did have their belonging threatened, otherwise it would be difficult to further investigate this research question. In Experiment 1, there was no difference in need to belong scores of participants in either of the two conditions (i.e., belonging threat or affirmation of relational worth) and subsequently, there was also no difference between the two conditions and their recall of social cues and neutral information. Given that previous research on social monitoring, had found that when no threat to belong was detected, there is no need for the social monitoring system to "kick in" and monitor social cues, it can therefore be assumed that in Experiment 1no threat was detected.

However, in Experiment 2 there was a significant difference between the two conditions (i.e., belonging threat vs. affirmation of relational worth) on their need to belong scores, so it would be anticipated that, consistent with previous research there would be a difference in the *types* of cues recalled, that is the neutral information and social cues from the Facebook pages. Somewhat surprisingly in Experiment 2, the social inclusion condition had no effect on the type of cues recalled. In other words, it did not matter whether a participant received a threat to their need to belong or an affirmation of their relational worth, the participants did not differ in their recall of social or neutral cues.

Hypothesis 2 (*that participants who received a threat to their need to belong would recall more rejection and acceptance cues, compared to participants who received an affirmation of relational worth)* extended Hypothesis 1 by breaking down the social cues into relational information relevant to rejection and acceptance. In Experiment 1, there was no difference between the two conditions (i.e., threatened belonging or affirmation of relational worth) and the number of either type of cues recalled. However in Experiment 2, participants who had their belonging threatened recalling significantly more rejection cues, than participants who had their relational worth affirmed. In other words, participants who reported lower scores of belonging recalled more rejection cues from the Facebook pages,

than participants who had their relational worth affirmed. This finding partially confirms previous research, in that there *is* a focused attention on social cues that indicate potential rejection, but not on social cues that promote acceptance or inclusion.

Additionally, participant's perception of cues and whether they were interpreted as accepting or rejecting added another level of complexity to this research question. When the Facebook pages were designed, the sub-themes from Study 1 and the factors from Study 2 were used to provide information regarding the social cues that communicated relational information. However, when coding the participants' responses into more specific social cues of rejection or acceptance, we found that participants' *perception* of what was a type of social cue differed from what we had originally thought. For instance, sarcastic memes were used as a social cue to convey relational information that indicated social rejection. However, when coding commenced we found that some participants did not perceive this as a cue indicating rejection. Instead some people recalled it as simply a meme or a funny meme, indicating a more neutral cue. Other participants phrased it more as a cue of acceptance, that is, a Friend shared a meme.

Another explanation for these result, could be due to the Facebook page itself. That is, the page is that of a stranger and the interactions with their Friends, rather than the participants own page. It may be that the pattern of results may change if the participant was viewing their own page, as it would be expected that participants would be more motivated to pay more attention to their own inclusionary status than that of a stranger. Furthermore, the cues on their own Facebook page and how they are conveyed, would be more familiar to them. However, it should be remembered that this research project is exploratory, in that, this thesis aimed to explore the social cues on Facebook that impart relational information. Future research will need to revisit these social cues and examine in more depth the multiple

functions of particular social cues, and whether recall of social cues is more salient when it is the participant's own Facebook page.

Additional analyses focused on the need to belong, self-esteem, control, meaningful existence, and the PANAS. Hypothesis 3 predicted that *participants who received a belonging threat would report lower scores of belonging, self-esteem, control, and meaningful existence, compared to participants who received an affirmation of their relational worth*. This is an important step in the research as differences between the two conditions (i.e., threatened belonging and affirmation of relational worth) indicates that the social inclusion paradigm used was successful at both creating a threat to belonging, and also affirming relational worth. Furthermore, if no difference occurred between the two conditions, then it would be difficult to examine the differences that occur with social monitoring. Somewhat surprisingly in Experiment 1, there were no differences between the two conditions for the participant's scores of belonging, self-esteem, control, and meaningful existence. Given the importance of getting this step right, a decision had to be made about whether to continue using Ostracism Online as the paradigm used to manipulate participants' need to belong or to change the scales that measured need to belong and self-esteem to what has previously been used in other Cyberostracism studies. Since Studies 1 and 2 identified 'likes' as an important way to communicate relational information relevant to rejection and inclusion, and to provide an experimental environment consistent with elements found in social networking platforms, it was therefore decided to retain Ostracism Online as the type of manipulation and change the scales used to measure the need to belong and self-esteem. Therefore, the Need to Belong Scale (Leary et al., 2013) and the State Self-Esteem Scale (Heatherton & Polivy, 1991) were dropped from the experiment and instead the belonging and self-esteem subscale of the Four Basic Needs questionnaire (Williams, 2009) were used. Therefore, the experiment was re-run for two reasons. Firstly, it is difficult to investigate the

research question regarding social monitoring and salience of social cues, if a participant's need to belong is not affected. Furthermore, the difference in the wording of the two need to belong scales suggested that there was something important regarding the need to belong as a construct as well as the differences between on-line and face-to-face interactions.

In Experiment 2, the results showed significant differences between the two social inclusion conditions (i.e., threatening belonging and affirmation of relation worth) for the participants' scores of need to belong, self-esteem, control, and meaningful existence (Hypothesis 3). These results were consistent with those of Wolf et al. (2014) and confirmed that the paradigm used, that is a participant receiving high or low 'likes', can convey either a threat to the need to belong or an affirmation of relational worth. Additionally, this finding also provides further evidence from the findings from Studies 1 and 2, in that the 'like' is a social cue that communicates relational information that is very relevant to rejection and acceptance. Furthermore, when taken together this means that for researchers interested in using an experimental manipulation of a participant's need to belong in a familiar on-line environment, 'likes' are a social cue that are effective at conveying both threats to the need to belong and affirmations of relational value.

The results of these two experiments also offer important implications regarding measurement of the need to belong. Both the Need to Belong Scale (Leary et al., 2005) and the Four Basic Needs questionnaire (Williams, 2009) are used prolifically in ostracism research to measure participants scores of belonging. However, a further inspection of the items in both scales shows some subtle differences between them. For example, a closer examination of the items in the Need to Belong Scale (Leary et al., 2005), which was used in Experiment 1, raises interesting questions about the *type* of belonging this scale measures. Items such as "I want people to accept me" or "Being apart from my friends for long periods of time does not bother me" suggest that this scale measures a typical or generalised level of

the need to belong. Indeed, instructions to participants ask them the "degree to which each statement is true or characteristic" (Leary et al., 2013). It appears evident then that this scale may measure a more typical degree of belonging.

On the other hand, the Four Basic Needs Questionnaire (Williams, 2009) seems to measure changes to the need to belong in response to more immediate threats. Indeed, items are reactive to what has occurred directly before. For instance, participants are asked to indicate the degree to which they felt "disconnected" during a Cyberball task or "I felt the other players interacted with me a lot "(Williams, 2009). Therefore, it seems apparent that 'state' need to belong accounts for immediate threats whereas 'trait' need to belong would be indicative of a typical sense of belonging that is stable across time.

Indeed, these results using the two different scales do raise intriguing questions regarding the nature and extent of the need to belong. Both scales are used extensively in social exclusion research to measure the need to belong, and have good psychometric properties. This then raises questions about the type of environment used in exclusion research. On-line interactions are similar to those that occur face-to-face in that people can and do experience rejection in both situations (Stasser et al., 2011), however, on-line interactions have inherently different characteristics and can be unique from face-to-face interactions. It could be that, the nature of these differences in the social environment can then affect the need to belong, such that, changes and threats to the need to belong may indeed be more subtle in an on-line environment, compared to responses found in face-to-face situations.

Finally, Hypothesis 4 predicted that participants who received a belonging threat would report lower scores on the positive PANAS scale and higher scores on the negative affect scale, compared to participants who received an affirmation of relational worth. The only significant results occurred in Experiment 1, where there was an impact of social

inclusion on positive PANAS scores. However, this finding was not observed in Experiment 2. Indeed, there were no significant differences between the two conditions (i.e., threatened belonging and affirmation of relational worth) for the negative PANAS scores in either study. Intuitively a link between affect and rejection makes sense, and is supported in the literature. Clearly however, further work on the relationship between affect and threat to the need to belong in the on-line environment needs to be undertaken.

# Chapter 6 – General discussion

Humans are fundamentally social beings who interact extensively with other people. Indeed, satisfaction of the need to belong is necessary for people to psychological thrive. It is therefore not surprising that people monitor their social interactions for potential threats to the need to belong.

There has been a vast amount of research conducted that has focused on the social cues that are present in face-to-face interactions and how these cues help to both guide and monitor what occurs. However, increasingly people are turning to social media as a way of managing their relationships. Facebook is presently the largest social networking site and has millions of users who daily use Facebook to keep in touch with, and communicate with their family and friends. However, the research examining social cues and social monitoring has failed to keep pace with this change in social environments. Since social cues are vital in communicating relational information, it is critical for researchers to understand more about the social cues found on Facebook and the relational information that they can communicate. Therefore, this chapter will present an overview of the research presented in this thesis as well as the unique contributions to knowledge, limitations, implications, and future research directions.

## Aims and research questions

The overall aim of this thesis was to explore and understand the social cues on Facebook that communicate relational information, specifically the social cues that indicate potential rejection and acceptance. Social cues play an important role as they allow individuals to both monitor and evaluate the state of their relationships. In other words, social cues offer a rich source of relational information, which provide a person with a deeper understanding of the value that others place on the shared relationship. In an on-line environment where social cues are minimal (Abele, 2011), an understanding of the information conveyed by particular social cues allows the opportunity for people to

successfully maintain their relationships and ultimately, to satisfy the fundamental need all people have to belong.

While this thesis had a foundation and guiding framework of the need to belong, there is also sufficient theoretical evidence that human beings have a social monitoring system, designed to evaluate their interactions with others. The purpose then of the social monitoring system, is to process the social cues found in the immediate environment, such that any threats to the need to belong are detected and people can reduce the potential for rejection and the subsequent consequences experienced (Pickett et al., 2004). Therefore, a second aim of this thesis was to determine whether a threat to the need to belong results in attention to particular social information that is, cues that indicate potential exclusion or possible inclusion found on Facebook pages.

There were three research questions that were asked in this thesis and evidence pertaining to each will now be discussed in turn.

***Research Question 1: What are the social cues that communicate relational information on Facebook?***

The methodological approach to this question had two separate parts. Study 1 took a qualitative approach to allow for an exploration of this question through a purposive sample of Facebook users, whereas Study 2 took a quantitative approach using a survey to examine whether the identified social cues could be generalised beyond the first sample. Given how little research has focused on understanding the specific social cues on Facebook that communicate relational information, qualitative enquiry is an appropriate method of analysis as an initial starting point (Creswell & Plano Clark, 2011; Creswell, 2009; Hanson et al., 2005; Marshall, 1996). The findings presented in Chapter 3 used verbatim statements from the participants to provide further clarification of the sub-themes that were identified.

Study 1 identified a number of social cues that provided relational information, such that participants perceived that these cues contributed to them feeling either accepted or rejected by their Facebook Friends. There were five types or categories of cues that participants identified as communicating positive relational information, that is, cues signalling social inclusion or acceptance: *Relationship acknowledgement, Thinking of me, Relationship affirmation, Relationship initiation,* and *Supportive relationship activities*. Cues that communicated *Relationship acknowledgement, Relationship affirmation,* and *Relationship initiation* enabled people to feel valued by their Friends through public acknowledgement. This acknowledgement then signalled to other Friends that this person was valued, that they have relational "cred", and that they were liked and included in activities with their Friends. Whereas cues that communicated relational information of *Thinking of me* and *Supportive relationship activities,* were more closely related to the maintenance of existing relationships. For instance, when Friends initiated activities that were thoughtful and unprompted (e.g., such as sending links to sites they thought their Friend would like or birthday wishes), or when Friends continued to maintain the relationship even though they no longer lived in a similar geographic area. These types of cues not only signalled positive relational value but also contributed to participants' feelings of encouragement, as well as providing social support.

Of course, not all cues identified in Study 1 communicated positive relational information, with the identification of social cues communicating negative relational information, such that a person felt rejected or excluded by their Friends. There were 5 types of social cues that communicated negative relational information, that is, cues that signalled rejection or exclusion: *Being omitted from friendship activities, Criticism, Relationship betrayal, Silence,* and *Relationship termination*. Facebook has many features that allows people to show what they are doing or with whom, meaning that actions such as check-ins or

tags publically display who the chosen people are that Friends are spending time with. While a person who is tagged in photos or included in a check-in, may feel accepted by this public acknowledgement of a relationship, if a person is *omitted from friendship activities* and excluded from this public recognition, either on purpose or accidentally, they can feel rejected. Indeed the very nature of publically viewing what a person's Friends are doing means that not only can a person see what activities they are missing out on, but also which of their Friends are being included in those activities. *Criticism* occurs when Friends make denigrating comments either publically or privately, cast judgements on a person's family or Friends, or engages in public disagreement. These types of behaviours were perceived as other people not valuing the relationship that was shared, particularly when these actions were done in the public arena rather than privately. *Relationship betrayal* indicated actions where normal on-line Friendship expectations, such as seeing a Friend's timeline, were limited or restricted. However, the ultimate signal of negative relational information was that of being unfriended (*Relationship termination*). People are hesitant to sever existing social connections, even when those relationships can cause pain and other difficulties (Leary & Baumeister, 2000). Unfriending then communicates that the relationship has so little value that the other person sees absolutely no benefit or purpose in maintaining the relationship and as such, would rather end the relationship. *Silence* to messages sent or other Facebook activities is another powerful signal of relational information. Extensive research by Williams and others (see Kassner et al., 2012; Smith & Williams, 2004; Williams, 2001b, 2002) on silence, has demonstrated that the effects of *silence* are long-reaching and severe.

One of the more surprising findings to emerge in Study 1 was the identification of *Social Comparison* as an additional main theme. This was an unexpected outcome given that the interview questions asked were specifically about rejection and acceptance experiences. Social comparison is generally thought of as the perception of social or relational worth

compared against others. However, if this idea is expanded upon further, it could be proposed that when a person views their Facebook newsfeed and see the number of 'likes' or positive comments that other people are receiving, this could communication important relational information. That is, observing how other people respond to another person provides an example of what high or low relational value 'looks like'. Subsequently this means that when a person compares the responses they receive to their activities, such as status updates and the number of 'likes' or comments received compared to what others are receiving, they can form a judgement on whether their own relational value is high or low.

Study 2 then extended on Study 1 by investigated whether the social cues identified in Study 1, could be generalised beyond the first sample and was representative of a wider group of Facebook users. This meant developing the social cues identified in Study 1 into items, which were subsequently examined to see whether similar sub-themes identified in Study 1 would be identified as factors in Study 2.

Study 2 identified that four types of positive relational information containing similar cues to those identified in Study 1, that is, *Relationship acknowledgement, Relationship affirmation, Relationship initiation,* and *Supportive relationship activities.* However, one factor (*Contributing to relationships*) contained a pattern of response, which combined elements from the sub-themes of *Thinking of me* and *Relationship acknowledgement* from Study 1. Therefore, *Contributing to relationships* emphasised cues associated with acceptance into, and participation in Facebook group activities, but also activities initiated by Friends that showed a positive contribution towards the shared relationship.

With regards to the types of negative relational cues, there were three types or categories of cues identified in Study 2 that had similar characteristics to those in Study 1. That is, *Being omitted from friendship activities, Silence,* and *Criticism* contained similar cues across both Study 1 and Study 2. However, *Criticism* in Study 2 also included some cues

that were more indicative of *Relationship betrayal* and *Relationship termination* from Study 1. It may be that the relational context of actions of relationship betrayal (e.g., gossiping about a person behind their back), termination of a relationship, and criticism are similar. Two other factors of negative social cues were identified in Study 2, that of *Friendship incongruity actions* and *Social comparison.*

Therefore, the use of both qualitative and quantitative methods to explore the positive and negative social cues that provide relational information provides a broad understanding of the research question. Furthermore, while the qualitative data provided a rich source of information as an initial starting point, the quantitative data provides further validity of the results (Greene et al., 1989) as well as allowing for a deeper understanding of the social cues that communicate relational information on Facebook.

***Research Question 2: What motivates people to use Facebook?***

The motivations that a person has for using Facebook are an important consideration and this was examined in Chapter 4. Facebook has stated that the site is primarily focused on social connection, whereas empirical research has found a variety of different reasons as to why people use Facebook (Wilson et al., 2012). Indeed, Facebook and the features found on the site, appear ideal with regards to providing an environment where people can create and maintain their social connections, a key consideration of the need to belong.Study 2 identified four different motivations for using Facebook: *Meeting people*, *Relationship maintenance*, *Monitoring relationships*, and *Seeking information.* Furthermore, Study 2 examined the hypothesis that the need to belong will predict motivations for Facebook use. Regression analyses supported this hypothesis, that is, the need to belong is a significant predictor of all four motivations for using Facebook. Examining the relationship between need to belong and the four motivations for using Facebook provided understanding into how the need to belong underpins the drive people have to use Facebook.

In addition, Study 2 also investigated the hypothesis that self-esteem, control, and meaningful existence will uniquely predict motivations for Facebook use. Self-esteem, control, and meaningful existence all predicted the motivation of meeting people. However of the three variables hypothesised as predictors, only self-esteem predicted seeking information.

The above findings confirm that the primary motivation people have for using Facebook is that of social reasons that is, for *meeting people*, *maintaining relationships*, and *monitoring relationships*. However, these motivations do not represent the complete picture, with people also motivated to use Facebook for *information seeking*. While some of this information seeking is to monitor peers' behaviour, other motivations reflect lifestyle demands, such as selling cars or developing a career. It is interesting that the need to belong is a predictor of all four motivations and while three motivations are linked to social connection, *seeking information* initially appears distinct. However *seeking information* about peers could also relate back to the importance of social comparison as a source of relational information. That is, gathering information about peer activities can enable a person to behave in ways that can increase or decrease their own relational value with others.

***Research Question 3: Which social cues on Facebook are salient after a person receives either a belonging threat or an affirmation of their relational worth?***

Study 3 extends the findings of Studies 1 and 2 by changing the focus from the types of cues that provide relational information, to the saliency of the social cues when a person is faced with either a threat to their need to belong or an affirmation that they are a person of relational value and worth. This study draws on the theoretical concept regarding social monitoring system with a number of ANOVAs completed to examine any between group differences in the recall of social cues and neutral information. However, there were no

significant differences in the recall of social cues versus non-social cues between the two conditions (i.e., belonging threat vs. affirmation of relational worth).

This finding provides conflicting evidence from previous seminal research investigating the effect that need to belong has on the recall of social cues (Gardner et al., 2000: Pickett & Gardner, 2005). It would be expected that when a person experiences a threat to their belonging that this would result in them displaying a sensitivity to all available social information (Gardner et al., 2000; Pickett & Gardner, 2005). That is, people who received a belonging threat should pay more attention to the social cues that indicate *both* acceptance and exclusion.

Furthermore, when the social cues were subsequently broken down into cues of rejection and acceptance, there was only a significant difference between the two conditions (i.e., belonging threat vs. affirmation of relational worth) and their recall of rejection cues. That is, people who experienced a threat to their belonging recalled significantly more rejection cues. Numerous studies on face-to-face interactions have found that people are motivated to seek out signs of inclusion (i.e., smiling faces) after being rejected restore their need to belong (Bernstein et al., 2008; Dewall et al., 2009; Maner, DeWall, Baumeister, & Schaller, 2007). However, this finding did not occur in Study 3.

It could be argued, that the on-line social environment and thus the social cues found there, are different to the face-to-face communication (Abele, 2011), and this may provide sound reasoning as to why a difference from prior research was found. When these results are framed through the premise of social snacking, it can be said that even viewing Facebook pages can creates a sense that the person is connected to a social resource (Knowles, 2009). Speculatively then, merely being on Facebook may buffer the need to belong such that, the social monitoring system is ‘tuned’ more to cues indicating potential rejection rather than cues of acceptance.

Another alternative could be the benefits of downward social comparisons to a person's self-esteem (Tennen & Affleck, 1993). That is, it could also be argued that when a person is rejected, that may start to question their relational value. This could then lead them to attempt to restore their own self-esteem by noticing when other people are also being rejected. If that other person appears to be socially "worse-off", then the person who experienced the rejection could use the observation of what is happening to the other person, as a way to maintain a more positive self-evaluations of their own relational worth (Machin & Jeffries, in press).

A further consideration is that the Facebook pages observed by participants' were those of a stranger. More specifically, as the participants were not viewing their own Facebook pages and Friends, they may have perceived the cues providing relational information, as not relevant to them. Indeed, as the participants were not personally connected to the people and relationships shown on the Facebook pages, the more subtle cues communicating the relational information may have been lost or ignored.

**Unique contributions to knowledge and implications**

This thesis has presented several unique contributions to knowledge, which will be discussed here. With respect to the empirical sources drawn upon in this thesis, this is the first time to my knowledge, that a comprehensive undertaking of the social cues that communicate relational information on Facebook, and the relationship this has with the need to belong, has been done. By not focusing entirely on a specific theory of social exclusion but rather using the need to belong as the guiding framework, as well as considering the role of social monitoring, this then afforded a broader application of the findings.

The need to belong is an essential motivation that drives all humans to create and maintain mutually satisfying relationships which are characterised by positive and encouraging interactions which are stable across time and give meaning to a person's life (Baumeister & Leary, 1995). Empirical research has identified that satisfaction of need to

belong is critical for psychological and physiological well-being (Baumeister & Leary, 1995; Gere & MacDonald, 2010; Leary, 2001) with social exclusion resulting in consequences such as poor psychological and behavioural outcomes.

In summary, at the centre of this program of research is the theoretical framework of the need to belong and the premise that social cues provide relational information that indicate the quality and state of a person's relationships. The monitoring of these social cues provides individuals with relational information that can: (1) help them to avoid the deleterious effects of rejection, (2) provide them with verification of their relational value and worth, and (3) help guide their social interactions. Indeed, multiple lines of research into social exclusion state that social monitoring plays an important role in the need to belong process, in that once a threat to belonging is detected, a person will commence conscious monitoring of the social environment searching for cues that provide relevant relational information (Gardner et al., 2005; Leary & Baumeister, 2000; Pickett & Gardner, 2005; Williams, 2007, 2009). Therefore social monitoring involves examining the social environment for cues that provide relational information that is, cues that guide social interactions and evaluations. The present research contributes to the research examining on-line social cues and social monitoring by identifying not only the specific social cues found on Facebook that provide relational information, but also the type of relational information that is guided by explicit social cues.

With respect to understanding social cues and relational information on Facebook, the premise of a social monitoring system may need adaption when it comes to the Facebook environment. On-line interactions can often be complex with multiple demands and distractions occurring simultaneously. For example, a person can be reading Facebook but at the same time interacting with multiple people both on-line and off-line, receiving incoming alerts about emails or messages, as well as advertising material "popping up". Facebook

newsfeeds can also be full of irrelevant information such as sponsored links, which can limit the relational information that is found on the newsfeed. Knowles et al. (2015) suggested that Facebook is a 'social resource' that can be used to 'top-up' a person's belonging, which could impact the social monitoring system. That is, a key premise of social monitoring is that social cues detect and process *both* positive and negative relational information (Pickett et al., 2004). However, perhaps merely being on Facebook and viewing what family and friends are doing could predispose a person to only looking for cues of rejection.

Furthermore, as identified in Studies 1 and 2, there is the potential for multiple interpretations of some cues that appear on Facebook. For example, the number of 'likes' a person may receive can be seen as a sign of approval or acceptance to one person but to another person, a signal of rejection. Furthermore 'likes' may have multiple functions. For instance, 'likes' can be seen as a sign of social support instead of exclusively as a social cue relevant to acceptance or inclusion. Additionally, 'likes' can be used as a way for people to fulfil expectations and social responsibilities, as well as for ingratiation purposes. Therefore, the challenge each Facebook user faces is the correct interpretation of the relational information contained within their own Facebook newsfeed. That is, context and what a person knows about their Friends appears to be very important in the understanding of social cues and relational information. Thus, when considering social monitoring in the on-line environment, the social cues that communicate relational information relevant to rejection may indeed be more salient.

There are two major implications that result from this understanding of the social cues found on Facebook. Firstly, an understanding of social cues and the relational information that is conveyed can help people to improve the quality of their relationships. For instance, understanding that if people receive no response to their comments or messages, that this can cause feelings of rejection, then simply acknowledged any interactions through a 'Like' or

other means can help to create better quality relationships. Furthermore, this information about social cues extends into the business arena in a similar way. If customers or clients interact with businesses on Facebook, then ensuring that comments are acknowledged can contribute positively towards that organisation.

The present studies also contribute to the theoretical understanding of the need to belong by investigating why people are motivated to use Facebook. Facebook provides an on-line environment for people to maintain, monitor, and create social connections. Precisely because of this, the need to belong was identified as a predictor of why people use Facebook. This hypothesis was supported with Study 2 demonstrating that need to belong is a significant predictor of the motivations that people have for using Facebook. This is the first study that has examined the need to belong as a predictor on user's motivation. However, as the Facebook site evolves, future research must continue to examine whether the need to belong underpins motivations for use.

A further strength of this research also included the samples used in each study. A major criticism levelled at many psychology studies is the over-use of a student sample, typically a younger student demographic. While this program of research did use a student sample, the age range of the participants in these studies encompassed a broader demographic than what is typically found. Furthermore, members of the general community did take part, albeit the sample was small, between 4 and 16 percent.

This thesis also contributes towards the development of on-line methodology that can be used to examine the need to belong. A well-known criticism of social psychology highlights how experimental social psychology depends on participants studied in the laboratory setting, therefore affecting ecological validity and generalisability of the findings beyond the laboratory. From this perspective, the designing and development of tools such as Facebook pages, and using paradigms that include elements that are familiar to the

participant's everyday life, has important implications for future research findings as well as increasing the ecological validity of the research.

### Limitations and future directions

Using Facebook as a place to conduct social research has many benefits in understanding social interactions in a naturalistic setting. However, a limitation of using Facebook as a research environment is the ever changing nature of the site, with Facebook developers determined to create a better website, with more features available to connect with other people. A further focus by Facebook on developing immersive virtual reality and artificial intelligence could potentially change the 'feel' of the site. Indeed, the recent news regarding changes to the 'like' button to one of empathy or dislike (Smith, 2015), raises important issues about social cues and how relational information will be communicated in the future. Furthermore, the algorithms used by Facebook can manipulate the content seen by users (Luckerson, 2015; Oremus, 2016), and thus, has implications for the relational information that is presented to a Facebook user. The consequences of these issues means that Facebook is a personal, ever-changing on-line environment.

As previously described in Chapter 4, Study 2 took the social cues identified by participants in Study 1 to a wider population to investigate if the cues were generalisable. In a similar vein, Study 2 also took the motivational items previously identified by research to investigate whether the need to belong, as well as other psychological variables was a predictor of Facebook use. While this type of methodology does provides evidence for the validity and reliability of the findings, it does restrict the ability to identify any other motivations or social cues that other people may have. Thus future research will need to extend the findings of this research by continuing to qualitatively explore different motivations and social cues as Facebook evolves.

A further point to consider in regard to future direction is that of the artificial Facebook pages. While the development and use of artificial Facebook pages provides benefits in regards to conducting research in a more naturalistic and familiar environment to participants, future research could be designed around the use of the participant's own Facebook pages. For instance, participants could provide screen shots of the cues that communicate the relevant and important relational information. Indeed, advances in software programs that capture the curation of content of websites means that improvement in the type of programs available to assist with research analysis could radically change the way Facebook research is conducted. Ultimately these changes bring increased reliability and validity to research findings. However, caution is still warranted regarding how to ethically deal with the 'incidental' information found on Facebook pages.

## Conclusions

In exploring and understanding the social cues that communicate relational information on Facebook, this thesis has contributed important insights into the need to belong in the on-line environment. In addition, this thesis highlights that social information and interactions occurring on Facebook can be both subtle and complex. On one hand, a person can be overwhelmed by choice in regards to how, or whether they communicate with other people on Facebook. Conversely, the social cues that provide relational information may be difficult to understand, or may contain multiple meanings.

Social interactions are changing from the traditional face-to-face settings due to technological changes and social networking sites. Facebook provides people with an environment where they can keep in touch with those Friends they are close to, people they have lost contact with, work colleagues, as well as other people they may not know very well but may want to connect with. Indeed, a Facebook user is able to monitor what is occurring in other people's lives in a variety of settings (i.e., their homes or workplaces), on a variety of devices (i.e., a smart phone or tablet) or at any time of the day or night. By understanding the

social cues and the relational information that is communicated on Facebook, this ultimately benefits all Facebook users in understanding the state and quality of their on-line relationships.

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Appendix A

Study 1 information

University of Southern Queensland

**The University of Southern Queensland**

## Participant Information Sheet

**HREC Approval Number: H13REA067**

**Full Project Title:** **Social exclusion cues on Facebook**

**Principal Researcher:** Dr Carla Jeffries

**Other Researcher(s):** Tanya Machin, Associate Professor Nola Passmore

I would like to invite you to take part in this research project.

**1. Procedures**

Participation in this project will involve

- ***The completion of an interview. The interview will consist of two sections. The first section will be the interviewer asking you to give informed consent, your demographic information and questions of your online social networking usage. This should take no more than 10 minutes. The second section will be the interviewer asking you about your online social networking experiences with social inclusion and social exclusion.***
- ***All the information you provide will be confidential. All identifying data will be removed. This means no individuals responses will be able to be identified. This information will be held on password protected computers which can only be accessed by the Principal Researcher, Associate Researcher and Student Researcher.***
- ***All participants have the option of providing your email address to receive an online summary of the results once they are available. By participating in this interview you also further the work on social cues in an online environment. Your participation is greatly appreciated.***
- ***There are potential psychological risks including discomfort when you are reflecting on previous experiences. This discomfort is expected to be no greater than that experienced on an ordinary day. If you feel distressed after completing this interview you are encouraged to contact Student Services.***

**2. Voluntary Participation**

Participation is entirely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland.

***Please notify the researcher via email if you decide to withdraw from this project***

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

Dr Carla Jeffries
Department of Psychology, Sciences Faculty
University of Southern Queensland, West Street, Toowoomba

***Phone 07 4631 1572***

***Tanya Machin***
***Department of Psychology, Sciences Faculty***
***University of Southern Queensland, West Street, Toowoomba***

***Associate Professor Nola Passmore***
***Department of Psychology, Sciences Faculty***
***University of Southern Queensland, West Street, Toowoomba***
***Phone 07 4631 1683***

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

***Ethics and Research Integrity Officer***
***Office of Research and Higher Degrees***
***University of Southern Queensland***
***West Street, Toowoomba 4350***
**Ph: +61 7 4631 2690**
**Email: *ethics@usq.edu.au***

USQ
AUSTRALIA

University of Southern Queensland

**The University of Southern Queensland**

## Consent Form

HREC Approval Number: **H13REA067**

**TO:** Participants

**Full Project Title:** **Social exclusion cues on Facebook**

**Principal Researcher:** Dr Carla Jeffries

**Student Researcher:** Tanya Machin

**Associate Researcher(s):** Associate Professor Nola Passmore

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I confirm that I am over 18 years of age.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.
- I understand that all data will be deidentified.

If you have any questions about the study please contact Dr Carla Jeffries, University of Southern Queensland on 07 46311572 (email carla.jeffries@usq.edu.au), Tanya Machin, University of Southern Queensland (email tanya.machin@usq.edu.au) or Ass Prof Nola Passmore, University of Southern Queensland on 07 46311683 (email nola.passmore@usq.edu.au).

I declare that I am:

 18 years and over and I hereby give my consent to participate in this study by signing below.

---

THANK YOU FOR YOUR PARTICIPATION

Appendix B

Study 2 information

## Study: Social exclusion cues on Facebook

This study involves two parts. The first part consists of demographic questions about you and your internet use, including how you use Facebook. The second part of the study asks you questions about your social interactions on Facebook and social experiences.

**Firstly, we would like to ask you a few questions about yourself:**

What is your current AGE (in years)? _____
What is your gender? (Please select) F M
Please indicate your current employment status:

- ☐ Full-time employment
- ☐ Part-time employment i.e., regular hours per week
- ☐ Casual employment i.e., irregular hours per week
- ☐ Unemployed
- ☐ Homemaker
- ☐ Retired
- ☐ Other (please describe): _____

Are you a student?

- ☐ Yes, Full-time student
- ☐ Yes, Part-time student
- ☐ No

What is your current marital status: (Please select one)

- ☐ Single and currently dating
- ☐ Single and not currently dating
- ☐ Married
- ☐ Engaged
- ☐ De facto (cohabiting)
- ☐ Divorced
- ☐ Separated
- ☐ Widowed
- ☐ Same-sex partnership
- ☐ Other, please specify _____

To which of the following cultural/ethnic groups do you belong? (Please select one)

- ☐ Anglo-Australian
- ☐ Aboriginal or Torres Strait Islander
- ☐ Other Australian (please specify) _____
- ☐ Papua New Guinean
- ☐ Maori
- ☐ Anglo New Zealander
- ☐ Pacific Islander
- ☐ Asian
- ☐ English, Scottish, Irish, or Welsh

- ☐ Other European
- ☐ American or Canadian
- ☐ Central or South American
- ☐ African
- ☐ Middle Eastern
- ☐ Other (please specify) _____

Do you currently live in Australia?

- ☐ Yes
- ☐ No. Please name the country in which you live: _____

How did you hear about this study? (Please select one)

- ☐ Personal communication from one of the researchers
- ☐ Word of mouth
- ☐ Via media, newsletter, website or social networking site
- ☐ Community group or organisation
- ☐ Other (Please specify)_____

## Section 1a: Facebook use

**We are interested in knowing how you use social networking sites. Please indicate which answer is the most typical answer for you.**

How many hours **per day** would you typically spend surfing the web? (Please select one)

- Less than 1 hour
- More than 1 hour but less than 3 hours
- More than 3 hours but less than 8 hours
- 8 + hours

How many on-line social networking sites do you belong to? (Please select one)

- 1
- 2
- 3
- 4
- 5+

What social networking sites do you currently belong to? (Select all that apply)

- Facebook
- MySpace
- LinkedIn
- Pinterest
- Twitter
- Friendster
- Xt3
- FourSquare
- Other (please describe): _____

Thinking about your Facebook usage now, when did you first join Facebook? (Please select one)

- Less than a year ago
- More than one year ago but less than two years

- More than two years ago but less than four years
- More than four years ago but less than seven years
- Can't remember

How many times **per day** do you typically access Facebook? (Please select one)

- 1
- 2
- 3
- 4
- 5
- 6+
- Constantly connected

How many minutes **per day** (total) do you typically spend being active on Facebook? For example, reading your news feed or other social interactions. (Please select one)

- Less than 5 minutes
- 6-20 minutes
- 21-45 minutes
- 46-60 minutes
- more than an hour per day

How many Facebook Friends do you currently have? (Please select one)

- Less than 20
- 20-75
- 76-150
- 151-250
- 251-450
- 451-750
- 751-1000
- more than 1000

How often do you update your status on Facebook? (Please select one)

- More than once a day
- Once a day
- Every couple of days
- Once a week
- Once a month
- Hardly ever
- Never
- Other (Please describe)_____

Which of your Facebook Friend's activities do you typically comment on?

| | *Never* | | | | *All the time* |
|---|---|---|---|---|---|
| Status updates i.e., Friend updates their status | 1 | 2 | 3 | 4 | 5 |
| Wall posts i.e., Other people commenting on my Friend's status | 1 | 2 | 3 | 4 | 5 |
| Photos they have uploaded | 1 | 2 | 3 | 4 | 5 |

Are there any other activities you typically comment on:

(Please describe)_____

Which of your Facebook Friend's activities do you typically "Like"?

| | *Never* | | | | *All the time* |
|---|---|---|---|---|---|
| Status updates i.e., Friend updates their status | 1 | 2 | 3 | 4 | 5 |
| Wall posts i.e., Other people commenting on my Friend's status | 1 | 2 | 3 | 4 | 5 |
| Photos they have uploaded | 1 | 2 | 3 | 4 | 5 |

Are there any other activities you typically "Like"?
(Please describe)_____

Which Facebook Friends would you typically comment on:

| | *Never* | | | | *All the time* |
|---|---|---|---|---|---|
| Close friend | 1 | 2 | 3 | 4 | 5 |
| Friend | 1 | 2 | 3 | 4 | 5 |
| Acquaintance | 1 | 2 | 3 | 4 | 5 |
| Friends you do not see face-to-face | 1 | 2 | 3 | 4 | 5 |
| Close family member | 1 | 2 | 3 | 4 | 5 |
| Distant family member | 1 | 2 | 3 | 4 | 5 |
| Work Colleagues | 1 | 2 | 3 | 4 | 5 |

Are there any other Facebook friends you typically comment on:
(Please describe)_____

## Section 1b: Facebook use

**We are also interested in knowing more about why you use Facebook. For each of the statements below, please indicate the number which best represents your answer. If an item does not currently apply to you (e.g. if you are currently in a relationship, and the item is meet new romantic partners), then please imagine whether you would use Facebook for this reason.**

| | ***Never*** | ***Rarely*** | ***Sometimes*** | ***Usually*** | ***Always*** |
|---|---|---|---|---|---|
| I use Facebook to: | | | | | |
| Get peer support from others | 1 | 2 | 3 | 4 | 5 |
| Meet interesting people | 1 | 2 | 3 | 4 | 5 |
| Belong to a community | 1 | 2 | 3 | 4 | 5 |
| Discuss issues with others | 1 | 2 | 3 | 4 | 5 |
| Stay in touch with people I know e.g. send messages | 1 | 2 | 3 | 4 | 5 |
| Meet new Friends | 1 | 2 | 3 | 4 | 5 |
| Meet new romantic partners | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Make plans with Friends (e.g. weekend activities) | 1 | 2 | 3 | 4 | 5 |
| Avoid uncomfortable face-to-face situations | 1 | 2 | 3 | 4 | 5 |
| Reconnect with people I have previously lost contact with (e.g. school friends) | 1 | 2 | 3 | 4 | 5 |
| Find out what old friends are doing now | 1 | 2 | 3 | 4 | 5 |
| Maintain relationships with people I may not get to see very often | 1 | 2 | 3 | 4 | 5 |
| Keep in touch with friends living long-distance | 1 | 2 | 3 | 4 | 5 |
| Find people I have not seen for a while | 1 | 2 | 3 | 4 | 5 |
| Meet people who are more interesting than the people I meet face-to-face | 1 | 2 | 3 | 4 | 5 |
| Meet like-minded people | 1 | 2 | 3 | 4 | 5 |
| Share my feelings with someone that I would not say to them in person | 1 | 2 | 3 | 4 | 5 |
| Break up with someone | 1 | 2 | 3 | 4 | 5 |
| Play games | 1 | 2 | 3 | 4 | 5 |
| Distract myself | 1 | 2 | 3 | 4 | 5 |
| Procrastinate | 1 | 2 | 3 | 4 | 5 |
| Have fun | 1 | 2 | 3 | 4 | 5 |
| Share/add photos | 1 | 2 | 3 | 4 | 5 |
| Comment on photos | 1 | 2 | 3 | 4 | 5 |
| Fit in with my peer group | 1 | 2 | 3 | 4 | 5 |
| Look cool to friends | 1 | 2 | 3 | 4 | 5 |
| Develop my career through group participation (e.g. Students in Psychology) | 1 | 2 | 3 | 4 | 5 |
| Recruit members for a club/group I belong to | 1 | 2 | 3 | 4 | 5 |
| Get information about university/work courses from others | 1 | 2 | 3 | 4 | 5 |
| Learn more about on-campus events | 1 | 2 | 3 | 4 | 5 |
| Get information about products and services (e.g. gym classes) | 1 | 2 | 3 | 4 | 5 |
| Advertising academic resources/other items e.g. selling a car | 1 | 2 | 3 | 4 | 5 |
| Check up on ex-partner | 1 | 2 | 3 | 4 | 5 |
| Check up on current partner | 1 | 2 | 3 | 4 | 5 |
| Check up on family members | 1 | 2 | 3 | 4 | 5 |
| Check up on friends | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Look at photo albums of other people's friends | 1 | 2 | 3 | 4 | 5 |
| Look at profiles of people I do not know | 1 | 2 | 3 | 4 | 5 |
| Be informed about the events and activities that are organised by my friends | 1 | 2 | 3 | 4 | 5 |

## Section 2: Social Interactions of Facebook

**For each of the statements below, please indicate the number which best represents the degree to which you agree or disagree with the statement. Please note that if a situation does not currently apply to you (e.g. you do not currently have a partner), then imagine how you would feel (e.g. if you did have a partner). If you are uncertain about the meaning of a particular word (e.g. timeline) please click on the definition button.**

| | ***Not at all Rejected*** | | | | ***Extremely Rejected*** |
|---|---|---|---|---|---|
| I feel rejected when: | | | | | |
| A Facebook Friend announces something important and you realize you do not know the details of their life (e.g. an engagement) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend comments negatively about me or my family | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend deliberately brings up issues on my timeline they know will upset me | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend has a rant about how nobody likes them even though I had spent time with them | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend is critical of my opinion and we argue on a comment thread | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend is no longer listed on my Friend list (e.g. defriended) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend leaves mean comments on my timeline | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend posts a photo of themselves and other Friends respond positively about their appearance | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend posts a public event but does not invite me | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend posts gossip about me on other Facebook Friends | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| timeline (e.g. did you hear X is dropping out of uni?) | | | | | |
| A Facebook Friend posts status updates (e.g. some people need to get a life) that I know are directed at me | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend uses language that they know I do not like (e.g. swearing) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend uses words I am unfamiliar with (e.g. LAWL) | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends are 'tagged' in a check-in and you were not invited to go with them | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends do not respond to my event invitations | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends post comments on my timeline that I have told them in private | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends post critical comments about values that are important to me (e.g. Atheist comments when I have religious views) | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends post photos of an event I was at, but there are no photos of me | 1 | 2 | 3 | 4 | 5 |
| Facebook Friends upload photos of places that I want to visit but cannot afford | 1 | 2 | 3 | 4 | 5 |
| I am blocked from viewing some features on a Facebook Friend's profile (e.g. only photos but not their timeline) | 1 | 2 | 3 | 4 | 5 |
| I am in a photo with my Facebook Friends but I am not 'tagged' | 1 | 2 | 3 | 4 | 5 |
| I am left out of a status update or check-in by a Facebook Friend when I am with them | 1 | 2 | 3 | 4 | 5 |
| I am not invited to an event that other Facebook Friends are discussing | 1 | 2 | 3 | 4 | 5 |
| I post on a Facebook Friend's timeline and they do not respond | 1 | 2 | 3 | 4 | 5 |
| I see my Facebook Friends 'tagged' in a photo of something I was not invited to (e.g. party) | 1 | 2 | 3 | 4 | 5 |
| I send a private message to a Facebook Friend through 'chat' and they do not respond | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| I was invited to go to an event by a Facebook Friend but had to refuse, and they take another Facebook Friend and upload positive comments/photos | 1 | 2 | 3 | 4 | 5 |
| My ex updates their Facebook relationship status as “in a new relationship” | 1 | 2 | 3 | 4 | 5 |
| My Facebook Friend request is ignored | 1 | 2 | 3 | 4 | 5 |
| My partner likes “sexy” Facebook sites (e.g. big breasted women or sexy firemen) | 1 | 2 | 3 | 4 | 5 |
| Nobody ‘likes’ my photos | 1 | 2 | 3 | 4 | 5 |
| Nobody responds to my status updates (e.g. no ‘likes’ or comments) | 1 | 2 | 3 | 4 | 5 |
| Other Facebook Friends have more Friends than me | 1 | 2 | 3 | 4 | 5 |
| Someone sends other Facebook Friends a friend request but I am excluded | 1 | 2 | 3 | 4 | 5 |
| | *Not at all accepted* | | | | *Extremely Accepted* |
| I feel accepted when: | | | | | |
| A Facebook Friend affirms me (e.g. you are a great person) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend positively comments on my responses and we have an on-line conversation thread | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend changes their profile picture/cover photo to one that I am in | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend comments positively on a photo I am in (e.g. You look great) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend ‘likes’ a comment I have made | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend ‘likes’ a photo I am in | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend ‘likes’ my status updates | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend makes a time to ‘chat’ with me on-line (e.g. are you free at 7pm?) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend messages me (e.g. Facebook chat) | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| A Facebook Friend notices that I am not as active with my status updates and privately messages me (e.g. Are you okay?) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend 'pokes' me | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend comments positively on my status updates | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend posts a positive comment to my timeline | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend privately shares stories of their struggles with me through 'chat' when we both have the same issue (e.g. both going through a breakup) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend shares a link on my timeline they think I will like (e.g. new album released by favourite artist) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend shares exciting news with me privately through 'chat' (e.g. I've got a promotion) | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend 'tags' me in a check-in | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend 'tags' me in one of their comments | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend 'tags' me in their photos | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend 'tags' me in their status update | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend who does not 'like' or post many comments, 'likes' my status update | 1 | 2 | 3 | 4 | 5 |
| A Facebook Friend wishes me a Happy Birthday | 1 | 2 | 3 | 4 | 5 |
| I am invited to join a closed group | 1 | 2 | 3 | 4 | 5 |
| I am part of a group message | 1 | 2 | 3 | 4 | 5 |
| I apply to join a closed group and I am accepted | 1 | 2 | 3 | 4 | 5 |
| I get a comment from a Facebook Friend that is encouraging or supportive | 1 | 2 | 3 | 4 | 5 |
| I get an invitation to an event | 1 | 2 | 3 | 4 | 5 |
| I get an invitation to an event, and only a small number of Facebook Friends are also invited | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| I get issued invitations based on my status updates (e.g. “I’m downtown” and a Facebook Friend comments “Where are you, let’s hang out”) | 1 | 2 | 3 | 4 | 5 |
| I post a controversial viewpoint consistent with my values (e.g. gay marriage) and Facebook Friends respond positively | 1 | 2 | 3 | 4 | 5 |
| I post a need for support (e.g. I need a lift to the doctor, my car is not working) and my Facebook Friends respond | 1 | 2 | 3 | 4 | 5 |
| I post an opinion and my Facebook Friends respond with lots of comments and ‘likes’ | 1 | 2 | 3 | 4 | 5 |
| I start a closed group and my Facebook Friends accept my invitations to join | 1 | 2 | 3 | 4 | 5 |
| My partner changes their Facebook relationship status to “In a relationship” | 1 | 2 | 3 | 4 | 5 |
| My timeline has more comments than my other Facebook Friends | 1 | 2 | 3 | 4 | 5 |
| Someone accepts my Facebook Friend request | 1 | 2 | 3 | 4 | 5 |
| Someone I do not know wants to be my Facebook Friend based on my comments | 1 | 2 | 3 | 4 | 5 |
| Someone I do not know wants to be my Facebook Friend based on my photo | 1 | 2 | 3 | 4 | 5 |
| Someone sends me a Facebook Friend request | 1 | 2 | 3 | 4 | 5 |
| | | | | | |

**For each of the statements below, please indicate the number which best represents the degree to which you agree or disagree with the statement.**

| | ***Strongly disagree*** | | ***Neutral*** | | ***Strongly agree*** |
|---|---|---|---|---|---|
| If other people don’t seem to accept me, I don’t let it bother me | 1 | 2 | 3 | 4 | 5 |
| I try hard not to do things that will make other people avoid or reject me | 1 | 2 | 3 | 4 | 5 |
| I seldom worry about whether other people care about me | 1 | 2 | 3 | 4 | 5 |
| I need to feel that there are people I can turn to in my time of need | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| I want other people to accept me | 1 | 2 | 3 | 4 | 5 |
| I do not like being alone | 1 | 2 | 3 | 4 | 5 |
| Being apart from friends for long periods of time does not bother me | 1 | 2 | 3 | 4 | 5 |
| I have a strong need to belong | 1 | 2 | 3 | 4 | 5 |
| It bothers me a great deal when I am not included in other people's plans | 1 | 2 | 3 | 4 | 5 |
| My feelings are easily hurt when I feel that others do not accept me | 1 | 2 | 3 | 4 | 5 |

**For each of the statements below, please indicate the number which best represents the degree to which you agree or disagree with the statement**

| | ***Strongly Disagree*** | ***Disagree*** | ***Agree*** | ***Strongly agree*** |
|---|---|---|---|---|
| On the whole, I am satisfied with myself. | 1 | 2 | 3 | 4 |
| At times, I think I am no good at all. | 1 | 2 | 3 | 4 |
| I feel that I have a number of good qualities. | 1 | 2 | 3 | 4 |
| I am able to do things as well as most other people. | 1 | 2 | 3 | 4 |
| I feel I do not have much to be proud of. | 1 | 2 | 3 | 4 |
| I certainly feel useless at times. | 1 | 2 | 3 | 4 |
| I feel that I'm a person of worth, at least on an equal plane with others. | 1 | 2 | 3 | 4 |
| I wish I could have more respect for myself. | 1 | 2 | 3 | 4 |
| All in all, I am inclined to feel that I am a failure. | 1 | 2 | 3 | 4 |
| I take a positive attitude toward myself. | 1 | 2 | 3 | 4 |

**For each of the statement below, please indicate the number which best represents the degree to which you agree or disagree with the statement**

| | ***Strongly disagree*** | | ***Neutral*** | | ***Strongly agree*** |
|---|---|---|---|---|---|
| I feel invisible | 1 | 2 | 3 | 4 | 5 |
| I feel meaningless | 1 | 2 | 3 | 4 | 5 |
| I feel non existent | 1 | 2 | 3 | 4 | 5 |
| I feel important | 1 | 2 | 3 | 4 | 5 |
| I feel useful | 1 | 2 | 3 | 4 | 5 |
| I feel powerful | 1 | 2 | 3 | 4 | 5 |
| I feel like I am in control over my Facebook interactions | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| I feel I have the ability to significantly alter events | 1 | 2 | 3 | 4 | 5 |
| I feel I am unable to influence the action of others | 1 | 2 | 3 | 4 | 5 |
| I feel that others decide everything | 1 | 2 | 3 | 4 | 5 |

## Thank you for taking part in this survey.

# Appendix C

(1) CJ Stewart

(1) CJ Stewart


Like · Comment · Share · 12 24 minutes ago ·

**Jeremy Anderson** was tagged in a photo.

**Megan Walker** with Jeremy Anderson
This is what I was talking about today. How can you resist?

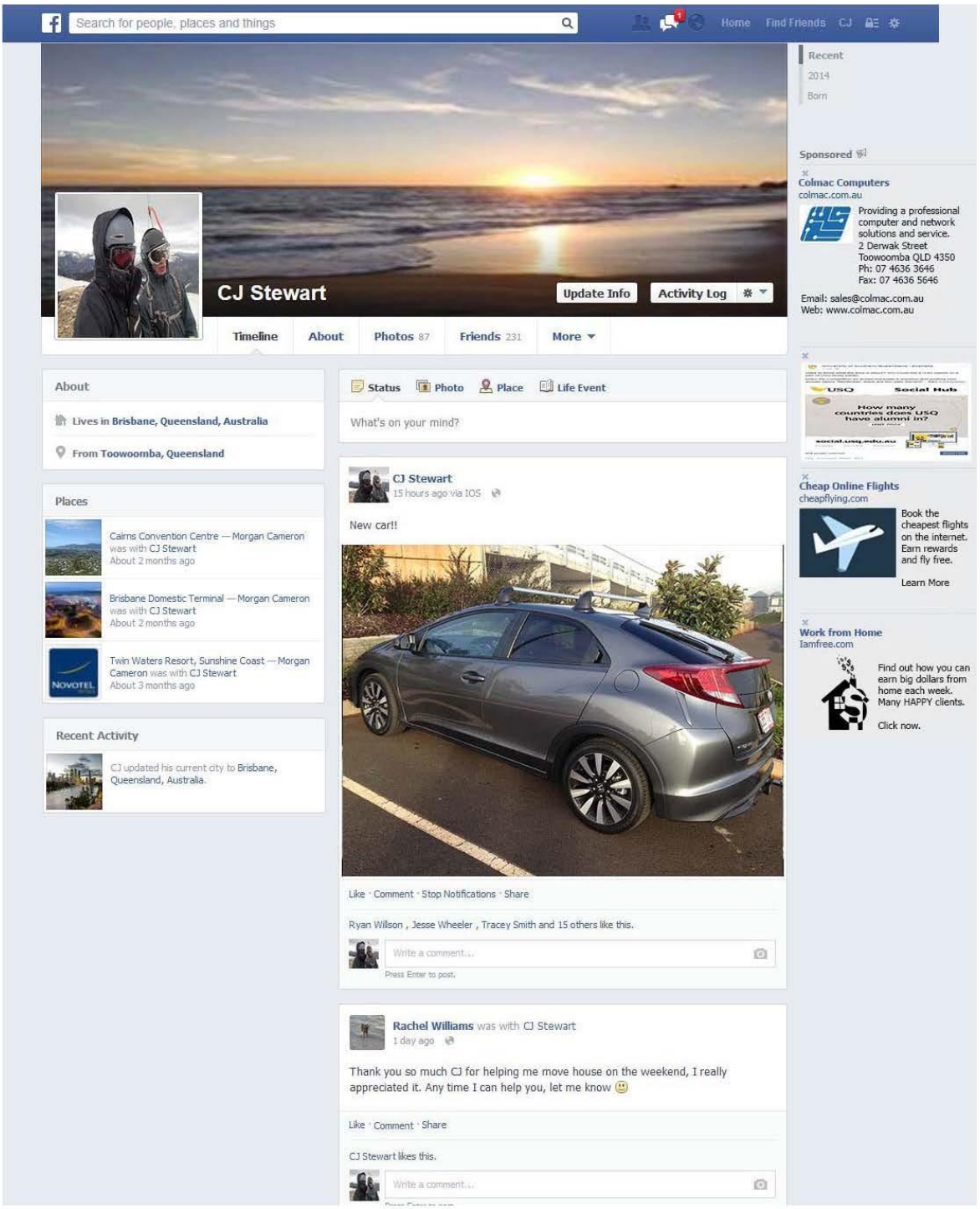
Like · Comment · Share · 40 minutes ago ·

5 friends posted on Rachel William's timeline on her birthday.
January 27

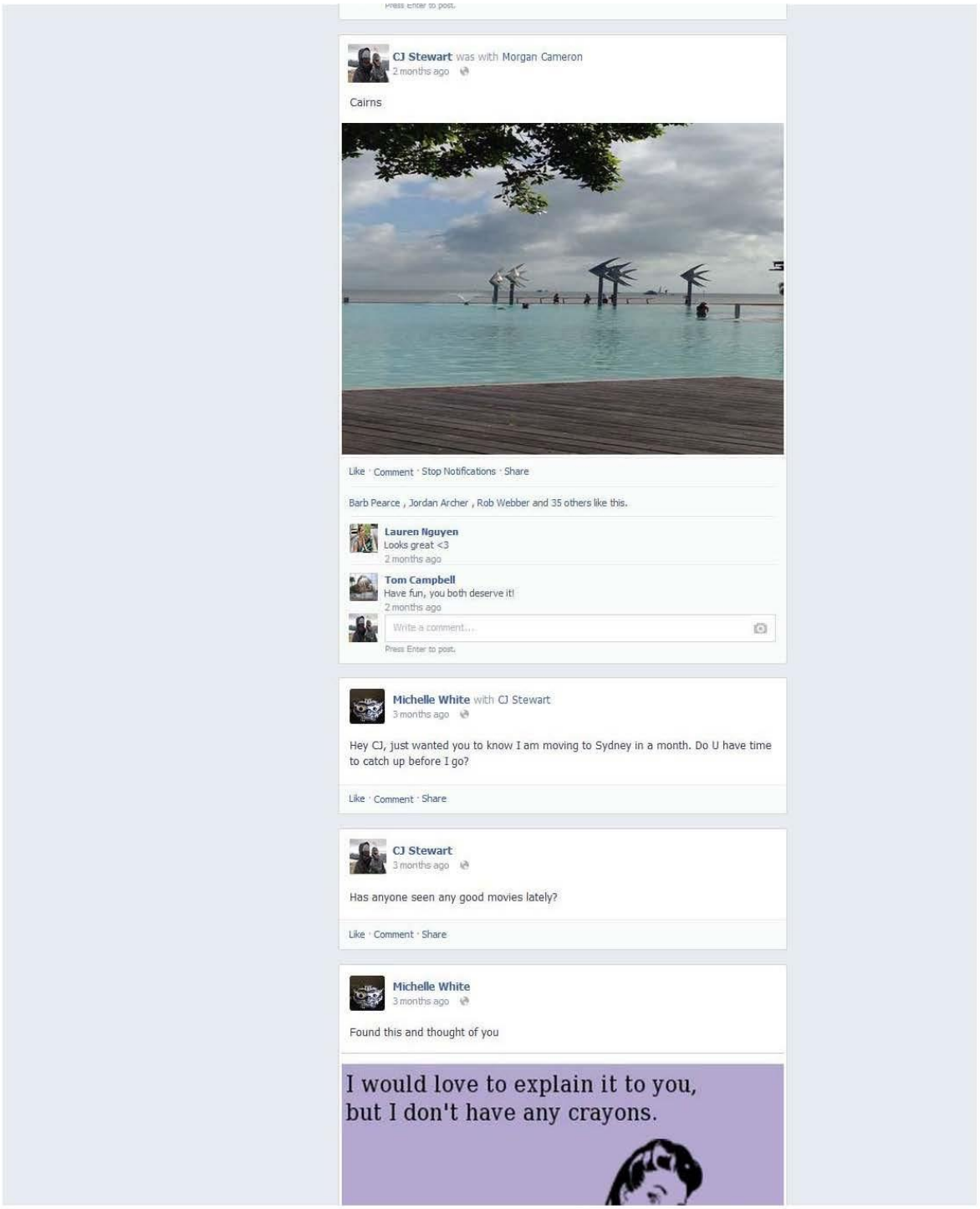
About Create Ad Create Page Developers Careers Privacy Cookies Terms Help

Facebook © 2014 · English (US)

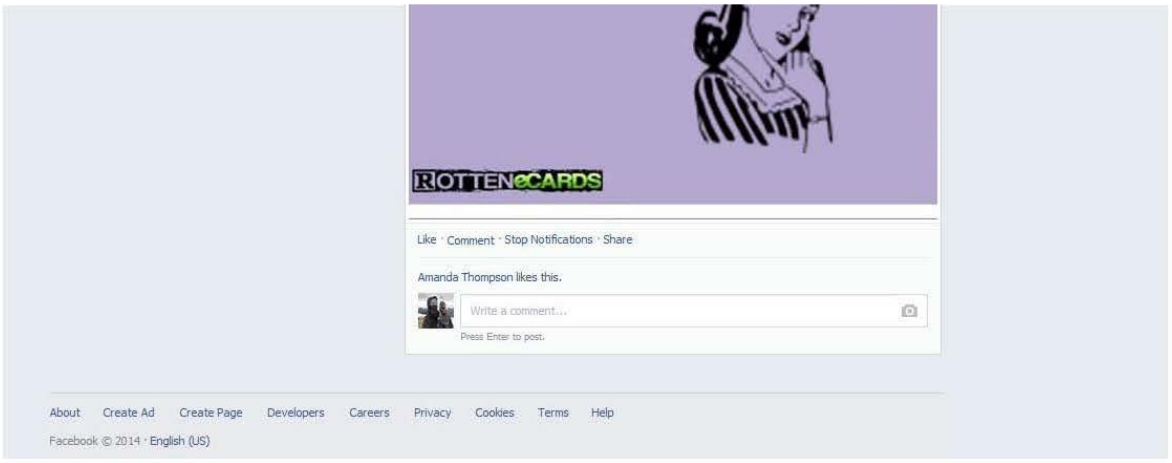
(1) CJ Stewart


Search for people, places and things
Home
Find Friends
CJ
Recent
2014
Born
Sponsored
Colmac Computers
colmac.com.au
Providing a professional computer and network solutions and service.
2 Derwak Street
Toowoomba QLD 4350
Ph: 07 4636 3646
Fax: 07 4636 5646
Email: sales@colmac.com.au
Web: www.colmac.com.au
CJ Stewart
Update Info
Activity Log
Timeline
About
Photos 87
Friends 231
More
About
Lives in Brisbane, Queensland, Australia
From Toowoomba, Queensland
Places
Cairns Convention Centre — Morgan Cameron was with CJ Stewart
About 2 months ago
Brisbane Domestic Terminal — Morgan Cameron was with CJ Stewart
About 2 months ago
Twin Waters Resort, Sunshine Coast — Morgan Cameron was with CJ Stewart
About 3 months ago
Recent Activity
CJ updated his current city to Brisbane, Queensland, Australia.
Status
Photo
Place
Life Event
What's on your mind?
CJ Stewart
15 hours ago via IOS
New car!!
Like · Comment · Stop Notifications · Share
Ryan Willson , Jesse Wheeler , Tracey Smith and 15 others like this.
Write a comment...
Press Enter to post.
Rachel Williams was with CJ Stewart
1 day ago
Thank you so much CJ for helping me move house on the weekend, I really appreciated it. Any time I can help you, let me know
Like · Comment · Share
CJ Stewart likes this.
Write a comment...
USQ Social Hub
How many countries does USQ have alumni in?
social.usq.edu.au
Cheap Online Flights
cheapflying.com
Book the cheapest flights on the internet. Earn rewards and fly free.
Learn More
Work from Home
Iamfree.com
Find out how you can earn big dollars from home each week. Many HAPPY clients.
Click now.

(1) CJ Stewart


Press Enter to post.
CJ Stewart was with Morgan Cameron
2 months ago
Cairns
Like · Comment · Stop Notifications · Share
Barb Pearce , Jordan Archer , Rob Webber and 35 others like this.
Lauren Nguyen
Looks great <3
2 months ago
Tom Campbell
Have fun, you both deserve it!
2 months ago
Write a comment...
Press Enter to post.
Michelle White with CJ Stewart
3 months ago
Hey CJ, just wanted you to know I am moving to Sydney in a month. Do U have time to catch up before I go?
Like · Comment · Share
CJ Stewart
3 months ago
Has anyone seen any good movies lately?
Like · Comment · Share
Michelle White
3 months ago
Found this and thought of you
I would love to explain it to you,
but I don't have any crayons.

(1) CJ Stewart


ROTTENeCARDS
Like · Comment · Stop Notifications · Share
Amanda Thompson likes this.
Write a comment...
Press Enter to post.
About Create Ad Create Page Developers Careers Privacy Cookies Terms Help
Facebook © 2014 · English (US)

# Impression Formation - Facebook

Please take your time reading the private message. Once you have finished reading the private message please press the "Next" button to continue to the next task in this survey. Please note that you will not be able to return to these pages once you have pressed the "Next" button.

Appendix D

# School of Psychology, Counselling and Community Faculty of Health, Engineering and Sciences

Before starting the survey, close down any menu bars or other programs that may be reducing your screen size. You should be able to read the information on the screen without having to scroll from left to right.

**HREC Approval Number: H14REA011**

**Impression formation in a social media setting**

We invite you to take part in this research project which is investigating impression formation in a social media setting. **The survey should take approximately 30 minutes to complete.** After you complete the survey there will be a short debriefing information page to read.

All the information you provide will be confidential. All identifying data will be removed. This means no individuals response will be able to be identified. This information will be held on password protected computer which can only be accessed by the Principal Researcher, Student Researcher or Associate Supervisor.

**If you are a USQ psychology student you can receive two full course credits for participating in this survey.** All students benefit by being part of the research process and the educational experience that this entails. For members of the general community, you will be nominated for one entry in the Sciences Prize Draw. All participants have the option of providing their email address to receive an online summary of the results once they are available. By participating in this survey you also further our understanding of how people form impression of others in a social media setting. Your participation is greatly appreciated.

There are potential psychological risks including discomfort when you are interacting online with others. This discomfort is expected to be no greater than that experienced on an ordinary day. However if you find that the questions raise any issues that you would like to discuss further (e.g. if you become upset while completing the survey), please contact one of the counselling agencies listed. USQ Student Services during business hours (ph. 07 4631 2285) OR the Lifeline telephone counselling service (ph. 13 11 14). If you are extremely distressed please present yourself to your local hospital emergency department.

**Voluntary Participation**

Participation is entirely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. However first year students who do not submit the completed survey will not receive course credit. Any information already obtained from you will be destroyed.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland.

***Please notify the student researcher by email if you decide to withdraw from this project.***

Should you have any queries regarding the progress or conduct of this research, you can contact the student researcher:

Tanya Machin

School of Psychology, Counselling and Community

Faculty of Health, Engineering and Sciences

West Street,

Toowoomba Qld 4350

**Ph 07 46311488 or email tanya.machin@usq.edu.au**

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details:

Ethics and Research Integrity Officer

Office of Research and Higher Degrees

University of Southern Queensland

West Street, Toowoomba 4350

Ph: 61 7 4631 2690

Email: ethics@usq.edu.au

I have read the above information and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

I understand the purpose of the research project and my involvement in it.

I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

I confirm that I am over 18 years of age, or over 17 years of age if a USQ student.

I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

I understand that all data will be deidentified, therefore my responses will not be able to be matched to my information.

I understand the statement in the information sheet concerning course credit for me (USQ First Year Psychology student) or one entry in the Sciences prize draw (General Community member) for taking part in the study.

If you have any questions about the study please contact Dr Carla Jeffries, University of Southern Queensland on 07 46311572 (email: carla.jeffries@usq.edu.au), Tanya Machin, University of Southern Queensland (email: tanya.machin@usq.edu.au) or Dr Charlotte Brownlow, University of Southern Queensland on 07 46312982 (email: charlotte.brownlow@usq.edu.au). For technical concerns or difficulties accessing the survey please contact Ken Askin, University of Southern Queensland, (email: askin@usq.edu.au).

I declare that I am:

- at least 17 years of age AND a USQ student; OR
- 18 years or over (for non-USQ students)

☐ **Click here to agree**

**THANK YOU FOR YOUR PARTICIPATION**

To start the survey please click on the 'Next' button below.

# Demographics

This survey will consist of five sections. The first section will ask you some demographic information about yourself and your social media usage. The second section will be a social media task where you will be asked to form impressions of other participants after interacting with them. The third section will ask you some questions about your mood and personal traits. The fourth section consists of viewing someone's Facebook timeline, newsfeed and a private message and forming an impression of that person. The final section will consist of a timed verbal task. After completing this task you will be required to answer some questions about your impressions of the others you interacted with. Following this there will be a short debriefing information page to read.

**Firstly, we would like to ask you a few questions about yourself:**

**What is your currect AGE (in years)?**

**What is your gender (please select)?**

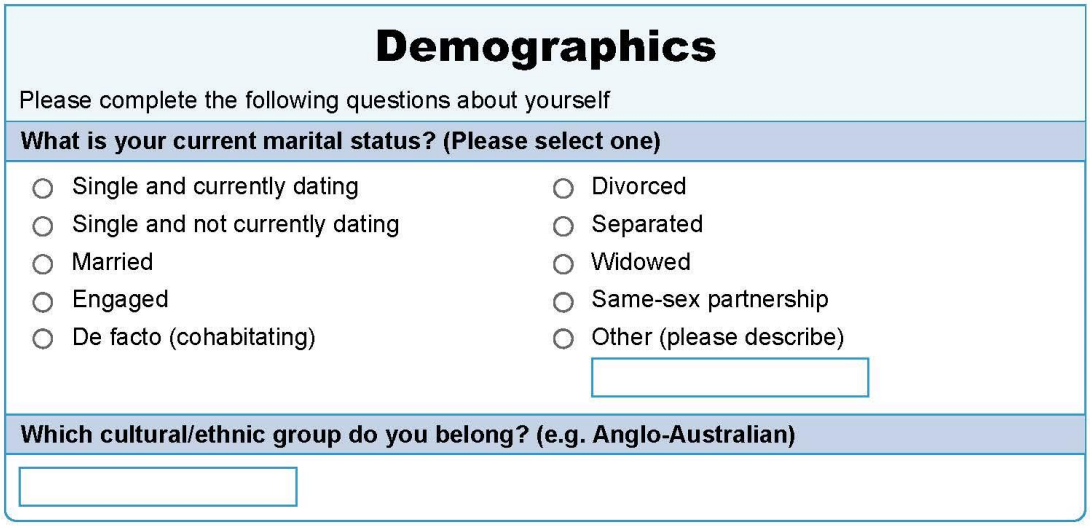
- ○ Male
- ○ Female

**Please indicate your current employment status**

- ○ Full time employment
- ○ Part time employment (e.g. regular hours per week)
- ○ Casual employment (e.g.irregular hours per week)
- ○ Unemployed
- ○ Homemaker
- ○ Retired
- ○ Other (please describe)

**Are you completing this survey for course credit?**

- ○ Yes
- ○ No



## Demographics

Please complete the following questions about yourself

**What is your current marital status? (Please select one)**

- ○ Single and currently dating
- ○ Single and not currently dating
- ○ Married
- ○ Engaged
- ○ De facto (cohabitating)
- ○ Divorced
- ○ Separated
- ○ Widowed
- ○ Same-sex partnership
- ○ Other (please describe)

**Which cultural/ethnic group do you belong? (e.g. Anglo-Australian)**

## Social Networking Experiences

We are also interested in knowing about your internet experiences. Please indicate which answer is most typical for you.

**How many hours per day would you typically spend surfing the web? (Please select one)**

- ○ Less than 1 hour
- ○ More than 1 hour but less than 3 hours
- ○ More than 3 hours but less than 8 hours
- ○ 8 hours

**How many social networking sites do you belong to? (Please select one)**

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6 or more

**Do you have a Facebook account?**

- ○ Yes
- ○ No

# Measures of Facebook Use

**What online social networking sites do you belong to? List as many as you can remember**

**When did you join Facebook?**

- ○ Less than a year ago
- ○ More than one year ago but less than two years
- ○ More than two years ago but less than four years
- ○ More than four years ago but less than seven years
- ○ Can't remember

**How many times per day do you typically access Facebook?**

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ More than 6
- ○ Constantly connected via smart phone or other technology

**How many minutes per day (total) do you typically spend being active on Facebook? For example reading your news feed or other social interactions**

- ○ Less than 5 minutes
- ○ 6-20 minutes
- ○ 21-45 minutes
- ○ 46-60 minutes
- ○ More than one hour per day

**How many Facebook Friends do you currently have?**

- ○ Less than 20
- ○ 20-75
- ○ 76-150
- ○ 151-250
- ○ 251-450
- ○ 451-750
- ○ 751-1000
- ○ More than 1000

# Motivations of using Facebook

We are interested in knowing more about why you use Facebook. For each of the statements below, please indicate the word which best represents your answer. If an item does not currently apply to you (e.g. if you are currently in a relationship, and the item is meet new romantic partners), then please imagine and indicate whether you would use Facebook for this reason.

| I use Facebook to | Never | Rarely | Sometimes | Usually | Always |
|---|---|---|---|---|---|
| Meet people who are more interesting than the people I meet face-to-face | ○ | ○ | ○ | ○ | ○ |
| Meet like-minded people | ○ | ○ | ○ | ○ | ○ |
| Meet interesting people | ○ | ○ | ○ | ○ | ○ |
| Meet new Friends | ○ | ○ | ○ | ○ | ○ |
| Share my feelings with someone that I would not say to them in person | ○ | ○ | ○ | ○ | ○ |
| Meet new romantic partners | ○ | ○ | ○ | ○ | ○ |
| Avoid uncomfortable face-to-face situations | ○ | ○ | ○ | ○ | ○ |
| Keep in touch with Friends living long-distance. | ○ | ○ | ○ | ○ | ○ |
| Maintain relationships with people I may not get to see very often. | ○ | ○ | ○ | ○ | ○ |
| Stay in touch with people I know e.g. send messages. | ○ | ○ | ○ | ○ | ○ |

# Motivations of Using Facebook

We are interested in knowing more about why you use Facebook. For each of the statements below, please indicate the word which best represents your answer. If an item does not currently apply to you (e.g. if you are currently in a relationship, and the item is meet new romantic partners), then please imagine and indicate whether you would use Facebook for this reason.

| I use Facebook to | Never | Rarely | Sometimes | Usually | Always |
|---|---|---|---|---|---|
| Reconnect with people I have previously lost contact with (e.g. school friends). | ○ | ○ | ○ | ○ | ○ |
| Share/add photos. | ○ | ○ | ○ | ○ | ○ |
| Comment on photos. | ○ | ○ | ○ | ○ | ○ |
| Find out what old Friends are doing now. | ○ | ○ | ○ | ○ | ○ |
| Find people I have not seen for a while. | ○ | ○ | ○ | ○ | ○ |
| Make plans with Friends (e.g. weekend activities). | ○ | ○ | ○ | ○ | ○ |
| Check up on Friends. | ○ | ○ | ○ | ○ | ○ |
| Check up on family members. | ○ | ○ | ○ | ○ | ○ |
| Check up on my current partner. | ○ | ○ | ○ | ○ | ○ |
| Check up on my ex-partner. | ○ | ○ | ○ | ○ | ○ |

# Motivations in using Facebook

We are interested in knowing more about why you use Facebook. For each of the statements below, please indicate the word which best represents your answer. If an item does not currently apply to you (e.g. if you are currently in a relationship, and the item is meet new romantic partners), then please imagine and indicate whether you would use Facebook for this reason.

| I use Facebook to | Never | Rarely | Sometimes | Usually | Always |
|---|---|---|---|---|---|
| Procrastinate. | ○ | ○ | ○ | ○ | ○ |
| Get information about university-work courses from others. | ○ | ○ | ○ | ○ | ○ |
| Learn more about on-campus events. | ○ | ○ | ○ | ○ | ○ |
| Develop my career through group participation (e.g. students in psychology). | ○ | ○ | ○ | ○ | ○ |
| Look cool to Friends. | ○ | ○ | ○ | ○ | ○ |
| Advertise academic resources/other items (e.g. selling a car). | ○ | ○ | ○ | ○ | ○ |
| Fit in with my peer group. | ○ | ○ | ○ | ○ | ○ |
| Recruit members for a club/group I belong to. | ○ | ○ | ○ | ○ | ○ |

# Impression Formation - Social Media

As previously mentioned this study is investigating impression formation in a social media setting. To start with you will complete a social media group task with all instructions included in the below box. You may need to use the scroll bar to read all the information. When you are ready please click on the button in the box below (rather than the next button) to commence this part of the study. Please follow all instructions within the below box and do not navigate away from this page. This task will take three minutes to complete. When the three minutes are over you will be allowed to continue on to the rest of the survey.

## Welcome to this study

You will complete a number of simple tasks, together with other people, with whom you will be connected via the internet.

First, all participants in the study will select personal "avatars" and write short texts to introduce themselves.

Before beginning the tasks, you will spend 3 minutes with the other people. During this time, you will be able to read and react to each-other's brief introductions.

Specific instructions will follow.

# Impression Formation - Social Media

Please answer the following questions about your social media task.

**Were you able to see the description of the other participants and their avatars during the social media task?**

- ○ Yes
- ○ No

**Did you read the other participants personal descriptions?**

- ○ Yes, All of them
- ○ Some of them
- ○ Yes, Most of them
- ○ No, I did not read any descriptions

**Did you pay any attention to how many 'likes' you received?**

- ○ Yes
- ○ No

**Did you pay any attention to how many 'likes' the other participants received?**

- ○ Yes
- ○ No

**Consider there was an average number of 'likes' in the social media task; how would you consider the number of 'likes' you received?**

- ○ Under Average
- ○ Above Average

**How many likes did you receive in the social media task?**

[ ]

**How accepted did you feel in the social media task?**

- ○ Not at all accepted
- ○ Accepted

**How easy was it for you to imagine the other participants in real life?**

- ○ Not at all easy
- ○ Very easy
- ○ Somewhat easy

# Measures of Mood

This section of the survey will ask you some questions about your mood, internet experiences and personal traits. Please read each question thoroughly before answering. You will need to answer all items before being able to continue. Please answer each question as it is true for you.
This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the **PRESENT MOMENT**. Use the following scale to record your answers.

| | very slight or not at all | A little | Moderately | Quite a bit | Extremely |
|---|---|---|---|---|---|
| Interested | ○ | ○ | ○ | ○ | ○ |
| Distressed | ○ | ○ | ○ | ○ | ○ |
| Excited | ○ | ○ | ○ | ○ | ○ |
| Upset | ○ | ○ | ○ | ○ | ○ |
| Strong | ○ | ○ | ○ | ○ | ○ |
| Guilty | ○ | ○ | ○ | ○ | ○ |
| Scared | ○ | ○ | ○ | ○ | ○ |
| Hostile | ○ | ○ | ○ | ○ | ○ |
| Enthusiastic | ○ | ○ | ○ | ○ | ○ |
| Proud | ○ | ○ | ○ | ○ | ○ |

# Measures of Mood

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the **PRESENT MOMENT**. Use the following scale to record your answers.

| | Very slight or not at all | A little | Moderately | Quite a bit | Extremely |
|---|---|---|---|---|---|
| Irritable | ○ | ○ | ○ | ○ | ○ |
| Alert | ○ | ○ | ○ | ○ | ○ |
| Ashamed | ○ | ○ | ○ | ○ | ○ |
| Inspired | ○ | ○ | ○ | ○ | ○ |
| Nervous | ○ | ○ | ○ | ○ | ○ |
| Determined | ○ | ○ | ○ | ○ | ○ |
| Attentive | ○ | ○ | ○ | ○ | ○ |
| Jittery | ○ | ○ | ○ | ○ | ○ |
| Active | ○ | ○ | ○ | ○ | ○ |
| Afraid | ○ | ○ | ○ | ○ | ○ |

## Measure of Personal Traits

For each of the statements below, please indicate the number which best represents the degree to which you agree or disagree with the statement.

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| If other people don't seem to accept me, I don't let it bother me | ○ | ○ | ○ | ○ | ○ |
| I try hard not to do things that will make other people avoid or reject me | ○ | ○ | ○ | ○ | ○ |
| I seldom worry about whether other people care about me | ○ | ○ | ○ | ○ | ○ |
| I need to feel that there are people I can turn to in my time of need | ○ | ○ | ○ | ○ | ○ |
| I want other people to accept me | ○ | ○ | ○ | ○ | ○ |
| I do not like being alone | ○ | ○ | ○ | ○ | ○ |
| Being apart from friends for long periods of time does not bother me | ○ | ○ | ○ | ○ | ○ |
| I have a strong need to belong | ○ | ○ | ○ | ○ | ○ |
| It bothers me a great deal when I am not included in other people's plans | ○ | ○ | ○ | ○ | ○ |
| My feelings are easily hurt when I feel that others do not accept me | ○ | ○ | ○ | ○ | ○ |

# Measure of Personal Traits

This is a questionnaire designed to measure what you are thinking at this moment. There is no right answer for any statement. The best answer is what you feel is true of yourself at the moment. You need to answer all of the items, even if you are not certain of the best answer.
Again, answer these questions as they are true for you **RIGHT NOW.**

| | Not at all | A little bit | Somewhat | Very much | Extremely |
|---|---|---|---|---|---|
| I am worried about whether I am regarded as a success or failure. | ○ | ○ | ○ | ○ | ○ |
| I feel self-conscious. | ○ | ○ | ○ | ○ | ○ |
| I feel displeased with myself. | ○ | ○ | ○ | ○ | ○ |
| I am worried about what other people think of me. | ○ | ○ | ○ | ○ | ○ |
| I feel inferior to others at this moment. | ○ | ○ | ○ | ○ | ○ |
| I feel concerned about the impression I am making. | ○ | ○ | ○ | ○ | ○ |
| I am worried about looking foolish. | ○ | ○ | ○ | ○ | ○ |

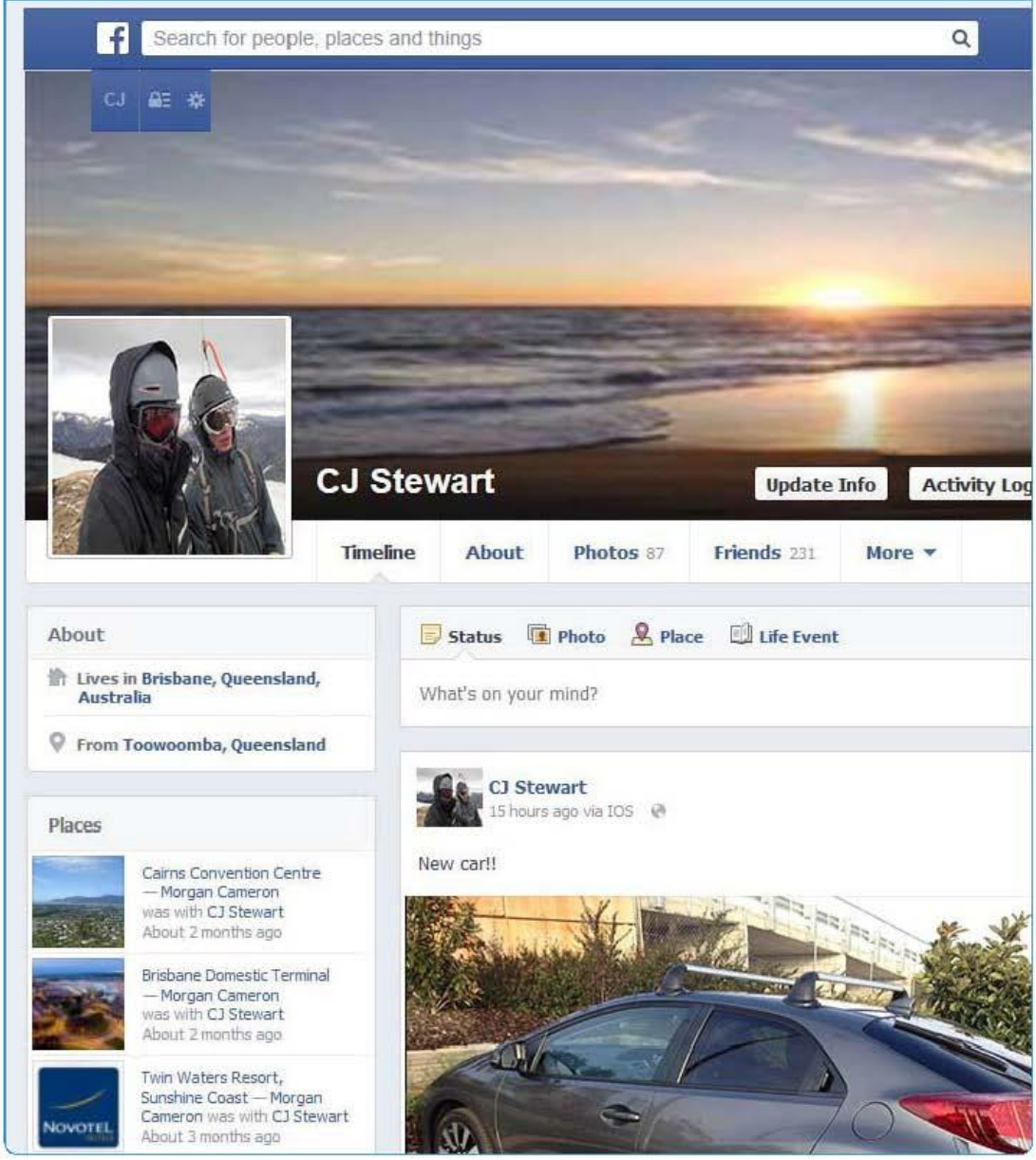
## Measure of Personal Traits

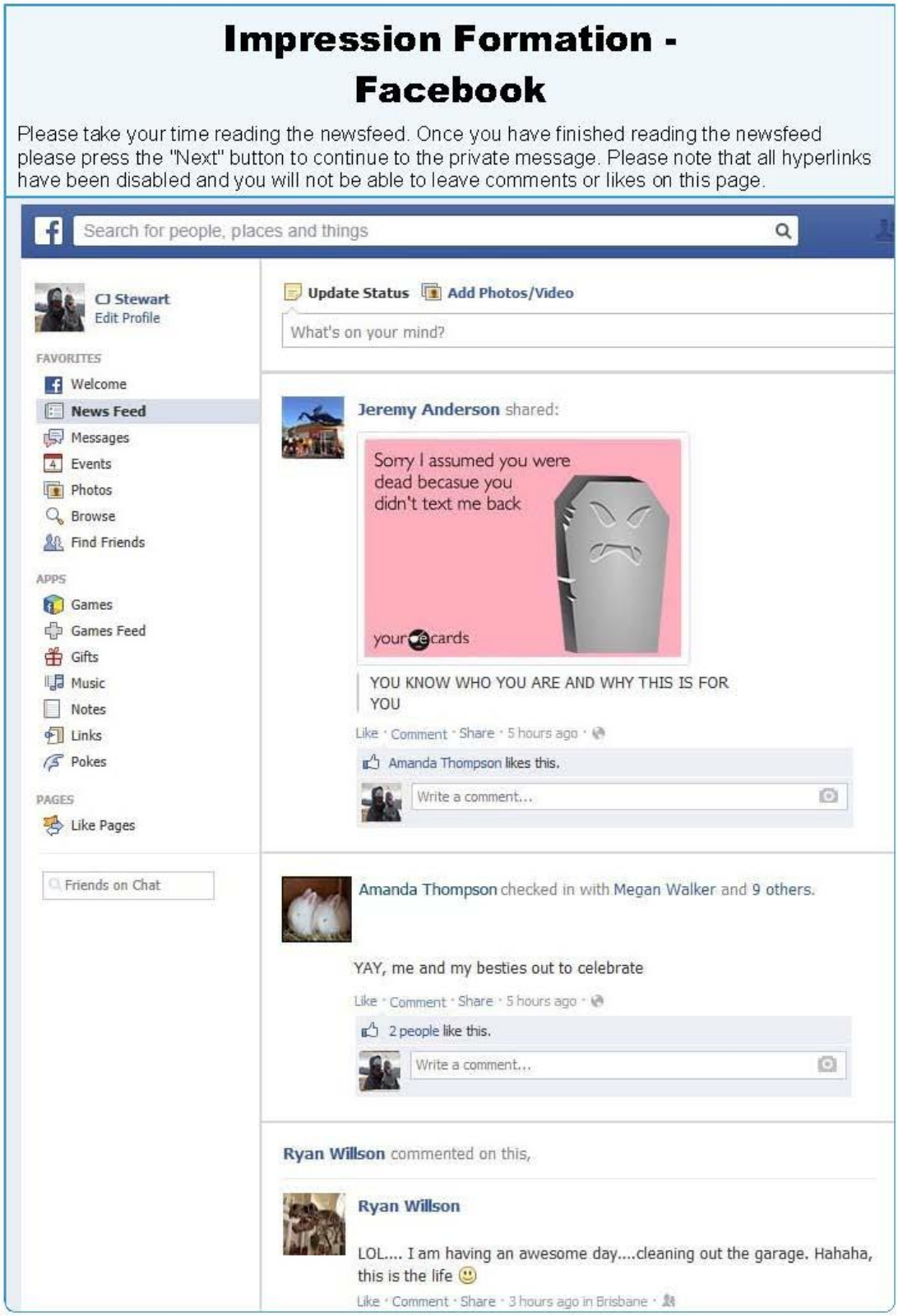
For each of the statements below, please indicate the number which best represents the degree to which you agree or disagree with the statement.

| | Not at all | A little | Moderately | Quite a bit | Extremely |
|---|---|---|---|---|---|
| I feel invisible | ○ | ○ | ○ | ○ | ○ |
| I feel meaningless | ○ | ○ | ○ | ○ | ○ |
| I feel non existent | ○ | ○ | ○ | ○ | ○ |
| I feel important | ○ | ○ | ○ | ○ | ○ |
| I feel useful | ○ | ○ | ○ | ○ | ○ |
| I feel powerful | ○ | ○ | ○ | ○ | ○ |
| I feel like I am in control over my online social interactions | ○ | ○ | ○ | ○ | ○ |
| I feel I have the ability to significantly alter events | ○ | ○ | ○ | ○ | ○ |
| I feel I am unable to influence the action of others | ○ | ○ | ○ | ○ | ○ |
| I feel that others decide everything | ○ | ○ | ○ | ○ | ○ |

# Impression Formation - Facebook

As previously discussed, this study is interested in how people form impressions of others in an online setting. Over the next three screens you will be presented with three different elements of a Facebook account (a timeline, a newsfeed and a private message) belonging to one individual. Please note that each Facebook element is from the same individual. Please take your time reading each element so you can form an impression of that person. Once you have finished reading the timeline please press the "Next" button to continue to the newsfeed. Please note that all hyperlinks have been disabled and you will not be able to leave comments or likes on this page.




Impression Formation - Facebook
Please take your time reading the newsfeed. Once you have finished reading the newsfeed please press the "Next" button to continue to the private message. Please note that all hyperlinks have been disabled and you will not be able to leave comments or likes on this page.
Search for people, places and things
CJ Stewart
Edit Profile
FAVORITES
Welcome
News Feed
Messages
Events
Photos
Browse
Find Friends
APPS
Games
Games Feed
Gifts
Music
Notes
Links
Pokes
PAGES
Like Pages
Friends on Chat
Update Status
Add Photos/Video
What's on your mind?
Jeremy Anderson shared:
Sorry I assumed you were dead becasue you didn't text me back
ecards
YOU KNOW WHO YOU ARE AND WHY THIS IS FOR YOU
Like · Comment · Share · 5 hours ago ·
Amanda Thompson likes this.
Write a comment...
Amanda Thompson checked in with Megan Walker and 9 others.
YAY, me and my besties out to celebrate
Like · Comment · Share · 5 hours ago ·
2 people like this.
Write a comment...
Ryan Willson commented on this,
Ryan Willson
LOL.... I am having an awesome day....cleaning out the garage. Hahaha, this is the life
Like · Comment · Share · 3 hours ago in Brisbane ·

## Impression Formation - Facebook

Please take your time reading the private message. Once you have finished reading the private message please press the "Next" button to continue to the next task in this survey. Please note that you will not be able to return to these pages once you have pressed the "Next" button.

## Questions regarding the Facebook pages

Please answer the following questions about the Facebook pages you have just viewed.

**Did the Facebook pages you viewed belong to the same individual?**

- ○ Yes
- ○ No

**Were you able to view the timeline, newsfeed and private message?**

- ○ Yes
- ○ No

**Did you read the timeline, newsfeed and the private message?**

- ○ Yes, I read all the timeline, newsfeed and private message.
- ○ Yes, I read some of the timeline, newsfeed and private message.
- ○ Yes, I read most of the timeline, newsfeed and private message.
- ○ No, I did not read any of the timeline, newsfeed and private message.

**How easy was it for you to form an impression of someone from viewing their Facebook pages?**

- ○ Not at all easy
- ○ Somewhat easy
- ○ Very easy

## Measure of Verbal Ability

You will need to complete this brief measure of verbal ability before finishing the study. You will be presented with two words. When the first word appears you will have two minutes to make as many words (of four or more letters) as you can. There are a possible 358 words you can form. When the two minutes is up, the second word will appear and again you will have two minutes to make as many words (of four or more letters) as you can. There are a possible 50 words you can form. When the two minutes are up you will be able to continue with the rest of the survey.

Start

# Facebook Recall Task

Now we would like you to recall and write down all the social interactions or social information you can remember from the Facebook newsfeed, timeline and private message you viewed earlier. You will have 5 minutes to complete this task and you will be unable to navigate back to the Facebook pages to check any detail.

**Please write as many details as you can recall.**

**Is there any feedback of the social media experience you would like to share?**

- ○ Yes (Please write your comments below)
- ○ No

**Is there any feedback of the Facebook pages you would like to share?**

- ○ Yes (Please write your comments below)
- ○ No

# Debriefing Information

We appreciate your participation in our study, and thank you for spending the time helping us with our research.

When you logged into this survey, you were told that the purpose of this study was to investigate impression formation in a social media setting. While this is partly correct, the study was actually more complicated than we initially explained to you, and we were specifically investigating social interactions and attention to interpersonal cues on Facebook. We could not give you complete information about the study at that time because it may have influenced your behaviour during the study in a way that would make investigations of the research question invalid. We apologize for the omission, and hope that you understand the need for it once the purpose of the study has been fully explained to you. Further the experimental paradigms used in this research have been used previously in social psychology research without any negative consequences. Therefore no adverse reactions are anticipated.

We were interested in studying whether social interactions are related to subsequent attention to interpersonal cues on Facebook and accuracy in decoding social cues. During this survey you were placed in a social media environment and had to 'like' the other participants descriptions. Specifically, you were randomly placed in one of two social media tasks: (1) a social media task where other individuals were encouraging of you, with 9 individuals 'liking' your description, or (2) a social media task where only one other individual 'liked' your description. The other social media participants were in fact completely computerised responses rather than real people. These responses were dependent on the social media task you were randomly placed in.

Additionally the Facebook pages you viewed were of a ficticious person, as were the people included on those pages. Photos used were either from the researchers own photo collection or used under a creative commons license (If you wish to view details of the photos, please contact the student researcher). Furthermore permission was sought and obtained to use Facebook branding (request number 3240). This research has not been undertaken on behalf of Facebook and does not imply partnership, sponsorship, or endorsement with Facebook.

Because this is an ongoing research project, it is very important that you not discuss this study with any other students or general community members who may complete this study until after the end of the semester. If people come into the study knowing about our specific predictions, as you can imagine, it would influence their results, and the data we collect would be not be useable.

We hope you understand the need for concealment in this study. However, if you later want to discuss this further, or you think of some other questions, please do not hesitate to contact either the Principal Researcher (Dr Carla Jeffries) on 07 4631 1572 or carla.jeffries@usq.edu.au, Student Researcher (Tanya Machin) at tanya.machin@usq.edu.au or associate researcher (Dr Charlotte Brownlow) on 07 4631 2982 or charlotte.brownlow@usq.edu.au.

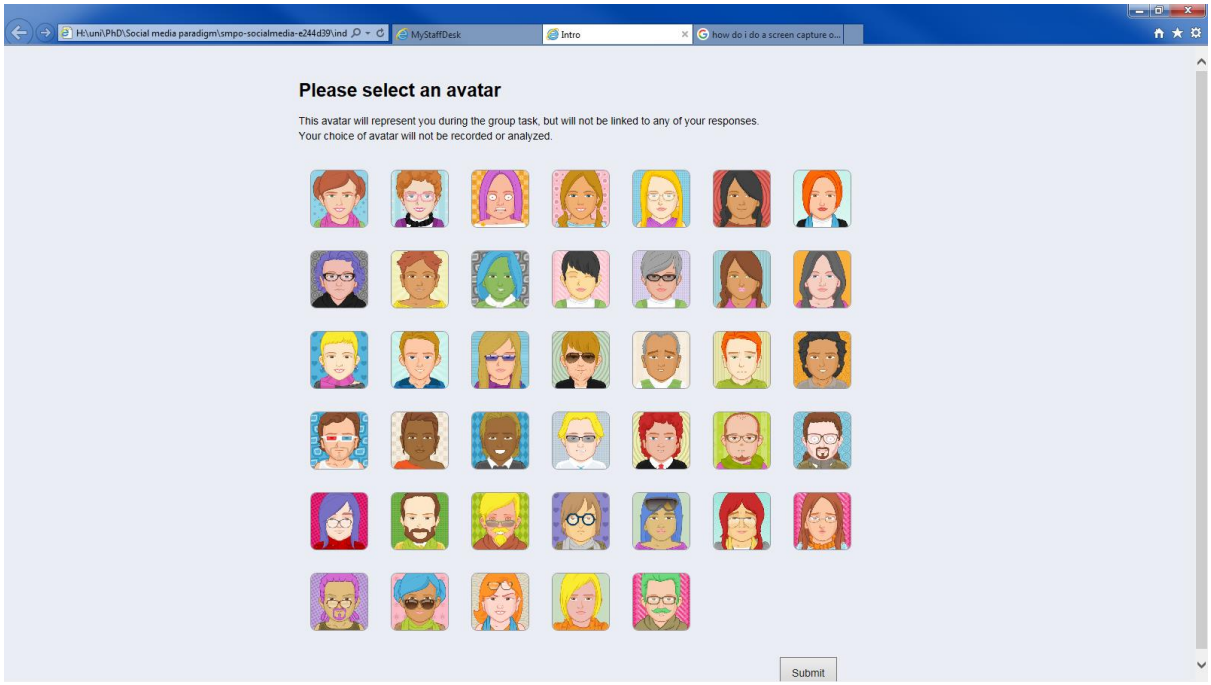
For those participants who experienced discomfort from the completion of this survey, we would encourage you to contact USQ Student Services on 07 4631 2285 during business hours. Alternatively you can phone Lifeline counseling services on 13 11 14 or if you are feeling severe discomfort, please present at the emergency room of your local hospital.

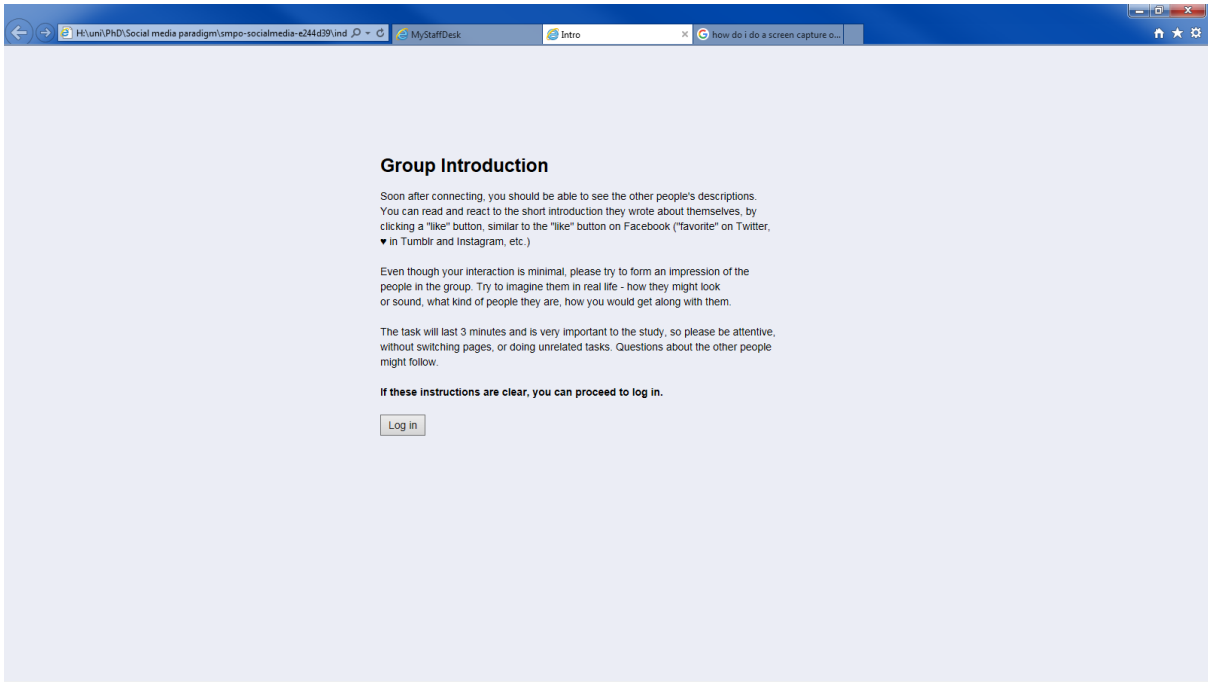
**We really appreciate your participation and hope this has been an interesting experience for you. If you would like to information about this study when it is completed, please click on the link below to send your email address to the student researcher. Please note that your responses will not be able to be linked back to your email address. Thank you!**

tanya.machin@usq.edu.au

# Appendix E

## Screenshots of Social Media Task




H:\uni\PhD\Social media paradigm\smpo-socialmedia-e244d39\ind
MyStaffDesk
Intro
how do i do a screen capture o...
TM
This is the section where participants have the opportunity to introduce themselves to the group by writing something about themselves. The description is then matched with the avatars.
Likes 1
George
I'm a 19 year old dude from Roma. I love music and lately you can catch me listening to nothing but Joy Division, Echo & the bunnymen, and the smiths. Besides music I like learning languages, psychology, drawing, and writing.
Likes 0
Like
Sarah
Let me introduce myself. I'm Sarah, married, and mother of two wonderful (grown up) children. My career has been a bit peculiar. Starting off as a graduate historian, I switched to an entirely different discipline: occupational assessor trying to help young people with disabilities to get a job. I've just retired and started spending more time on my hobbies, such as singing, reading, and playing volleyball.
Likes 0
Like
You can click "Like" if you have enjoyed somebody's description
time left:
02:50
John
Hi there, I'm 57 years old, married, with two kids. I've been a computer programmer for about 30 years, but don't worry: I don't have the dusty haircut, oversized buttoned shirt and nerdie big frame glasses. Looking forward to working with you all. Cheers, John
Likes 0
Like
AncaD
I am a Psychology student, interested in child development. Also a lover of loose leaf tea and cats. I'm curious about what this task is about.
Likes 1
Like
Nick
My life revolves around rock climbing. I started climbing when I was 12 (turning 18 soon) and usually climb 4-5 hours a day. Climbing never bores me, because each time is different – the routes, the weather, my strength and endurance. It's great!
Likes 0
Like
Lauren
I'm Lauren, I love to hang out with friends and go shopping. Just doing some external psychology studies here!
Likes 0
Like
Mary
My name is Mary and I am 49 years old. I have a husband and 2 grown sons. My family and I lived in different countries. Our sons attended international schools wherever we went and since moving to China, I found work at those schools as well. Besides roaming around the world, I like playing games. Board games, cards, black jack or poker, mah jong, or silly games on Facebook, jig saws, basically anything
Ky
Hey, guys. I'm 19, native Korean. I've been in Australian for about four years now.I consider myself pretty nice,
John liked your post


H:\uni\PhD\Social media paradigm\smpo-socialmedia-e244d39\ind
MyStaffDesk
Intro
how do i do a screen capture o...
nerdie big frame glasses. Looking forward to working with you all. Cheers, John
Likes 2
Like
Likes 2
Like
Nick
My life revolves around rock climbing. I started climbing when I was 12 (turning 18 soon) and usually climb 4-5 hours a day. Climbing never bores me, because each time is different – the routes, the weather, my strength and endurance. It's great!
Likes 0
Like
Mary
My name is Mary and I am 49 years old. I have a husband and 2 grown sons. My family and I lived in different countries. Our sons attended international schools wherever we went and since moving to China, I found work at those schools as well. Besides roaming around the world, I like playing games. Board games, cards, black jack or poker, mah jong, or silly games on Facebook, jig saws, basically anything
Likes 2
Like
Ky
Hey, guys. I'm 19, native Korean. I've been in Australian for about four years now.I consider myself pretty nice, though not a total angel. I just like being friendly to people I meet. In my spare time, I like making all kinds of friends, having conversations about whatever, looking at paintings, using makeup, reading, singing, making jewelry, and eating delicious food. Enjoy your day, stay out of trouble. <3
Likes 4
Like
Lauren
I'm Lauren, I love to hang out with friends and go shopping. Just doing some external psychology studies here!
Likes 1
Like
Arjen
My name's Arjen, I study psychology but am interested in Artificial Intelligence. Also I like to use my free time to make all kinds of different things... I'm kind of a nerd too, I guess.
Likes 1
Like
Heather
Just now I'm finishing up my first year of a difficult science course in university. I also work at a make-up counter as a part-time thing and earn some money online in my free time. I have a lot planned for my future, and it's really exciting. I want to grow up and be a doctor with a family of lots of little dogs. It'll be fantastic.
Likes 1
Like
Jane
Dear all, my name is Jane and I will soon have an important interview. This is all I can think about these days. I hope you're doing well
Likes 1
Like

# Appendix F

## Codebook and information for study

Firstly, thank you for helping to code the data for this study, I really appreciate your time and effort. To make this an easier and less time consuming job, I have prepared these instructions for you.

**Overview of the study**

This study is investigating whether social interactions (specifically social inclusion and social exclusion) are related to subsequent attention to interpersonal cues on Facebook and the accuracy with which those cues are decoded. To do this the participants were were randomly placed into one of two conditions: (1) a social media task where other individuals were encouraging of them, receiving 9 'likes' for their description, or (2) a social media task where only one individual 'liked' their description. The other individuals were completely randomised computer responses. After completing a number of different measures, participants were then shown a Facebook newsfeed, timeline, and private message and were instructed to read through the pages. After the Facebook pages there was a distractor task of four minutes. Once this time was over, participants then needed to recall as many different social cues as they could from the Facebook pages in five minutes. The answers provided in this recall task is what will need to be coded.

**Social inclusion and social exclusion**

For the purposes of coding the recall items, the items need to be coded into either social inclusion, social exclusion or neutral social cues. The definitions of these codes are theory-driven but researcher derived. The first two studies completed identified what these codes "look like" for the purposes of coding.

Social inclusion cues include the following factors: friendship maintenance activities (e.g. commenting positively with another person on a common thread), friendship involvement activities (e.g. being tagged in a comment or post), affirmation (e.g. where other people like or comment on what you have written), initiation (e.g. receiving a friend request), and when others think of me (e.g. invitations to events). Social inclusion experiences on Facebook could then be defined as situations where an individual is directly or actively included, involved, or accepted in relational activities.

Social exclusion cues include the following factors: criticism or betrayal (e.g. gossip), silence (e.g. where there is no reply to a post, status update, or comment), highlighting personal differences (e.g. critical comments about things that are personally important), being left out of friendship activities (e.g. seeing check-in statuses by other friends and you are not

invited), and social comparison (e.g. other people have more friends than me). Therefore social exclusion can be defined as situations where an individual is directly or actively deprived of relational or social activities. Given the complexity of some of the themes involving exclusion, this factor incorporates individuals reading about situations on a newsfeed, timeline, or private message.

**Language choice**

The use of language when participants describe the recalled social cues is an important component of the coding. For example recalled cues such as "someone shared a photo" would be coded as an inclusion cue given the above criteria whereas "not being tagged in a check-in with friends" would be coded as an exclusion cue.

Neutral cues would be descriptions of social interactions that contain no indication of inclusion or exclusion experience. For example "Dog photo" would be considered a neutral cue whereas "sharing a dog photo" would be considered an inclusion cue. Any recalled items of demographic details would be a neutral cue. For example "CJ lives in Brisbane" has no inclusive or exclusive language but is just considered a statement of fact.

**Newsfeed coding**

The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the newsfeed page:

| **Type of cue** | **Example** | **Inclusion, exclusion, or neutral** |
|---|---|---|
| Private message | Waiting to be read | Inclusion |
| | Friend sent a private message | Inclusion |
| | No response to private message | Exclusion |
| Meme (Sorry I assumed you were dead because you didn't text me back) | Passive aggressive meme | Exclusion |
| | No response from CJ to meme | Exclusion |
| | Angry face meme | Exclusion |
| | Not returning message | Exclusion |
| | Meme (no content mentioned) | Neutral |
| Check-in | Dinner date | Inclusion |
| | Numbers of people celebrating | Inclusion |
| | Not included in celebration | Exclusion |
| | People tagged in a check-in | Inclusion |
| | CJ not tagged in a check-in | Exclusion |
| Cleaning out garage | Someone/person cleaning garage | Neutral |
| | People interacting on status update | Inclusion |
| | Smiley face in status | Inclusion |
| | Lots of likes for update | Inclusion |
| Eiffel tower photo | Photo of Eiffel tower/Vegas | Neutral |
| | Guess where I am status | Neutral |
| | Friend in Paris (although this could also be considered rejection depending on language) | Neutral |
| | No comments on photo | Exclusion |
| | Lots of likes on photo | Inclusion |
| Dog photo | Photo of dog/puppy | Neutral |
| | Interaction/conversation between friends | Inclusion |

| | | |
|---|---|---|
| | Discussion about dog photo | Inclusion |
| | Sharing of photo | Inclusion |
| | No-one else commenting/liking photo | Exclusion |
| Birthday | People wishing someone a happy birthday | Inclusion |
| | Friend had a birthday | Inclusion |

**Timeline coding**

The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the timeline page:

| **Type of cue** | **Example** | **Inclusion, exclusion, or neutral** |
|---|---|---|
| Personal details | Where CJ lives or came from | Neutral |
| | Name | Neutral |
| | Photo of CJ with another person | Inclusion |
| | Landscape photos | Neutral |
| | Has a girlfriend/boyfriend | Inclusion |
| Places check-in | Went to Cairns with someone/Morgan/Cameron | Inclusion |
| | Went to places | Neutral |
| | Tagged with someone | Inclusion |
| Car photo | New car | Neutral |
| | Likes on photo | Inclusion |
| | Got/photo of a new car | Neutral |
| Moving house | Friend saying thank you | Inclusion |
| | Helping a friend move | Inclusion |
| | No reply from CJ to friends thanks | Exclusion |
| | CJ liked comment | Inclusion |
| Photo of Cairns | Photo of Cairns/beach | Neutral |
| | People liking photo | Inclusion |
| | Went to Cairns | Neutral |
| | Went to Cairns with someone | Inclusion |
| Friend moving to Sydney | No response from CJ | Exclusion |
| | Friend wants to catch up | Inclusion |
| Status update – movies | No response or comments | Exclusion |
| Meme (Sorry I would love to explain it to you, but I don't have any crayons) | Passive aggressive meme | Exclusion |
| | Meme posted from friend | Inclusion |

| | | |
|---|---|---|
| | Meme with sarcastic woman | Exclusion |
| | Someone likes the meme | Exclusion |

**Private message coding**

The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the private message:

| **Type of cue** | **Example** | **Inclusion, exclusion, or neutral** |
|---|---|---|
| Private message | A Friend posts a private message | Inclusion |
| | Friend displays negative emotion (e.g. anger) to CJ for missing dinner | Exclusion |
| | Friend gossips about someone else | Exclusion |
| | Friend dropping out of uni | Neutral |
| | No response to private message | Exclusion |

**Segmenting comments**

Participants may use commas, semi-colons or potentially a new sentence for each recalled item. Conversely there may be one sentence with multiple ideas. For example "One of his Uni friends was annoyed he said he would go to dinner when he didn't and then made fun of a fellow uni student (Amanda?) so I take it they don't really like her, she did bad at a prac". This would be coded as two exclusion items in the private message (i.e., that of the friend being annoyed that CJ did not make it to dinner and the gossip about another student). The rest of the sentence is speculation so is not necessary to include as a recalled cue.

**Entry into database**

You will be given a file that will contain the following headings: Part No. (Participant number), Unique ID (generated number starting with P), FB recall_txt (all social cues recalled by participants), Inclusion comment (what you think was an inclusion cue), I. No. (total number of inclusion cues), Exclusion comment (what you think was an exclusion cue), E. No. (total number of exclusion cues), Neutral comment (what you think was a neutral cue),

N. No. (total number of neutral cues), and Total comments (total number of cues identified for this participant).

For each participants comment, I would advise the following method of coding. Firstly read all of the recalled cues the participant could remember to get a 'feel' for the participant's writing style. Some participants will provide lots of information (including speculation) in complete sentences whereas others will just provide short answers. Once you have a feel for the information, rewrite the cues in the category in which you think it belongs. For example "One of his friends was cleaning out the garage" would be rewritten in the neutral column whereas "They talked about a dog" would be rewritten in the inclusion column. Please note on the included file that I have already completed one example for you to follow (which is highlighted in yellow).

**Moderation**

To ensure that interrater reliability is high, you will be given an excel file with data from the pilot study. Your job will be to code the data and then we will have a meeting together to discuss how we rated the cues. At this meeting we can discuss whether particular responses should be recoded into a different category based on the input of all of us. This meeting will also enable us to identify any inconsistencies in coding or any misunderstanding of the technology or guidelines. Some inconsistencies can also occur with code definitions and it is best that these things are discussed before the entire dataset is received. Again, your contribution is truly valued especially during this process.

If there are any questions during the coding, please write them down and then this can be discussed at the moderation meeting. By following a coding process I am striving for interrater agreement.

Once again, thank you so much for your assistance with the coding. I really appreciate it and hope it will be a valuable and interesting experience for you.

**Codebook and information for study (after changes to Facebook pages)**

Firstly, thank you for helping to code the data for this study, I really appreciate your time and effort. To make this an easier and less time consuming job, I have prepared these instructions for you.

**Overview of the study**

This study is investigating whether social interactions (specifically social inclusion and social exclusion) are related to subsequent attention to interpersonal cues on Facebook and the accuracy with which those cues are decoded. To do this the participants were were randomly placed into one of two conditions: (1) a social media task where other individuals were encouraging of them, receiving 9 'likes' for their description, or (2) a social media task where only one individual 'liked' their description. The other individuals were completely randomised computer responses. After completing a number of different measures, participants were then shown a Facebook newsfeed, timeline, and private message and were instructed to read through the pages. After the Facebook pages there was a distractor task of four minutes. Once this time was over, participants then needed to recall as many different social cues as they could from the Facebook pages in five minutes. The answers provided in this recall task is what will need to be coded.

**Social inclusion and social exclusion**

For the purposes of coding the recall items, the items need to be coded into either social inclusion, social exclusion or neutral social cues. The definitions of these codes are theory-driven but researcher derived. The first two studies completed identified what these codes "look like" for the purposes of coding.

Social inclusion cues include the following factors: friendship maintenance activities (e.g. commenting positively with another person on a common thread), friendship involvement activities (e.g. being tagged in a comment or post), affirmation (e.g. where other people like

or comment on what you have written), initiation (e.g. receiving a friend request), and when others think of me (e.g. invitations to events). Social inclusion experiences on Facebook could then be defined as situations where an individual is directly or actively included, involved, or accepted in relational activities.

Social exclusion cues include the following factors: criticism or betrayal (e.g. gossip), silence (e.g. where there is no reply to a post, status update, or comment), highlighting personal differences (e.g. critical comments about things that are personally important), being left out of friendship activities (e.g. seeing check-in statuses by other friends and you are not invited), and social comparison (e.g. other people have more friends than me). Therefore social exclusion can be defined as situations where an individual is directly or actively deprived of relational or social activities. Given the complexity of some of the themes involving exclusion, this factor incorporates individuals reading about situations on a newsfeed, timeline, or private message.

**Language choice**

The use of language when participants describe the recalled social cues is an important component of the coding. For example recalled cues such as "someone shared a photo" would be coded as an inclusion cue given the above criteria whereas "not being tagged in a check-in with friends" would be coded as an exclusion cue.

Neutral cues would be descriptions of social interactions that contain no indication of inclusion or exclusion experience. For example "Dog photo" would be considered a neutral cue whereas "sharing a dog photo" would be considered an inclusion cue. Any recalled items of demographic details would be a neutral cue. For example "CJ lives in Brisbane" has no inclusive or exclusive language but is just considered a statement of fact.

In the dataset there are a number of participants who, rather than recall social cues, have also given their opinion of the Facebook page owner and/or their friends. While this is interesting

data, it is opinion rather than recall so these statements DO NOT have to be coded. For example “CJ seems a sociable and friendly person” is an opinion rather than any recalled cue and so would not need to be included in the coding. If you are uncertain then let me know.

**Newsfeed coding**The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the newsfeed page:

| **Type of cue** | **Example** | **Inclusion, exclusion, or neutral** |
|---|---|---|
| Private message | Waiting to be read | Inclusion |
| | Friend sent a private message | Inclusion |
| | No response to private message | Exclusion |
| Meme (Sorry I assumed you were dead because you didn't text me back) | Passive aggressive meme | Exclusion |
| | No response from CJ to meme | Exclusion |
| | Angry face meme | Exclusion |
| | Not returning message | Exclusion |
| | Meme (no content mentioned) | Neutral |
| Check-in | Dinner date | Inclusion |
| | Numbers of people celebrating | Inclusion |
| | Not included in celebration | Exclusion |
| | People tagged in a check-in | Inclusion |
| | CJ not tagged in a check-in | Exclusion |
| Cleaning out garage | Someone/person cleaning garage | Neutral |
| | People interacting on status update | Inclusion |
| | Smiley face in status | Inclusion |

| | | |
|---|---|---|
| | Lots of likes for update | Inclusion |
| Change of Facebook use | Friend culling | Exclusion |
| | Change of Facebook use | Neutral |
| | CJ likes a post | Inclusion |
| Dog photo | Photo of dog/puppy | Neutral |
| | Interaction/conversation between friends | Inclusion |
| | Discussion about dog photo | Inclusion |
| | Sharing of photo | Inclusion |
| | No-one else commenting/liking photo | Exclusion |
| Birthday | People wishing someone a happy birthday | Inclusion |
| | Friend had a birthday | Inclusion |

**Timeline coding**

The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the timeline page:

| **Type of cue** | **Example** | **Inclusion, exclusion, or neutral** |
|---|---|---|
| Personal details | Where CJ lives or came from | Neutral |
| | Name | Neutral |
| | Photo of CJ with another person | Inclusion |
| | Landscape photos | Neutral |
| | Has a girlfriend/boyfriend | Inclusion |
| | Number of friends | Inclusion |
| Places check-in | Went to Cairns with someone/Morgan/Cameron | Inclusion |
| | Went to places | Neutral |
| | Tagged with someone | Inclusion |
| Car photo | New car | Neutral |
| | Likes on photo | Inclusion |
| | Got/photo of a new car | Neutral |
| Moving house | Friend saying thank you | Inclusion |
| | Helping a friend move | Inclusion |
| | No reply from CJ to friends thanks | Exclusion |
| | CJ liked comment | Inclusion |
| Photo of Cairns | Photo of Cairns/beach | Neutral |
| | People liking photo | Inclusion |

| | | |
|---|---|---|
| | Went to Cairns | Neutral |
| | Went to Cairns with someone | Inclusion |
| Friend moving to Sydney | No response from CJ | Exclusion |
| | Friend wants to catch up | Inclusion |
| Status update – movies | No response or comments | Exclusion |
| Meme (Sorry I would love to explain it to you, but I don't have any crayons) | Passive aggressive meme | Exclusion |
| | Meme posted from friend | Inclusion |
| | Meme with sarcastic woman | Exclusion |
| | Someone likes the meme | Inclusion |
| Friend request | Friend request waiting | Inclusion |
| | One friend request | Inclusion |

**Private message coding**

The following recalled cues provide a guide for inclusion, exclusion and neutral social cues from the private message:

| Type of cue | Example | Inclusion, exclusion, or neutral |
|---|---|---|
| Private message | A Friend posts a private message | Inclusion |
| | Friend displays negative emotion (e.g. anger) to CJ for missing dinner | Exclusion |
| | Friend gossips about someone else | Exclusion |
| | Friend dropping out of uni | Neutral |
| | No response to private message | Exclusion |

**Segmenting comments**

Participants may use commas, semi-colons or potentially a new sentence for each recalled item. Conversely there may be one sentence with multiple ideas. For example "One of his Uni friends was annoyed he said he would go to dinner when he didn't and then made fun of a fellow uni student (Amanda?) so I take it they don't really like her, she did bad at a prac". This would be coded as two exclusion items in the private message (i.e., that of the friend being annoyed that CJ did not make it to dinner and the gossip about another student). The rest of the sentence is speculation so is not necessary to include as a recalled cue.

**Entry into database**

You will be given a file that will contain the following headings: Part No. (Participant number), Unique ID (generated number starting with P), FB recall_txt (all social cues recalled by participants), Inclusion comment (what you think was an inclusion cue), I. No.

(total number of inclusion cues), Exclusion comment (what you think was an exclusion cue), E. No. (total number of exclusion cues), Neutral comment (what you think was a neutral cue), N. No. (total number of neutral cues), and Total comments (total number of cues identified for this participant).

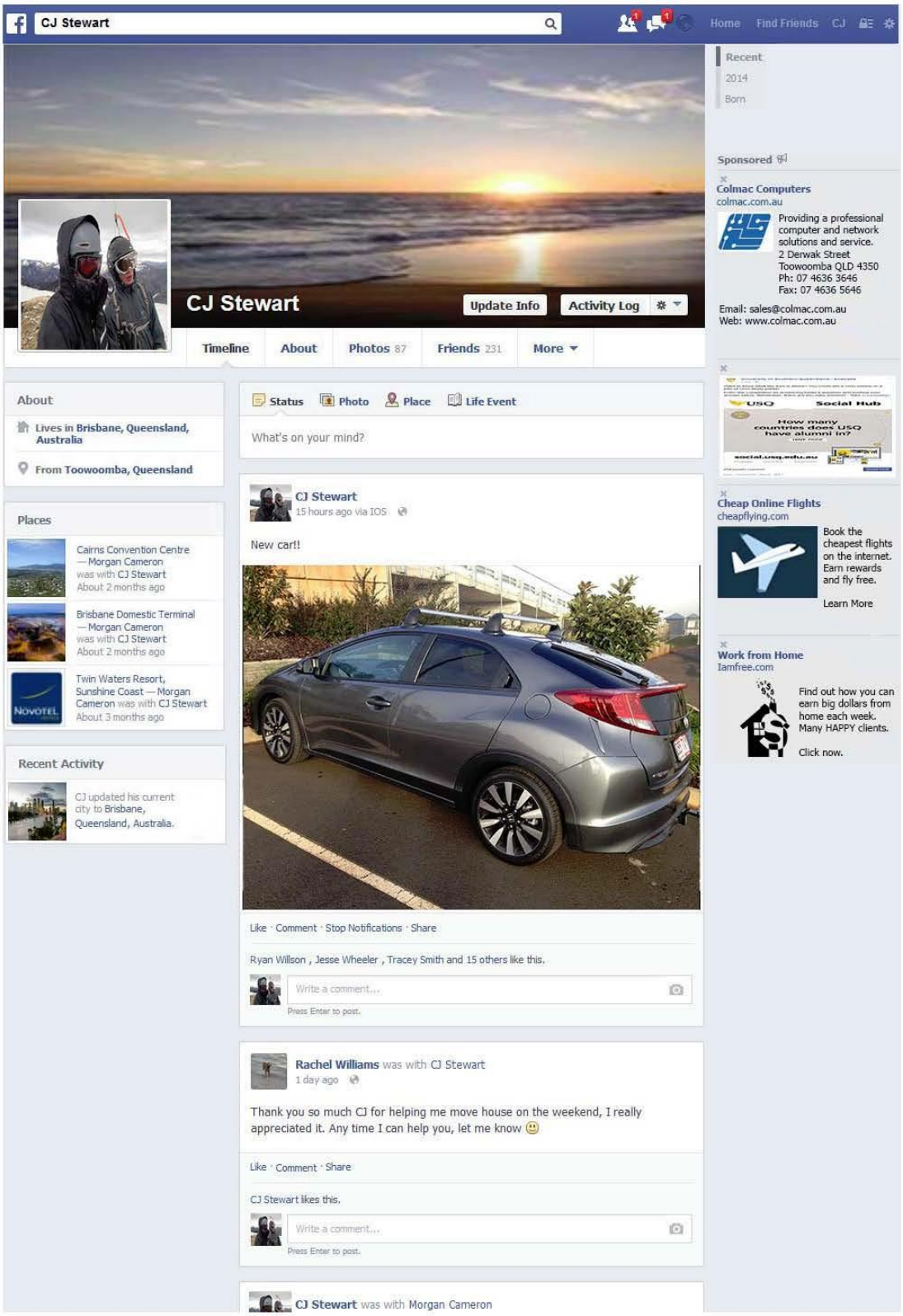
For each participants comment, I would advise the following method of coding. Firstly read all of the recalled cues the participant could remember to get a 'feel' for the participant's writing style. Some participants will provide lots of information (including speculation) in complete sentences whereas others will just provide short answers. Once you have a feel for the information, rewrite the cues in the category in which you think it belongs. For example "One of his friends was cleaning out the garage" would be rewritten in the neutral column whereas "They talked about a dog" would be rewritten in the inclusion column. Please note on the included file that I have already completed one example for you to follow (which is highlighted in yellow).

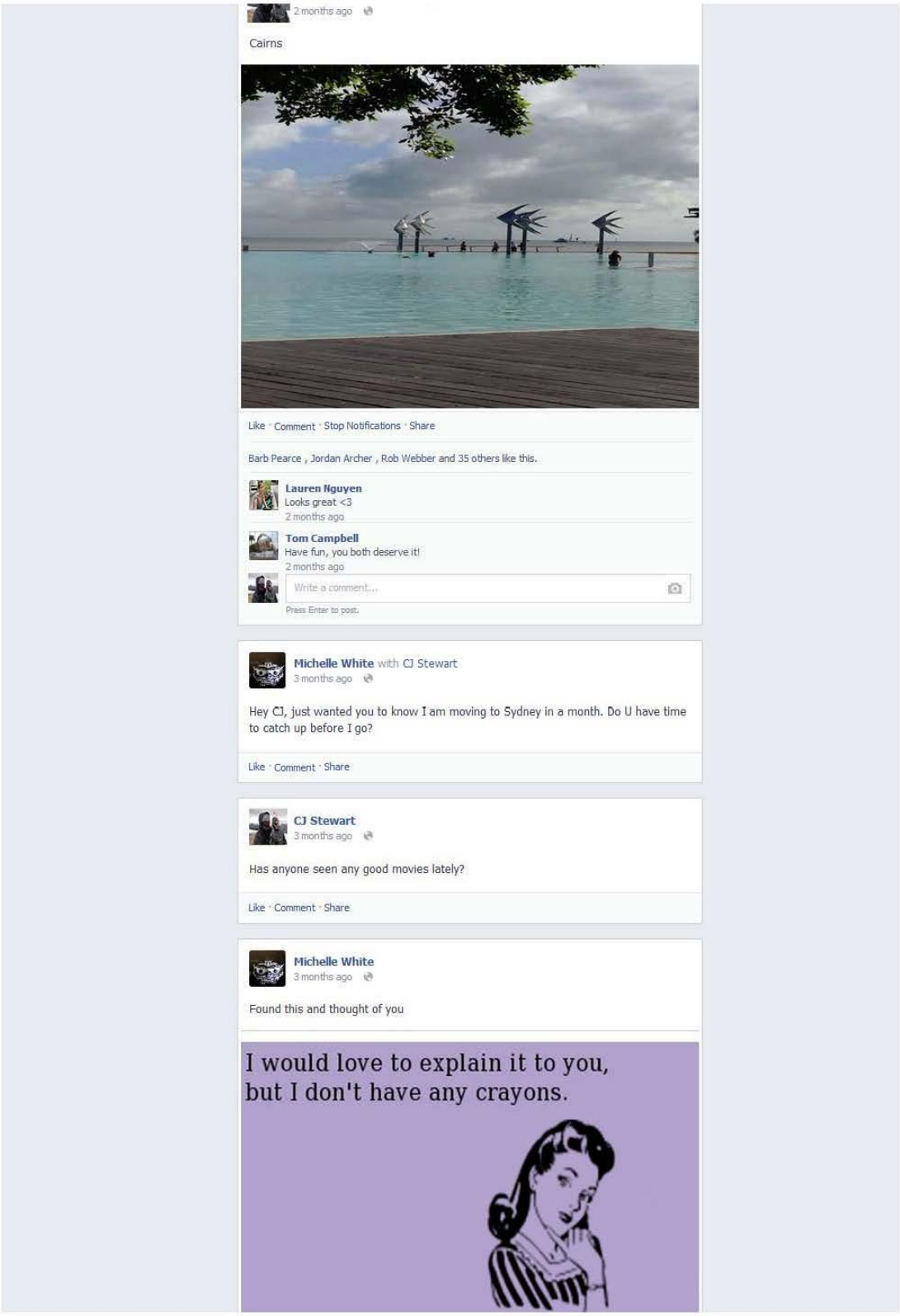
**Moderation**

The coding of the pilot data between the three of us was very close. This bodes well for our interrater reliability. If you are uncertain about how to code a cue put that cue in a separate column or make a note and we can discuss this together either via email or phoning me at uni on 46312638 or my mobile 0412823113. I would rather do this and have better reliability than just guessing where to put the cue.

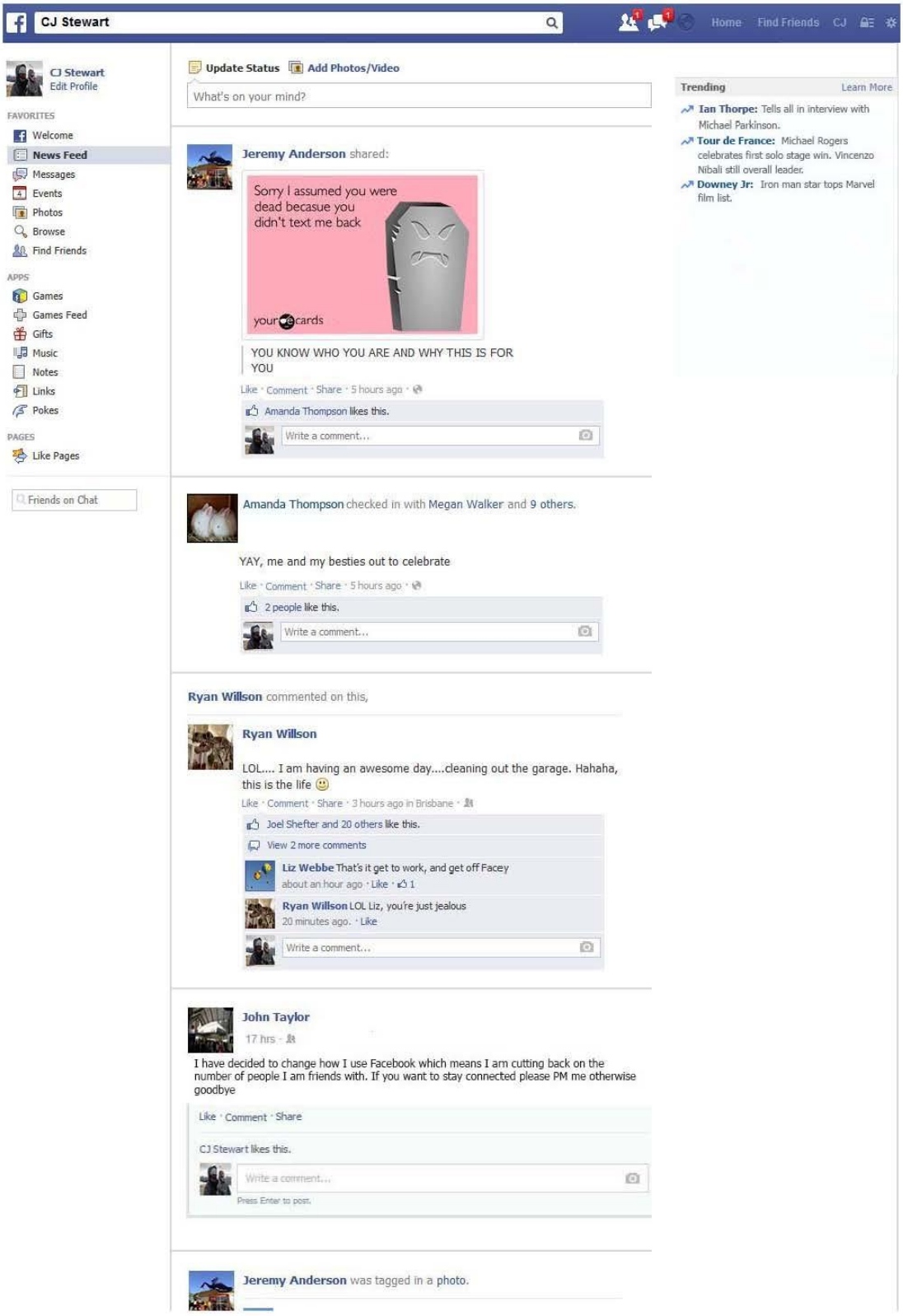
Once again, thank you so much for your assistance with the coding. I really appreciate it and hope it will be a valuable and interesting experience for you.

# Appendix F


CJ Stewart
Home
Find Friends
CJ
CJ Stewart
Update Info
Activity Log
Timeline
About
Photos 87
Friends 231
More
Recent
2014
Born
Sponsored
Colmac Computers
colmac.com.au
Providing a professional computer and network solutions and service.
2 Derwak Street
Toowoomba QLD 4350
Ph: 07 4636 3646
Fax: 07 4636 5646
Email: sales@colmac.com.au
Web: www.colmac.com.au
About
Lives in Brisbane, Queensland, Australia
From Toowoomba, Queensland
Places
Cairns Convention Centre — Morgan Cameron was with CJ Stewart About 2 months ago
Brisbane Domestic Terminal — Morgan Cameron was with CJ Stewart About 2 months ago
Twin Waters Resort, Sunshine Coast — Morgan Cameron was with CJ Stewart About 3 months ago
Recent Activity
CJ updated his current city to Brisbane, Queensland, Australia.
Status
Photo
Place
Life Event
What's on your mind?
CJ Stewart
15 hours ago via IOS
New car!!
Like · Comment · Stop Notifications · Share
Ryan Willson , Jesse Wheeler , Tracey Smith and 15 others like this.
Write a comment...
Press Enter to post.
Rachel Williams was with CJ Stewart
1 day ago
Thank you so much CJ for helping me move house on the weekend, I really appreciated it. Any time I can help you, let me know
Like · Comment · Share
CJ Stewart likes this.
Write a comment...
Press Enter to post.
CJ Stewart was with Morgan Cameron
Social Hub
How many countries does USQ have alumni in?
Cheap Online Flights
cheapflying.com
Book the cheapest flights on the internet. Earn rewards and fly free.
Learn More
Work from Home
Iamfree.com
Find out how you can earn big dollars from home each week. Many HAPPY clients.
Click now.


2 months ago
Cairns
Like · Comment · Stop Notifications · Share
Barb Pearce , Jordan Archer , Rob Webber and 35 others like this.
Lauren Nguyen
Looks great <3
2 months ago
Tom Campbell
Have fun, you both deserve it!
2 months ago
Write a comment...
Press Enter to post.
Michelle White with CJ Stewart
3 months ago
Hey CJ, just wanted you to know I am moving to Sydney in a month. Do U have time to catch up before I go?
Like · Comment · Share
CJ Stewart
3 months ago
Has anyone seen any good movies lately?
Like · Comment · Share
Michelle White
3 months ago
Found this and thought of you
I would love to explain it to you,
but I don't have any crayons.


ROTTENeCARDS
Like · Comment · Stop Notifications · Share
Amanda Thompson likes this.
Write a comment...
Press Enter to post.
About Create Ad Create Page Developers Careers Privacy Cookies Terms Help
Facebook © 2014 · English (US)


CJ Stewart
Home
Find Friends
CJ
CJ Stewart
Edit Profile
FAVORITES
Welcome
News Feed
Messages
Events
Photos
Browse
Find Friends
APPS
Games
Games Feed
Gifts
Music
Notes
Links
Pokes
PAGES
Like Pages
Friends on Chat
Update Status
Add Photos/Video
What's on your mind?
Jeremy Anderson shared:
Sorry I assumed you were dead becasue you didn't text me back
YOU KNOW WHO YOU ARE AND WHY THIS IS FOR YOU
Like · Comment · Share · 5 hours ago ·
Amanda Thompson likes this.
Write a comment...
Amanda Thompson checked in with Megan Walker and 9 others.
YAY, me and my besties out to celebrate
Like · Comment · Share · 5 hours ago ·
2 people like this.
Write a comment...
Ryan Willson commented on this,
Ryan Willson
LOL.... I am having an awesome day....cleaning out the garage. Hahaha, this is the life
Like · Comment · Share · 3 hours ago in Brisbane ·
Joel Shefter and 20 others like this.
View 2 more comments
Liz Webbe That's it get to work, and get off Facey
about an hour ago · Like · 1
Ryan Willson LOL Liz, you're just jealous
20 minutes ago. · Like
Write a comment...
John Taylor
17 hrs ·
I have decided to change how I use Facebook which means I am cutting back on the number of people I am friends with. If you want to stay connected please PM me otherwise goodbye
Like · Comment · Share
CJ Stewart likes this.
Write a comment...
Press Enter to post.
Jeremy Anderson was tagged in a photo.
Trending
Learn More
Ian Thorpe: Tells all in interview with Michael Parkinson.
Tour de France: Michael Rogers celebrates first solo stage win. Vincenzo Nibali still overall leader.
Downey Jr: Iron man star tops Marvel film list.


Megan Walker with Jeremy Anderson
This is what I was talking about today. How can you resist?
Like · Comment · Share · 40 minutes ago ·
5 friends posted on Rachel William's timeline on her birthday.
January 27
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