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Facebook usage predicted by sense of community and 'loneliness'

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Facebook Usage Predicted by Sense of Community and 'Loneliness'

Alison Bagworth

A report submitted in Partial Fulfilment of the Requirements for the Award of Bachelor
of Arts (Psychology) Honours, Faculty of Computing, Health and Science,

Edith Cowan University

Submitted (October, 2010)

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Facebook Usage Predicted by Sense of Community and 'Loneliness'

Facebook is one of a growing number of social networking sites (SNSs) that are currently being used by young adults to compliment face-to-face interactions. The use of these sites raises questions in relation to how their function may be compared to measurements of more traditional communication. This research measured Sense of Community (SoC) and 'loneliness' in young adults in order to predict usage of *Facebook*. Participants were 154 *Facebook* users (82% female, mean age 23.66) who completed an online survey with four components (demographics, *Facebook* usage, SoC Index, and the De Jong Gierveld Loneliness Scale). An analysis of the results showed that there was no significant correlation between 'loneliness' and SoC on *Facebook*. Binary logistic regression found significant negative results for SoC on *Facebook* from sending 'friend requests' to people seen often and people known through other people, and a significant result using 'loneliness' and the interaction for receiving 'friend requests' known only from the internet. SoC on *Facebook* also produced a significant negative association for the chi-squared analysis investigating positive and negative value when categorising on-line and off-line relationships. There were some limitations to this research in terms of the questions asked and the sample group. The investigation into 'loneliness' and SoC on *Facebook* to predict users' interactions on-line and their valuing of on-line and off-line friendships produced mixed results but has provided an opportunity to extend previous research by adding additional information regarding this new social networking medium.

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Facebook Usage Predicted by Sense of Community and 'loneliness'

An indispensable tenet of psychological theory is people's need to connect with each other (Ellison & Firestone, 1974; Kegler et al., 2005; Mellor, Stokes, Firth, Hayashi, & Cummins, 2008; Yasuda, 2009). When a community is established around the connections between people, an experience greater than the parts is achieved; psychologists have termed this Sense of Community [SoC] (Bramston, Bruggerman, & Pretty, 2002; Chavis, Hogge, McMillan, & Wandersman, 1986; Forster, 2004; McMillan & Chavis, 1986; Wilkinson, 2010; Wong, Sands, & Solomon, 2010). Awareness of SoC can have a significant effect on a person's psychological and physical health by providing a sense of belonging and eliminating the experience of 'loneliness' (Bramston et al., 2002; Hogeboom, McDermott, Perrin, Osman, & Bell-Ellison, 2010; Kegler et al., 2005; Mellor, Stokes, et al., 2008; Speer, Jackson, & Peterson, 2001; Wilkinson, 2010).

The key elements of the concept of SoC, developed by McMillan and Chavis (1986) include group membership, influence, integration and fulfilment of needs, and shared emotional connection. Unfortunately, people can be part of a community but not experience SoC as they have been unable to establish connections with other community members (Speer et al., 2001; Wong et al., 2010). 'Loneliness' occurs when a person experiences a discrepancy between their desired amount of connection and their actual amount of connection (Cacioppo, Fowler, & Christakis, 2009; DiTommaso, Brannen, & Best, 2004; Fokkema & Knipscheer, 2007; Mellor, Stokes, et al., 2008; Sum, Matthews, Pourghasem, & Hughes, 2009; Van Baarsen, Snijders, Smit, & Van Duijn, 2001).

SoC and 'loneliness' are not constrained by geographical locations and therefore it is important and relevant to study their influence in contemporary communities which extend beyond specific localities to include the internet, and most notably social network sites [SNSs] (Ardichvili, 2009; Chavis et al., 1986; Forster, 2004; Harrison, 2009; Kruger et al., 2001; McMillan & Chavis, 1986; Shen, Nuankhieo, Huang, Amelung, & Laffey, 2008; Sum et al., 2009; Yasuda, 2009). There are a number of SNSs (*MySpace*, *Bebo*, *Twitter*) with the fastest growing and most popular site today being *Facebook* (Back et al., 2010; boyd, & Ellison, 2008; Buffardi, & Campbell, 2008; Lefebvre, 2009; Livingstone, 2008; Muise, Christofides, & Desmarais, 2009; Park, Kee,

& Velenzuela, 2009; Raacke, & Bonds-Raacke, 2008; Sheldon, 2008; Shen, & Khalifa, 2010; Young, Dutta, & Dommety, 2009)¹.

Internet usage has become increasingly commonplace in everyday activities and often supplements, or even is a substitute for, face-to-face interactions (Back et al., 2010; Brown, 2008; Campbell, 2008; Fox et al., 2008; Harrison, 2009; Kruger et al., 2001; Lefebvre, 2009; Livingstone, 2008; Orr et al., 2009; Park et al., 2009; Schulte, 2009; Seeman, Seeman, & Seeman, 2010; Sheldon, 2008; Soderstrom, 2009; Tynes & Markoe, 2010; Wilson, Fornasier, & White, 2010). SNSs have become more popular and available than ever before and, as a result, they play a growing role in facilitating communication between people. Six years after its inception *Facebook* has over 400 million active users with half of them accessing the site and logging on every day (facebook.com, 2010b). The average user has 130 'friends' [on *Facebook*, the terminology 'friends' is encouraged to denote a user's contacts] and receives eight requests for new 'friends' each month (facebook.com, 2010b). Approximately half (50.1%) of the users on the site report that they are aged between 18 and 34 years and 56.7% are female (Gonzalez, 2010). It is evident that *Facebook* has become a ubiquitous social networking medium for young adults.

This literature review will provide an overview of *Facebook* as a SNS, followed by a consideration of motivation for using *Facebook*. An examination of the psychological concepts of 'loneliness' and SoC will guide a discussion as to how these concepts may be applied to the community of *Facebook*. The current research project will then be outlined which considers SoC on *Facebook* and 'loneliness' to predict *Facebook* usage.

What is *Facebook*

Facebook is one of a growing number of SNSs that have emerged on the internet in the past decade (boyd & Ellison, 2008). boyd and Ellison (2008) have defined a SNS as:

a web-based service that allows individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. (p. 211)

Some people use SNSs to reinforce their connections with people who they already know off-line. Other people use SNSs primarily to develop connections with strangers through common interests, passions, ethnicity, or media sharing. According to a product

¹ danah m. boyd has shown a preference for her name to be cited without capitals.

review conducted by Top TenREVIEWS.com (2010), *Facebook* provides all of the important features consumers consider when looking for a SNS and it was the top recommendation of the SNSs reviewed. Some commentators have described *Facebook* as doing more than just facilitating mere communication with 'friends'; it also *fosters* community interaction (boyd & Ellison, 2008; Duffin, 2010; Kemp, 2010; Park et al., 2009; Sheldon, 2008; Wilson et al., 2010; Youngdale, 2009).

In order to recognise a possible difference between on-line and off-line friendships, this research will establish a differentiation between contacts and relationships. The use of the term 'friends' relates to those who are more likely to be 'loose friends', where a person has accepted a 'friend request' on *Facebook*, however, little effort is made to retain connection. The second type of friend will be more likely to be close friends where a personal relationship has been built either off-line or on-line and consistent connection is maintained, again either off-line or on-line (Back et al., 2010; Buffardi & Campbell, 2008; Kramer & Winter, 2008; Lewis & West, 2009; Livingstone, 2008; Muise et al., 2009; Orr et al., 2009; Park et al., 2009; Raacke & Bonds-Raacke, 2008; Sheldon, 2008; Wilson et al., 2010). The terminology used in the current research utilises terms defined in a study by Soderstrom (2009) involving disabled teenagers, where the results suggested that some participants had 'loose on-line ties to strangers' while they had few intimate connections with people who lived geographically close. These youth mainly used the internet to connect with strangers when the concern was a shared interest. There were, however, other youth who used the internet as an extension of their off-line relationships. The second group of youth tended to interact frequently with their friends both on-line and off-line. Other types of relationships were defined by Soderstrom as: 'no local ties' where the complete lack of connection to off-line peers resulted in the use of the internet as a digital leisure activity; and 'chosen local ties' where teenagers had developed friendships off-line and used the internet to develop these connections. These variations suggest that some people will participate in on-line communities whilst having no formal connection with the other members, whereas other people will use the on-line communities as an extension of their off-line community.

Facebook does not only connect 'friends' but also allows users to play games and join groups that relate to individual interests and, in doing so, again strengthens social conformity amongst and involvement between 'friends'; often 'friends' actively encourage their contacts to participate in these shared activities (Livingstone, 2008; Orr et al., 2009; Schulte, 2009; Shen & Khalifa, 2010; Soderstrom, 2009; Walther, Heide,

Hamel, & Shulman, 2009). Individuals can also share with their social network by posting 'links' to interesting information they have found on the internet (Ellison, Steinfield, & Lampe, 2007; Lefebvre, 2009; Lewis & West, 2009; Muise et al., 2009; Raacke & Bonds-Raacke, 2008; Tynes & Markoe, 2010; Young et al., 2009).

The on-line social phenomenon of *Facebook* has developed its own vernacular. To have a presence on-line in one of the SNSs, a 'profile' is constructed (boyd & Ellison, 2008; Lewis & West, 2009; Livingstone, 2008; Park et al., 2009). On the 'profile', information may be provided about the individual's name, age, hometown, religion, political affiliation, interests, education, and work (Buffardi & Campbell, 2008; Ellison et al., 2007; Muise et al., 2009; Raacke & Bonds-Raacke, 2008; Young et al., 2009). 'Profiles' are further enhanced by pictures and albums of photos that have been uploaded to the site and in which users have been 'tagged' (clicking on the photo and selecting the 'friend' in the picture, or the person with whom the photo is to be shared) (Back et al., 2010; Kramer & Winter, 2008; Tynes & Markoe, 2010; Walther et al., 2009; Wilson et al., 2010). Either a best friend or an individual who is an acquaintance can be searched for explicitly or by finding potential 'friends' vicariously through extant contacts (sending a 'friend request' that can be accepted and added to the contact list, or ignored). To express anger or dissatisfaction with a 'friend' on *Facebook*, that person can be 'blocked' from interacting, contacting, or viewing the users' profile (Buffardi & Campbell, 2008; Ellison et al., 2007; Muise et al., 2009; Raacke & Bonds-Raacke, 2008; Tynes & Markoe, 2010; Wilson et al., 2010).

Research is showing that there is a growing expectation, particularly amongst the younger generation, of the need to be digitally connected continuously in order to keep in touch and maintain social integration between on-line and off-line relationships through the use of the internet, and in particular SNSs (Livingstone, 2008; Muise et al., 2009; Soderstrom, 2009). As a result, *Facebook* users are at risk of experiencing greater displacement in their satisfaction with their current relationships, off-line and on-line because of this need to stay continuously in-touch with their friends and contacts (Buffardi & Campbell, 2008; Muise et al., 2009; Raacke & Bonds-Raacke, 2008; Tynes & Markoe, 2010).

Communication is often conducted through 'status updates' where members can provide a short or long description of what is on their mind at the moment (for example: "[name] is cooking chicken to take to a picnic") (boyd & Ellison, 2008; Faircloth, 2009; Park et al., 2009; Walther et al., 2009). Then people who receive that update (usually that person's friends/contacts) can 'comment' providing their reaction to the update (for

example: "[name] you do get around! Have fun ☺"], or they can 'like' the 'status update'. This information may be available 'publicly' which means that any user can search for and see this information, or privacy settings can be set to allow only those who are 'friends' or a part of a predetermined 'network' can view this information. Private messages can also be conveyed through email on the site (boyd & Ellison, 2008; Ellison et al., 2007; Soderstrom, 2009).

SNSs can provide an on-line setting that reflects the off-line community (Ellison et al., 2007; Freeman, Barker, & Pistrang, 2008; Lewis & West, 2009; Livingstone, 2008). Furthermore, there are distinctive aspects that can enable users to flaunt their connections to others whilst extending their existing network (Back et al., 2010; Buffardi & Campbell, 2008; Ellison et al., 2007; Wilson et al., 2010; Young et al., 2009). Thus SNSs can be used to grow or emphasise an individual's perceived popularity or social competence (Tynes & Markoe, 2010; Walther et al., 2009; Wellman, Haase, Witte, & Hampton, 2001; Young et al., 2009). The ability for non-friends to view personal profile information of SNS users who have not updated their privacy settings has caused concerns about misuse of the sites, for example its potential attraction for sexual predators (Ellison et al., 2007; Livingstone, 2008; Perez-Garcia, 2010; Shen & Khalifa, 2010; Tynes & Markoe, 2010; Young et al., 2009). Occasionally these concerns can have horrific consequences (for example a recent NSW murder of an 18-year-old female by a 20-year-old male she allegedly 'friended' on *Facebook*; (aap, 2010)). However, the research shows most concerns tend to be unsubstantiated (boyd & Ellison, 2008) but these negative occurrences do show one of the implications of SNSs crossing beyond defined geographical locales and known contexts in their provision of new avenues and possibilities for interactions between both friends and strangers.

People who have strong bonds with others off-line tend to use the internet to connect and keep in touch with their friends (boyd & Ellison, 2008; Hogeboom et al., 2010; Livingstone, 2008; Raacke & Bonds-Raacke, 2008; Sheldon, 2008; Soderstrom, 2009; Taylor, McMinn, Bufford, & Chang, 2010; Wilkinson, 2010). However, studies have shown that those who have not developed these strong bonds use the internet for different purposes, such as entertainment or information-gathering (Ellison et al., 2007; Orr et al., 2009; Park et al., 2009; Raacke & Bonds-Raacke, 2008; Sheldon, 2008; Soderstrom, 2009; Sum et al., 2009; Wellman et al., 2001; Wilson et al., 2010). As *Facebook* was intentionally set up as a community of on-line users, it is likely that friends will use the site to connect with each other (boyd & Ellison, 2008; Ellison et al., 2007; facebook.com, 2010a; Lewis & West, 2009). However, it is not clear whether

Facebook provides users who do not have strong off-line connections or those who are low in SoC and/or who may be 'lonely', opportunities to develop friendship bonds and a greater SoC, or whether people with different levels of SoC use *Facebook* differently.

The function and ubiquity of *Facebook* as a 'virtual' community, and its impact upon the ways individuals interact and communicate, warrant an investigation into how SoC might affect interaction on *Facebook*. There has been relatively little psychological research into SNSs. Despite its popularity, less than a dozen studies have been located which focus specifically on *Facebook*. Of these, two have concentrated on descriptions of narcissism in relation to the amount of interaction (Buffardi & Campbell, 2008) and impression management in regards to self-disclosure (Kramer & Winter, 2008; Walther et al., 2009). Other research has considered the motivations for accessing the site; for example, two studies focused on jealousy (Muisse et al., 2009) and relationship seeking (Young et al., 2009). However, their analysis is limited in that they drew their conclusions by using information from users' profiles without exploring how the off-line experiences of the users influenced their on-line interactions.

The three remaining studies into *Facebook* used exploratory research techniques with the theoretical underpinning of use and gratification theory (Orr et al., 2009; Raacke & Bonds-Raacke, 2008; Sheldon, 2008). Through an on-line survey, Sheldon (2008) and Orr et al. (2009) questioned university students about the reasons why they used *Facebook*. Participants included those who had a 'profile' and those who did not. Those who had a 'profile' mainly used the site in order to maintain current relationships and, only to a lesser extent, to meet new people. Their results also illustrated that shy participants and people considered unwilling to communicate usually used *Facebook* to alleviate boredom and pass time rather than to meet people, signifying that use of *Facebook* may reflect other social interactions. Similar results were found by Raacke and Bonds-Raacke (2008). No research was located that focused on how people's experience of 'loneliness' affects their interactions on *Facebook*. Given the overwhelming popularity and growth of *Facebook*, and the increasing use of SNSs to supplement, or possibly substitute face-to-face interaction, it is important to consider the construct of 'loneliness' in the assessment of SoC. The possible impact of 'loneliness' and SoC on *Facebook* use is one which compliments but also complicates the nature of face-to-face relationships.

Although the above-mentioned research has focused on the individual characteristics of *Facebook* users, when users of a broad range of SNSs were interviewed a more complex dynamic was revealed. Livingstone (2008) interviewed

nine London teenagers about their use of different SNSs and found that their use of SNSs was often an extension to their off-line relationships. A major concern expressed by the group was that the limited control over privacy settings disallowed the delineation of levels of friendship as they exist in everyday life (for example, while off-line a person may tell only their three closest friends a certain piece of information, if it was posted on-line all of their network friends would see the update). With new privacy controls introduced by *Facebook* in 2010 (facebook.com, 2010a), proficient users can now put in place stronger privacy settings. This has the potential to provide *Facebook* users a more secure and traditional feeling of SoC. Unfortunately, Livingstone's study only dealt with a small sub-set of users (highly connected London teenagers) who were not necessarily representative of all SNS users, so this limits the study's ability to accurately predict SNS use for young adults. Nonetheless, it is possible that young adults are driven by their 'loneliness' to go on-line, as is the case for older adults (Bonetti, Campbell, & Gilmore, 2010; Campbell, 2008; Fokkema & Knipscheer, 2007; Hogeboom et al., 2010; Orr et al., 2009; Sum et al., 2009).

'Loneliness'

As individuals are different, the amount of connection required for a person to feel satisfied with their current levels of personal relationships (as opposed to feeling 'lonely') varies (De Jong Gierveld, 1998; De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Fokkema & Knipscheer, 2007; Mellor, Stokes, et al., 2008). 'Loneliness' is a subjective feeling of both *emotional* and *social* isolation. Emotional isolation can be defined as involving attachment needs so that when a person's emotional needs for relationships are achieved they would be considered embedded (Cacioppo et al., 2009; De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Ellison & Firestone, 1974; Fokkema & Knipscheer, 2007; Van Baarsen, et al., 2001). Social isolation can be considered a separate component which more specifically focuses on the situational relationships a person has, thus a person who is socially satisfied would be involved in their community (De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Fokkema & Knipscheer, 2007; Foster-Fishman, Pierce, & Egeren, 2009; Speer et al., 2001; Van Baarsen et al., 2001).

The scale used in the current research is the De Jong Gierveld Loneliness Scale (De Jong Gierveld & Kamphuls, 1985; De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Van Baarsen et al., 2001). There has been some debate as to whether the Loneliness Scale is uni-dimensional or bi-dimensional (De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Mellor, Stokes, et al., 2008; Van Baarsen

et al., 2001). Analysis conducted by Van Baarsen et al. (2001) suggests it is most likely an artefact of its construction from its use of both positive and negative items. Further analysis by Van Baarsen et al. (2001) suggests that there is evidence to support the bi-dimensionality of the Loneliness Scale with one factor being emotional 'loneliness' and the other being social 'loneliness'. When correlated with other features within a person's life (for example relationship status) there was a moderately high correlation as would be expected; that is, widowers/widows were more likely to be emotionally 'lonely' as they have lost a significant attachment figure (De Jong Gierveld, 1998; De Jong Gierveld & Van Tilburg, 2006; Van Baarsen et al., 2001). Whereas social 'loneliness' occurs more when there is a 'lack of meaningful connections and social integration' (DiTommaso et al., 2004, p. 100). However, De Jong Gierveld constructed her scale in order to validly and reliably measure the overall 'loneliness' experienced by participants as well as to provide researchers the ability to use the scale to measure both types of 'loneliness' (De Jong Gierveld, 1998; De Jong Gierveld & Kamphuls, 1985; De Jong Gierveld & Van Tilburg, 2006).

Similar to SoC, 'loneliness' has psychological and physical health implications and is related to a perception of connection to others (Cacioppo et al., 2009; DiTommaso et al., 2004; Fokkema & Knipscheer, 2007; Mellor, Stokes, et al., 2008; Parker et al., 2001). Even though someone may be a part of a community they can still experience a sense of 'loneliness' (Alter & Oppenheimer, 2009; Cacioppo et al., 2009; De Jong Gierveld, 1998; De Jong Gierveld & Van Tilburg, 2006; Ellison & Firestone, 1974; Parker et al., 2001). If a person is unhappy in a large proportion of their face-to-face relationships then they are likely to feel 'lonely', regardless of their individual need to belong (Mellor, Stokes, et al., 2008). 'Loneliness' may have different implications when applied to *Facebook* relationships (Alter & Oppenheimer, 2009; Cacioppo et al., 2009; Orr et al., 2009; Park et al., 2009; Shen et al., 2008; Wellman et al., 2001). Although a person may have many friends on *Facebook*, if they are dissatisfied, jealous, anxious, or bullied by some of their 'friends', it could increase the level of 'loneliness' experienced by the person (Harrison, 2009; Muise et al., 2009; Orr et al., 2009; Shen & Khalifa, 2010; Young et al., 2009).

Previously mentioned research which used the theoretical underpinning of SoC (Forster, 2004; Hughey, Peterson, Lowe, & Oprescu, 2008; Kruger et al., 2001; Shen et al., 2008; Sum et al., 2009; Wilkinson, 2010), focused on motivation for using the internet, as opposed to specifically *Facebook* or other SNSs. Other research which explored the use of SNSs more generally reported different results; internet users

created a SoC for themselves when feeling 'lonely' and those who were 'lonely' and scored low on a Well-Being scale used the internet to meet new people (Back et al., 2010; Buffardi & Campbell, 2008; Ellison et al., 2007; Faircloth, 2009; Kramer & Winter, 2008; Lewis & West, 2009; Livingstone, 2008; Muise et al., 2009; Orr et al., 2009; Park et al., 2009; Sheldon, 2008; Shen & Khalifa, 2010; Soderstrom, 2009; Wilson et al., 2010; Young et al., 2009). These studies differ from the research that has focused specifically on *Facebook*. This suggests that it is possible that *Facebook* is distinctive in regards to how people use it compared to general users of the internet. It also suggests that purposefully considering SoC reveals people's attempts to construct social networks in order to develop a good SoC.

Sense of Community and 'Loneliness'

Within psychology, SoC is considered an affective and cognitive concept that can not be observed directly but impacts an individual's evaluation of their circumstances (Bramston et al., 2002; Forster, 2004; McMillan & Chavis, 1986; Wong et al., 2010; Yasuda, 2009). Although SoC is a concept that may be hard to define, people of different ages and backgrounds are able to recognise the idea, especially when SoC is lacking in their life (Sarason, 1976). Interest in defining and understanding the function of SoC emerged from the major cultural changes which occurred during the 1960's (for example, increase in juvenile delinquency, opposition to institutional authority, and the civil rights movement) which gave rise to concerns about potential community instability and discussions about ways in which the future could be secured (Forster, 2004; McMillan & Chavis, 1986; Sarason, 1976). As a result, an influential perspective was developed by Seymour Sarason (1976) which involved understanding the significance of the experience of being part of an authentic community which was actively involved in each person's everyday life and which was able to provide mutual support among members, regardless of geography.

Over the decades SoC has remained a focus for community psychologists (Bramston et al., 2002; Chavis & Pretty, 1999; Flanagan, Curnsille, Gill, & Gallay, 2007; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Wong et al., 2010). With the increase in the integration of technology into daily life, people today are able to seek these types of connections by going on-line where they are able to experience the same features of SoC as they do in their off-line relationships (Ardichvili, 2009; Forster, 2004; Kruger et al., 2001; Shen et al., 2008). Therefore, research into the internet and specifically SNSs like the borderless phenomenon of *Facebook* is warranted.

A psychological SoC has been empirically studied using a measurement scale constructed by Chavis et al. (1986) and Perkins et al. (1990). By using Brunswick's lens model to indirectly observe SoC, Chavis et al. (1986) were able to assess elements that constitute the concept. These fundamentals were verified by comparing how a cross-section of judges placed individual cases that described SoC (Chavis et al., 1986). This process provided a coefficient alpha of .97, suggesting that when SoC is described, individuals are generally able to recognise it consistently. In the study to construct the SoC Index (Chavis et al., 1986) there was a discrepancy between the individual participants' subjective SoC and the judges' ranking which led to a correlation of only .52. Although this correlation coefficient is lower than that of the judges' attempt to classify cases of high SoC, it is still a moderately strong statistic (Chavis et al., 1986; Perkins et al., 1990).

The definition and theory constructed by McMillan and Chavis (1986) involved four main elements: Membership, influence, sharing of values with an integration and fulfilment of needs and shared emotional connection. Until recently the investigation has mainly concerned a community bond within geographic locations (Bramston et al., 2002; Chavis et al., 1986; Faircloth, 2009; Flanagan et al., 2007; Hughey et al., 2008; Kegler et al., 2005; McMillan & Chavis, 1986; Pretty, Bramston, Patrick, & Pannach, 2006; Wilkinson, 2010; Wong et al., 2010; Yasuda, 2009). However, the nature of these elements allows the interpretation of community to be broadened so that these characteristics need not be defined solely by geographic locality. Research which explores whether internet 'communities' actually represent what is traditionally considered a community is presented below. By utilising McMillan's and Chavis's definition of SoC as well the previous definition of 'loneliness', the following aspects of the two concepts can be related to on-line communities.

Membership

Membership involves establishing boundaries, emotional safety, a sense of belonging, personal investment, and a common symbol system (McMillan & Chavis, 1986). These components interact in a self-reinforcing, cause-and-effect relationship (McMillan & Chavis, 1986).

Boundaries and the ability to discern who is a group member and who is not, are indispensable in forming a SoC (Chavis et al., 1986; McMillan & Chavis, 1986; Wong et al., 2010). For people off-line, *Facebook* users are able to classify a member because they have established a 'profile' on the site (Duffin, 2010; Forster, 2004; Freeman et al., 2008; Harrison, 2009; Wilkinson, 2010). On-line, users also determine who will be

allowed into their private community through the 'friending' process (Cassidy & Queirolo, 2009; Ellison et al., 2007; Lewis & West, 2009; Shen & Khalifa, 2010; Soderstrom, 2009).

Defined boundaries enable emotional safety to be elaborated, allowing for increased personal investment (Chavis et al., 1986; Kegler et al., 2005; McMillan & Chavis, 1986; Shen & Khalifa, 2010; Wong et al., 2010). On *Facebook*, emotional safety is enabled through users adhering to the 'terms of use' statement (Forster, 2004; Freeman et al., 2008; Kruger et al., 2001; Lewis & West, 2009). Users are able to freely express whatever is on their mind, a process that is encouraged by the layout of 'profiles' and 'status updates' (Ellison et al., 2007; Forster, 2004; Shen & Khalifa, 2010; Soderstrom, 2009).

Membership is enhanced through the use of interactions with communities which have established social, symbolic and spatial boundaries, providing a feeling of belonging through the use of unique symbols, language and rituals (Ardichvili, 2009; Bramston et al., 2002; Flanagan et al., 2007; Harrison, 2009; McMillan & Chavis, 1986; Pretty et al., 2006). Through the homogenous layouts of 'profiles' and a common parlance, users are encouraged to experience this aspect of SoC on *Facebook* (Alter & Oppenheimer, 2009; boyd & Ellison, 2008; Ellison et al., 2007; Lewis & West, 2009; Orr et al., 2009; Wilson et al., 2010). In order to reinforce group membership, individual identity and values may be required to be abandoned (Ardichvili, 2009; Back et al., 2010; Kramer & Winter, 2008; Livingstone, 2008; Muise et al., 2009; Pretty et al., 2006; Tynes & Markoe, 2010). For example, within the *Facebook* community there is a possibility that the strong association SoC has with social control could increase phenomena like racism (Tynes & Markoe, 2010). In research exploring colour-blind racism on *Facebook*, Tynes and Markoe (2010) observed that like-minded individuals actively encouraged racist behaviour because of the nature of *Facebook* interaction, even if they held the personal opinion that such behaviour was reprehensible.

'Loneliness'. A common factor in the research studies into *Facebook* is the focus on the number of friends members have acquired (Back et al., 2010; Buffardi & Campbell, 2008; Kramer & Winter, 2008; Muise et al., 2009; Orr et al., 2009; Park et al., 2009; Raacke & Bonds-Raacke, 2008; Wellman et al., 2001; Wilson et al., 2010; Young et al., 2009). This, however, is not an accurate reflection of the amount of SoC experienced or their level of 'loneliness', as people have different requirements with respect to a need to belong (De Jong Gierveld, 1998; De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004; Fokkema & Knipscheer, 2007; Mellor, Stokes, et al.,

2008). As *Facebook* was established in order to form an exclusive community for users (boyd & Ellison, 2008; Ellison et al., 2007; facebook.com, 2010b) one area that needs to be factored into research is that it may primarily be used by people who feel 'lonely' in order to come into contact with other people to alleviate their need for belonging.

Influence

Another aspect of the concept of SoC, the ability to influence, is not as necessary a precursor to experiencing SoC on-line as it had been off-line (Kruger et al., 2001). Off-line, a member's influence on the community and the community's influence on the member work in concert with one another (Hughey et al., 2008; Kegler et al., 2005; McMillan & Chavis, 1986). As a member's SoC increases, so does their level and ability to influence. In these instances, members are drawn to communities where they can exert power (Ardichvili, 2009; McMillan & Chavis, 1986; Shen & Khalifa, 2010; Speer et al., 2001; Wilson et al., 2010; Youngdale, 2009). The use of influence to exert power allows members to feel validated and achieve closeness (Ardichvili, 2009; McMillan & Chavis, 1986). The group may act to curtail such expressions of power with the primary focus on encouraging conformity from other members (Alter & Oppenheimer, 2009; Chavis et al., 1986; Foster-Fishman, et al., 2009; McMillan & Chavis, 1986). One way the element of influence is exercised on *Facebook* is through 'status updates' where members can encourage or dissuade discussion on topics and promote or ridicule attitudes expressed (Back et al., 2010; Brown, 2008; Park et al., 2009; Tynes & Markoe, 2010; Walther et al., 2009).

The amount of influence a person has on-line is often influenced by the perceptions that person holds about the on-line community (Ardichvili, 2009; Brown, 2008; Forster, 2004; Freeman et al., 2008; Hogeboom et al., 2010; Soderstrom, 2009). This can affect the amount of involvement and contribution, which in turn directly impacts on the level of SoC experienced in that on-line community (Forster, 2004; Freeman et al., 2008; Kruger et al., 2001). The internet allows someone to break the geographic barriers that could have hindered their previous attempts to achieve a SoC if they could not find a local niche (Buchanan, 2010; Ellison et al., 2007; Park et al., 2009; Pretty et al., 2006; Sarason, 1976; Shen & Khalifa, 2010; Soderstrom, 2009). Therefore, the ability to achieve SoC in new forums may explain why the above research reported a decreased need to influence the community in order to experience a SoC on-line.

'Loneliness'. One of the defining aspects of 'loneliness' is the locus of control; when that locus is external and people consider that they are unable to influence their circumstances greater feelings of loneliness exist (De Jong Gierveld, 1989, 1998;

Fokkema & Knipscheer, 2007). If people consider that they have little ability to influence their on-line community it is possible that this would increase a general feeling of 'loneliness'

Several articles (Livingstone, 2008; Orr et al., 2009; Shen & Khalifa, 2010; Tynes & Markoe, 2010; Wilson et al., 2010) assume *Facebook* provides a SoC, but none were found to empirically explore if this was indeed the case in young adults, nor did they investigate the effect of 'loneliness' on *Facebook* use. The consistent focus of research has been on the personal characteristics of users, which provide helpful information, analogous to that of a national census; that is, it provides researchers with information relating to the constituents of the SNS. However, it does not consider the social implications, for example it does not clarify the impact of the important psychological constructs of SoC and 'loneliness' that participants bring to the SNS (Buffardi & Campbell, 2008; Forster, 2004; Freeman et al., 2008; Kruger et al., 2001; Lewis & West, 2009; Orr et al., 2009; Park et al., 2009; Shen et al., 2008; Sum et al., 2009; Wilson et al., 2010; Young et al., 2009). The scarcity of information about community interaction on *Facebook* is demonstrated by the inefficacy of the news-media to be able to predict which of its stories will be taken up by and passed around by users of SNSs (Schulte, 2009). While previous research provides some explanation of why people use *Facebook*, it does not explain the effect of SoC on the individual and how that influences their use of *Facebook*.

Integration and Fulfilment of Needs

Sharing of values establishes the integration and fulfilment of needs (Ardichvili, 2009; Faircloth, 2009; Fox et al., 2008; Kemp, 2010; McMillan & Chavis, 1986; Mellor et al., 2008; Pretty et al., 2006; Schulte, 2009; Wong et al., 2010; Yasuda, 2009). The outcome of sharing values includes the attainment of a strong person-group fit (Duffin, 2010; Faircloth, 2009; Kegler et al., 2005; Lefebvre, 2009; McMillan & Chavis, 1986; Parker et al., 2001; Seeman et al., 2010; Wilkinson, 2010; Yasuda, 2009). This concept is reinforced when a group succeeds in their goals (Ardichvili, 2009; Hughey et al., 2008; Livingstone, 2008; McMillan & Chavis, 1986; Shen & Khalifa, 2010; Tynes & Markoe, 2010). The ubiquity of *Facebook* is fostered by media releases emanating from the site which highlight and reinforces the success of the group (facebook.com, 2010a).

The multi-faceted functions within *Facebook* can help build a stronger community amongst users as they strive for a better person-group fit (boyd & Ellison, 2008; Cassidy & Queirolo, 2009; Ellison et al., 2007; Harrison, 2009; Kemp, 2010; Lefebvre, 2009; Park et al., 2009; Schulte, 2009; Shen & Khalifa, 2010; Soderstrom,

2009; Tynes & Markoe, 2010). For example, on-line community games, 'pages' to advertise affiliation with a group/company/idea, and the ability to constantly update and comment on 'status updates' increases the belief that the site can help with the integration and fulfilment of needs for members (Bonetti et al., 2010; Lewis & West, 2009). As a person fits better in a group, a person's SoC increases proportionally (McMillan & Chavis, 1986).

'Loneliness'. The communication content of SNS can be assessed as 'supportive' (Ellison et al., 2007; Forster, 2004; Freeman et al., 2008; Orr et al., 2009; Schulte, 2009), and consistent participation in on-line forums has been shown to decrease 'loneliness' (Bonetti et al., 2010; Fokkema & Knipscheer, 2007; Kruger et al., 2001; Lewis & West, 2009; Soderstrom, 2009). However, Kruger et al. (2001) found that even though most participants who connected on-line had a strong SoC, these participants also had the opportunity to connect off-line. Nevertheless, the researchers suggested that such opportunity was uninfluential; if an individual could not achieve off-line contact, on-line SoC was not necessarily precluded. On-line forums have been helpful in providing a strong SoC for professionals in highly specialised industries where contact with peers may be difficult because of geographic isolation, physical or psychological disabilities, and temporal limitations (Ardichvili, 2009; Duffin, 2010; Kruger et al., 2001). These forums encourage a SoC which can develop more quickly on-line since members can engage more consistently, a factor which has been found to be positively associated with SoC.

Shared Emotional Connection

The length of time participants have been a part of the community can mediate the relationship between involvement within the group and the outcome of SoC (Forster, 2004; Hughey et al., 2008; Kegler et al., 2005; Parker et al., 2001; Sarason, 1976; Speer et al., 2001). The maintenance of on-line SoC requires new members to regularly replace those who, for various reasons, disconnect; this phenomenon also reflects the fluctuating nature of off-line communities (Freeman et al., 2008; Hughey et al., 2008; Kruger et al., 2001; Parker et al., 2001; Perkins et al., 1990; Pretty et al., 2006). A person's SoC develops not from just one group or setting but carries over to other groups and settings (Forster, 2004; Hughey et al., 2008; Parker et al., 2001; Shen et al., 2008; Speer et al., 2001; Sum et al., 2009). Internet communities are intentionally formed to connect with others who have similar interests or characteristics as opposed to a common neighbourhood community which has come together randomly (Ardichvili, 2009; boyd & Ellison, 2008; facebook.com, 2010a; Forster, 2004; Lewis &

West, 2009; Orr et al., 2009; Pretty et al., 2006; Raacke & Bonds-Raacke, 2008); therefore on-line communities have a greater likelihood of fostering SoC. Across different internet communities a difference in the amount of SoC that is experienced by participants can vary greatly—dependent on the amount of self-disclosure, reciprocity and shared interests and experience present in that group (a condition which is echoed in off-line communities) (Forster, 2004; Kruger et al., 2001). A person's overall SoC draws from the various groups that person is involved with; therefore, SoC within internet-based groups contributes to a person's overall SoC (Forster, 2004).

A shared emotional connection can develop and be strengthened in times of crisis; as SoC is attained, this support and connection is increased (Chavis et al., 1986; Fox et al., 2008; Parker et al., 2001; Pretty et al., 2006; Sarason, 1976; Wong et al., 2010). Schulte (2009) provides examples where groups have emerged in response to local and global crises on this borderless SNS. Locally, 'The Great Perth Storm of 2010' was a group set up within hours of an atypical hail storm in March 2010; globally, pages expressing dissatisfaction with BP's response to an oil spill in August 2010 were shared around 'friend' groups. *Facebook* provided users with a forum to seek and offer support to those affected, thus fostering a SoC (Freeman et al., 2008; Kruger et al., 2001; Park et al., 2009; Seeman et al., 2010; Shen & Khalifa, 2010).

'Loneliness'. The transition between high-school and university or work is often a time when old friends are lost whilst new friends are made; however, with *Facebook* this dynamic is changing (boyd & Ellison, 2008; Ellison et al., 2007; Lewis & West, 2009; Pretty et al., 2006). *Facebook* allows old high-school ties to be retained and new contacts added, enhancing personal involvement and investment in the site (boyd & Ellison, 2008; Ellison et al., 2007; Lewis & West, 2009; Perez-Garcia, 2010). By allowing consistent contact with friends from all parts of a person's life, *Facebook* has the potential to increase users' SoC. However, these 'friends' are often criticised by the media (Ardichvili, 2009; Buchanan, 2010; Perez-Garcia, 2010) and research (Lefebvre, 2009; Lewis & West, 2009; Soderstrom, 2009) as being 'loose' in the context of on-line relationships. People may feel obliged to retain old connections without any effort being exerted to continue developing and deepening these friendships which may then have the potential for the user to feel 'lonely'.

The Role of *Facebook*, Sense of Community, and 'Loneliness': The Current Study

Facebook is an important source of social networking for young adults (boyd & Ellison, 2008; Buchanan, 2010; Cassidy & Queirolo, 2009; Ellison et al., 2007; Faircloth, 2009; Lewis & West, 2009; Orr et al., 2009; Perez-Garcia, 2010; Seeman et

al., 2010; Shen & Khalifa, 2010; Soderstrom, 2009; Tynes & Markoe, 2010; Young et al., 2009; Youngdale, 2009). In order to explore how 'loneliness' can predict the use of on-line communities by young adults this current research investigates a SoC in *Facebook* using Perkins et al. (1990) SoC Index. This study compares those who can be defined as 'lonely' and those who are not, according to the De Jong Gierveld Loneliness Scale (De Jong Gierveld, 1987; De Jong Gierveld & Van Tilburg, 2006; DiTommaso et al., 2004). It is not clear whether 'lonely' people will have a lesser SoC on *Facebook* (as 'lonely' people off-line do), or if 'loneliness' encourages young adults to connect more on *Facebook* because they lack other support networks.

The definition of SoC as proposed by McMillan and Chavis (1986) suggests that SoC is an important factor in a person's self-esteem and daily functioning (Bramston et al., 2002; Faircloth, 2009; Forster, 2004; Foster-Fishman, et al., 2009; Kegler et al., 2005; Pretty et al., 2006; Shen et al., 2008; Sum et al., 2009; Wong et al., 2010). The SoC questionnaire to be used in this study has been constructed using the theory developed by McMillan and Chavis. Sum et al. (2009) determined that SoC for internet users was similar to McMillan and Chavis' original theory. Some research suggests that computer-mediated communication can serve as an alternative forum for people who have weak social ties (Ardichvili, 2009; Fokkema & Knipscheer, 2007; Freeman et al., 2008; Orr et al., 2009; Sheldon, 2008; Shen et al., 2008; Soderstrom, 2009; Wilson et al., 2010). By using pre-existing members of *Facebook* rather than the experimental forum created by researchers like Kruger et al., (2001), it is possible to examine the behaviour of a person who uses *Facebook*. This current research explores the SoC present in young adults who use the SNS *Facebook* to see if that influences their access to and use of the site.

The internet is also used as an extension of a person's social network off-line (boyd & Ellison, 2008; Ellison et al., 2007; Lewis & West, 2009; Perez-Garcia, 2010; Pretty et al., 2006; Sheldon, 2008; Soderstrom, 2009; Sum et al., 2009), though it is unclear if this generalisation extends to *Facebook*. It is hoped that by investigating a person's level of 'loneliness' and SoC on *Facebook* predictions can be made which will provide additional information regarding this new social networking medium. This study explores the relatively new area of research into the psychological impact of SNSs and may provide information for measuring social interaction in young people as well as offering helpful assistance to 'lonely' and isolated people.

The research questions for this study are:

1. Is there a relationship between a person's SoC on *Facebook* (as measured using the SoC Index) and their feelings of 'loneliness' (as scored on the De Jong Gierveld Loneliness Scale)?
2. Does a person's score on the SoC Index and/or the De Jong Gierveld Loneliness Scale predict membership into either 'high' (6 or more per month) or 'low' (less than 5 per month) 'friend request' interactions?
3. Can a person's on-line and off-line relationships (as either 'positive' or 'negative') be categorised in terms of either 'high' or 'low' SoC and/or 'loneliness' (through dichotomous scoring of both the SoC Index and De Jong Gierveld Loneliness Scale)?

Method

Participants

There were 158 participants engaged in the survey with 154 valid responses (97% completion rate). Females comprised the majority of participants ($n = 129$, 82%). Of all participants, half were in the process of completing or had completed a degree/diploma (77 out of the 154 participants). Of the remainder, high school graduation accounted for 34% and graduate degree 16%. There were 59 (38%) single participants, 10 (7%) in a casual relationship, 47 (30%) in a serious relationship, 11 (7%) de facto/co-habituating, 25 (16%) married, and one each of divorced and widowed. Most participants were from Western Australia (inner-city Perth 47%; suburban Perth 36%; rural state 4%; interstate 6%; outside Australia 7%). Demographic variables are shown in Appendix A.

Familiarity with technology has been found to impact on how and why people use the internet (Forster, 2004; Shen & Khalifa, 2010; Soderstrom, 2009; Wilkinson, 2010). Also, the length of time a person has been a part of a community impacts the level of SoC experienced (Chavis, Hogge, McMillan, & Wandersman, 1986; Forster, 2004; Kruger et al., 2001). Target participants were aged between 18-30 years old, however, due to the uncontrolled nature of the on-line survey, four participants were over 30 (for all participants $M = 23.66$, $SD = 4.71$). Young adults were the target cohort as previous research suggests that most young adults have had significant experience with the internet and would have held a *Facebook* profile for a reasonable length of time (Tynes & Markoe, 2010). Results for the participants outside of the age range were compared with the rest of the cohort and no significant differences were observed, therefore, the divergent ages were included and age was treated as one group. In the current research, the majority of participants were regular users of *Facebook*, with just under half checking their account multiple times per day, 76 participants (49%). Thirty five percent (55 participants) checked their account daily and 15% (24 participants) checked their account either weekly or monthly.

Materials

Participants answered four copyright-free questionnaires (Appendix B) accessed on-line through a *Facebook* group set up for the research. As part of data-screening, a *t*-test between participants' scores on the De Jong Gierveld Loneliness Scale and SoC Index revealed that they were significantly different, $t(153) = 35.90$, $p < .05$. Further analysis also revealed that the scores were not significantly correlated, therefore they were able to be used in further regression models as independence of variables existed.

There was a short demographic information sheet (age, gender, location, education level, and relationship status) for participants to complete first (Appendix B).

'Loneliness' was measured using the 7-point likert scale De Jong Gierveld Loneliness Scale (De Jong Gierveld, 1987; De Jong Gierveld & Van Tilburg, 2006; Van Baarsen, Snijders, Smit, & Van Duijn, 2001). This scale has a reported internal reliability of .81 and includes a total of 12 questions (five positive, six negative, and one neutral question) such as: "I often experience a general sense of emptiness" and "There are many people that I can count on completely". Answers were scored as suggested by Van Baarsen, Snijders, Smit, and Van Duijn (2001) with reverse scoring for the neutral and negative items. Final scores were grouped dichotomously for each question (either '1' for not lonely at all, or '0' for extremely lonely). To dichotomise the scores, questions with an answer between 1 (strongly disagree) to 4 (neither agree nor disagree) were given a '1' for positive questions and '0' for negative or neutral questions and the alternative for a score between 5 (somewhat agree) to 7 (strongly agree). These ratings were then summed with participants receiving a Loneliness Score between 0 and 12. The mean score for the De Jong Gierveld Loneliness Scale was 5.82, $SD = 2.01$.

The Sense of Community Index has a reported coefficient alpha = .94 (Perkins, Florin, Rich, Wandersman, & Chavis, 1990). As suggested by Chavis and Pretty (1999), the word '*Facebook*' replaced the generic term 'block'. This Index was adapted to the online environment on *Facebook* (questions included "I enjoy being on *Facebook*" and "people often use *Facebook* to initiate conflict"). Reliability was checked producing a Cronbach's alpha = .61. These questions were dichotomous with participants answering either 'true' or 'false' to each item. Coding was '0' for false and '1' for true with participants receiving a final summed score between 0 (no SoC at all) to 12 (a great deal of SoC). For SoC Index, $M = 6.12$, $SD = 2.29$.

Participants completed a short questionnaire relating to their use of *Facebook* based on a questionnaire constructed by the researcher. Questions included how often participants check their account, six items regarding the amount of 'friend' requests sent and received, and two questions about their motivation for accessing *Facebook* as a means of staying connected to their off-line community (by answering true or false to "I feel like I have to go on *Facebook* regularly to 'stay in the loop'" and "most of my friends use *Facebook* regularly").

Procedure

After gaining ethics approval from the Faculty of Computing, Health and Science Human Research Ethics Committee, snowballing techniques were employed to

recruit the majority of participants. *Facebook* contacts of the researcher constituted the initial participants. These contacts were sent an email through *Facebook* recommending the research page entitled 'Sense of Community Honours Research' (Appendix C) with the note: "Please help my honours research. All relevant information is on the page. Please recommend this survey to your friends." People were then free to participate in the research as well as recommend the page to their contacts. Follow-up emails with the same message were sent to remind contacts of the research.

Once directed to the *Facebook* page, participants were required to click a web-link directing them to the surveys on Qualtrics. The questionnaire had no time limit and participants took on average 5.08 minutes to complete the survey, $SD = 3.48$.

To recruit additional participants for this research, the Edith Cowan University population was utilised. Tear-off flyers (Appendix D) were posted on noticeboards outlining the study, providing contact details, and directing students to the *Facebook* page. In addition, the researcher entered third year *Cognitive Psychology* computer laboratory classes where students were given time to complete the survey during class time. These students accessed the research through the *Facebook* page and were encouraged to recommend the page to their *Facebook* contacts.

Analysis

Analysis was conducted using SPSS v. 17 for Windows. The demographic variables (except gender and age) were normally distributed similarly for the De Jong Gierveld Loneliness Scale and SoC Index and were considered for interaction and main effects through analysis of variance [ANOVA's]. No significant differences were found, therefore, all participants were included together for all subsequent analysis. Pearson correlation coefficient was calculated between the two uni-modal and normally distributed scale variables (Figures 1 and 2 in Appendix A):

1. 'Loneliness': on a scale between 0 and 12 with 0 being extremely lonely and 12 being not lonely at all ($Kurtosis = -.09$, $SE = .39$; $Skewness = -.33$, $SE = .19$).
2. Sense of Community on *Facebook*: on a scale between 0 and 12 with 0 being no SoC at all and 12 being a great deal of SoC ($Kurtosis = -.73$, $SE = .39$; $Skewness = -.13$, $SE = .19$).

Six separate logistic regressions were performed using the above coding for the two predictor variables. The six categorical response variables measured the way participants sent, received, and accepted 'friend' requests as either '0-5' or '6 or more' in an average month. Each of the questions in Table 1 constituted one of the logistic

regressions. Using the Loneliness Score, SoC on *Facebook* Index, and their interaction, analysis to predict the probability participants engaged in either 0-5 or 6 or more ‘friend request’ interactions per month was conducted. There has been no previous research using these variables therefore stepwise exploratory techniques were applied. Backward stepwise regression is the preferred method as it saturates the equation with all variables removing those not found to be contributing significantly at each step (Peng, Lee, & Ingersoll, 2002). Selection based on the Wald statistic, which checks the statistical significance of each coefficient in the model, is satisfactory in this analysis as the sample size is not small and provides the highest reliability (Agresti & Coull, 1996).

Table 1

Questions for which binary logistic analysis were conducted

In a typical month I tend to:	
1.	Receive ____ friend requests from people I know
2.	Receive ____ friend requests from people I know only from the internet
3.	Send ____ friend requests to people I see often
4.	Send ____ friend requests to people I know through other people
5.	Send ____ friend requests to people I've never met
6.	Accept ____ friend requests from people I do not know

A two-way chi-squared analysis was conducted to categorise participants into either ‘positive’ or ‘negative’ groups for on-line and off-line relationships. Independence can be assumed as the questions were forced answer; therefore participants could only be a part of one of the groups at a time. The expected categories were not less than five (Hills, 1995). Finally, Pearson’s chi-square was considered for significance. Therefore, the assumptions of a chi-squared analysis were not violated.

The importance participants placed in on-line relationships whilst on *Facebook* was ascertained by their answer as either ‘true’ (high) or ‘false’ (low) to the question “I feel like I have to go on *Facebook* regularly to ‘stay in touch’”. Answers to the question “Most of my friends use *Facebook* regularly” was used to determine the level of importance participants place on maintaining their off-line relationships whilst on *Facebook*, as either ‘true’ (high) or ‘false’ (low). The scale variables were recoded so that those with ‘low’ SoC Index on *Facebook* and a ‘low’ Loneliness Score attained 1-6 on the appropriate scale (*Median* = 6, out of a possible score of 11); ‘high’ SoC Index on *Facebook* and ‘high’ Loneliness Score attained 7-11 on the appropriate scale. Median scores were used to counteract any distribution and outlier influence.

Results

In order to answer the first research question, participants' scores on the De Jong Gierveld Loneliness Scale and SoC Index were considered. There was no significant correlation between the scores of these scale items ($R = -.06, p = .49$) indicating that the level of 'loneliness' experienced by participants was not linked to the degree of SoC participants experienced on *Facebook*.

Step-wise binary logistic regressions were used to determine the effect of different variables for participants' answers on each survey question as stated in Table 1. No significant predictive power from participants' De Jong Gierveld Loneliness Score and SoC on *Facebook* was found, either separately or in interaction for the questions: In a typical month I tend to "receive ____ friend requests from people I know"; "send ____ friend requests to people I've never met"; and "accept ____ friend requests from people I do not know". Therefore, the predictor variables were no better than chance alone at determining if participants had high (6 or more) or low (1-5) 'friend request' interaction through receiving them from friends, sending them to people they have not met, and accepting them from strangers.

Significance was found between the number of 'friend requests' participants received from unknown people on *Facebook* and their degree of 'loneliness' and SoC using binary logistic regression. It was found that participants' score on the De Jong Gierveld Loneliness Scale, together with the interaction between De Jong Gierveld Loneliness Scale and SoC Index on *Facebook* provided significant predictive power for the question: "I tend to receive ____ friend requests from people I know only from the internet". The odds ratio and Wald statistic for the variables are found in Table 2. The odds ratio for the De Jong Gierveld Loneliness Scale indicates that as participants scores increase by factor one, the odds being accurately placed in 'high' or 'low' 'friend request' interaction are 40% of the odds of not being accurately placed in these categories (OR 0.40). This implies that those scoring high on the De Jong Gierveld Loneliness Scale, which indicates a low level of 'loneliness', were more likely to report that they received a high amount of 'friend requests' from people they had never met off-line. The significant interaction between the De Jong Gierveld Loneliness Scale and the SoC index on *Facebook* implies that as scores on these scales increase (participants had a higher level of 'loneliness' and higher SoC on *Facebook*), the model increases in its accuracy of placing participants in the correct group of either high or low 'friend request' interaction (OR 1.10).

Table 2

Statistics for included variables for “I tend to receive ____ friend requests from people I know only from the internet”.

Included	Wald (SE)	p	95% CI for Odds Ratio		
			Lower	Odds Ratio	Upper
Constant	-1.55 (0.93)	.10			
Loneliness Scale	5.36 (0.40)	.02	0.18	0.40	0.87
Loneliness Scale x SoC Index on <i>Facebook</i>	5.05 (0.04)	.02	1.01	1.10	1.20

There was significant predictive power to place participants in either high or low ‘friend request’ interaction for question: “I tend to send ____ friend requests to people I see often” based on the participant’s SoC Index on *Facebook*. The results are shown in Table 3. The Wald statistic and odds ratio reveal that as the SoC Index of participants increased by factor one, that is had higher amounts of SoC on *Facebook*, the odds of sending ‘high’ amounts of ‘friend requests’ to people they would see often were 1.23 times the odds of sending a ‘low’ amount of this type of ‘friend request’.

Table 3

Statistics for included variables for “I tend to send ____ friend requests to people I see often”.

Included	Wald (SE)	p	95% CI for Odds Ratio		
			Lower	Odds Ratio	Upper
Constant	-3.10 (0.76)	.001			
SoC Index on <i>Facebook</i>	5.36 (0.18)	.05	1.00	1.23	1.51

Taking into consideration participants’ SoC Index on *Facebook* provided an opportunity to predict their answer to the following question: “I tend to send ____ friend requests to people I know through other people”. The results are shown in Table 4. Participants who had higher levels of SoC were more likely to send a ‘high’ amount of ‘friend requests’ to people they know through other people than those who did not have high levels of SoC on *Facebook*. In fact, with each additional level of SoC on *Facebook*, the odds of a user making a ‘high’ amount of this type of ‘friend requests’ to friends of friends were 1.4 times the odds of a user sending a ‘low’ level of ‘friend requests’ to a friend of a friend.

Table 4

Statistics for included variables for “I tend to send ____ friend requests to people I know through other people”.

Included	Wald (SE)	p	95% CI for Odds Ratio		
			Lower	Odds Ratio	Upper
Constant	-4.51 (1.06)	.001			
SoC Index on Facebook	5.89 (0.14)	.02	1.10	1.40	1.84

A two-way chi-square revealed no significant relationship between scores on the De Jong Gierveld Loneliness Scale and answers of either ‘true’ or ‘false’ to the questions “I feel like I have to go on Facebook regularly to ‘stay in touch’” and “Most of my friends use Facebook regularly”. Regardless of participants’ SoC on Facebook, their level of ‘loneliness’ did not significantly predict their on-line or off-line friendship values.

There was a significant association between SoC on Facebook and an answer of either ‘true’ or ‘false’ to the question “I feel like I have to go on Facebook regularly to ‘stay in touch’”. The proportion of those with either ‘high’ or ‘low’ SoC on Facebook were significantly different when compared to their answer of either ‘true’ or ‘false’ on the question, $\chi^2 = 26.85$ (1, $N = 154$), $p < .001$, $\phi = -.42$. The frequencies are shown in Table 5. While there was not a great deal of difference in the proportion of ‘true’ and ‘false’ answers, it can be seen from Table 5 that, of those who answered ‘false’ to the question, 78% had a ‘high’ SoC on Facebook. There was a moderate negative effect size. The moderate negative effect for the question: “I feel like I have to go on Facebook regularly to ‘stay in touch’”, means that when participants selected ‘false’, they tended to have higher results in the SoC Index on Facebook.

Table 5

Frequency of ‘high’ and ‘low’ SoC on Facebook with answers to both questions.

Answer to Question		SoC on Facebook		Total
		High	Low	
“I feel like I have to go on Facebook regularly to ‘stay in touch’”	True	47 (36%)	40 (64%)	87 (56%)
	False	52 (78%)	15 (22%)	67 (44%)
“Most of my friends use Facebook regularly”	True	74 (51%)	64 (49%)	138 (90%)
	False	13 (81%)	3 (19%)	16 (10%)

A large proportion of participants selected 'true' on the question "Most of my friends use *Facebook* regularly" (90%) with a significant relationship between answers on this question and their level of SoC on *Facebook*, $\chi^2 = 5.38$ (1, $N = 154$), $p < .05$, $\phi = -.19$. The frequencies are shown in Table 5. Within the group who answered 'true' there was little variance in the proportion of SoC on *Facebook*, however, those that answered 'false' were more likely to have a 'high' SoC on *Facebook*. When participants responded 'false' to the question: "Most of my friends use *Facebook* regularly", there was a small negative effect ($\phi = -.19$) with SoC on *Facebook*. As one increases the other decreases, that is, as SoC decreased, the amount of false answers correctly categorised increased. Answers to this question imply the value placed on off-line relationships whilst on *Facebook*. Participants who had negative values for their off-line friends had a higher SoC on *Facebook*.

The majority of participants felt they needed to access *Facebook* regularly to 'stay in the loop' (56%, or 87 participants). It was common for participants to have most of their friends using *Facebook* regularly (89%, 138 participants).

Discussion

Increasingly, *Facebook* is playing an important role in developing community networks and facilitating social contacts, both on-line and off-line. As a result, there is the potential for *Facebook* to have a significant impact on a person's SoC as well as their level of 'loneliness'. This thesis examined the use of *Facebook* by young adults to predict factors that may affect on-line social interaction. The relationship between participants' SoC on *Facebook* and general experiences of 'loneliness' was considered but was not found to be significantly correlated to each other. The research did find that there was a significant ability to predict the amount of 'friend requests' based on scores from the SoC Index as well as the De Jong Gierveld Loneliness Scale. In addition, 'positive' and 'negative' on-line and off-line relationship categories were established based on participants' 'high' or 'low' SoC on *Facebook* and 'loneliness'. It was shown that participants' scores on the De Jong Gierveld Loneliness Scale were not significant in making the categorisation, however, their SoC Index was.

Other research findings considered in the literature review indicated a strong negative relationship between SoC and 'loneliness' in connection with internet usage (Bramston, Bruggerman, & Pretty, 2002; Hogeboom, McDermott, Perrin, Osman, & Bell-Ellison, 2010; Mellor, Stokes, Firth, Hayashi, & Cummins, 2008; Pretty, Bramston, Patrick, & Pannach, 2006; Sum, Matthews, Pourghasem, & Hughes, 2009; Wilkinson, 2010; Wong, Sands, & Solomon, 2010). However, the current study found that there was no relationship between level of 'loneliness' and level of SoC that a person had on *Facebook*. This difference in the results could be explained in that, while previous research looked at people's usage of the internet as a whole, this study only examined a person's use of *Facebook* which seems to function specifically as a site to connect with friends (boyd & Ellison, 2008; facebook.com, 2010a). To better explore these differences, further research should be conducted to examine whether people who are 'lonely' actively avoid using the site. Another factor which might influence the results is that regardless of a person's 'loneliness', *Facebook* increases participants' SoC through its provision of consistent interaction between both off-line and on-line facets of a person's life, thus reducing the experience of 'loneliness' to non-significant levels when comparisons are made to the users' SoC on *Facebook* (boyd & Ellison, 2008; Lewis & West, 2009; Soderstrom, 2009).

Further analysis was conducted to more precisely discern whether 'loneliness' and SoC on *Facebook*, and/or their interaction may be important for particular behaviours on *Facebook*.

The first finding from the logistic regression was that there is a connection between a person's level of 'loneliness' and their response to 'friend requests' from people who they have only come to know from the internet. Those scoring high on the De Jong Gierveld Loneliness Scale, (that is, they were 'lonely') were more likely to receive a high amount of 'friend requests' from people they were acquainted with from the internet alone. This finding is similar to Soderstrom's (2009) category of users who had strong interaction with people in on-line forums (with similar interests) despite having few geographically close friends ('loose on-line ties to strangers'). It can be seen that these participants were able to build a community on-line as a result of their 'loneliness', although this is the only category where 'loneliness' was a significant factor. Since this category most likely includes groups who share a common interest, despite their geographic isolation, it is reasonable to presume that this group would establish a SoC, a finding supported by the factors discussed below.

There was also an interaction between scores on the De Jong Gierveld Loneliness Scale and SoC Index that facilitated the significance of the ability to classify participants into the category of 'high' 'friend requests' sent to people known only through the internet. This relationship indicates that when scores on these scale items increased (that is, had both a high SoC on *Facebook*, and a high level of 'loneliness') it was more likely that participants who interacted in a 'high' amount would be placed in their correct category. The isolation of this particular group raises significant research issues. If a person had indicated that in general they felt 'lonely' but had a high SoC on *Facebook* then one assumption is that they receive their main SoC on-line. If that is the case then they may possibly be more likely to interact with others in a fake/'loose' way (Cassidy & Queirolo, 2009; Ellison, Steinfield, & Lampe, 2007; Faircloth, 2009; Lewis & West, 2009; Livingstone, 2008; Soderstrom, 2009). Also, if Facebook provides the only SoC for these participants then it is possible that they are at higher risks of negative interactions affecting them, such as cyber-bullying and racial discrimination as previous research has indicated that these behaviours are intensified in on-line interactions (Buffardi & Campbell, 2008; Muise, Christofides, & Desmarais, 2009; Raacke & Bonds-Raacke, 2008; Tynes & Markoe, 2010).

The last two findings of the logistic regression found that as participants' SoC Index increased (had higher amounts of SoC on *Facebook*) they were more likely to be re-categorised as sending a 'high' amount of 'friend requests' to people they would see frequently as well as to friends-of-friends. This suggests that, for them, *Facebook* is a safe place to interact with their off-line 'friends' as well as a place to build tentative

relationships with people they know through their original 'friends'. This finding supports previous research which found that *Facebook* is a place where users seek and offer support to their networks, which increases the experience of a shared emotional connection, one of the elements required for SoC (Ardichvili, 2009; Back et al., 2010; Campbell, 2008; Chavis, Hogge, McMillan, & Wandersman, 1986; Ellison et al., 2007; Forster, 2004; Freeman, Barker, & Pistrang, 2008; Kruger et al., 2001; Sum et al., 2009; Wilkinson, 2010). An interesting possibility for future research is the expansion of the idea of spheres of influence which focuses on the spread of information between people. The current research suggests that people with a high amount of SoC on *Facebook* are happy to engage with other users who they know either personally or with whom there is only one-degree of separation. By focusing on this aspect, social networking theory may be able to find an equation that could predict the distribution of information (Buchanan, 2010; Foster-Fishman, Pierce, & Egeren, 2009; Fox et al., 2008; Lefebvre, 2009; Schulte, 2009; D. Shen, Nuankhieo, Huang, Amelung, & Laffey, 2008; Tynes & Markoe, 2010). Perhaps, if the hubs are people with a high SoC on *Facebook*, despite making only moderate steps to connect with others, marketers, by focusing on these users, would be able to spread information about new products more quickly.

Positive and negative value placed on relationships on-line and off-line were significantly categorised with a chi-squared analysis for SoC on *Facebook*. The moderate negative effect for the question: "I feel like I have to go on Facebook regularly to 'stay in touch'", means that when participants selected 'false', they tended to have higher results in the SoC Index. This implies that even though participants do not feel obliged to connect with their on-line friends through *Facebook*, a sufficient SoC is fostered on the SNS to encourage users to continue interacting (Alter & Oppenheimer, 2009; Cassidy & Queirolo, 2009; Ellison et al., 2007; Forster, 2004; Orr et al., 2009). This contradicts the argument that people use *Facebook* to superficially maintain 'loose' connections (Ardichvili, 2009; boyd & Ellison, 2008; Buchanan, 2010; Lefebvre, 2009; Lewis & West, 2009; Perez-Garcia, 2010; Soderstrom, 2009). Further research could clarify the cause and effect of the relationship. That is, whether users bring this SoC to *Facebook* and thus keeps the momentum of the group going, or if it is the SNS itself that has developed this SoC. A study into this factor could build on existing research (Forster, 2004; Kruger et al., 2001; Parker et al., 2001; D. Shen et al., 2008).

When participants responded 'false' to the question: "Most of my friends use *Facebook* regularly", there was a small negative effect with SoC on *Facebook*. The small effect could be accounted for by the reduced number of responses by participants

of 'false' rather than 'true' to the question. Participants who had negative values for their off-line friends had a higher SoC on *Facebook*. One possible explanation is that people who do not have many of their off-line friends on *Facebook* still enjoy using the site because of the SoC they experience whilst on it (Ardichvili, 2009; Forster, 2004; Kegler et al., 2005; Kruger et al., 2001; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Pretty et al., 2006; D. Shen et al., 2008; Soderstrom, 2009; Sum et al., 2009; Wong et al., 2010). It is possible that *Facebook* supports both the integration and fulfilment of needs for members.

The positive value which participants gave to off-line relationships whilst on *Facebook* is shown when participants answered 'true' to the question "Most of my friends use *Facebook* regularly". Participants with a positive value were equally divided between the amounts of SoC on *Facebook* that they experienced, suggesting that individual amounts of SoC existed regardless of the value placed on off-line friends who were on-line with them (Ardichvili, 2009; Buchanan, 2010; Cassidy & Queirolo, 2009; Ellison et al., 2007; Forster, 2004; Harrison, 2009; Kruger et al., 2001; Lewis & West, 2009; D. Shen et al., 2008; Soderstrom, 2009; Sum et al., 2009). A possible explanation for this result is that the ability to be consistently on-line may be a factor in increasing participants' strong SoC on *Facebook* (Bonetti, Campbell, & Gilmore, 2010; Fokkema & Knipscheer, 2007; Kruger et al., 2001; Lewis & West, 2009; Soderstrom, 2009).

Limitations

There were a number of limitations to this research which have provided valuable learning experiences for the researcher and opened up areas for future research. One of the major features impacting the current research was the scales used. The coding of raw data was conducted as recommended for the De Jong Gierveld Loneliness Scale (De Jong Gierveld, 1987; Van Baarsen, Snijders, Smit, & Van Duijn, 2001) and SoC Index (Chavis & Pretty, 1999; Perkins et al., 1990). The resulting data however, was categorical which limited the type of analysis available and thus the conclusions that could be made in regards to the results. Future research would benefit from continuous scales.

Another factor which influenced the research was the classification of the number of 'friend requests'. Statistics emanating from *Facebook* stated that the number of 'friend requests' for an average user would be eight (facebook.com, 2010b). Therefore, this research used that number as an average to establish the number of 'high' 'friend requests' as '6 or more', however, this number seems to be an over-

estimation of the interaction of this kind. It is possible that the site inflated their numbers in order to encourage a feeling of success for the site and thus possible flow-on effects for users of *Facebook* (Chavis et al., 1986; McMillan & Chavis, 1986). Future research would benefit from a more precise scaling system for the questions on which the binary regressions were based.

Another limitation is the self-report measures used in this research. These types of measures have a long history of controversial results because they are subject to social desirability and memory decay (Kruger et al., 2001). Given that the current research was anonymous with no timeframe limit, it is hoped that these detractors from self-report were avoided.

Statistics from the *Facebook* site reported that 56.7% of users were female (facebook.com, 2010b), however, in the current research there was a predominantly female sample group (82%). Given the free-form, volunteer nature of the research this is unusual for an on-line format, as the literature related to on-line research suggests that women have a lower rate of participation (Kruger et al., 2001; K. N. Shen & Khalifa, 2010; Wilkinson, 2010). Perhaps this discrepancy could be further investigated to explore the idea that while males may be more likely to participate in on-line research, *Facebook*, with its equal proportion of female users, may be a domain that may elicit greater female response. Although comparative analysis was conducted to ensure no significant differences between genders, further research investigating female use of *Facebook* could discern if there are unique characteristics for this SNS, or for participating in anonymous on-line research surveys that might clarify the discrepancy between reported female users and the number of female participants the current research attracted. Another possibility is that the current results were biased because the researcher is female. Given the recruitment techniques were primarily through snowballing initiating from the researcher, a bias towards female participants may have existed. Also, off-line recruitment was conducted in a psychology class that consisted of predominately female students. These factors might have caused a higher female response, or possibly it may again be a distortion of their statistics by *Facebook*.

Implications

Health-care professionals do not tend to incorporate interaction on SNSs such as *Facebook* in the assessment of their clients' well being, possibly due to a misunderstanding about the significance of *Facebook* and concern about misuse which could obscure the separation between their 'professional' and 'personal' lives (Hall, 2010; Perez-Garcia, 2010; Seeman, Seeman, & Seeman, 2010). Results from the current

research suggests that psychologists and other health-care practitioners would be better informed if they considered the use of SNSs, in particular *Facebook*, and its connection to SoC and the effect this may have on their client's well-being.

Changes within society and with technology have resulted in an increase in the amount of psychological help sought on-line (Kruger et al., 2001; Perez-Garcia, 2010; Seeman et al., 2010). The existence of SoC on *Facebook* found in the current study suggests that it may be worth exploring non-traditional on-line domains for providing psychological services. SoC provides people with a feeling of safety and emotional security (Chavis et al., 1986; Kruger et al., 2001; McMillan & Chavis, 1986; Sarason, 1976; Taylor, McMinn, Bufford, & Chang, 2010). By utilising *Facebook*, professionals might be able to engage with clients in a forum in which their clients feel comfortable and familiar.

The current research found SoC to be high among *Facebook* users. *Facebook* claims that it gives "people the power to share and make the world more open and connected" (facebook.com, 2010a, info). This is a significant claim and the current research findings suggest that this claim might be substantiated, as, regardless of whether a person has 'positive' or 'negative' value placed on their on-line and off-line relationships, people experience a significant amount of SoC on *Facebook*. One factor which facilitates the development of SoC is defined boundaries (as explained in the literature review) that enable emotional safety to be experienced and elaborated. In turn this allows people to open up and share their views with other people within the community (Chavis et al., 1986; McMillan & Chavis, 1986; Parker et al., 2001; Sarason, 1976; Taylor et al., 2010). An implication of this is that, since *Facebook* fosters a SoC, it allows members to feel safe through conformity to the group, which encourages them to express their opinions freely. This is a situation which can give rise to the expression of opinions which may be censured or disapproved of in the wider community but which are encouraged within the group (McMillan & Chavis, 1986; Tynes & Markoe, 2010). When out-group attitudes are emphasised, there is a possibility that in an environment that fosters social conformity among members, incidences of negative interactions may occur (K. N. Shen & Khalifa, 2010; Tynes & Markoe, 2010). Previous research into Facebook has revealed an increase in exposing user's underlying racist attitudes and a tendency for colour-blind racial discrimination to occur more intensely than participants would feel comfortable engaging in off-line (Tynes & Markoe, 2010). For this reason, further research into the ethnicity of user's 'friends'

would be useful to explore how exclusive and excluding groups of people could be developed on the SNSs and the effect this might have.

Conclusion

As the use of the internet continues to grow and SNSs become increasingly popular, the link between SoC and use of SNSs to interact with others is becoming ever more important. Despite this, little psychological research has been conducted to investigate the off-line effects of on-line interactions. This study found mixed results in using 'loneliness' and SoC on *Facebook* to predict users' interactions on-line and the value of on-line and off-line friendships. Those who have already developed strong connections off-line are more likely to use *Facebook* to connect and keep in touch with their friends, whilst those who are not already strongly connected will not establish such connections whilst on-line (Ellison et al., 2007; Fokkema & Knipscheer, 2007; Lewis & West, 2009; Orr et al., 2009; Park, Kee, & Velenzuela, 2009; Raacke & Bonds-Raacke, 2008; Sum et al., 2009; Walther, Heide, Hamel, & Shulman, 2009; Wellman, Haase, Witte, & Hampton, 2001; Wilkinson, 2010). This study has built upon existing knowledge of friendship connections on SNSs and influences of SoC and levels of 'loneliness' to show that, for certain types of interaction, people's SoC on *Facebook* is an important element in predicting participant's behaviour. 'Loneliness' also played a role in explaining the amount of 'friend requests' received from people known from the internet, a finding that is dissimilar to previous research. Overall, this study found that there is an important link between SoC and *Facebook* usage which should not be ignored and that examining a person's on-line interactions can therefore have important implications for their psychological well-being.

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Appendix A – Additional Tables & Figures

Table 1

Demographic variables for participants

		Number	Percentage	Cumulative Total
Gender	Male	25	16.2%	16%
	Female	129	83.8%	100%
Relationship type	Single	59	38.3%	38%
	Casual	10	6.5%	45%
	Serious	47	30.5%	75%
	De/Facto	11	7.1%	82%
	Married	25	16.2%	99%
	Divorced	1	0.6%	99%
	Widowed	1	0.6%	100%
Location	Inner-city Perth	73	47.4%	47%
	Suburban Perth	55	35.7%	83%
	Rural WA	6	3.9%	87%
	Interstate	9	5.8%	93%
	Overseas	11	7.1%	100%
Education	High School	53	34.4%	34%
	Graduation			
	Degree/Diploma	77	50.0%	84%
	Graduate Degree	24	15.6%	154/100

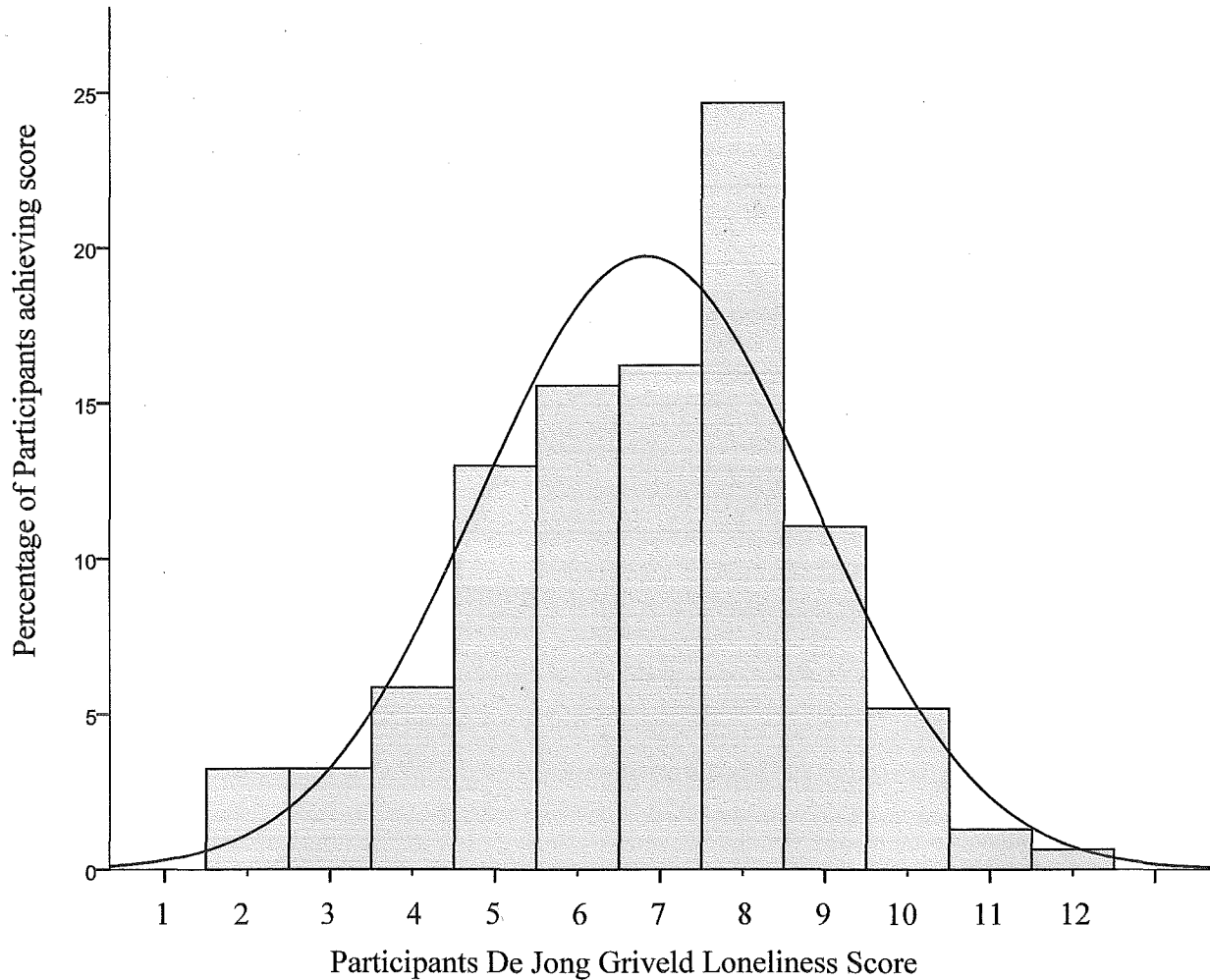


Figure 1. Percentage of participants’ achieving each level of De Jong Gierveld Loneliness Score

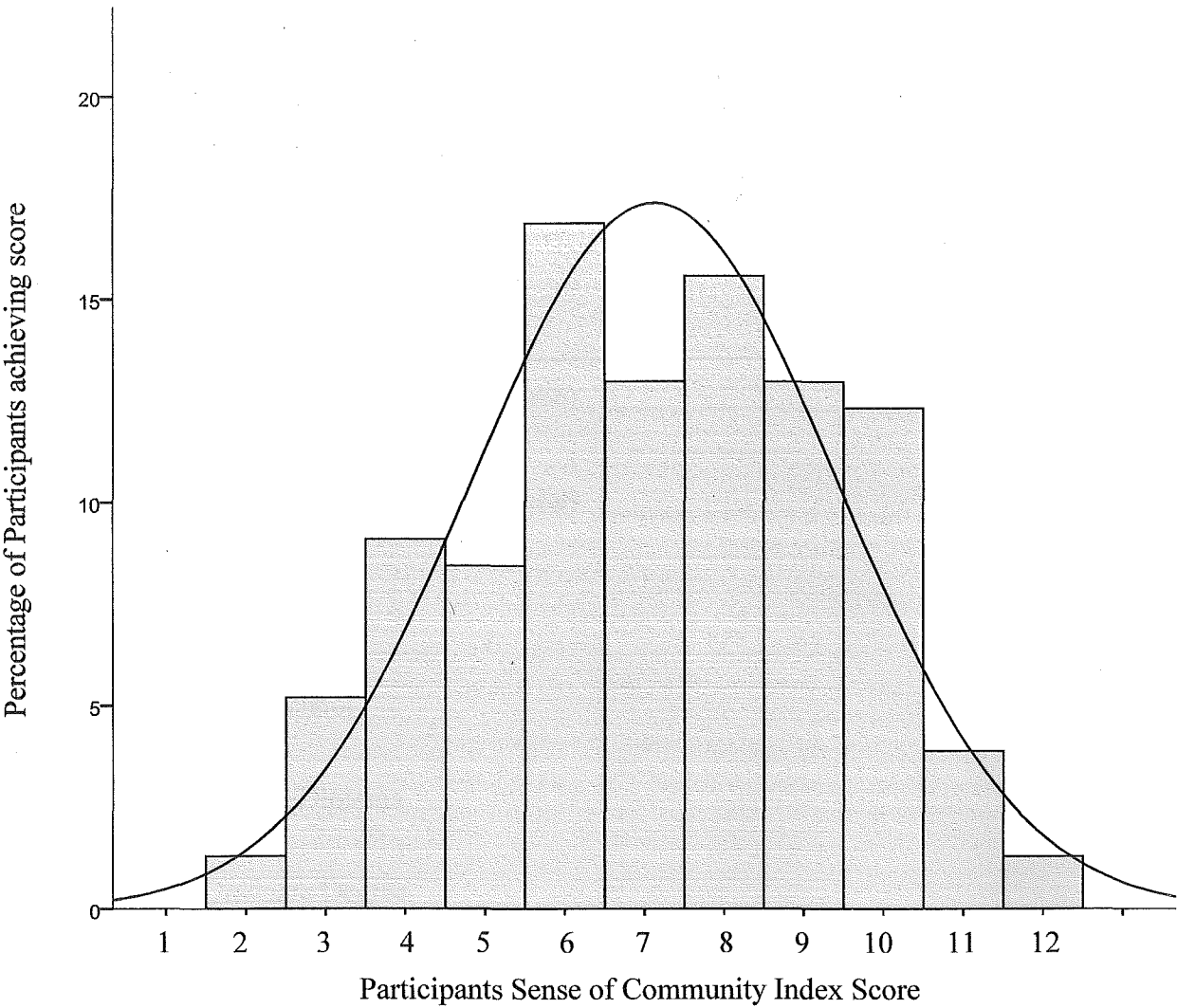


Figure 2. Percentage of participants’ achieving each level of SoC Index

Appendix B – Copyright Free Questionnaires

Demographics

Age: _____

Gender: Male ☐

Female ☐

Location: Postcode (within Australia) _____

Country (outside Australia) _____

Level of Education:

☐ High School

☐ Degree/Diploma

☐ Graduate Degree

☐ Other _____

Relationship Status:

☐ Single

☐ Casually Dating

☐ Seriously Dating

☐ De facto/Cohabiting

☐ Married

☐ Divorced

Below are statements regarding life in general with which you may agree or disagree. Indicate your agreement with each item by crossing the appropriate box following that item. Please be open and honest in your responding. The 7-point scale is as follows:

1 = strongly disagree

2 = disagree

3 = slightly disagree

4 = neither agree nor disagree

5 = slightly agree

6 = agree

7 = strongly agree

1. I miss the pleasure of the company of others.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

2. I often experience a general sense of emptiness.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

3. There is always someone that I can talk to about my day-to-day problems.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

4. There are plenty of people that I can lean on in case of trouble.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

5. There are many people that I can count on completely.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

1 = strongly disagree

7 = strongly agree

6. I often feel lonely.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

7. I feel my circle of friends and acquaintances is too limited.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

8. I miss having people around.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

9. Often I feel rejected.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

10. I miss having a really close friend.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

11. There are enough people that I feel close to.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

12. I can call on my friends whenever I need them

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7

Facebook Usage

1. I check my Facebook account:

☐ Multiple times per Day ☐ Daily ☐ Weekly/Monthly

2. In an average month I tend to:

Receive _____ friend requests from people I know.

☐ 0-5 ☐ 6-10 ☐ 10+

Receive _____ friend requests from people I know only from the internet.

☐ 0-5 ☐ 6-10 ☐ 10+

Send _____ friend requests to people I see often.

☐ 0-5 ☐ 6-10 ☐ 10+

Send _____ friend requests to people I know through other people.

☐ 0-5 ☐ 6-10 ☐ 10+

Send _____ friend requests to people I've never met

☐ 0-5 ☐ 6-10 ☐ 10+

Accept _____ friend requests from people I do not know.

☐ 0-5 ☐ 6-10 ☐ 10+

3. I feel like I have to go on Facebook regularly to 'stay in the loop'.

☐ True ☐ False

4. Most of my friends use Facebook regularly.

☐ True ☐ False

Following are some statements that people might make about Facebook. For each statement, please indicate if it is mostly true or mostly false about your experience of Facebook simply by putting a cross in "true" or "false"

1. I enjoy being on Facebook.

True ☐ False ☐

2. My 'friends' on Facebook do not share the same values as me.

True ☐ False ☐

3. My 'friends' and I want the same things from Facebook.

True ☐ False ☐

4. I am personally acquainted with most of the 'friends' I have on Facebook.

True ☐ False ☐

5. I feel at home on Facebook.

True ☐ False ☐

6. Very few of my 'friends' know me outside of Facebook.

True ☐ False ☐

7. I care about what my 'friends' think of my Facebook activity.

True ☐ False ☐

8. I feel I can contribute on Facebook.

True ☐ False ☐

9. If there is a misuse of Facebook, people using Facebook feel they can get it solved.

True ☐ False ☐

10. It is very important to me to be on Facebook.

True ☐ False ☐

11. People often use Facebook to initiate conflict.

True ☐ False ☐

12. I expect to keep my Facebook presence for a long time.

True ☐ False ☐

Appendix C - Facebook page for research entitled 'Sense of Community Honours Research'

Information for Facebook Page

Dear Potential Participant,

My name is Alison Bagworth and I am completing my Honours degree in Psychology at Edith Cowan University. As part of that degree, I am required to complete a research project. This project has been approved by the Faculty of Computing, Health and Science Human Research Ethics Sub-Committee. I am interested in examining the relationship between loneliness and Sense of Community and the way people use Facebook. Participation in the study involves completing a questionnaire that should take no longer than 10 minutes. The questionnaire is available for you to complete online.

If you are interested in participating and completing the questionnaire, please click the link below. No identifying information is required and in no way will you be identified. In the unlikely event that you may experience any distress from completing the questionnaire, you will find some helpful links on the 'Links' tab.

At the end of this study, a report of the results will be posted on this page in November 2010. This report may also be published, but in no way will you, or any other participant, be identifiable.

If you have any questions about the research or would like further information about the project please contact me, Alison Bagworth ([REDACTED]); email: abagwort@our.ecu.edu.au), or submit a question on the discussion board. Alternatively you may contact one of my supervisors, Associate Professor Lynne Cohen (telephone: 6304 5575; email: l.cohen@ecu.edu.au) or Dr. Cath Ferguson (telephone: 6304 5728; email: c.ferguson@ecu.edu.au). If you are interested in speaking to someone independent of this research, please contact the fourth year coordinator Dr. Justine Dandy (telephone: 6304 5105; email: j.dandy@ecu.edu.au).

Thank you for taking the time to participate in the research.

Alison Bagworth

Facebook | Sense of Community Honours Research - Windows Internet Explorer

http://www.facebook.com/#!/pages/Sense-of-Community-Honours-Research/105641679467940?v=info

Facebook | Sense of Community Honours Resear...

facebook Search Home Profile Account

This Page has not been published. To make this Page public, [publish this Page](#).

AUSTRALIA ECU UNIVERSITY EDITH COWAN

Edit Page

This project has been approved by the Faculty of Computing, Health and Science Human Research Ethics Committee.

Information

Founded:
Alison Bagworth -
abagwort@our.ecu.edu.au

Links See All

Lifeline Australia - Home
7:24pm Mar 25

beyondblue: the national depression initiative
7:23pm Mar 25

Create a Page for My Business
Share

Sense of Community Honours Research Become a Fan

Wall Info Discussions Links Notes +

Edit Information

Basic Info

Founded: Alison Bagworth - abagwort@our.ecu.edu.au

Detailed Info

Company Overview:

Dear Potential Participant,
I am interested in examining the relationship between loneliness and Sense of Community and the way people use Facebook. Participation in the study involves completing a questionnaire that should take no longer than 10 minutes. The questionnaire is available for you to complete online.

If you have any questions about the research or would like further information about the project please submit a question on the discussion board or contact me, Alison Bagworth (telephone: 0402 676 927; email: abagwort@our.ecu.edu.au). Alternatively you may contact one of my supervisors, Associate Proffessor Lynne Cohen (telephone: 6304 5543; email: l.cohen@ecu.edu.au) or Dr. Cath Ferguson (telephone: 6304 5728; email: c.ferguson@ecu.edu.au). If you are interested in speaking to someone independent of this research, please contact the fourth year coordinator Dr. Justine Dandy (telephone: 6304 5105; email: j.dandy@ecu.edu.au).
(read less)

Mission:

If you are interested in participating and completing the questionnaire, please click the link below. No identifying information is required and in no way will you be identified. In the unlikely event that you experience any distress from completing the questionnaire, you will find some helpful links on the 'Links' tab.

Products:

At the end of this study, a report of the results will be posted on this page in November 2010. This report may also be published, but in no way will you, or any other participant, be identifiable.

Create an Ad

Bathurst V8 Hot Laps!

exclusive

Exclusive offer. V8 Hot Laps at Mt Panorama Bathurst! Only valid for 10th - 14th November 2010. Buy now! Adrenalin.com.au

Like

NAB Classic Banking

No monthly account fees, no overdrawn fees and more ATMs in more locations. All this with NAB Classic Banking. Hurry and apply now!

Like

Groovy Kids

Groovy Kids is a ne

Chat (Offline)

Internet | Protected Mode: On 100%

Appendix D – Tear-off Advertisement Flyer

Do You Use Facebook?

Are You Between 18 and 30 Years Old?



My name is Alison Bagworth, I am an honours student in psychology at ECU. I am researching how Sense of Community and Loneliness influence the way people use Facebook. Participation in the study involves completing a questionnaire that should take no longer than 10 minutes. The questionnaire is available for you to complete online. If you are interested in participating in this research, search for the “Sense of Community Honours Research” page on Facebook. Alternatively, you can email me on abagwort@our.ecu.edu.au and I will send you the link.

If you have any questions about this research, please email or phone me, Alison Bagworth: [REDACTED]; or abagwort@our.ecu.edu.au

