

**School of Psychology and Speech Pathology**

**Personality and Personological Predictors of  
Psychological Sense of Community**

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## **Declaration**

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material, which has been accepted for the award of any other degree or diploma in any university.

Signature: .....

Date: .....

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## **Abstract**

The word *Community* has been interpreted or utilised in a number of ways throughout the ages. I attempt to provide a historical and chronological overview of the development of the word *Community*, to the subsequent use of the term *Psychological Sense of Community* (PSOC) to the eventual development of the theory of PSOC and how this theory captures many of the significant elements of the historical conceptualisations.

PSOC is the sense of belonging or connectedness that one develops by being involved with others, who share similar experiences; a 'place' where one feels accepted, included and is contributing to the needs of the group or to individuals within the group. Research has shown that connecting with others in the community, whether geographical or relational, is important for general wellbeing and physical and mental health.

Yet despite this research, it seems we are no closer to understanding 'how' an individual develops a PSOC. Over 20 years ago, it was suggested that personal predispositions or early social experiences may have an impact on the development of SOC. However, since this time there has been little interest in the way people develop a sense of community, and the personality factors that may have an impact on the development of this psychological state. Although this research cannot investigate the 'how' of this process, due to being cross-sectional in nature, this thesis is a beginning. It is an investigation into what individual characteristics might be important in the development of a PSOC. Previous research has indicated individual aspects of personality, personological factors or demographic variables being connected to the development of PSOC, whereas this research explores a number of these key factors in combination with each other as they are related to PSOC.

Data ( $N= 602$ ) were collected through an online survey method, on a number of personality (the Big Five: extroversion, openness, agreeableness,

conscientiousness and neuroticism) and personological variables (optimism, self-esteem, locus of control, attachment style, need for affiliation, empathy). Using SEM the personality and personological constructs were modelled separately, before these reduced models were then integrated into a single structural model for testing the conjoint effects of the personality and personological constructs on PSOC.

The findings are consistent with previous research and extend these by showing that both personality and personological factors, are significant predictors of PSOC and in a combined SEM model personality and personological factors (in particular, extroversion, optimism, openness and attachment style) account for 26.8% of the variance in PSOC. Perhaps in the future, individual PSOC-related interventions may be beneficial in any or all of these areas to help assist or improve the development of an individual's level of PSOC. Further research is required to understand the relationships between these variables.

### **Personal Motivation**

As a young adult, I had the opportunity to live in a close communal environment. Through this experience I became interested in the differences between people in terms of how they participated or connected with this community. Some connected well whilst others struggled and yet remained connected to the community, year in, year out. This interest contributed to an interest in psychology, which then led me to working in West Australian rural and remote settings in a mental health capacity. These experiences and environments provided further opportunities to see how people connected with their communities and why some responded well and others did not and the resulting impact on their mental health.

## Chapter 1: Introduction

*One person's sense of neighbourly community may well be another's invasion of privacy depending on their interpretation of the situation..... Individuals are not passive recipients of community structures; they are active agents in their own lives (p. 64, Hillier, 2002).*

Psychological sense of community (PSOC) has become an important concept in psychology since Sarason (1974) discussed it in his seminal work *Psychological Sense of Community: Prospects for a Community Psychology*. Sarason stated that this concept (PSOC) was, at the time, "...not a familiar one in psychology.... [as] it does not sound precise, it obviously reflects a value judgement and does not sound compatible with hard science" (p. 156). In proposing a general theory Sarason argued that most people can identify when they have (or have not) experienced this phenomenon, and that the characteristics of PSOC are simple to identify. He stated that these are: "...the perception of similarity of others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, [and] the feeling that one is part of a larger dependable structure" (p. 157). Newbrough and Chavis (1986) identify PSOC as a primarily psychological concept, which reflects the personal experience of belonging to a collective. There is, existing in the same moment, a sense of independence or individuality that is separate from others, but also there is a 'we-ness', which is that sense of belonging with others.

This connection with others in our community, whether geographical or relational, is vital for our overall wellbeing and our physical and mental health. Instances where individuals are disconnected, isolated, withdrawn from their community, or lacking a sense of belonging, have been shown to lead to significant physical and mental health concerns. One of the key

criteria for diagnosing depression is a loss of interest in pleasurable activities (DSM-IV-TR) which generally means that individuals begin to isolate themselves and withdraw from activities involving others (American Psychiatric Association, 2000). A severe disconnection from others can have fatal consequences and Durkheim best presents this in his discourse on Suicide (1930/1968); (see also Baumeister & Leary, 1995; Berkman, Glass, Brissette, & Seeman, 2000; Bille-Brahe & Wang, 1985; Cacioppo, Hawkley, & Thisted, 2010; Chipuer, 2001; Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007; Maimon & Kuhl, 2008). Also, in non-clinical populations PSOC, sense of belonging or connectedness or variations on these concepts have been linked not only to measures of subjective well-being but also to a number of mental health factors or behaviours, and the 'need to belong' has been shown to be a fundamental need (Baumeister & Leary, 1995). A thorough discussion of the ways that PSOC is of value to individuals will be explored in detail in [Chapter 3](#).

However, what has not become clear in the 40 years since Sarason's exhortation that PSOC should be the core focus of study for Community Psychology, is what are the individual prerequisites that may contribute to or assist in the development of a PSOC, in particular, from a personality or personological perspective<sup>1</sup>. Therefore, the focus of this thesis is to explore what we currently know in the field of PSOC research in terms of these personality or personological factors and to endeavour to expand our understanding of these prerequisites.

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<sup>1</sup> Personological: refers to all individual level variables, such as self-esteem, attachment etc other than personality factors

It is understood that the word 'personological' is often used as an overarching term that covers not only the specific Big 5 personality characteristics e.g., extroversion, but also all other differences that would be considered 'Individual'. Lounsbury (Lounsbury & DeNeui, 1996; Lounsbury, Loveland, & Gibson, 2003) has used 'personological' in this way. However, due the number of variables assessed in this research which are all related to individual differences, it was decided that the Big 5 personality factors would be described as 'personality' and the term 'personological' would be used to categorise the rest. This would allow for ease of description, analysis and discussion.

## Conceptual Framework

This research is grounded in two arenas/fields of study: community psychology and the concept of individual differences in terms of personality and personological factors (or personality psychology).

In particular, McMillan and Chavis' (1986) theory of Psychological Sense of Community (PSOC) will serve as the theoretical framework for this study. Briefly, this theory (to be discussed more fully in the [literature review](#)) consists of four separate (but equally important) elements, namely, membership, influence, integration and fulfilment of needs, and a shared emotional connection. *Membership*, is a central theme of PSOC and is the sense of belonging – 'the feeling that I am part of something'. The next element of *Influence*, is the belief that an individual can have an impact on the group. *Integration and fulfilment of needs* refers to a dynamic where an individual who feels as though their needs are being met by the group, will continue to be involved with the group, thus promoting a sense of belonging. Finally, the notion of a *Shared Emotional Connection* is where individuals will connect with others who have shared in or participated in similar experiences or events.

McMillan and Chavis (1986) have suggested that their theory on PSOC can be generalised to fit many types of communities, whether geographical, relational, cross-cultural, adult, adolescent or child and overall the evidence supports this claim. This theory has been investigated in a number of diverse environments and settings; the workplace or organisations (e.g., Burroughs & Eby, 1998; Catano, Pretty, Southwell, & Cole, 1993; Hughey, Speer, & Peterson, 1999; Klein & D'Aunno, 1986; Lambert & Hopkins, 1995; Pretty & McCarthy, 1991; Pretty, McCarthy, & Catano, 1992), online communities, (e.g., Obst, Smith, & Zinkiewicz, 2002c; Obst, Zinkiewicz, & Smith, 2002a, 2002b; Reich, 2010), religious groups (Miers & Fisher, 2002), various and multiple territorial communities (Brodsky & Marx, 2001; Prezza & Costantini, 1998; Prezza, Pacilli, Barbaranelli, & Zampatti, 2009; Sagy, Stern, & Krakover, 1996). PSOC has also been investigated and validated as an important concept in various educational environments (DeNeui, 2003;

Fyson, 2008; McCarthy, Pretty, & Catano, 1990; Pooley, Breen, Pike, Cohen, & Drew, 2008; Pooley, Cohen, & Pike, 2005; Pooley, Pike, Drew, & Breen, 2002; Pretty, 1990; Pretty, Andrewes, & Collett, 1994; Royal & Rossi, 1996; Yasuda, 2009). These studies provide a sample of the extensive research that offers further support for McMillan and Chavis' (1986) hypothesis that their theory can be applied to most situations or settings.

Despite the extensive support for McMillan and Chavis' (1986) theory and perhaps because of Community Psychology's interest to separate itself from the clinical orientation within psychology, much of the existing research has focused on developing measures of PSOC. Research has often measured the existence of PSOC in communities, rather than developing a clearer understanding of what PSOC is, and how someone develops or experiences this. In other words; the emphasis has been on the measurable aspects of PSOC and not on the complexities and subtleties of the experience of community. This has meant that the resulting literature within the field of Community Psychology, specifically with regards to PSOC, is at times fragmented and lacking in clarity.

In an effort to restore or create clarity from a disjointed literature it was decided that there was a need to return to the core meaning of word *Community* and how this evolved or developed into the concept *psychological sense of community*. PSOC is then explored in terms of the basic theories, measurement tools, and environments in which it has been researched and how these have evolved over time. Following this, the importance or value of PSOC in terms of wellbeing or mental health is discussed, which then leads to the investigation of the individual predictors of PSOC.

Due to the lack of synthesis and integration in the previous research there has been limited previous research that has shown that PSOC (or similar concepts, such as sense of belonging, social connectedness, sense of place) is connected to personality and personological variables. A review of the literature illustrates a number of the factors shown to be correlated with

PSOC or similar concepts (and will be further expanded upon in the [literature review](#)), and include:

- Extroversion/Big Five: Those higher in extroversion and agreeableness showed higher levels of PSOC (Lounsbury & DeNeui, 1996; Lounsbury et al., 2003).
- Optimism/Pessimism: Individuals higher in pessimism were less likely to develop and/or maintain their social supports (Ciarrochi & Heaven, 2008). Individuals higher in optimism showed higher levels of PSOC (Dewar, 2004).
- Self-Esteem: Individuals living in small towns compared to small and large cities showed higher self-esteem and PSOC (Prezza & Costantini, 1998).
- Attachment style: Individuals with an insecure attachment were found to report greater feelings of loneliness (i.e. the absence of a sense of belonging) (Larose & Bernier, 2001).
- Locus of Control (LOC): In concepts related to PSOC individuals with an internal locus of control were found to have greater general and school specific competence (Cauce, Hannan, & Sargeant, 1992).
- Need for Affiliation (NfA): Research has indicated that need for affiliation has been correlated with PSOC in both family and work settings (Burroughs & Eby, 1998; Davidson, Cotter, & Stovall, 1991)
- Empathy: As yet there appear to have been no studies that directly link empathy to a sense of community, although there have been many studies investigating the role of empathy in aggressive and delinquent behaviours (De Kemp, Overbeek, De Wied, Engels, & Scholte, 2007). Empathy is generally described as the ability to understand the feelings of another, although there appears to be a lack of a clear consensus on a specific definition (Aristu, Tello, Ortiz, & del Barrio Gándara, 2008). Extrapolating from this, it would seem that, having the ability to understand the feelings and experiences of another

individual, and therefore not being aggressive, as investigated by De Kemp and colleagues (2007), would be important in whether someone is able to connect with others and therefore develop a *Shared Emotional Connection*. It would seem then that this connection between Empathy and PSOC needs to be further explored, developed and understood.

Research has indicated that PSOC has become a fundamental concept within psychology. We have recognised that the absence of PSOC can at times be detrimental to an individual's mental health and it would seem that our current interventions have not been enough to solve the mental health crisis that we face; therefore preventative approaches are needed. This mental health crisis is reflected in statistics such as "...among young people 15-29 years of age, suicide is the second leading cause of death globally" (World Health Organisation, 2014) and in Australia, the Senate Select Committee on Mental Health (2006) reported that up to 60% of individuals with mental health needs do not receive a service. As Chavis and colleagues (1986) state "...in understanding the components of sense of community, we become able to design interventions that include them so that community can be developed" (p. 38). To understand how to enhance and bolster the strength of PSOC we first need to develop an understanding about the individual prerequisites for the development of a PSOC which then will allow us to understand how PSOC actually develops.

Although there has been previous research in the area of personality and/or personological variables and concepts related to PSOC, these have been single construct studies that have set out to identify the links between PSOC and personality. There has been no single study, which has directly investigated a number of personality and personological variables and their relationship to the overarching concept of psychological sense of community in either the child or adult literature. It would seem then, that it is time to combine a number of these factors into one study, to not only identify new potential predictors of PSOC, but to also develop an understanding of the interactions between predictors. In essence this study is about examining a

broad range of personality and personological factors that may assist or contribute to the development of PSOC.

Understanding the drivers of the development of PSOC is important in being able to support and maintain it. In particular, understanding how the predictors work in combination with each other, rather than in isolation and out of context is vital to the development of the fields' conceptualisation of this psychological experience. As in any research there needs to be a starting point, and in this particular investigation to begin this process it will be necessary to expand our current knowledge of what specific personality and personological predictors are actually important to this experience. This will mean investigating factors that may have never been paired with the concept of PSOC in the past or factors that may have be previously perceived as outcome variables. From this expanded understanding, future work may be possible to then see the connections between the predictors and how they work together to assist the development of our connection with our community. This process of taking an expansive view of many possible predictors shows similarities to the Brunswik lens model utilised by Chavis and colleagues (1986) during the early stages of development for the first PSOC measurement tool, the Sense of Community Index (SCI).

If we see PSOC as an important aspect of an individual's development, then understanding what we can do to assist its development is paramount. Examining personality and personological variables and their relationship to PSOC may assist counsellors, therapists, clinicians as well as academics, by helping them to understand the individual-level pre-conditions that may be required for developing a healthy PSOC, and therefore a sound sense of psychological well-being, and what areas may need support or further development.

Before moving on to the literature review in which the previous research will be presented and expanded upon, a historical review of the concept of 'community' is warranted to understand how this concept and the psychological construct sense of community has developed over time. The

following chapter will highlight the chronological development of the literature regarding the concept of 'community'.

## Chapter 2: Historical Review

### Chapter Overview

An understanding of the word community is examined historically by providing a chronological overview of the important research throughout the years that has led to the development of the construct a Psychological Sense of Community. This construct may not have been explored as fully as it has, in a psychological sense, if it were not for the establishment and ongoing development of the field of Community Psychology, therefore a brief overview of these historical beginnings of this field is also presented.

Literature from 1887-1981 was covered in this section. The majority of the historical literature has been categorised in terms of two key interwoven concepts. First, traditionally most of the research had looked at the word 'community' purely from a geographical explanation, but slowly, over time this has evolved or developed to include relational or interest groups. Second, although many authors admitted that the word community could also mean a perceptual or psychological experience, most did not discuss this or make it a priority. This has developed over time, as society has developed and changed, and psychological sense of community is a now valued and significantly investigated aspect of today's communities.

In this chapter, existing research is examined to articulate the theoretical basis for this study. An understanding of the word 'community' will be developed in this first section, in particular, setting the scene by providing an historical overview of the existing research and the chronological development of the theory of a psychological sense of community (PSOC).

The concept of psychological sense of community (PSOC) has its roots in the development of Community Psychology as a discipline. The development of this field and the challenges it faced brought this experience to the foreground and as a result, both the PSOC concept and the field of Community Psychology have developed hand-in-hand. One does wonder if community psychology had not developed as a distinct and separate field, then perhaps the examination and exploration of the PSOC concept in particular may not have eventuated. A discussion about the early years of both the development of this concept and of the development of Community Psychology appears warranted, in particular addressing the social changes that brought about the beginning of Community Psychology, which in turn, led to the articulation of the concept and eventual theory of PSOC. Following this discussion, the PSOC theory will be presented along with an exploration of how the concept has developed or evolved since this time and how the theory has been applied throughout the years. The aim here is not to be a true historian and explain all the "why's" of what happened over time, it is to

simply provide signposts to the most important research leading to the development of the concept PSOC.

### **Development of Community Psychology**

The late 1800s, and early 1900s were a time filled with rapid and vast change in terms of industrialisation, technology, increased poverty, population growth and the movement of people from farming communities to metropolitan/urban centres (urbanisation). Levine and Levine (1970) report that in 1860, 80% of people lived on farms and by 1920, 60 % of people lived in urban environments. Much of this social unrest set the scene for the changing nature of psychology overall and in particular, community psychology (Levine & Levine, 1970; Levine & Perkins, 1997; G. Nelson & Prilleltensky, 2005).

In general the history of a formal development of a community psychology originated in the United States of America (Nelson & Prilleltensky, 2005), and although other countries have their own histories and contextual development, for the purposes of this analysis, it will be the US context that will be reviewed. According to historical reviews of the establishment of this field, there are three important contextual elements that were present when community psychology was first formalised in Northern America; the rise in community mental health services, the rapid expansion of clinical psychology and the socio-political context of the early 1960s. Nelson and Prilleltensky, Levine and Perkins, and Rappaport each provide a thorough and detailed overview of the history of the field and the leading contextual factors present (Levine & Perkins, 1997; G. Nelson & Prilleltensky, 2005; Rappaport, 1977).

During, and after World War II, clinical psychology began to emerge as an important sub-discipline of psychology with the establishment of Veteran's services for those returning home from the war (and later the Vietnam War). Mental health concerns meant that treatment programs established, in particular Community Mental Health Centres during the mid to late 60s, were created with a strong medical-model approach. This approach meant that

clinical psychology was well placed as the dominant profession (along with psychiatry) to provide individualised treatment and support. The United States of America, during the 1960s was a period of political and social reformation, with many different and varied social movements, such as the civil rights movement, the women's movement, the peace movement (due to the Vietnam war), and a number of other socio-political movements. These movements created a sense of discontent and unrest in many of the clinical psychologists who were to go on to become leaders in the field of community psychology. A significant turning point occurred during the Swampscott (Boston) conference in 1965; an event held to discuss the education of psychologists in community mental health. Many of these psychologists were disheartened by the individualised and medicalised approach that was prevalent at the time and were interested in finding and applying practical approaches to issues of prevention and promotion of mental health and social justice issues. This conference then led to the eventual formalisation of the specific discipline of community psychology in 1967, when it became a Division (27) of the American Psychological Association.

### **Setting the Scene**

In order to fully understand the concept of psychological sense of community (PSOC), it will be important to explore the meaning(s) of the word 'community' and how the meaning has developed and/or been used over time.

In any discussion/expose/exploration of a concept, an author needs to decide that point in time at which to begin. One could start with the most recent history, but how recent is recent? One could go back to ancient history, as many of our modern-day concepts originated in this time, but this would likely be an entire thesis all on its own<sup>2</sup>. I have chosen to start my discovery of PSOC, after a brief mention of Plato and Aristotle, with Tönnies

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<sup>2</sup> As a result of the significant amount of research that has been conducted in this field particularly in the field of Sociology, an artificial limit had to be decided. The review is limited intentionally, as to do full justice to this topic, would require a much more exhaustive approach which would obscure the original intention of the research.

(1887/2001) and his work on *Gemeinschaft* and *Gesellschaft*, much quoted and discussed surely, but still a useful starting point.

Community: What does this word mean? Historically and anecdotally, the word 'community' appears to have been used as both a word to describe a defined geographically bounded area, (which eventually evolved to include relational or interest groups) and the perception of connection between people. The following section is a brief overview of how various authors throughout the years, have conceptualised *community*. A significant portion of the authors have been categorised according to how they view this word. Some have the perspective of a purely geographical explanation, whilst others have no distinction in terms of community type, and then there are authors who specifically address the psychological or perceptual nature of the experience of community. This section will not directly deal directly with McMillan and Chavis' (1986) work, however similar themes have emerged in the historical assessment of the literature, and will therefore be highlighted.

Philosophers, Plato and Aristotle agreed that community develops through a collective effort (Keller, 2003), it is geographically bounded and can be experienced through our senses - seen, touched, and felt as part of a concrete, familiar experience. Keller explains that Plato and Aristotle also believed that society was in the process of breaking down. This is a common thread that appears throughout the ages, and it seems that many if not every author has had a view that the 'grass is greener' in the past. Plato and Aristotle both believed that *community* should be protected and kept separate from society and that the *community* should always take greater precedence than the individual. The two philosophers differed however, on how these communities would be structured or managed, with Plato advocating for a community led by a select chosen few, the Elite, who had been reared within the community, whereas Aristotle's aim was that each person would be educated according to the values of the community with the leaders to then be elected from within the community. It has been suggested that the confusion regarding the various interpretations regarding the true factors or characteristics of community began as early as Plato and Aristotles

(384 BC – 322 BC) - simply because each person's individual experience colours their views of what contributed to community and PSOC (Keller, 2003).

In 1887 (2001), sociologist and philosopher, Tönnies talked about the change in how people are connected to their communities. He presented two somewhat distinct and almost mutually exclusive concepts, as well as appearing to move between talking about community being a geographically defined space, and a perception or emotional connection with others, as almost the same ideal. When talking about community he used two separate words, *Gemeinschaft* (community) and *Gesellschaft* (society).

*Gemeinschaft* is a term meaning shared community- the mutual encouragement between people and the sharing of burdens and achievements. The relationship and the social bond that develops is a real organic existence, a living organism. It is inclusive and genuine, comfortable and familiar. There is a sense that *Gemeinschaft* is an 'old' feeling and that people who live in a rural community are truly experiencing *Gemeinschaft* and therefore have a "...stronger and livelier sense of community" (p. 19).

Tönnies argues that people are connected or united even when separated, and describes the process of the development of *community*, from the familial community (i.e. family bonds), which leads to the development of the geographical (neighbourhood) community, which then becomes the 'spiritual' (friendship/comradeship) community over time. Tönnies does imply that you cannot force a sense of community to exist, that conditions need to be right for its development, i.e. it is not a foregone conclusion that the *sense of community* moves from families to geographical to spiritual, however it seems that it is an expected outcome of this progression. Like Plato and Aristotle, he suggests that there is a sense and perhaps expectation, that people will choose the greater good of the community than that of the individual, and look to share with one another and show respect to those in authority.

On the other hand, *Gessellschaft*- reflects a broader Society view, a mechanical and artificial construction. People live alongside each other but are independent of each other, with little to connect them, and life is transient and superficial. Life is in a public space or sphere. Members only come together due to a common goal or need that they expect to be met or be filled by the group, not by any sense of emotional connection or belonging. People will only do things for others if they can be assured of an equal return favour. All goods are separate and belong to individuals.

When exploring how people engage with each other; whether in organic life-giving ways (*Gemeinschaft*) or in artificially constructed ways (*Gessellschaft*) Tönnies spoke of an individual's "will", which seemed to be the core spirit or soul of the individual. The *Gemeinschaft* community, according to Tönnies is thought to evolve out of an "essential will", an internal spirit that is organic and inherent, driving people to form relationships. Whereas the *Gessellschaft* society was thought to be driven out of an "arbitrary will"; which was thought to be more goal directed and purposive.

Tönnies himself identified the presence of a 'relational' *community*, not just the *community* that exists due to geography. His book, conceptualised and produced in the late 1800s showed significant correlations with work proposed by McMillan and Chavis (1986) over a 100 years later. Perhaps this makes the elements proposed (or perhaps revealed or uncovered) by McMillan and Chavis, universal elements? For example, just a few brief quotes from this work of Tönnies that link quite closely to McMillan and Chavis' theory (which was briefly discussed in the introduction and will be more fully explored in the [literature review](#)). *Shared Emotional Connection*: "...instead, memory seems to play the strongest part in creating, maintaining and consolidating emotional ties" (p. 24). *Influence*: "These relationships in general show how human wills mutually direct and assist one another, so as to maintain a balance of power" (p. 26). *Influence* and perhaps *Need Fulfillment*: "...ideally whoever, gets the greatest profit from the relationship should be putting more into it" (p.24). *Membership*: Tönnies repeatedly discusses the connections that individuals have with others in particular

when talking about the progression from family to neighbourhood to spiritual communities.

Unlike Tönnies work, which appears to be more a descriptive presentation, identifying the differences in various types of communities, Economist and Sociologist, Charles Cooley's work in 1909, seems to yearn for something that is lost and he advocates for a return to traditional communities and simpler times. Cooley (1909) talks about how we cannot separate ourselves as individuals, from the society (past and present) in which we live. Our minds are not individual minds, Cooley asserts, but social minds, because of our connection with others.

According to Cooley, we are immediately aware of our society, and therefore our self within the society. Cooley believes that the development of neighbourhood groups (throughout the ages), have played a significant role in the "heart-to-heart life of the people" (p. 25). However, over time the intimacy of these neighbourhood groups have been broken up by a network of wider connections in society (perhaps *Gessellschaft* diminishing *Gemeinschaft*?) which has led to people feeling disconnected and almost like strangers despite living in the same house. Cooley states in 1909, that only time will tell whether this change, (i.e., moving to wider connections) is healthy or a potentially negative infection. He argues that even in 1909, psychologists are infected with the "...idea that self-consciousness is in some way primary, and antecedent to social consciousness" (p.5), and it seems that in over 100 years we are still grappling with some of the same questions and participating in the same debates.

According to Cooley, human nature does not exist separately in the individual; it is more than just instinct and less than the elaborate development of ideas (due to institutional knowledge- i.e., education). Human nature is developed and expressed through simple face-to-face groups that are present in all societies, it is not something that humans have at birth, but something they acquire only through fellowship (i.e., connection or bonding with others) and if no fellowship is available, it will decay. He

suggests that an individual's human nature is simply a trait of the primary group (essentially family and neighbourhoods).

Cooley (1909) suggests that modern society (perhaps most closely related to *Gesellschaft*) fosters isolation or individuality of choice, whereas rural community (perhaps *Gemeinschaft*) fosters individuality in such a way as to develop the growth of character in individuals, due to the battle with the environment and the ongoing economic struggle. Cooley suggests that the development of rural towns as compared to city groups is almost akin to the development of "natural species on islands or other isolated areas" (p. 94).

Cooley (1909) makes it clear that humankind is not an island; women and men are the sum and more, of their interactions with their community and their society when he states,

we must learn to see mankind [*sic*] in psychical wholes, rather than in artificial separation. We must see and feel the communal life of family and local groups as immediate facts, not as combinations of something else. And perhaps we shall do this best by recalling our own experience and extending it through sympathetic observation. What, in our life, is the family and the fellowship; what do we know of the we-feeling? Thought of this kind may help us to get a concrete perception of that primary group-nature of which everything social is the outgrowth (p.31).

Cooley also discusses concepts similar to McMillan and Chavis' (1986) theory, as well as alluding to the development of a 'negative' sense of community when he talks of groups of boys who develop 'gangs' who then harass other boys. *Membership, Influence*: "The individual will be ambitious, but the chief object of his ambition will be some desired place in the thought of the others, and he will feel allegiance to common standards of service and fair play. So the boy will dispute with his fellows a place on the team, but above such disputes will place the common glory of his class and school" (p. 23) and "One is never more human, and as a rule never happier, than when he is sacrificing his narrow and merely private interest to the higher call of

the congenial group" (p. 38). *Shared Emotional Connection*: "There are few, even among those reckoned lawless, who will not keep faith with one who has the gift of getting near to them in spirit and making them feel that he is one of themselves" (p. 39).

In her 1929 monograph *The Changing Urban Neighborhood*, and 1945 article "*Communality: the urban substitute for the traditional community*" McClenahan specifically describes interest or relational type community groups. McClenahan refers to these groups as 'a communality' and describes how these have become more important to people than their place of residence, particularly in urban settings, but also for rural inhabitants in some cases. She attributes these changes to the new methods in transportation, industrialisation, and centralisation, which caused people to become detached from their 'home communities', physically and psychologically. In describing these communalities, she describes elements that are reflected in McMillan and Chavis' (1986) theory of PSOC. As an example, she states "...its members belong, not because they share a common residence or identified with the same community, but simply because they share like interests, ranging from the ephemeral to the relatively permanent" (p. 267) (*Membership*) and, "...the activity of the communality may mean personal satisfaction and enjoyment, widespread acquaintance and new friendships"(p. 268) (*Membership, Shared Emotional Connection, and Influence, possibly Need Fulfilment*), "...some communalities adhere to socially accepted standards, others may challenge or defy these standards" (p. 268) (*Membership, and possibly a Shared Emotional Connection*). She also talks about how if people are not getting their needs met, whether in terms of influence or pure resources (physical needs), they will leave and look for other sources, if able (*Need Fulfilment*).

One of the key points that McClenahan makes in her 1945 article is that individual personality has an impact on both community and a communality, as well as the individual personality being impacted or influenced by these settings. Situations and individuals can have a marked effect on the development of community or communality, which contribute to the

development of specific traditions and attitudes that may be specific to an area or group. This process of change can cause changes in personality of the individuals within these settings, for good or bad.

In 1948, Hollingshead, was asked to provide a summary of the research on 'community' throughout the years, particularly in urban Sociology. He categorised the research into three main time-periods. 1895-1915, which was marked by an emergent interest in the city as a natural laboratory. Research was approached from the perspective of what a community should be like. Value judgements were rife, and as a result investigators became restricted in the focus of their study, and tended to only focus on obvious problems and issues of decay or 'slum' areas. Over time, this began to change and investigators became interested in the history and development of particular communities and how they had evolved over time. This led to the second period of research, 1915 -1930, which was marked by the rise in empirical research on communities. The proposal of new concepts and the ongoing development and clarification of theory, ultimately led to the human ecology theory becoming quite prominent. The third period of research, according to Hollingshead was marked by a change in focus, as investigators became interested in social change, institutional organisation and function, and social stratification by the way of three types of research, ecological, structural and typological. Hollingshead (1948) suggested that the main problem for researchers at the time of his summary, was that they needed to clarify the terminology regarding community, and suggests that

...the time has come when investigators should think primarily in terms of the development of a coherent body of theory about the community and should use this idea rather than the collection of facts for fact's sake as their frame of reference when they go in the field, (p. 146).

This challenge to develop a coherent theory remains to this day.

## The Challenge

In the years between 1950 and 1980 we move into a time of challenge, an acknowledgement that something has been lost, and authors begin to speak more emphatically about the change that needs to occur and that humanity (and its' lack of a PSOC) was reaching a crisis point. Throughout the years, there has been a strong theme of loss, for example a - loss of tradition, a loss of connection, and a loss of community. From 1950-1980 the flavour of the writings, is for the most part, very much that of alarm, concern and a challenge that something must be done. Although, even Cooley in 1909 discussed themes of alienation and loss of connection, there is a significant increase in terms of the number of authors reflecting these sentiments.

From this time forward there are two separate but interlinked or interwoven concepts at work in the historical literature and possibly still in the literature today. Traditionally, most authors who investigated or discussed the term *community* did so from a geographical perspective. Although many identified that relational communities did exist, the geographical community, appeared to remain the focus of interest.

Many of these same authors (although not all) also identified that *community* could also mean a sense of community or belonging that developed or existed in these geographical communities (and/or relational communities). However, more often than not, they lamented the loss of this experience without fully describing their understanding or developing this concept of loss. In some cases when lamenting the -loss of community- they are in fact specifically referring to the decline in small traditional geographic communities, and in other cases there is just a general unidentifiable sense of a -loss of community-, which is not fully articulated. In the following section, I explore those authors who provide a purely geographical explanation of the term 'community' before moving on to those that who argue that community is both geographic and relational. I will then move on to a discussion about those authors who identify that the word 'community' also reflects a perceptual experience, PSOC or aspects similar to this, and in particular, those that place great value on this construct.

From the 1950s to 1980s the majority of authors investigated *community* in purely geographic terms (seemingly in an effort to provide clarity and simplicity), however, over time there has been a gradual acknowledgement that the word *community* can also refer to relational or interest groups. Particularly in the 1950s most authors reviewed were found to have definitions of community that reflected purely geographical explanations. Brownell, in 1950 was similar to Cooley (1909) and believed that communities that were small and closest to nature were the only true communities. Although Brownell acknowledged the existence and usefulness of relational community groups, he focussed on a geographical community explanation. He stated that a community is a group of neighbours who know each other well who vary in skill, age and function and whom serve one another. It is a cooperative group in which many of the main activities of life are carried on together, has a sense of belonging or identity, and needs to be small such that individuals can know and interact with each other. This small group allows individuals to experience the fullness and diversity of the group, and a complete sense of belonging, that can only come from being part of a small face-to-face group.

In 1955, sociologist, Hillery surveyed multiple professionals in an effort to develop a common understanding of the term community and identified over 90 different definitions of the word *community*. He suggests that the true nature of community is far more easily understood in rural and remote areas, as urban communities are made up of larger social units and therefore experience greater heterogeneity. He wonders whether this "...diversity and abundance of social relationships could.... obscure the fundamental basis upon which community rests" (p.119). Hillery found that most (69 of the 94) definitions agreed that community involved some sort of social interaction within a geographic area, having at least one common tie (characteristics in common, such as possessions, ideals or norms). So, even after a reasonably thorough investigation to establish a common definition, he still found a wide selection of views. This again suggests that personality and personological

factors play a significant role in the development of an individual's understanding of community and the resulting importance of this concept.

Sociologist, Lowry Nelson's (1955) view of *community* was also a geographic one, in particular when talking about rural communities. His definition was very similar to Brownell's, where people inhabited a limited area, had a sense of belonging, and through organised relationships shared and pursued common interests. Nelson states that *community* is a 'locality group' in that it refers to groups based on geography, whether this is a neighbourhood or a nation, but believes that it is used commonly to refer to small communities. Nelson, identified that it was the establishment of trade routes that initially brought communities together, but over time with the introduction of secondary education, locations of high schools or school districts appeared to be the defining feature of community boundaries.

Nelson (1955) talked about the difficulties of identifying or defining the terms *rural* and *urban*, commenting that perhaps it may not be necessary or possible to have an accurate or fixed definition. He suggests that although we have a vague understanding of these terms, the cut-off line between them is hard to identify and states, "there is no sharp dividing line between urban and rural, and the best one can do is to recognize that the extremes of rural and urban societies are identifiable and to admit that there is a transition zone between the extremes in which the social life partakes of the nature of both urban and rural communities" (p. 9).

Sociologists, Sutton and Kolaja (1960) describe a community as a number of families who live together in a small area, within which a complete sociocultural system has been developed which allows them to solve the problems that arise from living together. However, unlike Nelson, Sutton and Koloja differentiate community from neighbourhood, state or workplace, as in their view, community is a relatively small but complete social system including permanently residing families, which they argue a neighbourhood or workplace cannot be.

The 1960s saw a marked change in the tone of articles and research on community reviewed. The themes of the decline or loss of community becomes stronger and its hypothesised causes such as urbanisation, centralisation, and specialisation are explored in depth, however the focus of the geographic community remains prominent. Warren in his text *The Community in America* (1963) discusses how the sociological term *community* has changed over time. In particular he shows how North American life has moved from a rural understanding of very distinct areas with clearly defined boundaries that provided most, if not all possible needs, to a suburban, transient community which has led to the distillation of community ties or connection. Although Warren clearly states that the word *community* "...implies something both psychological and geographical" (p. 6), for the purposes of his text, his chosen definition was, "...that combination of social units and systems which perform the major social functions having locality relevance" (p. 9). This definition alludes to the psychological but does not embrace this perceptual or experiential component. The theme of urbanisation, industrialisation and centralisation is again proposed as the proponent of the decrease in community connection and cohesion, as Warren spends an entire chapter of his text (followed by a chapter of case-studies of specific towns) looking at the 'Great Change' in North American communities.

Stuart Hills (1968) continued this theme stating that "...industrialisation, urbanisation, new modes of rapid transportation, the rise of individualism, the vast increase in scale in modern societies and other historical forces have resulted in an increasing fragmentation of man's [*sic*] activities; multiple group affiliations and a widening area of functional interdependence, both spatially and socially" (p. 118). Hills believed that there was a trend in the recent research that dismissed the value of the local community, due to this rush of urbanisation and industrialisation, and therefore he wished to explore, and caution the research community not to abandon what he saw as a viable and legitimate unit of discovery (i.e., local geographic community). His definition is very similar to that of Sutton and Kolaja (1960), reflecting a small neighbourhood grouping, who are integrated, sharing some common

experiences, with a clear and separate identity, and who are able to organise to act collectively to meet needs or address problems that arise. Hills strongly encouraged the research community to avoid making sweeping generalisations about the 'loss of community' and recognised the need for further research and investigation.

From the late 1960s onwards the general view is that the definition of the word community has been unclear and can mean either a small geographic community, a relational/interest based group or a perceptual experience. By the middle of the 1970s this perceptual experience becomes a fully-fledged focus of study. Minar and Greer in 1969, clearly move away from a geographical explanation, highlighting the social organisation of individuals. They state "...it (community) refers both to a unit of a society as it is and to aspects of the unit that are valued if they exist, desired in their absence. Community is indivisible from human actions, purposes, and values. It expresses our vague yearnings for commonality of desire, a communion with those around us, an extension of the bonds of kin and friend to all those who share a common fate with us" (p. ix). In their conceptualisation of community, they include neighbourhoods, peer groups, congregations and nations, but state that there are limits to the possible inclusiveness of community, as the larger and further removed a group becomes the more tenuous this feeling of connection becomes.

By the early 1970s this change in thinking about the definition of the word community, moving from purely geographical to include relational or interest settings, also shifted to incorporate the perceptual nature of the experience of community. More literature, research, case-studies, and the like began to investigate the nature of this experience.

Writer Ralph Keyes in 1973, reflected on the connection or loss of connection with the community, in his book called *We, the Lonely People: Searching for Community*. Keyes explored personal accounts of community and people's individual experiences of having lost it and what he (and they) believe may be contributing to that sense of loss, and again the main themes

of this deterioration are urbanisation, industrialisation, centralisation. He believed that the things that people appreciate about modern society such as mobility and privacy and the convenience of having an instant 'anything', is actually the source of our very lack of a PSOC. Keyes seemed to believe that by being involved in many interest or relational communities meant that we as individuals are not being truly known for *who* we are; that we are able to divide or split parts of ourselves between these groups, and can always keep a little bit of our real self, hidden. We are unable, Keyes states, to truly experience a full sense of community due to the scattering of ourselves, but we are also scared of truly experiencing this deep sense of community, one where we are fully known, as there is freedom in having no connections. Keyes argues that this ambivalence is what plagues our search or connection with our communities. We desperately want to be connected, and yet we want the freedom of no responsibilities. Interestingly, a key concept, which is core to this (my) particular thesis, is that Keyes suggests that it appears to be a matter of individual preference or taste that determines how much individuals become involved in their communities.

Keyes' ideas reflects or highlights earlier work done by sociologist, Robert Nisbet in 1953, particularly in relation to themes of alienation and loss. Nisbet, in his book *The Quest for Community* states that this quest is "...timeless and universal" (p. 47). He believes that community develops when people work together and that community is the "...essential context within which modern alienation has to be considered" (p. xii). People need both a function within their community and the authority to make changes to the community, which is strikingly similar to McMillan and Chavis' (1986) theory and relates to a number of elements, in particular, *Membership, Influence and Integration and Fulfilment of Needs*.

Nisbet (1953) argues how over time, we have progressed from being excited and optimistic about individualism and independence, to suggesting that these issues have become problematic and possibly the root of many of our social and psychological problems. His view is that the 'State' has taken over many of the roles that drew the community together in the first place; people

are lost and no longer have function and authority and therefore true community can no longer exist.

The loss of function/role and place within society has made the normal crises or issue of personal life more difficult to bear. Nisbet (1953) states that personal crises and the like have been present throughout history (and will continue to be present), and yet it is only during the current generation that these problems have become reasons for clinical intervention. He suggests that this is due to the fact that current social structures are no longer important to an individual's existence. Nisbet goes on to argue that "...material improvement that is unaccompanied by a sense of personal belonging may actually intensify social dislocation and personal frustration" (p. 21).

In 1974 the term, Psychological Sense of Community was introduced by psychologist, Seymour Sarason. All other authors and research to this point have been philosophers, sociologists, anthropologists or observers of human behaviour, whereas Sarason appears to be the first psychologist to explore the concept of community and in particular the perception of an individual's connection with their community (PSOC). It is also around this time that there is an obvious shift in the literature that begins to move into actual discussion of the concept, why it is important and what can be done to instil this in people and communities.

Sarason's book, *The Psychological Sense of Community; Prospects for a Community Psychology* is written for the burgeoning field of Community Psychology. Sarason states that the characteristics of PSOC are simple to identify, they are

- the perception of similarity of others;
- an acknowledged interdependence with others;
- a willingness to maintain this interdependence by giving to or doing for others what one expects from them; and
- the feeling that one is part of a larger dependable structure.

However, Sarason does not explore the detail and theory of what this psychological sense is, as he seems to assume that the reader will develop his or her own understanding, due to the abstract or ethereal nature of the concept. He states that it is an important perception and that we know when we have it and when we don't, and that being aware of not having it (or only having moments of it) can actually intensify feelings of loneliness, (lack of community).

Sarason also proposed that the development of a comprehensive highway system was instrumental to the decrease or erosion of PSOC, which continues the theme of centralisation, urbanisation, industrialisation and its impact on PSOC. Sarason also states that segregation, of any kind (i.e. special classes, residential institutions, juvenile offenders, mentally ill and so on), is destructive for PSOC.

Sarason suggests that the PSOC or its absence should not be viewed as an idiosyncrasy or peculiarity of the individual, and this emphasis seems to come from his push for community psychologists to move beyond the traditional individualism to a community conceptualisation. He advises that looking at community through the same structures or values as individuals' ensures that we only perceive a very narrow view of the community. Psychologists, he believed, needed to change their view of society or their perspective of the individual within the society or context. Although Sarason asserts that PSOC should not be viewed through an individual lens, he then goes on to suggest that it is the individual's personal experience of PSOC and how important it is to them that has an impact on how they experience this PSOC.

Sarason challenges his field to think beyond the individual and to see the value of this concept, and attempts to show how the lack of PSOC can be detrimental to individuals as well as to the wider society. On many occasions throughout this book there is a sense that PSOC is a core fundamental need or value that each human has (to different degrees) which motivates them to seek out connection with others. This core fundamental need which has also

been supported by Baumeister and Leary (1995) may be closely related to or at least similar to an individual's attachment style.

Sarason finishes his book with "...there is no formula for how to instil and maintain the PSOC. We need to understand better how the nature of our culture produced the situation we wish to change", (p.276), however, it seems that Community Psychology as a field went looking for those formulas, the 'how to's', without really understanding what PSOC actually is. This is evidenced by most of the research following Sarason's 'call to arms', which was mostly focussed upon the development of measures and the actual presence of PSOC in a community. However, it would seem that before we can instil and maintain PSOC, we need to know what PSOC is, and how it develops.

Although Sarason was the creator of the term Psychological Sense of Community, he was not the first to be interested in this perceptual experience. Fessler, and colleagues, (1952) were approached by a large corporate association, to investigate the differences between towns that had cooperatives and towns that did not. Fessler investigated 'community solidarity' which was simply defined as a consensus among community members, and in this case, they were predominantly interested in the types of behaviours and attitudes that people would agree were acceptable in a 'good community', particularly and only in terms of rural communities. The article describes the development of the Community Solidarity Scale and its subsequent reliability testing. When the scale was then used with students, (primary, high and college), they reported significant differences between towns that had cooperatives and towns that did not, but also differences according to the size of the town. The survey included questions such as "I feel very much that I belong here", "People are generally critical of others" and "Everyone here takes advantage of you". This measure is surprisingly similar to or at least has elements, which tap into the construct PSOC, although it was termed community solidarity. Although Fessler and colleagues were clearly investigating rural-geographical communities, they were actually interested in community from a perceptual standpoint.

Also in the 1950s in the text *The Community of the Future: and the future of Community*, Morgan (1957), provides a guide to what he thinks communities should -look- like in the future. He looks at a number of aspects, physical, economical, spiritual and so on, developing ideas for the practical and emotional components that contribute to the nature of community. He clearly advocates for small communities and sees great value in the function that community can provide for its members but does not necessarily view 'community' in purely geographic terms. Throughout his book, although often talking about geographic components of community, at the same time interwoven through this is the perceptual or experiential component of community and it is clear that he sees these two concepts as inextricably interlinked. Morgan presents an interesting view when he says "much of what is written about the theory of community is constantly clouded and cumbered by the doctrinaire, and especially by the attitude of either-or. For instance, some of our sociological friends state that the issue is between the formal and the informal structure of society; that we can have one but not both, and that we must make our choice" (p. 4). He proceeds to explore how informal gatherings in the our community are *Gemeinschaft* and formal business arrangements, such as boy-scout groups are *Gessellschaft* and the general way of thinking, at this time, was that people cannot experience both, because mainstream society is going the way of *Gessellschaft*. Morgan makes an important observation when he says that informal settings can eventually take on formal structure and formal settings are often a dead shell unless it is vitalised by more informal relationships, and "...the informal spirit of community is the vital social spirit that inhabits and gives life to the formal organisations of society." (p. 4).

Even those writers clearly investigating geographical communities found that there was some sort of perceptual experience that occurred in communities whether formal or informal, which needed to be accounted for. Sutton and Kolaja (1960) identified a sense of 'community-ness', and defined it as a complex element where people show a "...readiness to act collectively in order to meet problems arising from the sharing of the circumscribed area"

(p. 200). This appears to reflect the element of *Integration and needs fulfilment* of McMillan and Chavis' (1986) theory. Nelson in 1955 mentioned that a sense of belonging was an important factor in the development of any community. Anthropologist, Jules Henry (1958) talked about personal community, and how an individual must have a group to provide encouragement and support. This personal community would be restricted in size, in terms of people, and would involve regular and consistent contact between members and that members would have an influence upon one another (all elements that are highly featured in McMillan and Chavis' theory of PSOC).

Henry (1958) also suggests that as this personal community is the core of his "...security system, it follows that changes in it will affect his feelings of security" (p. 830). Changes to this personal community could be due to any reason and could come at any time (such as death, job-relocation, relationship breakdowns). When Henry talks about constancy in relationship, the concept of attachment and why this would be important in developing a PSOC becomes apparent. It would seem that having a secure attachment style, feeling safe and comfortable in oneself would mean that one is capable of providing that for others, but is also secure in themselves. Someone who may not have a secure attachment style is likely to find this aspect troubling.

Even Brownell (1950), identified a perceptual aspect of community, when he said

community cannot be manufactured. It cannot be built like a house. Though intelligence is needed to maintain it, the community itself comes, like life, without machinery or artifice. For the community is not formulated for power, profit, wages or production. It is the integrity of living (p.98).

Brownell also states that community means different things to different people.

A central theme of this thesis, is how people's individual perceptions, needs, personality and other elements that factor in what they think a community is,

and the value they place on their connection to their community. Brownell, recognised that even the word community is fluid, referring to an experience, or to a place, with he himself identifying at least four different ways of using it. Even more significantly, he states “....my own **predispositions** lead me to say that men are the measure of their communities” (p.197, emphasis mine) and that “a philosophical definition of the human community will reflect the values in the community discourse from which it comes” (p.197). This argument is central to this thesis, that individual personality and personological factors are what make PSOC important or not, for individuals. It is an individual’s make-up that will contribute to or hinder the development of this perception. Here, in 1950, we have someone who recognises that individual predispositions are perhaps a significant aspect to the development of PSOC within an individual and therefore within a community. Each individual sees community as a different focus or having a different role etc. It meets a different need in each individual based on each person’s personality and personological makeup.

In 1974, Adelson provided three definitions of *community*; community as a place in space and time where people live, community as a sense of shared destiny or interests (i.e., mothers, doctors, psychologists) and community as a system of systems (family, school, work, neighbourhood etc). Adelson, also appeared to be writing for Community Psychologists, and talked about developing a model for how psychologists should keep a historical focus when engaging a community.

Adelson (1974) believed that community psychology as a field is concerned with an individual’s encounter with history. He believed that each individual is either a maker of their own history, or that they are created by their history. He proposed three components of this shared encounter with history (some of which are reminiscent of McMillan and Chavis’ (1986) theory of PSOC).

1. Some concrete place and time.
2. Shared destiny with a group with its own history (similar to the elements of *Membership, Shared Emotional Connection, and Influence*).

3. In relation to some system, which over time has had its own historical development (similar to a *Shared Emotional Connection and Membership*).

Kasarda and Janowitz (1974) although utilising a geographical community for their research, were actually interested in whether community attachment would be influenced or impacted by a number of demographic type factors. They were interested in the perceptual nature of the experience of community. They reported that community attachment is significantly correlated with length of residence and number of friends in particular. Although size of town and population density does tend to have a small positive impact on community attachment, this impact is small when compared to length of residence. Population size and density was not found to significantly weaken local community sentiments.

By 1975, Hunter suggested that although theories about *community*, were abundant, they were unclear, unspecific and therefore not easily tested and that “attempts to define *community* have met with only a very general consensus” (p. 538), as too were the reasons for decline in *community*. Hunter recognised that definitions of community abound but none have been operationalized and that each one is different (due to differing views and beliefs). Perhaps this is due to the fact that each individual approaches SOC/Community from an individual perspective. Every person has a different lived experience combined with varying personality characteristics.

Poplin (1979) also strongly agreed that the word *community* has had so many different meanings, that it makes it difficult to study or apply any scientific precision to the word. However, in an attempt to quantify or qualify the meaning for his text, *Communities: A survey of theories and methods of research* he stipulated that *community* would mean “... units of social and territorial organisation that, depending on size, may also be called hamlets, villages, towns, cities or metropolitan areas” (p. 3). Although he explored other ways in which community has been conceptualised, he himself stayed with a geographical or fixed approach. He stated that other uses of the word *community* make it difficult to be precise and clear about what is being

studied. However, when discussing or describing one of the community types, which he calls “Moral Communities”, which appears, in this context, to be communities that are bound together out of relational or spiritual connections rather than fixed geographical reasons. Poplin provides a table of characteristics, which strongly reflect elements of PSOC.

Although Poplin (1979) is not necessarily exploring or discussing a perceptual state or experience of community he does make it clear that these experiences need to be further examined in our modern societies, and then goes on to suggest that these ties have been weakened over time, and that the answer to many of society’s problems is to strengthen these bonds.

Also in 1979, Ahlbrandt and Cunningham were interested in the relationship between neighbourhoods and residents attitudes/behaviours in terms of the local government preservation programs and policies. The belief was that, these programs and policies need to be assessed according to the impact they may have on the stability of neighbourhoods. They identify a number of functions that a neighbourhood supplies, and one of these in particular was *community*. They adopt Warren’s (1963) definition of community as a number of “...social units and systems which perform the major social functions having locality relevance” (p. 9). For the most part, they adhere to a geographical definition of the word however, do acknowledge that the neighbourhood can meet certain psychological needs of its residents, not necessarily for everyone, but this function is available to the residents.

### **Early Beginnings of Measurement/Theory**

By 1978, in one of the first attempts to measure PSOC, Doolittle and McDonald developed the Sense of Community Scale, and although they supported Sarason’s belief that PSOC refers to a sense of belonging to a mutually supportive network their Sense of Community scale was not generated out of or founded upon any specific theory. Unfortunately these authors provide only a general statement of what SOC is according to their ‘sources’ but do not provide these sources. The authors comment “...sense

of community is a term used frequently by social scientists to describe patterns of relationships and the quality of life in urban neighbourhoods” (p. 2), and yet provide only one reference that provides support for this statement. Further to this they state that SOC “...appears to include feelings of efficacy in the larger societal setting” (p. 2) and yet provide no evidence to this statement. The authors utilising previously collected data, identified six factors (represented by 23 items) that were said to tap the construct SOC, and that explained more than 54% of the variance (4 items for each factor). These factors were, Supportive Climate, Family Life Cycle, Safety, Informal Interaction, Neighbourhood Integration and Localism. The scale was used to differentiate low, medium and high SOC neighbourhoods.

The decade of the 1980s in particular was significant in terms of the quantity of research produced related to this concept. One possible reason for this, particularly towards the end of this decade, could be the rapid advancement in technology, computing and internet capabilities. This may have allowed for the rapid development of ideas, sharing of knowledge and application of such knowledge in new ways. Prior to the development of McMillan and Chavis’ (1986) theory of a psychological sense of community, there were a small number of attempts at theory development, however none have been as soundly examined or supported as that of McMillan and Chavis.

Glynn (1981) identified that the PSOC construct had been repeatedly discussed and explored, and concluded that there was still no successful attempt to operationalize PSOC or describe it on a behavioural level. The theme that the lack or decline in PSOC is due to industrialisation, centralisation and urbanisation, remains a strong focus throughout his article.

Glynn had four goals for his research,

- 1: identify the various behaviours and attitudes that represent PSOC
- 2: devise a method to measure said behaviours and attitudes.
- 3: to address the relationship between PSOC and competent functioning in community and satisfaction with life in community. (This

goal, although logical, appeared somewhat random as he did not discuss the reasons for this goal unlike the other goals)

4: how to bolster PSOC- and with this in mind he investigated the real (or actual) PSOC as compared to the ideal PSOC that individuals perceived. .

For Glynn, there had been no systematic studies involving the PSOC concept, and as he saw it, there was no generally accepted definition and no constellation of measurable behaviour. We now have a generally accepted definition or starting point, and again perhaps an agreed starting point for measurable behaviours. Nevertheless, I believe that we still do not know what causes a PSOC to develop in one person over another.

Glynn (1981) developed a measure that consisted of 60 items, which he used to investigate the real and ideal SOC in three different neighbourhoods. However, although Glynn had clearly articulated that there was no generally accepted definition or theory, he did not develop a definition or theoretical basis upon which to base his study and then interpret the results. Glynn was clear however in stipulating that perhaps for the first time that PSOC was an observable, measurable and manipulable experience and behaviour.

In his study, Glynn found that factors such as the number of years expected to live in the community and the number of neighbours known by their first name significantly predicted sense of community, which correlates closely with research by Karsarda and Janowitz (1974). Unfortunately<sup>3</sup>, Glynn's analysis was somewhat limited, due to a small sample size for the Israeli community, and he could not investigate or examine cultural differences and the effect that these may have on a sense of community.

Just prior to the great explosion of literature in 1986, Riger and Lavrakas (1981) investigated attachment to the neighbourhood (used as a form of

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<sup>3</sup> Whilst reading Glynn's article I came across a quotation, which was a powerful statement about how PSOC functions, and attempted to find the original. Unfortunately, Glynn had mis-referenced the quote, as it was in a different text entirely. Also the original text was *not* talking about PSOC, but was in fact talking about people's need for Authority.

sense of community). They maintained Sarason's (1974) conceptualisation of the psychological sense of community, however they did not further define or expand on this. Specifically, they were interested in patterns of attachment to a neighbourhood rather than a PSOC. They did not develop a scale to measure SOC but reanalysed previously collected data from a telephone survey. The data they reassessed were based on six items from the original interview, and out of these six items, two factors were identified. These were Bondedness (being able to identify neighbours and the children in the street) and Rootedness (owning a home and the length of residence). They also looked into what other variables might predict or be associated with the development (or lack) of rootedness and bondedness. They found that age, number of children and owning a home play a significant role in how attached an individual is. Although they indicated that neighbourhoods can provide a sense of belonging and lead to the development of PSOC, they do not discuss or interpret their research through the concept of sense of belonging or community at any time.

In reviewing the literature in a chronological fashion, three main themes emerge. First, much of the research in terms of history has come from the sociological literature and psychologists only appear to have become interested in the concept of community and its value in human welfare/wellbeing in the latter half of the twentieth century. Along these lines, sociologists tend to be descriptive about what community is, whereas psychologists look to the perception or experience of community and the value that participating in community has for individuals and communities. Second, all professions, whether sociologists, psychologists, anthropologists, philosophers or writers seem to agree on the cause or reasons for the decline in a psychological sense of community. The authors reviewed here, all endorse one or all of the following reasons for this decline being industrialisation, centralisation and urbanisation. While not discussed in this historical overview, this theme is reflected in Emile Durkheim's work "*The Division of Labor in Society*" (1933). Although the focus of Durkheim's work has more to do with mass production and the division of labour, his ideas that communities that have limited division of labour show greater solidarity,

compared to societies that have a complex labour force, which leads to greater or wider social diversification have similarity to the themes presented here. Finally, it appears that after all these years, (at least until this point) there is still no clear operational, behavioural definition of what community is or what a psychological sense of community is. However, what is clear is that this concept of PSOC has become, over time, more important as society has developed and in particular as the rural community has diminished in size and importance, and relational communities have become more prominent.

In the following section, the development of theory of PSOC will be presented and the subsequent research and investigation will be reviewed to provide an overview of how this concept has evolved and been applied. Following this, the justification and the importance of the current focus of study will be presented.

## Chapter 3: Literature Review

### Chapter Overview

The Literature Review covers the more modern literature relating to the concept of a Psychological Sense of Community. Specifically the research relating to the personality and personological predictors of PSOC will be explored.

More detail regarding McMillan and Chavis (1986) theory of PSOC and the research that supports this model will be presented. This model has been a foundation for many tools and similar theories and this literature will be explored, as well as the relevant measures. The literature will then be explored in terms of the types of environments in which PSOC has been investigated (i.e., geographic, relational or online).

The value of PSOC will be explored in terms of an individual's mental health and wellbeing, as well as the individual level predictors of PSOC, which leads to the specific aims of this research.

The previous chapter - [the historical review](#) - has provided an overview of the chronological development of the word community to the eventual use of the term Psychological Sense of Community (PSOC). In this chapter, the more recent research will be presented and explored as it relates to this study, i.e., what are the personality and personological predictors of a psychological sense of community?

The difficulty with conducting a review of the PSOC literature is that there appears to be no cohesive central thread that ties all the research together. This is further complicated by the fact that there appears to be significant heterogeneity regarding this construct. A number of terms, such as sense of belonging, social cohesion, membership, social capital, need for affiliation, and similar, appear to significantly overlap with the PSOC construct and at times have been used interchangeably (e.g., Blanchard & Markus, 2004; Cockshaw & Shochet, 2010; Galliher, Rostosky, & Hughes, 2004; Goodenow, 1993; Hagerty et al., 1996; McLaren et al., 2007; Newman et al., 2007; O'Brien, Hassinger, & Dershem, 1994; Osterman, 2000; Resnick et al., 1993; S´anchez, Col´on, & Esparza, 2005; Shields, 2008; Talen, 1999; Ueno, 2005). This has been referred to as a 'deja-variable' phenomenon, or the sense that one has seen a similar variable identified with a different term

(Hagger, 2014; Skinner, 1996). This can mean that important findings about one construct may never be included or integrated with findings on another. On the one hand, although it could be said that the development of the PSOC literature has shown a dynamic and organic approach, on the other it has also shown a degree of fragmentation and which as Chipeur and Pretty (1999) state "... illustrates an overall lack of consistency in theoretical and methodological development" (p. 644).

Due to the fragmentation and lack of cohesion in the PSOC literature, the existing PSOC research could therefore be viewed through a number of different lenses and deciding on a focus for this thesis was important. As indicated in the [introduction](#), the literature has been explored with the goal of returning to the roots of *community* and therefore *psychological sense of community* before moving on to focus on the individual experience of PSOC and the importance of this in terms of wellbeing, with the final goal of identifying the individual personality and personological predictors of PSOC.

As a result of this plan, the more contemporary literature has been organised in the following manner; the main theory provided by McMillan and Chavis (1986) will be identified, with the historical and more contemporary research that supports this model being examined. Literature that has used McMillan and Chavis (1986) as a foundation or basis, both conceptually and/or methodologically will then be explored before briefly summarising any important research that does not utilise the McMillan and Chavis model of PSOC. Each of these theory sections, where possible will also include a brief overview of the relevant measurement tools. From this foundational overview, the environments in which PSOC has been the main variable of interest, such as geographic, relational and online communities will be discussed. The value of PSOC in terms of health and wellbeing in individuals will then be explored (including concepts related to PSOC). The environmental, community level and individual level predictors of PSOC will be overviewed (including concepts related to PSOC). Finally the specific aims and research hypotheses will be presented.

### **Structure of the review**

Figure 1 presents a pictorial overview of the PSOC research and how it has been conceptualised for this review. The circles feature the main topic areas and the directional arrows illustrate the conceptual or theoretical links between the topic areas. Each of the major headings will be explored independently before moving on to the significance of and need for further study of this concept.

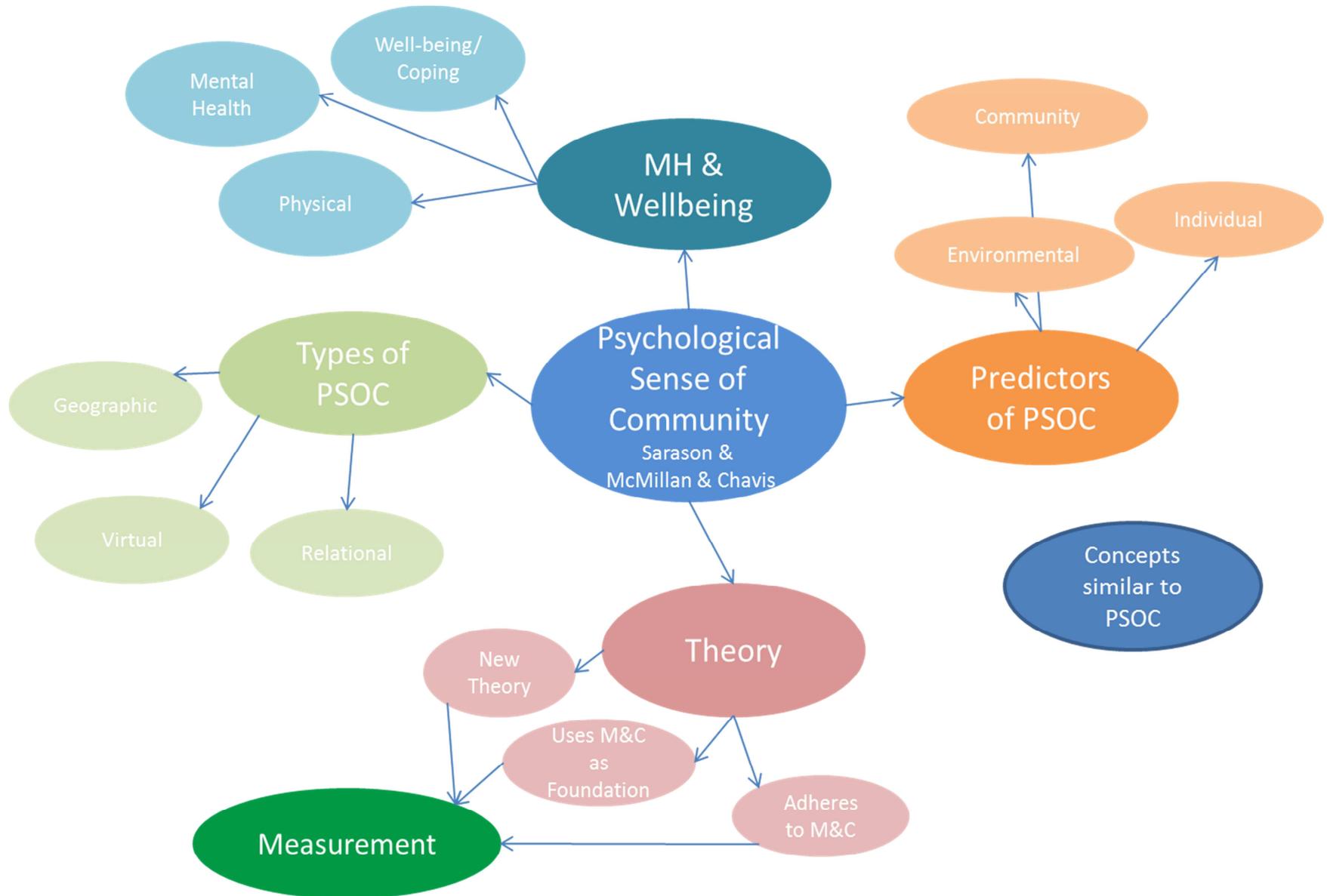


Figure 1. Conceptualisation of the psychological sense of community research.

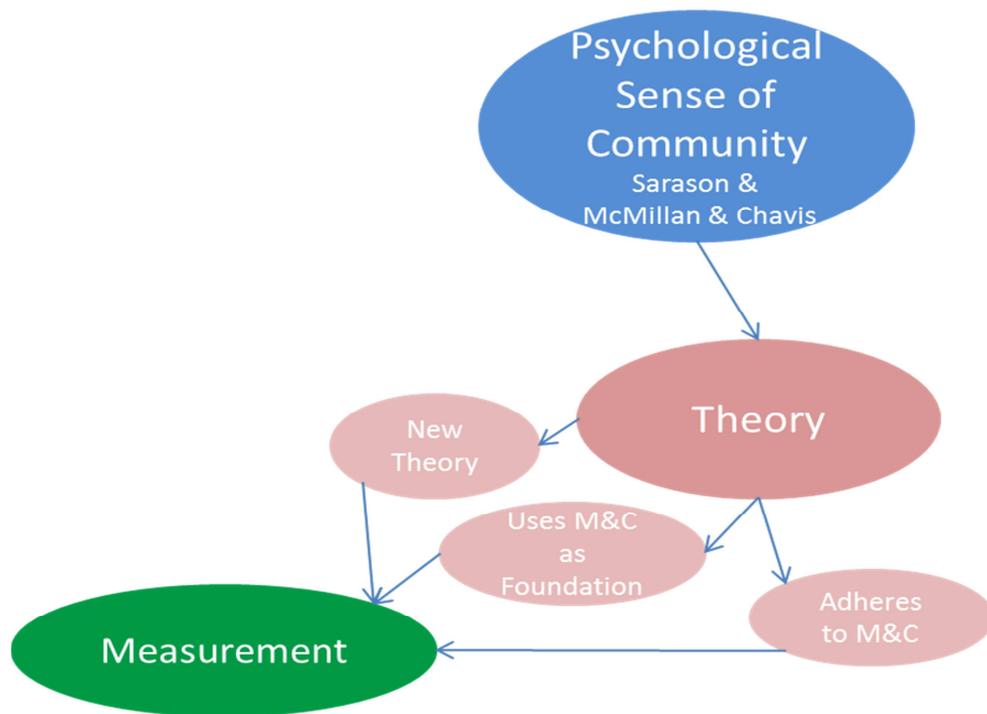


Figure 2. Theory and measurement theme.

### Theory Development

Theory development is just one aspect of the PSOC. As depicted in Figure 2, this section specifically explores the development of theory in more contemporary times. Compared to the previous 100 years, the explosion of PSOC research during the latter half of the twentieth century has been remarkable. In 1986 alone, there were two special editions of the *Journal of Community Psychology* devoted to research on this topic (Issue 1: Theory and Concepts, and Issue 4: Research and Application). It was in the first of these issues that McMillan and Chavis' widely cited article, '*Sense of Community: A definition and theory*' was published. This article set out their model and theory surrounding SOC, incorporating a review of the previous literature and establishing what they believed were the core elements of this construct.

McMillan and Chavis' (1986) theory has been widely utilised, critiqued, and analysed, and has eventually become a foundation upon which others have built. Their theory consists of four separate (but equally important) elements, namely, membership, influence, integration and fulfilment of needs, and a

shared emotional connection. *Membership* embodies the central theme of PSOC - the sense of belonging – ‘the feeling that I am part of something’. This component appears to be vital to the overall concept of psychological sense of community as it is proposed or suggested as the central theme by many researchers (e.g., Doolittle & Macdonald, 1978; Glynn, 1981; Sarason, 1974). There are a number of aspects which, when taken together make up the element of *Membership* (McMillan & Chavis, 1986). Boundaries contribute to making an individual feel as though he or she belongs (is a member), as boundaries stipulate who is ‘in’ and who is ‘out’. To help strengthen these boundaries, a common symbol system may be encouraged or even enforced. These symbols may be physically represented (such as a cross, worn on a chain), or ceremonially represented (such as celebrating the coming of age). Boundaries also work towards creating a sense of emotional (and possibly physical) safety-where an individual can share thoughts and emotions with others who are in the ‘in group’. Alongside boundaries is the concept of Identification – this group is ‘my’ group. An individual is more likely to make an investment into the group (mentally, emotionally, spiritually or physically) when he or she has a sense of ownership about the group.

The next element of *Influence* is the belief that an individual can have an impact on the group. This is linked with the concept of conformity, where the individual is impacted by the group. This delicate balance works, as the individual chooses to submit to the groups’ standards and norms, however, feels that he or she still has the freedom to express their individuality. (McMillan & Chavis, 1986).

*Integration and fulfilment of needs* (also referred to as reinforcement) is what McMillan and Chavis (1986) call the next element in this theory. Essentially this means that any individual who feels as though their needs are being met by the group (whether physical, emotional, social or spiritual), will continue to be involved with the group, thus promoting a sense of belonging. A number of other aspects impact this element, such as: the status of being a member (possibly a sense of pride), competence (of others in serving or meeting

individual needs) and shared values (as it is unlikely a group will be cohesive if group members feel as though they are heading in different directions or aiming for different targets).

Finally, the notion of a *Shared Emotional Connection* is where, according to McMillan and Chavis (1986) a shared history comes into play. Individuals will connect with others who have shared in or participated in similar experiences or events. Aspects of importance are: contact - individuals will become more involved with others the more time they spend together; quality - the more positive the interaction the more likely the bond is to be strengthened. For instance, imagine if two strangers meet in a bar in London, during a televised final of an Australia vs. England rugby or cricket match. When they realise they are both Australians', they will have an immediate connection on an emotional level, (especially if Australia wins!). Other aspects of importance to the notion of a shared emotional connection are whether there are opportunities for honouring and recognition of individuals and the potential for a spiritual connection between members.

McMillan and Chavis (1986) suggest that not only are there dynamics present within each of the four elements, which are easy to identify (e.g. boundaries promote safety, which promotes identification and so on), but also between the elements. For example, the elements of *Membership* (belonging to the wider population of Australians living in England) and a *Shared Emotional Connection* (individuals seeing Australia beat England) have a dynamic relationship. This practical example shows how these elements interact and develop within an individual or community, and offers evidence of face validity for this theory (i.e., it makes sense). This theory by McMillan and Chavis (1986) is supported by its own logical reasoning and reasoning applied to local or everyday experiences as well as common themes that appear in the historical literature which will be discussed in the following section. It is also supported by significant literature which will be discussed later.

## Interpretative Approach

Before moving on to discuss the generalisability of the McMillan and Chavis (1986) model of PSOC, a brief summary<sup>4</sup> of the historical literature that appeared to show similar concepts will be presented. A return to the roots of *community* and therefor the origins of PSOC, as well as the connections in the literature between the past and present are important due to need to understand the development of a concept over time.

In compiling the history of the concept of *community* through to the eventual use of the term *psychological sense of community*, this process highlighted how the nature of these terms have evolved over time. It seems that historically the development of the word and usage of the term *community* was somewhat linear and clear, and generally developed in sync with the emerging society at the time; as society developed new ways of communicating and relating, so too did the concept of *community* also develop. However, the PSOC literature does not appear to show the same linear path or clarity in terms of development.

The complexities in the PSOC literature necessitated the development of a structure to analyse the PSOC literature, both historically and in more recent times. This process involved identifying an appropriate timeline for the beginning of this review, as well as assessing the scope of the review. There was a need to consider what this construct is and how it has evolved over time. Although not a formal thematic analysis, the literature was reviewed by drawing on procedures developed by Braun and Clark (2006), particularly in terms of the familiarisation of the literature, then developing an understanding of the main concepts found within the historical and more contemporary research. This then led to the development of the series of themes (as presented in Figure 1) that were identified as useful for the structure of this literature review

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<sup>4</sup> Although a detailed exploration of all the similarities of all the historical authors would be ideal as well as useful, space and time considerations mean that an artificial limitation needed to be imposed, and therefore only a very brief overview has been provided

## Universality of Theory

Initially in the historical review, the literature was addressed in an individualistic and chronological manner, however, the following section endeavours to show that there are common themes or threads in the literature both historically and in more modern times. I would suggest that perhaps McMillan and Chavis have described or tapped into what might be considered 'universal' elements of a psychological sense of community. After presenting the summary of the historical literature I will address research that adheres to McMillan and Chavis' (1986) model of PSOC before moving on to the research that began with this model as a starting point or foundation. New or distinctive theories or models will then be discussed following this.

In looking at the element of *Membership*, a number of the authors reviewed in the historical section show similarities in their view of community (or the experience of community). This is not surprising considering that *Membership* is considered to be the most prominent or central point of the PSOC theory. One of the main thrusts of Tönnies (1887/2001) work is regarding the connection that people have with one another within their community. He goes into detail about the different types of relationships and how these develop over time, as well as the common ties that bind people together, whether this be land, or through to ideals or values. Tönnies states, "wherever human beings are bound together in an organic fashion by their inclination and common consent, Community of one kind or another exists" (p.28) and later "...this kind of community can persist even while people are absent from their neighbourhood....it has to be sustained by fixed habits of getting together and by customs regarded as sacred" (p. 28). These quotes resemble the element of *Membership* and the sub-elements that contribute to the development of *Membership* such as boundaries, identification, and symbols. In 1909, Cooley discusses concepts of allegiance to the community or placing the community above self. In talking about shared interests and ideals rather than location McClenahan (1945) states people belong simply because of these common ideals or goals. Nelson (1955) identified that the sense of belonging was key to the development of a community. Henry (1958) suggested that membership was the core aspect of community, in

terms of the support that it would provide its members and Hills (1968) stated that identification was an important aspect of community, which highlights the 'this group is my group' aspect of this element.

The element of *Influence* is also reflected in a number of historical author's writings. In addition to Tönnies (1887/2001) who writes of how individuals mutually influence and assist one another, Cooley (1909) similarly observed this dynamic in school communities, street communities and communities in general. In terms of the *Integration and Needs Fulfilment* element, Tönnies again discusses ideas about people gaining profit from the community or the relationship should really be putting more into the community. McClenahan (1945) in talking about the relationships that form as part of community involvement describes how personal satisfaction, and enjoyment are important facets to this experience and also how people are likely to leave a community if the community is not meeting their needs. Sutton and Kolaja (1960) described a sense where people come together, acting collectively to address the problems or concerns that occur due to living together, which addresses not just the element of *Integration and Needs Fulfilment* but also *Membership*.

Finally, the element of a *Shared Emotional Connection* also shows significant connections with the historical literature, and many of the historical authors reviewed, expressed ideas or concepts that reflect this element. Again, Tönnies (1887/2001) talks of memory playing the "...strongest part in creating, maintaining and consolidating emotional ties" (p. 24). Cooley (1909) describes how a strong connection binds people together even in communities that might be identified as having a negative PSOC. Cooley also discusses concepts such as 'honour among thieves', as well as how the use of humiliation maintains boundaries but also contributes to a shared connection. McClenahan (1945) explores how some communities and 'communalities' may follow the accepted social standards and yet there are others that go out of their way to challenge these, which not allow shows similarities to the element of a shared emotional connection in that people are sharing similar experiences, but also that shared membership in either

following or not. Sutton and Koloja (1960) talk about sharing similar or common experiences and Adelson (1974) identify that a shared history and a shared destiny are important in the development of a community.

In summary, throughout history the elements proposed by McMillan and Chavis in 1986 have been proposed and explored by many other authors prior to 1986. This may mean that McMillan and Chavis, whether by design or by chance, have in fact identified or conceptualised the universal elements of a psychological sense of community.

### **Generalisability of the PSOC theory**

Research that utilises the McMillan and Chavis model of PSOC as well as the various measurement tools, such as the Sense of Community Index (SCI) is explored in this section. An effort has been made to separate the 'PSOC theory' literature, from the specific physical environments (e.g., workplaces, schools, neighbourhoods etc.) in which PSOC has been investigated to allow for further discussion of these environments at a later stage.

The Sense of Community Index (SCI) was the first measurement tool created to capture this psychological experience. It began with work by Chavis, Hogge, McMillan and Wandersman (1986) and has repeatedly and consistently, and sometimes inappropriately (see D. A. Long & Perkins, 2003), been used in the exploration of the study of PSOC since its inception and as a result of this, it has influenced much of the development of the PSOC theory and literature. The initial process of this development involved what was called the Brunswik's lens model, apparently in vogue at the time, and which involved a large scale collection of information, through personal interviews, with the collected information then grouped to fit the proposed theory, rather than a set of questions derived from the existing theory.

A random sample (N = 100) was selected and presented to 21 'judges' (social scientists, community service professionals, political and

neighbourhood leaders, general public) from three different cities.

Interestingly, one of these judges was later removed because they were not in agreement with the other 20. However, in view of the premise that it is individual differences that produce variations in our understanding of PSOC, surely this person's perceptions or understandings of what PSOC is would be important and/or relevant to the development of this measure.

In developing this measure, only 12 of the 23 items proposed initially were found to contribute significantly at  $p < .01$  and three other items contributed at the  $p < .05$  level. Although Chavis et al. (1986) found that there was a very high level of agreement between judges with an alpha of .97, when residents were asked outright about their level of a sense of community, the correlation between this measure and their responses was only .52. This low correlation clearly led to the surge in interest/research looking into the measurement aspect of PSOC. These 12 items were to be later used by Perkins, Florin, Rich, Wandersman and Chavis (1990) in their study of the Black Booster project and was to become known as the sense of community index (SCI).

McMillan and Chavis' (1986) model and the SCI received significant attention, support and validation throughout the years, but have also been the target of ongoing challenges to their factor structures. In a review of the PSOC literature, and the use of the SCI, Hill (1996) reported that the McMillan and Chavis (1986) model of PSOC was still the only theory derived model, and that the SCI, although useful in identifying the presence of PSOC, and its relationship to other variables, still needed more refinement, in a number of different environments to help establish the components of PSOC. Chavis and Pretty (1999; see also Pretty 1990) found that the commonly used 12-item scale had inconsistent psychometric properties which has contributed the ad-hoc development of further scales which has added to the obfuscation of the PSOC literature and measurement of this construct. Chipeur and Pretty (1999) conducted a review and suggested that the theory of PSOC developed by McMillan and Chavis along with the sense of community index (SCI; as developed by Chavis et al., 1986; Perkins et al., 1990) had proven to be a sound model and scale (although it did require

further support and validation) which can facilitate the ongoing integration of the PSOC concept.

Despite the support of the theory in general, the debate about the factor structure of both the model as well as the SCI has been persistent. Long and Perkins (2003) report that the analysis by Chipeur and Pretty (1999) was flawed due to their choice of method, also suggesting that the four proposed dimensions have not yet been confirmed empirically. Long and Perkins found that three rather than four factors fitted the original data better (Social Connections, Mutual Concerns and Community Values). They go on to suggest that the proposed McMillan and Chavis elements may vary across place and time, or that the measurement tool does not capture the proposed elements effectively. However, they do not discuss their new factors or provide any theoretical discussion as to why these may be a better fit, as observed by Obst and White (2004).

In entering the debate, Obst and White (2004) suggest that it is clear that the theory has received strong empirical support, however the SCI in its original format did not fit the data, both as a one-factor and a four-factor model. However, working with CFA techniques they found that with some adjustments, a four-factor model would fit the data, which does support the original PSOC theory. They strongly support the ongoing use of the PSOC theory as well as the ongoing development of the SCI. However, Peterson, Speer and Hughey (2006) disagreed with Obst and White's (2004) analysis, suggesting that they too had failed to provide adequate rationale. Peterson and colleagues (2006) compared Obst and Whites (2004) work to Long and Perkins (2003) raising concerns regarding the transference of items across scales, and suggested that perhaps their use of CFA techniques was inappropriate. In this article, Peterson et al.(2006) go on to suggest that positively and negatively worded items are affecting the structure of the SCI, and have recommended that only positive items be used and go on to develop the Brief Sense of Community Scale which includes only positively worded items (Peterson, Speer & McMillan, 2008). Peterson et al. (2008) suggested that this brief measure of PSOC was true to the McMillan and

Chavis conceptualisation and showed strong support for a four-factor model, not just a one-dimensional model. Of significant value to their study, is that they worked with one of the principal authors of the original theory while developing and testing their measure.

The potential results of this debate about the ongoing uncertainty concerning the factor structure of the SCI, are that the theory associated (i.e., McMillan and Chavis) also comes under significant debate despite the strong empirical support for the theory. Rather than clarify and quantify the proposed model of PSOC as presented by McMillan and Chavis (1986) the debate about measurement tools continues to obfuscate or complicate the search for meaning or clarity regarding the concept. This reflects the previous comment that research in this field has been dominated by PSOC and little attention given to the referent of PSOC, the community. A lack of specificity in what constitutes community has led to the proliferation of conceptions of PSOC.

### ***Research that adheres to McMillan and Chavis***

The following section presents research that utilises the McMillan and Chavis (1986) model of PSOC without any changes. Each of these studies contributes empirical support to the model itself as well as to the furtherance of the overall PSOC concept.

With the desire to forward the theoretical development of the concept of psychological sense of community, as well as to understand the factors that might be correlated with this construct, Pretty (1990) investigated the relationship between PSOC and social climate characteristics in a university residential setting. She utilised the SCI as her measure of PSOC, and the University Residence Environment Scale (URES) to measure social climate characteristics. In measuring the social climate characteristics, the URES measure was possibly too highly correlated within itself and may account for how these characteristics are correlated with PSOC. However, Pretty found that although the SCI did not produce a multi-dimensional result as suggested by the theory, it did produce a total PSOC score which she

believed indicated support for the "...theoretical tenets of PSOC" (p. 64). Also in 1990, and offering further support for the PSOC theory, McCarthy, Pretty and Catano investigated student burnout (within a university) and found that PSOC (and in particular McMillan and Chavis' (1986) theory) was a relevant and valid construct that showed significant negative correlations with students who reported high levels of burnout and psychological distress.

Offering further support for McMillan and Chavis (1986) model of PSOC work by Pretty, Andrewes and Collett (1994) found that this model (as well as the SCI) was relevant and useful in an adolescent sample, aged 15-19 years. However they did find that PSOC does vary from setting to setting, i.e., that a young person's experience of PSOC is not the same at school as it is in their home neighbourhood. This work was furthered by Pretty, Conroy, Dugay, Fowler and Williams in 1996, who widened their age range to include 12-18 year olds and found that PSOC was again relevant to adolescents of all ages, as well as being a distinct and viable variable, separate from social support when investigating the links with loneliness and subjective wellbeing. However, both of these studies found that the use of SCI was not adequate in capturing the actual experience and expectation of young people in and about their communities. This led to the development of a new measure called the Neighbourhood Youth Inventory (NYI) by Chipeur et al. (1999) and is reported to have four factors, *Support, Activity, Safety, and Friendships*. The NYI appears to go beyond the model of PSOC developed by McMillan and Chavis, as it was suggested that perhaps adolescents' experience of PSOC is different to adults in that they are present in the community far more, or that conceptualisations about adult PSOC need to be reassessed.

All four of the McMillan and Chavis (1986) elements of PSOC were identified in research that investigated PSOC in relation to a politically constructed group (Sonn & Fisher, 1996). The authors interviewed South African Immigrants, classified as Coloured in their original communities and found that although the participants tended to reject the label in their home country, after arriving in Australia they were more likely to use it for identification, and

found that PSOC as a model helps "...facilitate experiences of belonging, security and relatedness...[as well as] adaptation to new contexts" (p. 417).

In 1999, Chavis and Pretty published an article that summarised the PSOC literature to date. One important point made in their article, which is central to this thesis, is that it is individual conceptualisations and experiences that shape the development of PSOC and therefore the research related to PSOC. They state that the work reviewed "...illustrates the diversity in how researchers have come to ask questions about community, how one acquires a sense of it, how larger social institutions can strengthen, transform or destroy it. Researchers' constrictions orient their hypotheses, methods, and interpretations of a community's responses" (p. 636). Their review found there was an ongoing push for new measures of PSOC, as there was and still is ongoing debate about whether PSOC is a uni-dimensional (e.g., Buckner, 1988) or multi-dimensional variable (e.g., McMillan & Chavis, 1986; Perkins et al., 1990), as well as issues of multiple levels of PSOC (e.g., Brodsky, O'Campo, & Aronson, 1999; Kingston, Mitchell, Florin, & Stevenson, 1999), and individual level PSOC and community level PSOC. Despite the debate, Chavis and Pretty (1999) reported that the Sense of Community Index (SCI, Perkins et al., 1990) is still the most widely used measure. This review also highlighted the importance between PSOC and its relationship with our psychosocial wellbeing, as well as our physical environment, as well as the need to understand issues of attachment (to place) and identity formation.

Further providing support for the McMillan and Chavis (1986) conceptualisation of PSOC, Pooley and colleagues (2002) investigated the meaning of community to children aged 9-12. Due to the limited research in adolescents and virtually no research in children they wished to identify whether the PSOC concept was relevant to children of this age. Children described community as both a geographical place and a process. Pooley et al. found that each of the McMillan and Chavis (1986) elements were mentioned (in some fashion) by the children, however this may be impacted by age or developmental stage of the child. Follow up work (Pooley et al.,

2008) found that the McMillan and Chavis model was also found to be relevant to children in their school community. Both of these studies provide strong support for the applicability and universality of the McMillan and Chavis (1986) model of PSOC.

As suggested in the historical overview, there are many definitions of the word *community* and *sense of community*, as well as variations of how the word or phrase have been used interchangeably over the years. Garcia, Giuliani, & Wiesenfeld (1999) also reflected this in their study that reviewed the use of the term *community* as well as the understanding of *sense of community*, in relation to the historical development of an underprivileged neighbourhood in Caracas. The authors reported that the analysis of the interviews indicated that each of the elements that make up the McMillan and Chavis (1986) model of PSOC was clearly evident. An important point made by the authors in their review of the previous literature and relevant to the core of this thesis is that "...most definitions tend to originate in the personal considerations of the authors, based on their experience and their research findings" (p.727). This again identifies that it is individual experience and personal development that has a significant impact on, not only the proposed definitions of PSOC, but also the lived experience of PSOC.

Until 1996 PSOC had been described as primarily a positive experience. In particular, as an experience you either have or you do not have in a particular geographic or relational setting. McMillan and Chavis (1986) theory had been conceptualised as either a positive relationship that an individual has with their community, which provides positive benefits in terms of wellbeing, and quality of life (Bachrach & Zautra, 1985; Cantillon, Davidson, & Schweitzer, 2003; Davidson & Cotter, 1991; Farrell, Aubry, & Coulombe, 2004; Folkman & Lazarus, 1988; Gottlieb, 1987; McCallum & McLaren, 2011; McLaren, 2009; McLaren, Gomez, Bailey, & Van Der Horst, 2007; Newman, Lohman, & Newman, 2007; Resnick et al., 1997; Resnick, Harris, & Blum, 1993; Shields, 2008; Zambon et al., 2010), as well as a lack of PSOC has been attributed to negative outcomes (Chipuer, 2001; Hagerty, 1999; Hagerty, Williams, Coyne, & Early, 1996; Pretty et al., 1994).

Brodsky's research in 1996 was the first to identify that a negative PSOC (or the lack of PSOC - utilising McMillan and Chavis (1986) theory) may be beneficial to individuals, which could lead to positive outcomes. She conducted semi-structured interviews with 10 single-mothers living in what was termed 'risky neighbourhoods'. She found that these women actively cultivated a negative PSOC, in an effort to remain separate and distinct from their communities. They created safe boundaries, both in terms of physical separation as well as ideological separation. This separation did not mean that they did not participate or actively pursue positive change in their communities, however they did so while remaining almost aloof from the community. However, as Brodsky suggests, this desire to remain separate, although possibly offering protection, may also isolate them from the positive aspects of PSOC, particularly with other women who have the same belief. Brodsky suggests that PSOC can be either a positive or negative experience and that it is the social context and the community - individual interaction that will determine this. An important point is that although Brodsky found that it was a negative experience of PSOC that provided positive or beneficial outcomes for these women, she did find evidence for all four of the elements of McMillan and Chavis theory. Again, this provides further support for the usefulness and generalisability of this model as well as providing further evidence of the universal nature of the model.

Another article that adds to this support for this model, Brodsky and Marx (2001) endeavoured to investigate the PSOC that individuals may experience in different communities and sub-communities, through both quantitative (SCI- three separate occasions, with three different versions dependent upon referent community) and qualitative (focus group interviews with open-ended questions, plus eight individual interviews) procedures. Importantly, although never being asked directly about their PSOC experience during the qualitative data collection, PSOC emerged as an important theme during analysis. They also showed that people participated in multiple communities at the same time, and yet this did not dilute their PSOC in any of the communities they participated in.

### ***Research that uses McMillan and Chavis model as a Foundation***

As previously reflected, the PSOC literature is varied and diverse. There is much research that adheres to McMillan and Chavis' (1986) model but then there are a number of authors who have begun by utilising McMillan and Chavis' model of PSOC as a foundation, and have gone on to develop new concepts, theories, tools, or methodologies. Unfortunately though there appears to be no clearly defined process or goal in this exploration or development, and it seems somewhat haphazard. It is this literature which will be discussed in this section.

Hughey, Speer and Peterson (1999) began from the McMillan and Chavis (1986) model of PSOC, however, decided to go beyond this model, without delving into the realm of theory development. They describe a framework for the measurement of PSOC specifically for use within the context of community organisations, as well presenting and validating a measure developed for this context. They argued that community organisations might play a mediating role between the individual and their connection to the wider community, as it is within these community organisations, that individuals make their connections and form attachments. Initially they suggested a four-factor model, with two factors strongly reflecting the *Membership* element proposed by McMillan and Chavis, which was later reduced to three factors. The authors have suggested that their results show that PSOC is a valid construct worthy of investigation in community organisations, as well as showing strong links with McMillan and Chavis model of PSOC

A new measure aimed at capturing the multidimensional aspects of PSOC, was developed by Proescholdbell, Roosa and Nemeroff (2006) as they argued that previous measures tend to have been validated as uni-dimensional scales. This team used the SCI as a foundation (or starting point) utilising all items that matched their criteria. There were two aspects to this criteria, a) that the item must only reflect McMillan and Chavis (1986) theory and b) that the item must "...clearly [be a] component construct rather

than [an] antecedent” (p.12). Their view was that some of the items introduced in various measures of PSOC in fact measured concepts that occurred prior to the actual development of a psychological sense of community. Using this same process they generated 44 items from a number of common PSOC measures (SCI; Perkins et al., 1990; PSCS Chertok as cited by Bishop, Chertok and Jason, 1997; Glynn’s PSOC Scale 1981; and the NCI: Buckner, 1988), and a further 22 items were developed based on the McMillan and Chavis theory. The authors report, with the use of EFA and CFA, support for a three-factor model rather than a four-factor (*Influence*, *Shared Emotional Connection* and a shared *Fulfilment of Needs/Membership* factor). In this particular community (gay and bi-sexual males) *Membership* appears closely linked with *Need Fulfilment*, possibly because there are elements of identity development at work that are perhaps not present in other communities. This issue of identity requires further investigation to see how it is related to PSOC and it may be that Obst’s (2002c; 2002a, 2002b) factor ‘Conscious Identity’ may be relevant here and surprising that it was not incorporated into this research.

In a brief theoretical piece Colombo, Mosso and Piccoli (2001) begin by presenting a historical view of community (i.e., Tönnies *Gemeinschaft* and *Gessellschaft*) before moving on providing an overview of the McMillan and Chavis (1986) model of PSOC. Although starting from a foundation of the McMillan and Chavis model of PSOC and acknowledging the value in this model in terms of its clarity, the authors suggest that the concept of community and perhaps this model have been historically, too entrenched in the idea that homogeneity and conformity are the keys to a positive experience of PSOC. They suggest that the elements, *Membership*, *Need Fulfilment* and *Shared Emotional Connection* do not take into account the dynamic nature of communities and the existence of conflicting ideals and values that may be present. They go on to argue that the element of *Influence*, which leads to the active participation of individuals in their communities, is perhaps a key direction that future research and theory building should take.

The idea regarding the entrenchment of homogenous and conformist ideals is also supported by Wisenfeld (1996), who suggested that current conceptualisations of *Community*, leave no room for variation or diversity. However, in her overview of the existing literature regarding these 'community' (but not PSOC) conceptualisations, Wisenfeld clearly identifies that the psychological, social and cultural processes that occur among the elements at work within a community (such as individuals, physical environments, relationships) are common facets of 'community' conceptualisations. This statement clearly includes a psychological 'sense of community', and yet interestingly, although Wisenfeld quotes from Chavis and Newbrough (1986), from the very same edition in which McMillan and Chavis' theory is presented, she does not appear to incorporate or discuss their theory or where it sits within her own conceptualisation. This is surprising.

Wisenfeld states, "...each [community] definition stresses similarity among members of a community, as a necessary condition for the group identity to develop" (p. 339), and yet does not actually provide evidence for this statement. She goes on to argue, "...these definitions ignore the unique characteristics of each individual and the potential sub-cultural and intra-group differences which are present in every group" (p. 339). However, McMillan and Chavis (1986) themselves, although not ignoring concepts such as "us vs. them", in terms of boundaries and so on, also discuss concepts relating to belonging and identification, which suggests that people need to feel a sense of acceptance by the group, (but not necessarily be the same as the group). These differences within individuals and within and between groups provide depth and growth to communities. Also in exploring the bi-directional element of Influence, McMillan and Chavis even broach the topic of conformity, and discuss whether conformity is a bad thing, but also how this process of influence can really be bi-directional in any community (i.e., can an individual truly influence the group at the same time as being influenced by the group). McMillan and Chavis suggest that the research supports this, and that these processes or 'forces' can in fact work together. This is further supported by Hughey, Speer and Peterson (1999) who write

that "...communities can be contentious places.... and without the contentious aspect of community life, sense of community would be limited to intragroup solidarity (Dunham, 1986)" (p. 101), which would avoid (not involve) the need for a 'sense of transcendence' as proposed by Sarason (1993), which takes group membership to that next level and is that belief that you can have an impact on the larger 'scheme of things' and that it can have an impact on you.

Another scale developed to measure PSOC, is the perceived sense of community scale PSCS (developed by Chertok 1990, as cited by Bishop, Chertok and Jason (1997). Halamova (2001) reports that this measure was based on a number of different scales, Glynn's (1981) PSOC scale, the SCI (Perkins et al., 1990), the Work Environment Scale (Moos, 1974) and the Organizational Climate Scale (Schneider & Bartlett, 1968) and reportedly reflects the McMillan and Chavis (1986) model of PSOC. The original scale is described as consisting of three factors and items were created to fit these theoretical dimensions (Bishop, et al. 1997; Halamova, 2001). Although these factors are similar to McMillan and Chavis' (1986) theory of PSOC, they do not align cleanly (Bishop et al., 1997; Halamova, 2001). The scale was reworked in 1997 after further analyses found that items were converging on different factors than suggested originally by Chertok (Bishop et al, 1997).

In a study to compare two different theories of PSOC, the McMillan and Chavis (1986) model and another by psychotherapist-Scott Peck, Halamova (2001), attempted to illustrate that there were common underlying factors within both theories, no matter the group or context in which the community developed. The Peck theory (described by Halamova 2001) appeared to discuss more of the benefits of SOC rather than the specific dimensions of a SOC, however, the McMillan and Chavis elements can be seen clearly in some of Peck's theory as described by Halamova. Her study, which utilised the revised PSCS scale (Bishop et al., 1997) found that there was a strong positive relationship between this measure and a measure developed by Halamova, informed by Peck's work (Halamova, 2001). Although Chertok's

(1990) measure is purported to be based on or closely linked with McMillan and Chavis theory it is difficult to adequately assess whether this is truly the case and therefore and combined with this, is the fact that the Halamova (2001) study did not use factor techniques in identifying the common underlying factor structure. However, what this study does support is that even between these two measures there are clearly common factors and underlying constructs that perhaps drive the construct PSOC. Again this raises two questions or mutually inclusive concepts, the universality of the core elements of the McMillan and Chavis theory, and that it is individual differences that will always cause the variations in assessment and understanding of this construct.

In an effort to further develop and understand the dimensions of the PSOC construct, Obst, Smith and Zinkiewicz (2002a) investigated the role of *Identification* as related to this construct and published three articles regarding their research. In the third article (2002c), the authors included a number of different scales purported to measure PSOC, (the Psychological Sense of Community Scale- Glynn, 1981; short form: Nasar & Julian, 1995; the Neighborhood Cohesion Instrument Buckner, 1988; Community Satisfaction Scale, Bardo & Bardo, 1983; Multidimensional Measure of Neighboring, Skjaeveland et al., 1996; and the Urban Identity Scale, Lalli, 1992). The authors found support for McMillan and Chavis' (1986) four dimensions of PSOC, as well as hypothesised, a fifth factor, labelled *Conscious Identification*. (see also Obst et al., 2002c; Obst et al., 2002b, which will be further discussed in later sections).

An early example of this lack of integration in the literature is reflected in the work by Davidson and Cotter (1986), who quote from Chavis, Hogge and Wandersman (which was published in the same journal issue/year as McMillan and Chavis's definition) as well as McMillan's original thesis describing PSOC, and go on to provide a very brief overview of the components of this theory. It seems that these authors had access to this work and yet other than to acknowledge its existence they have not

discussed the theory or considered where their research fits within this developing field.

In this same year, Davidson and Cotter (1986) developed a 17-item uni-dimensional scale to measure sense of community based on what they called the 'rational-intuitive approach', drawing from concepts such as social connectedness, quality of life and social support. However, their measure was not based on, or developed from a specific definition or theory of psychological sense of community. They appeared to use a combination of theory developed by McMillan & Chavis' (1986) and the work done by Doolittle and McDonald (1978), but did not integrate or discuss their findings back into any of the theory that had been briefly discussed in the introduction. Yet, in a later article, investigating SOC and wellbeing, Davidson and Cotter (1991) clearly indicate their belief that their scale fits well within the McMillan and Chavis model of PSOC, stating "...even though it was developed before the aforementioned McMillan-Chavis theory, their four elements can be found in its domain" (p. 248).

Despite the uncertainty regarding the alignment with the McMillan and Chavis (1986) model of PSOC, Davidson and Cotter's (1986) measure has been used regularly and as such has informed much of the PSOC literature. As an example of this, the Italian SOC scale was based mostly upon Davidson and Cotters (1986) measure (Prezza et al, 1999). The Italian Scale of Sense of Community (ISSC) consists of 18 items; 10 of these were literal translations from Davidson and Cotters SOC Scale, with the other eight developed by the authors to more faithfully fit with McMillan and Chavis theory (Prezza et al., 2009). Prezza and colleagues (2009) report that the Italian SOC scale has been used in numerous studies conducted throughout Italy (e.g., Davis, Ricci, & Mitchell, 2005; Mannarini, Tartaglia, Fedi, & Greganti, 2006; Prezza & Constanini, 1998; Prezza, Alparone, Cristallo, & Luigi, 2005; Prezza et al., 2001; Prezza, Zampatti, Pacilli, & Paoliello, 2008; Santinello & Scacchi, 1998; Tartaglia 2006). However, although this scale was used commonly for a time in Italy, further analyses and factor studies have questioned its usefulness, due to its uni-dimensional structure, or the

uncertainty regarding scale structure, and it appears that some of the authors have returned to the McMillan and Chavis (1986) model of PSOC to attempt to capture the concepts more fully. This led to the development of the Multidimensional Territorial Sense of Community Scale MTSOC (the measure used for this study and will be discussed in depth during the [measures](#) section).

Nowell and Boyd (2010) in an attempt to present an "... alternative theoretical lens to inform theory development" (p. 891, Nowell & Boyd, 2011), propose that the McMillan and Chavis (1986) PSOC theory originates out of a needs theory framework; firstly suggesting that in this framework, an individual's community is a resource to be tapped to meet individual needs, and secondly propose including a values-based concept, to include aspects of social responsibility. Nowell and Boyd (2010) suggest that the interaction between the individual's belief system and the current contextual situation adds to this experience of and their contribution to their community.

In a rebuttal to this article, McMillan (2010) argues that the theory is in fact a tool and it should be considered as such. McMillan suggests Nowell and Boyd (2010) have not comprehended the depth of the model, instead basing their view of the theory on the available brief measurement tools, which McMillan states "... a brief measure of the theory hardly represents the theory" (p. 510), also stating that he was not involved in the majority (if any) of the tools they used. Nowell and Boyd (2011) reply that McMillan has misunderstood the term value-based model and provide further clarity about the concept of the individual within the context of the community. This personal belief system is core to the concept that it is individual differences that contribute to the personal experience of PSOC, which will be different for each person, in each different environment.

To summarise there is extensive research that supports the McMillan and Chavis (1986) model of PSOC but also that this is a strong foundation or base upon which the development and exploration of future developments can be based. The previous research has indicated that there is a strong

case to be made for the possibility of 'universal' elements of a psychological sense of community, but as suggested, it is the individual expression and experience that then causes the differences observed. As Obst and colleagues (2002a) state "... it could be argued that the results of much of this research in fact has been an artifact of the specific orientation of the researchers, as factor analytic techniques can only elucidate what has been included in the analysis in the first place" (p. 91). What has also become clear is that the previous literature presents as fragmented and lacking in focus or a cohesive thread that ties it together.

Part of the problem may be that the sense of community concept has almost been too successful. Sarason (1974) indicated that he had never met anyone who did not understand this experience, and so there has been perhaps an automatic assumption about 'our' understanding of the term, which has meant that PSOC has then been applied to multiple environments and contexts, and new measures developed for each new context. Unfortunately all of these different measures or slightly altered scales divert away from the essential meaning of the concept and potentially weaken and dilute the theory and may lead to the confusion of future researchers (e.g., where to begin, which theories and which measures to use).

### ***Different or New theories***

As indicated in Figure 2, in this section I present the research that addresses either new theories or measurement tools that are commonly referred to in the PSOC literature.

Buckner's (1988), 18-item Neighbourhood Cohesion Index has often been used in the PSOC literature. Buckner identified three dimensions, that he considered important to the cohesion of neighbourhoods; *Sense of Community, Attraction to Neighbourhood, and Neighbouring*. His review of the literature included the cohesion literature on the psychology of small group processes and sociological literature relating to neighbourhoods. However, results showed that the scale did not support a multi-dimensional

structure as proposed, and therefore has been used as a one-dimensional measure (see also Robinson & Wilkinson, 1995, Wilkinson 2007 & 2008). Individual items have also been used on shortened questionnaires (Pretty et al., 2006).

Another measure often referred to or utilised in PSOC literature is the Multidimensional Measure of Neighboring (MMN). As Buckner's NCI and the SCI had not been shown to be factorally stable and or consistent Skjaeveland, Garling, and Maeland (1996) proposed a six-dimension measure (MMN) to assess neighbourhood social characteristics. This measure was also later reduced to four dimensions due to further factor analyses (*Weak Social Ties, Attachment to Place, Neighbourhood Annoyance and Supportive Acts of Neighbouring*) and therefore providing another measure that can cause confusion regarding the actual meaning and value of a sense of community.

Crew, Kim and Schweitzer (1999), developed a four-item measure to capture SOC, which they argue, in terms of theory, "...most closely parallels discussions by McMillian and Chavis (1986) and Perkins et al. (1990)" (p 19). They state that their items were based on scales by these authors, but in fact, go on to indicate at least 15 different articles that informed the development of their four-item measure. This measure was then used by Cantillon, Davidson, and Schweitzer, (2003) who also provided a fair description of the PSOC theory and literature, mainly focussing on McMillan and Chavis theory, and then go on to provide a three-page table that summed up many of the available measurement tools (or articles) for this construct, for use in geographic communities. Despite stating that the literature evidenced significant debate about the factor structure of PSOC and that the PSOC construct still needed work they choose to use the Crew et al. (1999) measure, which then makes comparison to previous research difficult. Surely, working with or refining already presented measures (with more than four items) and therefore adding to the robustness of this construct would be considered vital rather than diluting or confusing the issue once again with an untested, theoretically unclear measure. Despite

suggesting that they agreed with McMillan and Chavis theory and presenting this as the guiding force behind their measure and study, they propose their SOC components as "...a sense of physical safety, emotional connections, and attachment, and an empowering or action-oriented component", which only vaguely fit within this model.

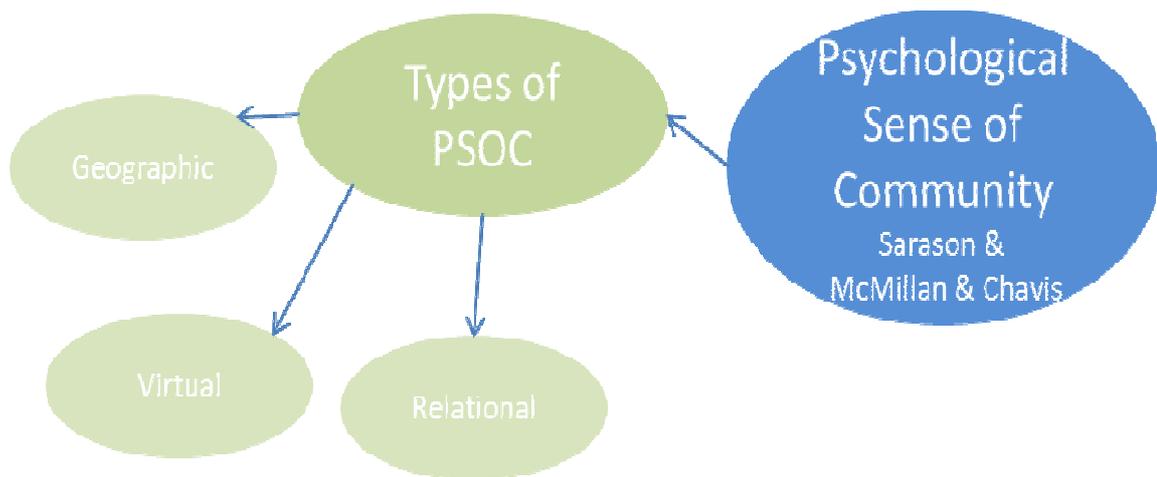


Figure 3. Types of Psychological Sense of Community

### **Types of Psychological Sense of Community**

McMillan and Chavis (1986) have suggested that their theory on PSOC can be generalised to fit many types of communities. This next section will explore many, but definitely not all the ways in which this theory has been applied in various types of communities around the world. This section will also include related studies that investigate sense of community, but that might not utilise McMillan and Chavis' model or the related measurement tools. This section also highlights how perceptions about PSOC (perhaps those Universal elements?) are similar all around the world, in different types of communities (size and composition) whether geographical, relational or even virtual (Cohrun, 1994) as reflected in

Figure 3. The literature reviewed in the following sections (i.e., geographical, relational and virtual) are merely connected through this theme of the environment or type of PSOC that was being investigated.

#### **Geographical Communities**

A geographical community, as commonly described in the historical section is one that consists of individuals or families residing in a shared physical location. Community members may or may not come together to solve community problems by using the available community resources. The key is that they share a common geographical location, which may or may not require ongoing development of relationship or negotiation. Much of the

research already presented has been conducted in geographical locations or environments, partly due to a historical sense that PSOC was diminishing in our communities. Therefore, we needed to understand not only the core elements of PSOC but also how to slow down or cease this decline. Over time the understanding that PSOC can also be found in relational and even virtual communities has changed this dynamic and these non-geographic communities are now receiving significant attention (e.g., Abfalter, Zaglia, & Mueller, 2012; Burroughs & Eby, 1998; Miers & Fisher, 2002; Obst et al., 2002c; Obst et al., 2002a, 2002b; Reich, 2010; L. Roberts, Smith, & Pollock, 2002).

With regards to a geographic community there have been a number of studies that have investigated PSOC in this domain (and have been discussed repeatedly in the literature), far more than what can be effectively covered here. The theme that emerges once again is one of fragmentation; there is no common thread or goal that binds these studies together. Rather than discuss each individual paper in this commonly dissected field only a brief summary is provided.

In a pure geographic sense, PSOC has been investigated in relation to the differences between towns and cities, finding that the smaller town and smaller city, compared to the large metropolis evidenced higher levels of PSOC, with the authors going on to suggest that PSOC in the larger metropolis may be more likely to be found in relational communities rather than geographic communities (Prezza & Constanini, 1998). In a later study, Prezza and colleagues found somewhat surprising and unexpected results with towns that were newer showing higher levels of PSOC compared to towns that had been established for longer (Prezza, Amici, Roberti & Tedeschi, 2001). The authors suggested that this could be due to the fact that residents in the town had deliberately sought to move to a more peaceful town which therefore increased their PSOC.

PSOC has also been investigated in terms of the differences in land use (i.e. single zoned compared to mixed zoned) with results showing that mixed use

zones increased levels of PSOC. This research also indicated, as expected, that married couples had higher levels of PSOC when compared to singles and couples with children had higher levels of PSOC when compared to childfree couples and that homeowners showed higher level of PSOC as compared to student renters (Nasar & Julian 1995). This research was supported by research by Pendola and Gen (2008) who showed that the presence of a 'Main Street' improved the development or levels of PSOC in a town, as people within the town had more opportunities to cross paths and interact on a daily basis. Another study by Kim and Kaplan (2004) investigating the role of the physical environment on the development of PSOC reported that the type and physical attributes of the environment can have a significant impact on the development of PSOC.

Geographic PSOC has been investigated in a number of other ways for example, regarding the differences between adults and adolescents in a town, with findings showing that adults reporting significantly higher levels of PSOC than adolescents (Pretty, Chipeur & Bramston, 2003); PSOC has been shown to be more similar within neighbourhoods than between neighbourhoods (Kingston, Mitchell, Florin & Stevenson, 1999); and PSOC has been found to be positively correlated with problem focused coping in the presence of a perceived threat, rather than directly related to the involvement with the community (Bacharach & Zautura, 1985);

Mannarini and Fedi (2009) found that the way individuals understand or experience their community is not only closely tied to their PSOC but also with their level of participation in their community. This article may provide further support for the idea of possible universal elements of PSOC, as Mannarini and Fedi found that all the elements proposed by McMillan and Chavis (1986) were present in their study, however the proposed components or elements may overlap or interact with each other in ways that are different from the original theory. This again strikes at the heart of individual differences, and that there are universal building blocks of PSOC, but an individual builds different things with these blocks or elements based on their own development and personality.

In comparing geographic and relational communities, Obst, Smith and Zinkiewicz (2002b) actually found that a relational PSOC was higher for members of this community than for their own home geographic community, even though much of the communication between members was conducted over the internet.

One of the key questions that emerges from this review of the geographic research is that perhaps an individual's level of PSOC may be tied to the size of community, as the geographic community becomes larger, individuals begin to look for connections within relational and virtual communities rather than the local neighbourhood. Individuals leave large cities and search out smaller towns or newer communities with the hope of developing this sense of connection with others; if the town is too large perhaps it becomes too difficult to get personal connection needs met, and therefore people need to either move or look for other opportunities.

### **Relational Communities**

Unlike geographic communities which appear to develop over time, due to the common use of space, the form and structure of relational communities is vastly varied. Relational types of communities develop or come together through common interest or an identified choice or purpose. These communities are places like churches, hobby or recreational groups, workplaces, political parties and so on. Some relational communities may also be geographical communities (think Missionaries and possibly a college campus), and some may also be virtual or online communities (think Science Fiction Fan club). McMillan and Chavis' (1986) theory of PSOC has been utilised and supported in a number of these relational communities.

#### *Churches*

Miers and Fisher (2002) found that PSOC was a relevant and useful concept for "...understanding the life of a local church community" (p. 158). They conducted a multi-method investigation of a local church community, during

a time of significant leadership disruption. This particular church community had developed after the amalgamation of two other churches, well over ten years prior to the research, and was now losing a significant portion of its pastoral leadership team. The authors were interested in the level of PSOC within the church community, as well as how it might be related to the conceptual understanding of the current leadership issues. Meirs and Fisher noted that many of the church community members also lived close to the church, which appeared to increase the potential for a combined geographical and relational PSOC.

Further research is required in this area to test whether those who lived close to each other as well as attending the same church had higher levels of PSOC than those that were more independent or isolated, and, is this decision to live separately possibly related to personality or personological reasons, such as introversion, attachment or need for affiliation would be interesting and an important next step. Miers and Fisher (2002) found that PSOC was high in church members, particularly those members who had been part of this church community for a long time. However, as reflected by Meirs and Fisher, due to the current leadership issues that were occurring at the time of data collection it is unknown what impact this might have on the self-reported experience of PSOC. As part of their investigation, Meirs and Fisher asked participants what were the five best things and the five worst things about their church community. Interestingly, many of the same items appeared on both lists. This is a clear reminder, and core to this thesis, about the power of individual difference; what one person sees as beneficial and as an advantage another views through a different lens and sees as a hindrance or problem. It could be that the leadership problems could cause people to bond together and find solace and comfort in each other, a shared emotional experience, or it could increase the dissension and angst in people, which might cause them to withdraw. Again, these are factors that are likely to be impacted by the personality and personological factors that individuals bring to their communities.

### *Hobby or Recreational Groups*

Obst, Zinkiewicz and Smith (2002a) use McMillan and Chavis' (1986) theory and apply it to a relational community, an international group of science fiction fans (n= 359). This is the first article of a set of three. This article specifically focusses upon relational PSOC within this community. The authors found that the members of this fan club who were present at the 1999 Sci-Fi Convention in Melbourne, Australia, reported high levels of PSOC. Interestingly, there was no difference in PSOC levels between fans who mainly participated in face-to-face contact than those whose contact was online. So this would indicate that PSOC does not necessarily need face to face contact to develop. As indicated earlier, this research was part of a larger study that was interested in identifying a possible fifth element to the PSOC theory, that of *Conscious identification*, which is identification with and awareness of fellow community members and membership within the group. This element may be especially relevant in relational or interest communities, in that people may choose in a more conscious manner to join relational communities than a geographical community.

Breunig and colleagues (2010) investigated the relationship between PSOC and engagement with nature. Their goal was to understand the relationship between participation in wilderness trips and the changes in PSOC over time in college students, using both quantitative and qualitative data. One of the major goals of the Breunig study was to better understand how much the McMillan and Chavis (1986) model of PSOC is present in wilderness trips. However, Breunig et al. used the PSCS (Chertok, and Bishop et al., 1997) which is only tentatively associated with McMillan and Chavis theory and again only tentatively captures or relates to the elements proposed by McMillan and Chavis, particularly when they go to so much effort to interpret their results through this model. Their results indicated that PSOC increased due to involvement in outdoor pursuit activities, however, one does wonder, whether personality and personological factors may play a significant role in this relationship. Aside from the obvious development of a community 'spirit' that would occur among a group that are working together to face the natural elements and the need to rely upon each other to 'survive', it would be a

certain type of individual that would choose to first think of becoming involved in this activity, and then actively search out these activities, and then to pursue continued interaction, (even more so when the students they were assessing were in fact majoring in Recreation).

### *Workplaces*

Workplace environments have seen significant levels of research regarding the proposed concept of PSOC, starting with work by Klein and D'Aunno in 1986. They provided a framework for the study of PSOC in organisational settings, suggesting that workplace PSOC could arise from a number of sources or what they termed referents (i.e., the organisation as a whole, friendship networks within the organisation, functional subgroups, professional affiliation, and the physical worksite). They also indicated that individual characteristics of the employee are also likely to significantly affect the development of PSOC in individuals (i.e., age, gender, income, education) as well as individual aspects related to employment, (i.e., length of tenure, job characteristics, leader or supervisor characteristics, subgroup characteristics and organisation characteristics). Using the McMillan and Chavis (1986) model, Pretty and McCarthy (1991), endeavoured to explore the concept of PSOC in the workplace while keeping these concepts proposed by Klein and D'Aunno (1986) in mind. Pretty and McCarthy investigated a number of individual aspects in managers and non-managers (age, length of tenure, and gender), work characteristics (such as opportunities, management or hierarchical structures and relationships) and their relationship with PSOC (assessed using the SCI). They found support for the idea that PSOC should be investigated within workplaces and reported that this perceptual experience differed between men and women, particularly with relation to their place on the organisational ladder. For managers, support from others was the primary predictor of PSOC, however, for men this came from co-workers, but for women this came from supervisors. Male managers who had greater tenure had higher levels of PSOC, however, in general men had been with the company longer than female managers. For non-managers, the most important predictor of PSOC

was involvement (the extent to which an employee is concerned about and committed to their job).

However, in a similar study to Pretty and McCarthy (1991), Lambert and Hopkins (1995) found that support from supervisors was actually more important for males rather than females in developing a sense of community, then followed by support from co-workers. However, there were some significant differences in terms of their referent group, in that Lambert and Hopkins were investigating gender and race differences in lower-level jobs in a manufacturing firm, which is markedly different from Pretty and McCarthy's (1991) managers and non-managers in a public utilities corporation. However, Lambert and Hopkins did state that men "... are more sensitive to informal supports in the workplace whereas women are more sensitive to formal supports" (p. 175), providing support for Pretty and McCarthy's findings that formal supports were more significant for women in terms of their PSOC. Lambert and Hopkins however, although mentioning McMillan and Chavis' (1986) theory of PSOC did not structure their investigation around this theory nor use any of the related measurement tools, and in fact combined two existing scales into one measure.

Informed by McMillan and Chavis (1986) theory of PSOC Burroughs and Eby (1998) developed their own definition of PSOC in the workplace, which they suggested was mostly the same. However, they did include two new elements (*Truth-telling* and *Spiritual Bond*), which they indicated arose from McMillan's (1996) reworking of the PSOC theory, as well as work by Lorion and Newbrough (1996). They reported finding that employees with a higher need for affiliation tended to score higher on their measure of PSOC. One does wonder however, if Burroughs and Eby considered their elements to be almost identical to McMillan and Chavis' theory, why not actually use these elements, and describe how they might work in a workplace environment and then explore the possibility of these new elements, rather than create a whole new theory with new names. Burroughs and Eby reported that as there was no available measure for assessment of PSOC in a workplace setting that included their proposed factor structure, they created their own.

Due to not finding the proposed factor structure, and ending up with nine distinct factors, Burroughs and Eby decided that due to the presence of a single large general factor, all the items were combined and used as a one-dimensional scale. In their discussion the authors state that they developed a multidimensional measure of PSOC in the workplace, however, although the data showed the possibility of clear factors, they chose not to use the scale in this way or explore or interpret their results through this new rubric, and perhaps they in fact developed a uni-dimensional measure.

### *Schools/Colleges/University*

PSOC has been investigated in a number of educational environments, with most studies utilising either McMillan and Chavis' (1986) theory or at least the related measurement tools. For example, in a qualitative intervention and assessment of children transitioning from primary school to a newly developed middle-school program. Fyson (2008) found that the elements presented by McMillan and Chavis clearly emerged as themes by children as they transitioned. Bateman (2002) investigated PSOC in three separate school environments and found higher levels of PSOC were found in schools that tend to offer a wide variety of learning activities and opportunities for frequent interaction with other students (in and across grades) and the community. As discussed earlier Pretty (Pretty, Andrewes, & Collett, 1994; McCarthy, Pretty, & Catalano, 1990) found that PSOC is relevant and useful in both high schools and university settings, having an impact on loneliness and student burnout.

It can be argued that Colleges in the United States of America are both geographic communities and relational communities, as students appear to more often live on campus than not (for example as compared with Australian Universities where students are more likely to attend local universities and live at home with family or with room-mates). Lounsbury and DeNeui (1995) were interested in developing greater understanding of the PSOC concept in relation to college students, and in particular, areas such as membership in sub-communities such as fraternity's, private versus public students, living on campus versus off, in state versus out of state, type of

major, class level and gender. They found that in each one of these areas there was a positive and significant difference in terms of PSOC. Students involved in sub-communities had higher levels of PSOC, as did students who lived on campus and those that were out of state students. PSOC was also higher in students from private colleges (usually smaller and therefore more intimate). Students who had decided upon a major reported higher levels of PSOC as compared to those that had yet to decide, and PSOC was higher in fields that emphasize communication and interaction with others such as students in Communication and Education majors. It was also found that, as expected, females showed higher levels of PSOC in general and that 'Senior' students (those in their final year) had lower levels of PSOC which was thought to be due to students beginning to look beyond university to the 'outside world'. Further work by Lounsbury and DeNeui in 1996 found that personality was a significant predictor of PSOC, in that those students who were higher in extroversion showed higher levels of reported PSOC. Also, size of school was found to be a significant predictor; students from smaller schools showed higher levels of PSOC.

This work was continued by DeNeui (2003) who investigated how students personality and participation in campus activities helps to develop their PSOC during their first year of college. DeNeui predicted that PSOC would develop over time, throughout the school year. However, he reports that he found no support for this hypothesis, with the overall mean for PSOC being lower at the end of the school year. In discussing the differences between levels of introversion and extroversion, extroverts were significantly higher in PSOC both at the beginning of the year and at the end than introverts, however the extroverts had in fact dropped in terms of their PSOC by the end of the year. DeNeui suggests that, highly extroverted students enter college with high expectations regarding all the possible opportunities, but unfortunately these expectations are not met, which appear to impact on the development of a PSOC; perhaps they become disillusioned or perhaps are unable to keep up with both schoolwork requirements and social requirements.

Also investigating PSOC in terms of the participation of undergraduate transfer students, Townley, et al. (2013) found that the actual and ideal PSOC reported by students who were transferring campuses was significantly different, particularly in women and ethnic minorities. Students expected a higher sense of community than what they actually experienced. Students who participate in many activities showed poorer GPA's, but PSOC appears to play a role in moderating this relationship. Students who reported high levels of participation and reported higher levels of PSOC showed better GPA's as compared to those students who were high participators but reported lower PSOC. They do state however, that for some students PSOC is vital for their connection and participation in university life, however, for others it is less desirable, and "...when we assume that all people desire the same levels of connection to their environments (and to other people in their environments), we miss the potentially valuable influence of individual preferences for SOC that likely impact participant outcomes" (p. 287). Understanding these individual differences in terms of PSOC development is an important step in supporting the development of PSOC in individuals and communities.

### **Virtual Communities**

Virtual communities can be seen as an extension of, or a subset of, a relational community; participants of a virtual community seek out connections with other's via electronic methods.

Exploring factors that enhance participation by members of online or virtual communities Yoo, Suh and Lee (2002) found that it was a sense of community that strongly influenced participation in online communities (rather than management or information-system quality), suggesting that this construct (PSOC) needs to be better managed to encourage further participation by members. However, the authors designed their model to only investigate how PSOC may influence participation, and did not investigate the reciprocal relationship of how participation then influenced PSOC (Heller, 1989). It would have been useful to see if a feedback loop further increased

levels of PSOC as well as levels of participation. What also would have been interesting is further information about the individual characteristics of participants and the differences that may have led to their differences in their use of online communities as well as their levels of PSOC and participation.

Online communities may present as either 'networked individualism' or as 'true communities' and it is important to understand this distinction (Reich 2010). In an effort to explore these differences Reich found no or limited evidence that sites such as Facebook, or MySpace represent online communities. This provides more information about what is *not* a community. Reich found no evidence of any sense of the *Membership* component suggested by McMillan and Chavis (1986). However, Reich only investigated a somewhat superficial use of Facebook and MySpace. These sites are billed as networking sites, not as interest or relational communities. In terms of the elements suggested by McMillan and Chavis (1986), and those recently suggested by Obst et al. (2002a, 2002b, & 2002c), it is hard to see how elements such as *Influence*, the *Fulfilment of Needs*, the *Conscious Identification* and *Membership* would develop through the general or superficial use of status updates, personal messaging and reading a 'news feed'. Facebook may be a regular use (even hourly) for some, but there is no clear sense of a shared experience with others, nor the ability to influence outcomes, or to provide anything but a superficial application of support. A general Facebook account is unlikely to have a sense of community, as it is filled with (possibly random) disconnected friends and relationships. However within the structure of Facebook there are communities or interest groups that exist which would be interesting to examine more closely, such as healthy eating, games, music, craft/hobbies and the like to see if a Virtual PSOC exists or is experienced by members within these groups.

Roberts, Smith and Pollock (2002) also found support for the existence of PSOC in a virtual environment called a Multi-user dimension or dungeon, Object Oriented (MOO). The majority of respondents indicated that a sense of community did exist for them in at least one, if not many of the MOO communities in which they participated. The elements suggested by

McMillan and Chavis were found to be present in these communities. What would have been interesting in this research would be to know about the personality or personological characteristics that may contribute, firstly to high levels of participation within these communities and secondly whether PSOC varied as a response to these personality characteristics.

Abfalter, Zaglia and Mueller (2012) investigated psychological sense of virtual community (SOVC) in a popular German online community for retirees. Specifically, they tested the factor structure and theory of McMillan and Chavis (1986) theory of PSOC and the newly revised SCI, created by Chavis, Lee, and Acosta (2008). Abfalter et al. (2012) reported that the theory and model of PSOC presented by McMillan and Chavis was supported, as all elements were found and supported in their research, they suggested alterations to the SCI2 for use within a virtual community. These alterations generally meant the removal of items, which were then provided in an appendix, however, did not provide the psychometrics for these, which would have assisted in further understanding their reasoning for their removal from the measure. One of the items they suggested removing, 'Being a member of this community makes me feel good' was because they believed that it did not stand to reason that wellbeing is automatically linked with PSOC. However, PSOC is recognised as an individual perception and experience (Newbrough & Chavis, 1986). Understanding not only the affective components of this experience but also the variations between people who report differences on this item is important. There are some limitations with the study however. The sample of a retirement community limits the generalisability of the research, particularly as it is more likely that this sample are much less likely to use the internet for social use and those who do are likely to be different from others (although this may be changing). Secondly, it may also mean that as Reich (2010) suggested that, although elements of PSOC were found, perhaps this was not really a community as such but more a network of individuals, as the authors themselves suggested that people generally accessed this community in an effort to collect information. Further, what are some of the individual differences or

personality characteristics that set people apart in terms of their internet use in the first place.

Rovai (Rovai, 2002a, 2002b) and, Rovai and Jordan (2004) interested in the relationship of PSOC and distance education, created a measure of classroom community. However, Rovai (2002a) incorrectly uses the word 'community' and the term 'sense of community' interchangeably in his definition of terms and has incorrectly attributed McMillan and Chavis' (1986) quote about a 'sense of community' to 'community'. Moreover, although Rovai (2002a) acknowledges McMillan and Chavis contribution or definition as a starting point, he develops his own theory/model/measure rather than fine-tuning or refining the extant research. In his (2002a) theoretical piece that introduces what he considers the core factors of a classroom community measure, he identifies four elements called, *Spirit, Trust, Interaction* and *Common Expectations*. In his descriptions of these elements, it is obvious that each of the factors significantly resemble McMillan and Chavis' theory of PSOC and appear to have been refashioned or renamed. In his following article (2002b) he details the development of this new scale. This scale (CCS) consists of two subscales, a social or connectedness subscale and a learning subscale, which were unfortunately not reinterpreted back in to the theory that he had provided. It is also unclear as to whether he is actually measuring what he set out to measure, or even the concept of PSOC within an online classroom setting. Using what seems to be a somewhat circular argument Rovai (2002b) suggests that the items all reflect high face value and that the procedures used to develop the scale are valid, so therefore it must be valid. He also suggests that he expended considerable effort to ensure that the classroom community concept was based on a definition of community found in the literature, but unfortunately he does not compare his results with other measures, nor have his participants complete other measures to ensure they were measuring similar concepts. There have been other classroom measures developed prior to this that Rovai could have worked with, refined, or used as validation (Lounsbury & DeNeui 1994; Pretty, Andrewes, & Collett, 1994; McCarthy, Pretty, & Catalano, 1990; Bateman 2002).

Thomas (2009) investigated PSOC as related to the use of Instant Messaging (IM) among college students. She reported that PSOC was not predicted by personal demographic variables (such as age, gender, race, work), however student participation in intramural/club sports, the use of IM and 'sense of mattering' were predictive of PSOC. However, in her assessment of personal demographic variables, Thomas did not investigate the personality or personological factors that may have contributed to an individual participating in these activities or their relationship to the development of PSOC. Also, when investigating 'sense of mattering', the definition she provides for this term is almost identical to the core meaning of PSOC specifically that related to the *Membership* element. It is not surprising then that a sense of mattering would predict PSOC when the definition is "...feelings of marginality and mattering are based in a student's feeling of belonging and mattering to a community" (p. 8).

This section has provided evidence that the PSOC theory developed and modelled by McMillan and Chavis (1986) has been and can be applied to many types of environments, in particular geographical, relational and virtual communities. However it has also been shown that there has not been a consistent theme or focus that has directed the search for understanding regarding this psychological experience.

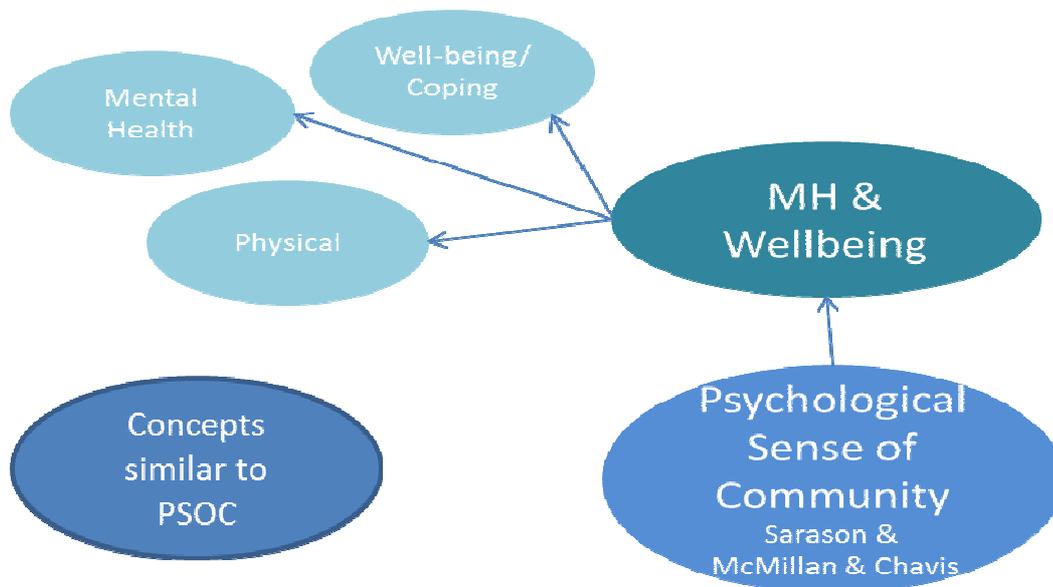


Figure 4: Mental Health and Wellbeing Theme

### Why investigate Psychological Sense of Community?

The theme of mental health and wellbeing and its connection with PSOC will be explored in this section, along with concepts related to PSOC as indicated by Figure 4. The connection with others in our community is vital to our mental health and wellbeing. PSOC, sense of belonging or connectedness or variations on these themes have been linked not only to measures of subjective well-being but also to a number of mental health factors or behaviours. Terms such as sense of belonging, sense of place, social cohesion, place attachment, community attachment, neighbouring, networking, social support, social capital, cohesion and membership (just to name a few) have often been used concurrently or interchangeably with each other and with PSOC (e.g., Blanchard & Markus, 2004; Cockshaw & Shochet, 2010; Galliher, Rostosky, & Hughes, 2004; Goodenow, 1993; Hagerty et al., 1996; McLaren et al., 2007; Newman et al., 2007; O'Brien, Hassinger, & Dershem, 1994; Osterman, 2000; Resnick et al., 1993; S´anchez, Col´on, & Esparza, 2005; Shields, 2008; Talen, 1999; Ueno, 2005) and at other times as a separate construct or concept. This has added to the confusing nature and the ongoing diversification of the literature, as well as the field of community psychology. Recently there has been some effort made to clarify or quantify these terms (Buckner, 1988; Lochner,

Kawachi, & Kennedy, 1999; Perkins et al., 2007; Pooley et al., 2005; D. Wilkinson, 2007).

Overall, psychological literature compared to fields such as sociology or public health tends to be more specific or clear about the use of these terms (Pendola and Gen, 2008). Until this point, I have reviewed the literature that pertains directly to the PSOC concept, otherwise an already large field would become unmanageable and a thesis in its own right. However, the next section exploring the mental health and wellbeing consequences of PSOC (or lack thereof) will at times include research that has investigated terms related to PSOC, such as sense of belonging or membership and so on.

Research has shown that connecting with others is vital and important to our development and our ongoing mental health and wellbeing and that "...its absence has been associated with isolation and social dysfunction" (Bishop et al., 1999, p. 194). Baumeister and Leary (1995) performed an extensive meta-analysis in an effort to establish that the 'need to belong' was a fundamental human motivation. They found strong evidence to support this hypothesis, based on an extensive list of key criteria; the motivation must be universal, have an impact on affective and cognitive functioning and produce goal-directed behaviour are just a sample of some of the criteria presented. Osterman (2000) also showed that sense of belonging/sense of community was vital for adolescents and children in school settings.

Loneliness is almost a direct result of this 'need to belong' not being met, as suggested by Chipeur (2001) who states that "...individuals who do not have a 'sense of community' are at greater risk for feelings of social isolation and alienation, which may lead to experiencing loneliness" (p. 432). Pretty, Andrewes and Collet (1994) also provide support to the notion that PSOC is important in the experience of loneliness, finding that school PSOC in particular was an important and significant predictor of a young person's experience of loneliness. Hagerty and her colleagues (1996) explored sense of belonging in young adults and investigated numerous possible predictors and relationships. They found that sense of belonging was negatively related

to loneliness, depression, anxiety and suicidal thinking. In further follow up studies, Hagerty and Williams (1999) found that sense of belonging and loneliness were the strongest predictors of depression, with sense of belonging being the strongest, and both were higher than perceived social support. Prezza and colleagues (2001) also found that PSOC was linked to life satisfaction and loneliness no matter the size of a community.

Sociologists, Obrien, Hassinger and Dershem (1994) found a strong relationship between community attachment and self-reported depression scores in two separate rural towns in the Midwestern United States. They reported that as community attachment and social integration rose, levels of depression decreased after controlling for economic conditions, age and social networks. Unfortunately, the authors only used a four-item measure of community attachment, and there was no measurement of other individual personality or personological factors. Peterson and colleagues (2008) found a negative relationship between depression (measured using the abbreviated version of the Centre for Epidemiologic studies Depression scale) and PSOC and a positive relationship with a subjective quality of life measure (both physical and mental health, the 12-item short-form Health survey).

Other important mental health factors have been investigated in relation to these senses of belonging, connection or community. For instance, decreases in symptoms of depression (Cockshaw & Shochet, 2010; Lee, Keogh, & Sexton, 2002; Shochet, Homel, Cockshaw, & Montgomery, 2008; Ueno, 2005; Vanderhorst & McLaren, 2005) and anxiety (Lee & Robbins, 1998). Although Lee and Robbins reported significant findings linking sense of connectedness and anxiety (i.e., anxiety increases for those that experience lower connectedness), it should be noted that their study only used women who were in college, consisted of a very small sample and an artificial group situation to assess their hypothesis. Bailey and McLaren (2005) found that elderly participants involved in group physical activity reported less suicidal thinking. However, their study included a high number of independent and well-functioning individuals, so it could be, as they suggested, that their study had not captured those individuals actually at high

risk of suicide. Also investigating elderly participants, Kissane and McLaren (2006) found that a sense of belonging was related to having more reasons to live, but they too found that their study may have lacked not only the appropriate participants, but also the appropriate quantity of participants. increased partner abuse in the absence of PSOC (Rankin, Saunders, & Williams, 2000).

The literature described to this point has been related to the negative aspects of having an absence of PSOC, particularly in relation to clinical populations. On a more positive note there has been significant research that shows that the presence of PSOC is a positive and valuable experience for both clinical and non-clinical populations alike. Davidson and Cotter (1991) found that PSOC is significantly related to subjective well-being (in particular happiness, as well as coping and worrying), concluding that individuals who were identified as having a high SOC report greater levels of happiness than those who had a lower SOC. PSOC has been found to be significantly related to overall wellbeing, as measured by various self-report measures, such as general wellbeing, self-efficacy, and coping style (Bachrach & Zautra, 1985; Farrell et al., 2004), as well as physical health and wellbeing (Shields, 2008), an increase in problem-focused coping (Bachrach & Zautra, 1985), improved self-esteem (Lee & Robbins, 1998), and decreases in internalising and externalising behaviours in adolescents (Newman et al., 2007). Although not directly measuring PSOC, Zambon (2010) found that health and healthy behaviours in adolescents were influenced by club participation and suggest that “being involved in enlarged networks of different types is beneficial for health” (p. 93). Obst and Stafurik (2010) found that an online sense of community was an important predictor of personal growth and positive wellbeing in individuals who were living with significant mobility issues.

PSOC has also been identified as a protective factor in mental health and well-being in children, adolescents' and adults (Battistich & Hom, 1997; McCallum & McLaren, 2011; McLaren, 2009; McLaren et al., 2007; Newman et al., 2007; Solomon, Watson, Battistich, Schaps, & Delucchi, 1996; Vieno,

Santinello, Pastore, & Perkins, 2007). Greenfield & Marks (2010) report that a strong SOC promotes adults' mental health regardless of family history and in particular, SOC is a protective factor, against long term mental health issues as a result of childhood violence (physical and psychological). Resnick, Harris and Blum (1993) found that (family or school) connectedness were significant protective factors for behaviours such as school absenteeism, drug use, pregnancy risk, poor body image, disordered eating, emotional stress, and suicidal ideation/behaviours; and in fact school connectedness outweighed family connectedness in importance (see also Resnick et al., 1997). Anderman (2002) also found that SOC was inversely related to school problems, depression and social rejection. On the whole these studies support the notion that PSOC not only impacts, but also influences and predicts, an individual's psychological well-being. Cantillon et al. (2003) found that young people who were raised in neighbourhoods that could be identified as having high levels of PSOC were more likely to participate in pro-social behaviour such as school activities, which was an indicator of better academic functioning. However, it was perhaps unfortunate for the ongoing development of theory, that the authors, after significant effort to describe and detail previous research in terms of the PSOC concept, including the available measures, chose a new and unverified definition which makes it difficult to generalise this with previous research.

Although the existence of PSOC has been investigated and supported in many environments and links have been established between PSOC and well-being, physical and mental health, it seems we are no closer to understanding 'how' an individual develops a PSOC. Davidson, Cotter and Stovall (1991) found that "...no attention [had] yet been directed toward personal predispositions or early social experiences that may set the stage for the development of this quality [SOC] in adults" (p.817). Lounsbury and DeNeui (1996) suggested that PSOC could be investigated from a personological framework, asking "...what if psychological sense of community emanates from an individual's personality and is an outcome of salient personality attributes instead of, or in addition to, community or

environmental factors?” (p. 583). Sagy et al. (1996) have also suggested that more attention needs to be paid to the “...determinants of development of sense of community in psychological research” (p.658). Additionally, Newman et al. (2007) suggest that further investigation is required to understand the relationship between group belonging and positive mental health and asked whether individual level characteristics may explain both group belonging and mental health, or does belonging to a group provide something extra above and beyond what an individual brings to the group.

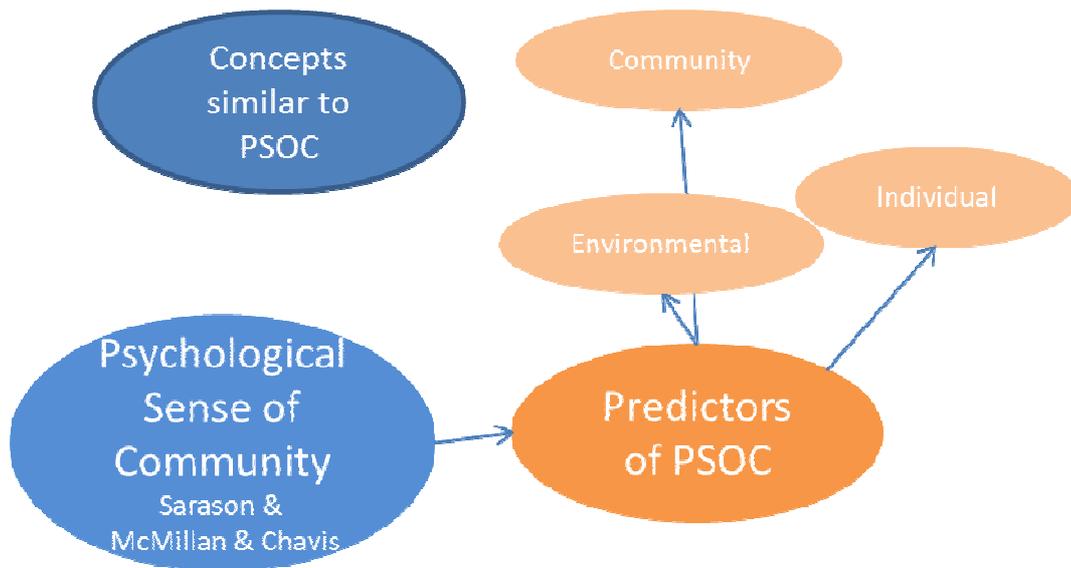


Figure 5. Predictors of PSOC Theme

### Predictors of Psychological Sense of Community

The literature regarding what is currently known about the predictors of PSOC will be explored in the following sections, and is depicted in Figure 5.

#### Community and Environmental Level Predictors

Before addressing the individual or personality level predictors of PSOC, it should be noted that community level and environmental level predictors of PSOC (particularly in relation to geographical PSOC) have received a significant amount of research. This research has covered areas such as fear of crime (Brodsky et al., 1999; Perkins & Taylor, 1996; Wilson-Doenges, 2000), crime density, crime rate, (Brodsky et al., 1999), population size and density (Brodsky et al., 1999; Sagy et al., 1996), planned design or presence of a Main St (Cohrun, 1994; Kim & Kaplan, 2004; Pendola & Gen, 2008), greener spaces (Kim & Kaplan, 2004; Nasar & Julian, 1995; Plas & Lewis, 1996), presence of recreational spaces (Kim & Kaplan, 2004; Plas & Lewis, 1996) and size of towns or communities (Obst et al., 2002c; Prezza & Costantini, 1998). However, as the focus of this particular study is on the individual personality and personological level predictors of a psychological

sense of community, the community or environmental level predictors will not be further explored.

### **Potential Personality and Personological Variables**

In the adult personality and PSOC literature previous research into the individual determinants of PSOC is limited, even more so regarding children and adolescents. In this section the literature relating to understanding the individual personological variables that may contribute to or mediate the development of PSOC will be reviewed, in both adult and child or adolescent populations. Further suggestions will then be developed regarding other possible variables that may be worth investigating. Brodsky, O'Campo and Aronson (1999) supported this theory when they said "...because PSOC is conceptualised to capture the relationships individuals perceive between themselves and a social setting, an individual's PSOC is likely to be influenced by characteristics of the individual as well as characteristics of the social setting or context" (p, 661).

Introductory texts simply define personality as an individual's "...characteristic pattern of thinking, feeling, and acting" (p. 595, Myers 2007). Allport (1937) started the systematic thinking about personality and there continues to be ongoing debate about its (personality's) exact nature (Hartup & Van Lieshout, 1995). Nevertheless, questions can be asked about how stable is an individual's personality? There are two main theories about the development of personality; either it is set in stone (an essentialist perspective) or it is constantly changing (a contextual perspective) (Srivastava, John, Gosling, & Potter, 2003). In general, it has been found that the Big Five personality traits are quite stable and found in all cultures, although with some variation, particularly due to age and developmental level (John, Naumann, & Soto, 2008; McCrae et al., 2002; McCrae & Terracciano, 2005; D. Myers, 2007; Vaidya, Gray, Haig, & Watson, 2002). Hampson and Goldberg (2006) reviewed the literature regarding the stability of personality development over time and reported that the five-factor personality structure had been identified in children as young as five.

However, Roberts et al. (B. Roberts, Robins, Trzesniewski, & Avshalom, 2003) in reviewing the available research including meta-analyses, suggests that personality is continually developing, but by around the age of 50, these changes are markedly decreased. Sristrava et al. (2003) found that generally positive affective traits (Conscientiousness and Agreeableness) increased as people got older and negative affective traits (Neuroticism) decreased, and maintains that change in personality can be explained by interaction with environments, as well as by genes. Nonetheless, as a descriptive term, the broad trait categories of personality (i.e., extroversion, openness, conscientiousness, agreeableness and neuroticism) are found consistently and repeatedly across age and culture, and the changes that have been observed tend in general to be more along the lines of behavioural changes due to developmental level and age or maturation.

There has been little interest in the way people develop a sense of community, and the personality factors that may have an impact on the development of this psychological state. It has been suggested, "... that psychological sense of community is at the very least related to personality and might primarily be a function of personality attributes not environmental attributes" (Lounsbury & DeNeui, 1996, p.391), as well as being proposed as an important area of inquiry even in fields not directly related to psychology, (e.g. Housing Policy) (Greenberg, 1999). Despite this very limited research has been done to explore PSOC and personality. Further exploration regarding the potential individual predictors, in particular those related to personality and personological variables is therefore necessary and justified.

In the adult literature, it appears that there are less than 10 studies in approximately 20 years (and even less in the child/adolescent literature), which even remotely hint at or investigate the personality and personological factors that may contribute to a PSOC. Where studies have investigated individual factors with regards to PSOC these studies have generally been single predictor studies, rather than looking at multiple predictors and how they work in combination with each other. Both of these issues suggest that

further research is required to develop and articulate the possible determinants of this construct.

The previous research has shown that PSOC (and similar concepts - such as sense of belonging, sense of place etc.) is related to or connected with personality and/or personological variables in both adults and children. In particular the previous research has investigated a number of the following variables individually (mostly in relation to extroversion or the Big Five), and therefore these factors and a broader range of other potential factors will be discussed in greater detail. The variables that have been selected for this research are described below and the justification for their selection will be indicated.

- [Extroversion/Big Five](#)
- [Optimism/Pessimism](#)
- [Self-Esteem](#)
- [Attachment style](#)
- [Locus of Control \(LOC\)](#)
- [Need for Affiliation \(NfA\)](#)
- [Empathy](#)

### ***Extroversion/Big Five***

Lounsbury and DeNuei (1996) argued that extroversion is generally viewed as traits such as “sociability, talkativeness, gregariousness, interpersonal warmth, positive emotions, activity, sensation-seeking, social assertiveness, and preference for groups and gatherings” (p.383). Based on this definition there may be an important relationship between PSOC and extroversion, due to not only the nature of extroversion as stated, but the elements of PSOC. As mentioned PSOC consists of a sense of belonging, a feeling that one can contribute to and receive from the group, that one can influence the group and experience a shared emotional connection. These characteristics that are attributed to extroversion would most likely mean that an individual high in extroversion has a higher expectation of the existence of PSOC and the belief that they will be able to contribute and receive from the group and due

to their social nature are more likely to engage in behaviour that develops shared emotional connections with others (Lounsbury & DeNeui, 1996).

Lounsbury and DeNeui (1996) appear to be the first to actively include and interpret, personality variables when investigating PSOC, as existing research had only investigated PSOC from an environmental perspective, (i.e., exploring the attributes of the community that may promote or hinder the development of PSOC). They chose to investigate among other things, extroversion and its relationship to PSOC believing that extroversion was the most similar of the Big Five traits, to PSOC. They found a positive significant relationship between PSOC and personality (i.e., students who scored higher on extroversion scored higher on PSOC).

Continuing this theme, DeNeui (2003) explored how PSOC develops over time, in particular looking at how individual traits (i.e. extroversion) and student (college) participation are involved in this process. In support of the previous study by Lounsbury and DeNeui (1996) DeNeui (2003) found that extroversion was positively and significantly related to PSOC, although what was interesting was that for individuals who scored high in extroversion, there was a significant drop in PSOC between time 1 and time 2. DeNeui accounts for this by suggesting that extroverts are more likely to have higher expectations regarding PSOC at the beginning of the school year, that their expectations do not get met and therefore their PSOC decreases. He did note however, that at time 2, the extroverts PSOC was still higher than the introverts. DeNeui collected information on all five of the Big Five personality traits however, he only provided any interpretation for the introversion and extroversion factors. He does report that Neuroticism showed a significant negative relationship with PSOC, and positive significant relationships for Extroversion, Agreeableness and Conscientiousness. However, Openness showed a negative non-significant relationship with PSOC, unlike the Lounsbury, Loveland and Gibson (2003) study of the same year, however, DeNeui does not provide any interpretation for these relationships.

Asendorpf and Wilpers (2000) also investigated first year college students over a longer time period, almost 18 months, and found that personality was significantly related to and influenced by social relationships. Nevertheless, personality remained stable and was not influenced by social relationships, which they reported as surprising and unexpected considering the age of the cohort they were using. Extroversion in particular was found to be significantly related to the size of an individual's network, how much time they spent with others, and whether they could trust others in their network.

Individuals who participate in online communities have been found to be higher in extroversion (particularly women), and are more likely to identify a sense of friendship within the community (Cullen & Morse, 2011). Cullen and Morse also reported that those higher in neuroticism are also more likely to identify a sense of belonging as more important, suggesting that "personality traits are indeed indicative of the type of participation an individual will prefer" (p. 10). Cullen and Morse, assessed other personality traits (using the Big Five Inventory), however they did not report on all the information they collected regarding the correlations between PSOC and personality, which makes comparing or contrasting with their work difficult.

Investigating the role of introversion and social support on passive behaviour in the classroom Murberg (2010) found that young people who were identified as being more introverted were more likely to show passivity in the classroom and reported lower levels of perceived social support. She believed that this was due to an introvert's tendency to avoid conflict and potential stressful situations, and suggested that educational environments be modified to be less threatening and encourage interaction with other students as a means of providing positive social experiences to these types of students (Murberg, 2010).

Some studies have included the other four factors (of the Big Five model) in relationship to PSOC, as reported above, but only one has attempted to interpret the information collected. Lounsbury, Loveland and Gibson (2003) argued that as there had been no single study investigating the relationship

between personality and PSOC they would assess the relationship between the Big Five personality framework and PSOC. They found that in adolescents, all five of the traits assessed (openness, conscientiousness, extroversion, agreeableness and neuroticism) were significantly related to PSOC and accounted for 16% of the variance in PSOC, with extroversion and agreeableness being the strongest predictors. However, in the college sample Openness showed a non-significant relationship with PSOC, and yet was significant when included in the stepwise regression analyses. Although, age was not recorded in the college sample, one would assume that a significant proportion of participants in the college sample would be mostly 18-20 year olds. The non-significant result in terms of zero-order correlations could be due to poor power, in that the high school sample had over 600 participants whereas the college sample only had 355. In their discussion of these results the authors indicate that the results are consistent with previous research and theorised that individuals higher in agreeableness would be expected to relate in a more positive and cooperative manner with others, and that extroverted members are more likely to have more interaction with others therefore more opportunity to develop shared connections, influence and membership. In terms of the high school sample, with regard to the Openness factor, Lounsbury, Loveland and Gibson (2003) state "...individuals with higher levels of openness would be expected to be more open to influence by community members, and thus to more readily introject community norms and values" (p. 537). However, this definition of the term Openness may be at odds with the measurement of the factor itself. John, Naumann and Soto (2008) state that the term Openness refers to someone who is adventurous, non-conventional and non-traditional, therefore describing someone who is less likely to be influenced by others (see also B. Roberts et al., 2003). Finally, Lounsbury, Loveland and Gibson (2003) make a strong call for further investigation into the individual-level characteristics that may determine or contribute to PSOC.

## ***Optimism***

Scheier and Carver (1985) stated that an optimist is someone who generally expects that things will work out, that goals will be reached or that good things will happen. Pessimists do not believe that they will be able to reach their goals, (and if they do it will not be easy) and good things are unlikely to happen along the way (Scheier & Carver 1985). Brodsky et al. (1999) state that an individual's level of PSOC has clear links with his or her involvement within their community; therefore optimists may choose to become more involved in the community because they, being optimistic are more generally predisposed towards expecting good things to happen. Optimists are possibly, more inclined towards becoming involved in either their immediate geographical community, or making an effort to join other community groups (volunteering, work or interest groups) simply because they believe that this will be a positive and rewarding experience for them. It is something to which they can contribute, but also receive from (in the form of support and encouragement). However, a pessimist, who generally expects negative outcomes, may hesitate to become involved and therefore have less opportunity to develop a psychological sense of community. The element that may be most closely tied to optimism is *Integration and Fulfilment of Needs*.

Research completed in 2004 by Dewar, specifically investigated the relationship between optimism/pessimism and PSOC and found that optimism explained more than 15% of the variance in PSOC after accounting for factors such as age, gender, presence of children and length of residence. Laycock (2004) observed the relationship between PSOC and nursing home relocation, and found that PSOC and optimism were related to better outcomes, such as measures of depression, quality of life, and life satisfaction. He noted that individuals with higher dispositional optimism and PSOC prior to a forced move, demonstrated lower depression scores and increased satisfaction with life.

Further research that connects optimism with concepts related to or similar to PSOC is work by Brissette, Scheier and Carver (2002) who investigated the

role of optimism relating to social support. They found that optimists report greater increases in social support as well as having larger friendship networks. Scheier and Carver (1992; Scheier, Carver, & Bridges, 2002) also found that students beginning their first semester at college who had been identified as being more optimistic, reported feeling less stressed, less lonely, less depressed and perceived a greater level of social support than did those students identified as being pessimistic.

Bishop, Jason, Ferrari, and Huang (1998) investigated the individual (e.g. age, ethnicity, optimism and SOC) and group (e.g. average cohort age, age differences between cohort and participant and participants with same ethnicity) characteristics that may predict how long individuals may choose to stay in a self-help program for alcohol and substance-abuse. They found that people “who were less pessimistic (but not necessarily optimistic)” (p.817), were more likely to reside longer, as higher dropout scores were associated with higher pessimism. Although not directly linking pessimism to SOC it seems clear that this may have been a function of a sense of community developing over time.

There appears to be only one study, which investigates the relationship of optimism or explanatory style to PSOC in children. Ciarrochi and Heaven (2008) believed and found evidence that those individuals with a pessimistic explanatory style were less likely to develop and/or maintain social support, both in quantity and quality of supports, resulting in what they term as “learned social helplessness” (p.1284).

### ***Self Esteem***

Self-esteem can be thought of as global (general attitude to life) or specific (situational, such as academic or sportsmanship) and is the basis of a person’s values beliefs and attitudes (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995; Vieira & Grantham, 2009). According to Rosenberg (1985) one of the key features of a high self-esteem is self-acceptance (i.e., that an individual is content with who they are including their shortcomings) and is

aware that they may be disliked by others. Self-esteem is something that may develop and change over time, for example, an individual with an adequate or high self-esteem being repeatedly exposed to a demoralising environment may see a reduction in this individual's self-esteem (Rosenberg, 1985). Individuals who have higher self-esteem are more likely to choose to be involved in a community and are more likely to weather the relationship drama's that may occur during the development of said community. This variable may be connected to *Membership and Influence*.

Lee and Robbins (1998) investigated social connectedness and self-esteem, anxiety and social identity. They found that women who reported high connectedness showed evidence of higher levels of self-esteem as well as showing less anxiety and greater social identity. Prezza and Constantini (1998) found that PSOC was correlated with self-esteem when investigating this relationship comparing small towns to small and large cities. However, what was interesting was that both of the city communities (but not the small towns) reported no correlation with self-esteem. The author's posit that this may be due to the fact that they were assessing PSOC on a territorial (or geographic) basis, and that perhaps city dwellers are less likely to develop a PSOC in a geographical setting and are more likely to develop this via interest groups. The authors also imply that the application of this research is more at a city level working with planners and administrators, rather than on an individual therapeutic level.

Studies have shown that students with higher self-esteem participate more in the classroom, and evidence stronger communication skills (Burnett, 1998; Murberg, 2010). Witherspoon and colleagues (2009) found that higher self-esteem is also linked with family connectedness. Their study showed that students who made more than one connection whether in the school or in the neighbourhood showed higher self-esteem and evidenced lower depressive symptoms.

Further evidence linking self-esteem and PSOC was found in a study involving adolescents from a bi-cultural heritage (Vietnamese and American).

However, it should be noted that sense of community in this study was only assessed using the response to just one question regarding how important they felt in their community, which would not allow for a full exploration of the relationship between these two concepts (Lam, 2006). The relationship between self-esteem and PSOC should therefore be more thoroughly investigated with a scale designed to capture all elements of the PSOC theory.

### ***Attachment***

Hill (1996) states,

If psychological sense of community is a form of an attachment relationship that would suggest that the relationship does not depend upon interaction or give and take with any specific members of a group, but instead with any member of the group.... Once established, psychological sense of community can probably exist, at least for a time, even without interactions, just like any other attachment relationship (p. 434).

This suggests that perhaps there is a relationship between an individual's personal attachment style and their ability to connect with their community. Children learn from their family of origin about how to relate and develop relationships with others (Lucas-Thompson & Clarke-Stewart, 2007). An individual's attachment style is likely to have a significant impact on how they develop these relationships and therefore how they develop a sense of community, in particular connecting specifically with the element of *Membership*. If say, for example, an individual has an insecure or avoidant attachment style it is likely that this individual is likely to view their communities (geographical or relational) through the same lens, and would interact with others with the same behavioural patterns. It would only be over time, and a continued ongoing positive experience within this community that might change this.

Tartaglia (2006) suggests that "...to develop the social bonds on which the sense of belonging to a community is based, we assume that an important requirement is a secure attachment style, a psychological basis to establish trustful relationships that community psychology ascribes to the members of the same community" (p. 27). Tartaglia found in preliminary analyses that two of the assessed attachment styles (Secure and Avoidant) were not related to PSOC. This did include those related to an ambivalent style in the structural models, but these were constrained to only load on specific PSOC factors. He reports that age was not expected to be a direct predictor, but provides no information as to whether it was. This was an unusual decision as most other studies have found that age has been directly related to PSOC (Lewicka, 2011; Obst et al., 2002c; Prezza, Amici, Roberti, & Tedeschi, 2001).

There have been a number of other studies that have investigated the nature of attachment and connection with a community. Chipeur (2001) investigated the nature of parental and peer attachment relationships and a young person's sense of community, on their sense of loneliness finding that parental or peer attachments did not contribute to the unique variance in global loneliness, although best friend attachment was related to emotional loneliness. Shochet et al. (2008) found a positive relationship between parental attachment and school connectedness.

Lucas-Thompson and Clarke-Stewart (2007) found that the mother-child attachment was responsible for a significant proportion of the variance in the quality of the child's friendship development. A study investigating domestic violence, the role of attachment style, sense of belonging and social support was explored by Rankin et al. (2000) and found that an insecure attachment style was negatively and significantly related to both PSOC and social support. Larose and Bernier (2001) investigated attachment style, social support processes and personal adjustment in young people transitioning from high school to the first year of college finding that young people with an insecure/preoccupied attachment style were more likely to report feelings of loneliness.

### ***Locus of Control***

Locus of control (LOC) is a way of explaining attributions for events. An individual may have an internal style, where they take responsibility for a rewarding event that happen in their lives, or they may have an external style which means explaining such events as being out of their control (Rotter, 1966). Levenson (1974) built upon Rotter's theory and presented it as a multi-dimensional construct and states that Rotter's external LOC, which Rotter described as attribution to chance or powerful others, was better measured in this way, as two separate factors. Her scale consists of three factors measuring locus of control (internal, external-powerful others & external-chance/fate).

An individual's PSOC is likely to be impacted or influenced by their LOC simply because of the perception or explanation for these rewarding events. For example, an individual with an internal LOC may believe that their PSOC is due to their willingness (or unwillingness) to participate (Wandersman & Giarmartino, 1980) or be involved with the group. Comparatively an individual with an external LOC is likely to believe that others are in control of whether he or she belongs to the group or it may be random chance that he or she does not perceive a strong PSOC.

There appears to be no research directly linking locus of control as a predictor of PSOC, however there are two studies in which locus of control is correlated with PSOC or social support. Using Levenson's (1974) measure of Locus of Control (LOC), which distinguishes between an *Internal, Powerful Others* or *Chance* LOC, Wandersman and Giarmartino (1980), although not specifically investigating the role of LOC directly on PSOC, found that LOC distinguished participation from non-participation in block association. The authors report that participants showed higher scores on the Internal scale and lower scores on the Chance scale compared to non-participants (there was no difference on the Powerful Others scale), however it should be noted

that the p- level reported in this research was  $p < .10$ , rather than the standard  $p < .05$  or the more robust  $p < .01$ .

Cauce, Hannan and Sargeant (1992) investigated the role of locus of control and social support on adjustment in adolescents, as measured by the Perceived Social Competence Scale and the State Anxiety Inventory. They found that an internal locus of control was correlated with more positive adjustment, less anxiety and greater competence in general and school arenas. Although not directly measuring PSOC it is clear that social competence or school functioning ties to the ability to develop a sense of community.

From these two studies we can see that LOC is at least related to social connection in some manner. As the Cauce et al. (1992) study has shown LOC was associated with positive factors and functioning and therefore further investigation is needed to see how or if locus of control is important in an individual's development of a PSOC.

### ***Need for Affiliation***

Need for affiliation is thought to be a "...basic need reflecting an individual's desire to draw near and enjoyably cooperate with others" (p. 514, Burroughs and Eby 1998)(see also Murray 1938 and McClelland, 1987). Research has indicated that need for affiliation has been correlated with PSOC in both family and work settings.

Burroughs and Eby (1998) found that individuals with high need for affiliation were found to have higher levels of PSOC in the workplace. It is possible though that these two constructs (PSOC and NfA) are too similar to each other, although Burroughs and Eby reported that the relationship between them was only  $r = .17$ .

Davidson Cotter and Stovall (1991) investigated personal predispositions and PSOC. The study included gender, ethnicity, education, age, and

number of siblings and need for affiliation as predictors. Need for affiliation was one of only three significant variables, (with number of siblings and age) that predicted PSOC. Those higher in the need for affiliation showed higher PSOC.

### ***Empathy***

Empathy is generally described as the ability to understand the feelings of another, although there appears to be a lack of a clear consensus on a specific definition (Aristu et al., 2008). As yet there appear to have been no studies that directly link empathy to a sense of community, although there have been studies investigating the role of empathy in aggressive and delinquent behaviours (De Kemp et al., 2007). Extrapolating from this, it would seem that not being aggressive and having the ability to understand the feelings and experiences of another individual would therefore be important in whether someone is able to connect with others. Empathy is most likely to be linked with the element of a *Shared Emotional Connection*.

### **Other Individual Factors**

Also in terms of individual factors, a number of background or demographic variables have been found to be significantly correlated with PSOC in the previous literature:

- 'Age': As age increases, it has been found that usually a steady increase in PSOC follows, however there is often a direct link to or relationship with 'length of residence' (Brodsky et al., 1999; Davidson & Cotter, 1986; Lewicka, 2011; Obst et al., 2002c; N. A. Peterson et al., 2008; Prezza et al., 2001; Prezza & Costantini, 1998). Some studies suggest that age may have a curvilinear relationship with PSOC, with individuals between the ages of 30-40 showing the highest levels of PSOC (Kasarda & Janowitz, 1974; Lewicka, 2011). However, other studies have found that age is independent from PSOC (Brodsky et al., 1999).
- 'Gender': Depending on the type of community, for example school or workplace, gender may have an impact on the development of PSOC

(Battistich & Hom, 1997; Lambert & Hopkins, 1995). Prezza and Constanini (1998) also found that in small cities women showed higher levels of PSOC. Lewicka (2011) identified that traditional attachment to place was higher in women than men. However, Brodsky et al. (1999) found that gender was independent from PSOC.

- 'Marital status': those who were married or cohabiting showed higher levels of PSOC (Prezza et al., 2001; Prezza & Costantini, 1998).
- 'Length of Residence': Spending more time within a community, whether geographical or relational is significantly related to a higher PSOC (Bishop et al., 1998; Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999; Bonnes, Bonaiuto, & Ercolani, 1991; Chavis et al., 1986; Dewar, 2004; Glynn, 1981; Lewicka, 2011; Pretty et al., 1994; Prezza et al., 2001; Prezza & Costantini, 1998; Riger & Lavrakas, 1981; Royal & Rossi, 1996; Skjæveland et al., 1996).
- 'Presence of children in home': evidence has shown that the presence of children in the home leads to an increase in PSOC and PSOC increasing with the presence of more children (Brodsky et al., 1999; Dewar, 2004; Keller, 2003; Nasar & Julian, 1995; Obst et al., 2002c; Prezza et al., 2001; Prezza & Costantini, 1998; Skjæveland et al., 1996).
- 'Education': Prezza and Constanini (1998) found, in a large city, that people with a lower level of education showed higher levels of PSOC and suggested that higher levels of education could decrease geographical PSOC, due to involvement in relational or other type communities. Lewicka (2011) suggests that education increases people's PSOC, or place identity shifts from a purely local or national (setting based) to an identity based "we- the educated people" and reported that education was significantly negatively correlated with traditional attachment to communities. However, Brodsky et al. (1999) found that education was independent of PSOC, although education in this study was only measured in three very broad categories (less than high school, high school or more than high school).

A broad examination of the personality (i.e., extroversion, openness, conscientiousness, agreeableness, neuroticism) and personological (i.e., attachment style, self-esteem, optimism, locus of control, empathy and need for affiliation) factors that may contribute to the development of a psychological sense of community may be useful to the ongoing development of the theory of PSOC as well as the potential intervention, if required, for those low in PSOC.

In summary, a review of the literature has shown that there has been limited research relating to the individual predictors of a psychological sense of community. In terms of what we do know, we know that personality; in particular extroversion is significantly and positively correlated with PSOC. However what is less clear is the relationship between the other factors of the Big Five model and PSOC individually but also in relation to each other when each is controlled and the error accounted for. We also know that optimism is significantly and positively correlated with PSOC directly, as well as with concepts related to PSOC. Further we know that self-esteem has been connected with PSOC or related concepts but has more often been assessed as an outcome variable rather than a predictor and Attachment style has been significantly correlated with PSOC in a number of studies related to PSOC. Previous research has shown that Locus of Control has been investigated as associated with participation in communities, and perceiving social support. Need for Affiliation as related to PSOC has received little attention with the little information we have showing that it is positively correlated with PSOC in both family and work environments. The concept of Empathy appears to have received no attention in terms of its possible connection with the perception of a psychological sense of community.

The one thing that most if not all of the above mentioned studies have in common is that they have tended to investigate a single predictor, possibly combined with a number of demographic/background or descriptive factors. This previous research has been vital and necessary in the development of our understanding of the link between individual predictors and psychological

sense of community. However, I suggest that it may be useful and time to investigate a number of the individual-level predictors concurrently with PSOC to assess the contribution that they make simultaneously whilst all other variables are being controlled.

### **Purpose of the study**

PSOC is the perceptual experience of an individual. Ultimately this means that it will mean different things to different people and it is this difference that has potentially caused the possible 'fragmentation' in the PSOC research. Each individual researcher has approached PSOC from a different set of personality attributes, different life history experiences including trauma, and different environmental and cultural experiences and expectations (which is also true for this research). However, although each individual seems likely to develop a unique and individual expression and understanding of PSOC, it also seems likely that there are two factors at work in this process.

Firstly, there appear to be core universal elements of PSOC, that when combined with unique individual characteristics, may help to provide potentially life affirming and mental health supporting experience (PSOC). Secondly, there are identifiable individual characteristics that when present help an individual to more readily develop or experience this sense of connection with a community.

Understanding the building blocks of PSOC (or that lead to the development of PSOC, or that lead to the potential for the development of PSOC) is vital if we are to provide support around the positive and healthy development of this experience. What are the individual characteristics that provide a supportive personal atmosphere in which PSOC can develop?

Again, it should be noted that this work presupposes that there are clearly outside factors (outside of the individual) that cannot be accounted for, that are obviously going to impact the individual and therefore the development of

PSOC, such as environment factors and community level factors, but also personal factors such as trauma and the like (Hill 1996). However, this work is about identifying potential individual level predictors that help to develop a psychological sense of community, not investigating all the factors at work.

Although there has been research in the area of personality and/or personological variables and concepts related to PSOC this has been at best, piecemeal. There has been no one study which has directly investigated a number of personality and personological variables and their relationship to the overarching concept of psychological sense of community in either the child or adult literature, particularly in a 'world-wide sample'. The purpose of this study is to identify whether and to what degree an individual's sense of community is influenced by personality and personological factors?

Identifying what factors are important in developing PSOC is important because understanding how something develops is important in being able to support its development. If we see PSOC as an important aspect of an individual's development or rather, a lack of PSOC as an important part of an individual's mental health, then understanding what we can do to assist its development is important. I suggest that examining the personality and personological variables and their relationship to PSOC may assist counsellors, therapists, clinicians as well as academics, by helping them to understand the individual-level pre-conditions that may be required for developing a healthy PSOC, and therefore a sound sense of psychological well-being, and what areas may need support or further development.

### **Aims**

As previously discussed, no research to date has considered investigating the relationship between PSOC and a wide variety of both personality and personological variables together, consequently this research is exploratory in part.

This study was conducted with one primary goal in mind. To identify, from the theoretically appropriate personality or personological factors, those that are important in the development of PSOC, and therefore which should be targeted, developed, highlighted when working with people who are low in PSOC. My historical review and synthesis of existing literature has enabled theoretically driven personological factors to be identified.

Based on this argument, my research questions are as follows:

*Research Question 1:* What is the factor structure of the Multi-dimensional Territorial Sense of Community scale (MTSOC)? The MTSOC has only been used in three previous investigations (D'Aprile & Talò, 2013; Mannarini, Rochira, & Talò, 2012; Prezza et al., 2009). Therefore, it was important to qualify or confirm the factor structure as proposed by Prezza et al. (2009). It was important to the study that both a total score and the subscale scores were available for interpretation.

H1a: The factor structure of the MTSOC will support five distinct but highly correlated factors; Membership, Influence, Need Fulfilment, Social Climate and Shared Values.

*Research Question 2:* Will adults who live in a rural/remote setting show higher levels of a psychological sense of community as compared to metropolitan residents? This research question was proposed during an original formulation of the proposed topic, which then was revised, due to unforeseen circumstances, which will be further discussed in the Methodology chapter. However, anecdotal evidence (stories and layperson beliefs) and research suggests that rural residents will show higher levels of PSOC than urban residents (Arnon & Shamai, 2010; Bramston, Bruggerman, & Pretty, 2002; Chipuer & Pretty, 1999; Mangus, 1948; Obst et al., 2002c; Onyx & Bullen, 2000; Prezza et al., 2001; Prezza & Costantini, 1998; Young, Russell, & Powers, 2004; Ziersch, Baum, Darmawan, Kavanagh, & Bentley, 2009). Rural residents, simply due to the repeated exposure to each other and opportunities for engagement are more likely to develop a greater sense of community (Obst, 2002c).

- ‘urban vs rural’: there is significant evidence that suggests that individuals from rural and remote regions show higher levels of PSOC as compared to urban or metropolitan communities (Prezza and Constanini, 1998), who lived in small communities (Obst et al., 2002c; Prezza et al., 1999; Roussi et al., 2006)

H2a: Australian and New Zealand residents identified as living in a rural or remote community will show higher levels of psychological sense of community than those living in urban/metropolitan settings.

Research questions three to five are concerned with whether personality and personological factors are significant predictors of psychological sense of community. As the preceding section (Potential Personality and Personological Variables) described the extant literature in significant detail no further exploration is required.

Research Question 3: Is “personality” a significant predictor of a psychological sense of community? In particular, previous research has indicated the following questions.

H3a: Adults with higher extroversion, will report higher levels of PSOC

H3b: Adults with higher agreeableness will report higher levels of PSOC

H3c: Adults with higher openness scores will report higher levels of PSOC.

Research Question 4: Are “personological variables” significant predictors of a psychological sense of community?

H 4a: Adults with a higher Sociability score (or NfA) will be higher in PSOC

H4b: Adults higher in optimism will report higher levels of PSOC

H4c: Adults with higher self-esteem will report higher levels of PSOC

H4d : Adults with a secure attachment style will report higher levels of PSOC

H4e : Adults with an internal locus of control will report higher levels of PSOC

H4f : Adults higher in empathy will report higher levels of PSOC

Research Question 5: When combined to what extent do personality and personological variables predict psychological sense of community?

## Chapter 4: Method

### Chapter Overview

#### Research Design and Approach

- The study employed a cross-sectional correlational, survey design to investigate the relationship between psychological sense of community (PSOC) and a number of personality and personological variables
  - The criterion variable is PSOC
  - The predictor variables are the Big 5 personality constructs
    - Extroversion, Conscientiousness, Openness, Agreeableness, Neuroticism
  - Self-Esteem
  - Optimism
  - Empathy
  - Locus of Control
  - Attachment
- A number of demographic/background variables were also investigated
  - Age, Gender, Marital Status, Length of Residence, Prior Relationships, Country of Residence, Occupation, Ethnicity, & Education

#### Participants/Recruitment/Procedure

- Originally participants were to be recruited from six WA country towns, however, news of the survey spread beyond the confines of the towns; an unexpected and fortuitous expression of a “sense of community”
- Data were collected, globally, via the internet. Sampling involved “purposive”, “convenience”, and “snowball” techniques.
- Survey consisted of 157 questions and was uploaded on to the Qualtrics website

#### Research Questions & Statistical Analysis

- Does the factor structure of the MTSOC agree with previous research? – Analysed via Confirmatory Factor Analysis
- Do adults who live in rural or urban settings show differences in the psychological sense of community? – Analysed via MANOVA
- Is personality a significant predictor of psychological sense of community? –Analysed via Structural Equation Modelling
- Are personological factors significant predictors of psychological sense of community?- Analysed via Structural Equation Modelling
- When combined, how much do personality and personological factors account for the variance in psychological sense of community? – SEM Analysis to assess the structural relationships between the variables.

In this chapter, I provide a description of the study’s methodology, research design, population and sample, instrumentation, data collection and data analysis. The aim of the study was to collect information about the relationship between psychological sense of community (PSOC) and a number of personality and personological variables. The term ‘personological’ refers to all individual level variables such as self-esteem, attachment, etc., other than personality. In the introduction a historical overview of the sense of community concept was presented, before moving on to the significance of and need for further study of this concept, as well as an exploration of the value that a positive PSOC could have on an individual’s mental health. This chapter describes the methodology used to address the research questions. These research questions will be introduced in the following sections.

In an original conceptualisation of the study, I was interested in comparing PSOC between rural Western Australian towns with shrinking, growing or stable populations and investigating how personality and personological variables influenced the development of PSOC over an extended period of time in these communities. During the initial phase of the study, 'gatekeepers' (i.e., key individuals in the town, who may have employment in important social roles, such as a Community Development Officer, or simply an individual who is significantly connected or known in the town), and other personal contacts, forwarded information and the link to the survey on to other individuals who were 'outside' of the geographic communities originally being targeted in the study. This was a pleasant but unforeseen consequence of the use of social media, as well as an illustration of how 'community' is not solely defined by geography. Therefore, further ethics approval was sought for wider distribution. The result of this meant that the investigation into shrinking, growing or stable populations with regards to PSOC could no longer be conducted, as it became a worldwide study. Also in an effort to get access to as wide a sample as possible, the factor of 'time' was also removed (i.e., the study was no longer a longitudinal study).

### **Research Design and Approach**

The study employed a correlational, cross-sectional research design (Creswell, 2009). Cross-sectional, predictive survey designs are recommended when collecting data on many variables simultaneously and for a large group of subjects at one point in time to evaluate individual's attitudes (Creswell, 2009).

'Psychological sense of community' (PSOC) was the criterion variable; the predictors were- 'personality' variables, which were measured by the Big 5 personality framework (John, Naumann, & Soto, 2008) and 'personological' variables, which were represented in this study by 'attachment style' (Hazan & Shaver, 1987), 'locus of control' (LOC) (Levenson, 1981), 'empathy' (Davis, 1980), 'self-esteem' (Rosenberg, 1965), and 'optimism/pessimism'

(Scheier et al., 2002). Need for affiliation (NfA) was also assessed via the Sociability scale (Cheek & Buss, 1981).

The study employed a completely online data collection strategy, utilising a company called Qualtrics Labs, Inc (2005). Online or internet research has become commonplace in the 21<sup>st</sup> century, due to advances in technology, both in terms of sampling techniques as well as data analysis (Evans & Mathur, 2005; Ilieva, Baron, & Healey, 2002; Tuten, 2010). There are several benefits of this style of research. The collection method allows for a much further 'reach' and is far less expensive than traditional methods, such as by mail and telephone survey. It also means that data transcription errors can be avoided, as participants enter their response directly and there is no third party. Data are also immediately available for analysis. The very nature of the survey being online also engenders anonymity, encouraging participants to be more honest about their responses. The online survey allows participants to begin the questionnaire in their own time and finish in their own time, there is no time limit. An online survey, allows for survey questions to be presented in many different ways, which allows for a varied and flexible experience as compared to the traditional paper-based formats. The online survey allows for forced choice answers, which ensures that participants answer every question prior to moving to the next page of questions. Having a single URL that links to the survey means that the survey can be advertised in many varied environments, both online and in physical settings. This allows for exposure to many different types of participants, albeit those that still have some access to the internet (Evans & Mathur, 2005; Tuten, 2010; Tuten, Urban, & Bosnjak, 2002).

As discussed earlier (in Chapter 2: [Literature Review](#)), there are a number of 'demographic type' factors that have been shown to be significantly correlated with PSOC. In order to not confound the relationships being tested in the structural models, however, these covariates must also correlate with at least one of the predictors. There were several covariates that satisfied this criterion:

- Marital status
- Age
- Prior Relationships
- Occupation (was not controlled and will be [discussed later](#))
- Ethnicity (was not controlled and will be [discussed later](#))
- Education
- Length of Residence

Each LISREL SEM analysis was therefore conducted on a matrix of correlations that partialled out the confounding influences of these covariates.

### **Participants and Recruitment**

Originally, I selected six Western Australian (WA) rural communities, and began to communicate with key individuals and Gatekeepers within each of the towns to recruit participants. I organised to visit each town to meet with key informants and Gatekeepers and to hand out flyers and put up posters. By the time of the visit to the first town, it became clear that the survey was achieving a far wider distribution than originally intended. After applying for ethics clearance, it was decided that I would continue with my visits to these towns, but also simultaneously pursue the use of media, both social networking and news/radio.

In choosing towns for participation, The Australian Bureau of Statistics (ABS) was consulted. Identification of towns was based on available ABS Census Data (spanning from 1971-2006). Population data were obtained for these years and the population change was calculated for all Western Australian towns. Towns were then classified into shrinking, growing or stable; two towns showed sustained growth (i.e. a greater than 10% increase in population over a 35 year period), two towns were stable (i.e. less than a 10% increase or decrease in population over a 35 year period) and two towns showed population shrinkage (i.e. a greater than 10% decrease in population over a 35 year period). See Figure 6 for a map of WA identifying these towns as well as Table 1 for relevant information. Figure 7, Figure 8,

and Figure 9 provide a brief glimpse into the terrain and conditions found during this journey.

Prior to visiting each of the towns, flyers and posters were prepared (see [Appendix A](#)). District high schools, local online forums and in some cases the local newspapers were contacted and provided with a brief statement about the study and a link to the Curtin Psychology webpage, <http://psych.curtin.edu.au/research/phd/psocinfo.cfm> where a detailed information sheet explained the nature and details of the research and included the link to the survey (see Information sheet in [Appendix B](#)). Attempts were made to contact the local shire office in each town, in particular the Community Development Officer/Manager. Each town was visited and meetings were sought with the CDO or other interested community members. Not every town had a currently employed CDO, and in some towns, the CDOs did not return phone calls or messages and/or were not present at the time of the town visit.

During the town visit, flyers were handed out to many businesses, and placed in high traffic areas and all available display boards. Businesses such as doctor's surgeries, dentists, physiotherapy clinics, hospital waiting rooms were all left with bundles of flyers for clients. Libraries, shire offices, disability offices, local politicians and other similar businesses were also targeted. For the most part every business approached with flyers was receptive and willing to place these on their counters or hand them out to customers/clients. Food services and shops like Coles, Woolworths or IGA were not targeted, however, as some of these stores did not allow for a flyer to be displayed in the store.



Figure 6. Map of Western Australia

Cross-reference with Table 1.

Ref: [http://www.seismicity.see.uwa.edu.au/welcome/locality\\_map\\_western\\_australia](http://www.seismicity.see.uwa.edu.au/welcome/locality_map_western_australia)



*Figure 7.* View from the bank of the Avon River in Northam



*Figure 8.* The wide open roads in rural WA: Merredin.



*Figure 9.* Long stretches of bush and open roads between towns.

Table 1  
*Town, Location, Population and the Number of Flyers Distributed*

<b>Town</b>	<b>Km from Perth</b>	<b>Population*</b>	<b>Number of Flyers</b>
1) Northam	100 Km	11258	400+
2) Merredin	265 Km	3402	500+
3) Wongan Hills	193 Km	1498	300+
4) Narrogin/Williams	200 Km	4765/1000	800+
5) Collie	204 Km	9470	700+
6) Bridgetown	259 Km	4560	500+

*Note.* \*Population data accessed from the results of the most recent ABS census (2011). Towns were also visited/attended in this order.

I worked with the staff at the Curtin University Public Relations office to develop a media release (<http://news.curtin.edu.au/media-room/curtin-study-to-explore-sense-of-community-in-rural-towns/>). This was then provided to media outlets by the PR department, and as a result, I was interviewed seven times on local radio throughout Western Australia, and also in far North Queensland. Many of these interviews were summarised and placed on Facebook pages and/or on websites, and in one case, the actual interview was uploaded to their (ABC) website. The following links are provided:

- 1) An interview with George Manning of ABC North West WA  
<http://www.abc.net.au/local/audio/2012/08/31/3580482.htm>
- 2) A brief news item on the ABC news site  
<http://www.abc.net.au/news/2012-08-29/study-spotlights-sense-of-community/4230500>

The study was open worldwide, to anyone who was over the age of 18 years of age, with access to a computer and the internet. Paper versions of the study were posted to two participants who requested them, however these were not returned. The advertising was online and in the media, mostly electronic media, which is a potential limitation of the study that will be

discussed later. Social media - Facebook and Twitter - were also utilised, firstly through personal social networks, and then, after developing a specific page for the study (found here: [www.facebook.com/SOCPersonality](http://www.facebook.com/SOCPersonality)), I paid for Facebook advertising in five countries, Australia, Canada, United States of America, United Kingdom, and New Zealand. Data provided by Facebook, stated that this advertising was seen by over half a million people in the previously mentioned countries. The link to the survey was also hosted on the following research sites:

- Australian Psychological Society  
[http://www.psychology.org.au/academic/research\\_opps](http://www.psychology.org.au/academic/research_opps)
- Psychological Research on the Net:  
<http://psych.hanover.edu/research/exponnet.html>
- A Web Experiment List: <http://www.wexlist.net/>
- A local forum for the Wheatbelt area of Western Australia (now closed)  
<http://community.wheatbeltforum.com.au/forum/index.php?board=8.0>

Undergraduate students from Curtin University ( $N = 187$ ) who were studying a research methods unit for either a psychology or speech pathology major were recruited. These students were required to participate in research (or an alternative assessment) as a prerequisite to passing this unit. As there was an incentive offered for participation, students from this pool had to choose whether they would prefer to receive credit for their participation or would choose to enter the draw for the incentive.

To sum up, the sampling methods used in this study encompassed a number of non-probability techniques, in particular, purposive, convenience, and snowball techniques. These methods evolved over time as the nature of the study also evolved.

## **Measures**

There were a number of factors to consider when deciding on measures for this study. These were reliability, validity, (in particular construct validity),

length of measure, availability for online use, and cost. Length of measure was an important factor. The full questionnaire contained a large number of questions, so it was essential to keep the amount of questions balanced in terms of presentation, keeping in mind the attention span of participants as well as endeavouring to glean as much information as possible. The availability for free-online use was also a significant determinant due to budgeting constraints. Restricting measurement selection on the basis of these criteria may lead to some very specific imitations, which will be discussed later.

On the basis of these selection criteria, the final survey instrument contained a total of 157 questions and included all items from the following instruments (Please see [Appendix C](#) for full measures):

- The Multidimensional Territorial Sense of Community Scale- 19 Questions (Prezza et al., 2009)
- The Life Orientation Test- Revised 14 questions (Scheier, Carver, & Bridges, 1994)
- Attachment Style (Hazan & Shaver, 1987)
- Rosenberg Self-Esteem Scale (Rosenberg, 1965)
- Interpersonal Reactivity Index (Davis, 1980)
- Big Five Index (developed by John, Donahue & Kentle, 1991) (as cited by John et al., 2008)
- Locus of Control (Levenson, 1974)
- Five items of the Sociability Subscale of the Shyness and Sociability Scale as a measure of Need for Affiliation (Cheek & Buss, 1981)
- 14 demographic questions.

Most scales contained a number of negatively worded items, with the Likert scales being subsequently reverse scored before analysis. It should be noted that, due to using Qualtrics, participants did not see the numerical value associated with the item selected, only the verbal descriptor (e.g., 'strongly disagree' or 'agree').

### **Psychological Sense of Community.**

The dependent variable was assessed using the Multidimensional Territorial Sense of Community Scale (MTSOC; Prezza et al., 2009). This scale was chosen specifically for use in the original study, as I was explicitly investigating PSOC in six rural/regional WA towns. Although there was a significant change in process after a large amount of data had already been collected I was not able to change to another scale. Upon reflection however, given that this scale was specifically designed to measure PSOC in territorial communities (of any type), the scale remained appropriate for this expanded collection process. The authors state that the development of the MTSOC was theory driven, as their goal "...was to start from McMillan and Chavis's (1986) theory and construct a multi-dimensional scale of sense of community for adults referred to territorial communities, which we believe present specific characteristics with respect to other types of communities" (p. 308).

This theory was their framework within which they attempted to include much of the previous and current research regarding scale developments, but still tried to stay close to the originally presented theory. The MTSOC presents all four of the core elements of the McMillan and Chavis's (1986) theory: *Membership, Needs Fulfilment, Influence, and a Shared Emotional Connection*. However, they divided the element *Shared Emotional Connection* into two distinct scales or factors, namely, 'social climate and bonds' and 'help in case of need'. The items included, 'I feel like I belong here' (*membership*), 'In this town there is never much to do' (*need fulfilment*), 'In this town people are not willing to help those in need' (*help in case of need*), 'I feel I can contribute to town politics if I want to' (*shared influence*), and "I have good friends in this town" (social climate and bonds). The scale was tested on 781 participants from three different types of territorial (or geographical) communities (towns, cities and neighbourhoods). Prezza and colleagues reported a Cronbach's alpha for the total scale of .88 ( $M = 2.69$ ,  $SD = .53$ ) with alpha's for the subscales ranging from .80 for group membership ( $M = 2.92$ ,  $SD = .58$ ), to .61 for influence ( $M = 2.61$ ,  $SD = .49$ ) (Prezza et al., 2009). Mannarini and colleagues (2012) found an internal reliability of .79.

Both the original authors, (Prezza et al., 2009) and Mannarini et al. (2012) report that a confirmatory factorial analysis of the 5-factor model of the MTSOCS showed good fit indices, with the five factors being highly correlated, confirming the interdependence of the SOC dimensions; the 5-factor model showed a better fit than a one-factor model. The MTSOC has 19 questions, 5 subscales, and the original, and this study, were scored on a Likert scale of 1= *strongly disagree*, 2= *disagree*, 3= *agree* to 4= *strongly agree*. Prezza and colleagues also found that it supported a higher order Total or general PSOC factor. The current study appears to be only the fourth to use the MTSOC and as such, there is limited information on its reliability and validity.

In the present study the MTSOC was found to have a Cronbach's alpha for the total scale of .91 ( $M = 2.81$ ,  $SD = .435$ ) with the following alpha's for the subscales.

Membership (4 items)	.75	( $M = 2.73$ , $SD = .596$ )
Need Fulfilment (4 items)	.76	( $M = 2.80$ , $SD = .555$ )
Help in Need (4 items)	.68	( $M = 2.83$ , $SD = .467$ )
Social Climate (4 items)	.79	( $M = 2.84$ , $SD = .572$ )
Shared Influence (4 items)	.65	( $M = 2.87$ , $SD = .472$ ).

For scales with 10 or more items a Cronbach's alpha of .7+ indicates good internal consistency (Tabachnik & Fidell, 2013). For scales with less than 10 items, however, a Cronbach's alpha of around .6 will generally suffice (Loewenthal, 2001).

In my online introduction, the measure was initially introduced with "Towns are different from each other in how people, young people, elderly people etc work, interact and play together, and what they think and feel about each other and the town. How well do the following items describe what you may say about your town? For each question, please select the item that best describes how you feel....". After ethics clearance, a further instruction was added, "If "town" does not apply to you please think about your "suburb".

### **Optimism/Pessimism.**

The assessment of cognitive style (optimistic vs. pessimistic) was measured using the Life Orientation Test-Revised (Scheier et al., 1994). The original Life Orientation Test was revised slightly due to some concerns that the items did not explicitly focus upon expectations for the future. Scheier and colleagues (1994) reported a Cronbach's alpha of .78 as well as good test-retest reliability over 4 months ( $r = .68$ ), 12 months ( $r = .60$ ), 24 months ( $r = .56$ ) and 28 months ( $r = .79$ ). The scale with which it was found to be most strongly correlated was Rosenberg's (1965) measure of Self-Esteem ( $r = .54$ ). It was also found to be modestly correlated with a measure of Self-Mastery ( $r = .46$ ). Scheier et al. (1994) report that the LOT-R has been found to be negatively correlated with measures of Neuroticism and Trait Anxiety. The authors state that the LOT-R yields not only an optimism score and a pessimism score but also a Total Optimism score. This study will use the total optimism score for the correlation with PSOC. The LOT-R has 10 questions, but only six are used to calculate the optimism score (four items are 'filler' items) and it includes items such as, "In uncertain times I expect the best" (optimism) and "If something can go wrong for me it will" (pessimism). The original was scored on a five-point Likert scale, 0 = *strongly disagree*, 1 = *disagree*, 2 = *neither disagree or agree*, 3 = *agree* to 4 = *strongly agree*, (this study used the same language but went from 1 = *strongly disagree* and 5 = *strongly agree*). The reason for the different range was to ensure a consistent metric across all measures. The range is 6 - 30, with a higher score representing a higher level of total optimism. The current study found a Cronbach's alpha of .85 ( $M = 20.98$ ,  $SD = 4.565$ ).

### **Attachment Style.**

To measure the attachment style of participants, Hazan and Shaver's (1987) three descriptions of attachment styles were utilised. Participants were provided three options and were asked to choose the description that applies best to them (e.g., "I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't

often worry about being abandoned or about someone getting too close to me” (secure). Due to the selection of only one item, Cronbach’s alpha cannot be computed. Although there are full measures of Attachment style available, some of these involved up to 40 questions. It was felt that this item would be suitable to begin to explore the connection between PSOC and attachment.

Hazan and Shaver (1987) reported that “Just over half (56%) classified themselves as secure, whereas the other half split fairly evenly between the avoidant and anxious/ambivalent categories (25% and 19%, respectively)”, which they stated was the expected outcome based on previous research. The current study found a much higher percentage that identified themselves as secure (70.7%), with 20.6% avoidant and 8.7% anxious/ambivalent.

### **Self-Esteem.**

The measurement of this construct was assessed using the Rosenberg Self-Esteem Scale (SES: 1965). The SES was developed by Rosenberg in 1965 and has been widely applied in psychological research. Originally developed to measure a sense of global self-esteem, studies have demonstrated both a uni-dimensional and a two-factor (self-confidence and self-deprecation) structure to the scale (Blascovich & Tomaka, 1991; Rosenberg et al., 1995). The original sample consisted of 10 randomly selected high schools in New York State and totalled 5,024 students. The SES in general has high reliability.

To determine if the SES had a two-factor structure reflecting the positive and negative wording of the scale, Greenberger and colleagues (2003) tested a purely negative version of the scale and a purely positive version of the scale, along with the original version. They found that the one-factor original version fitted the data better than the other versions (Greenberger et al., 2003). During this research they also reported that the SES was, as predicted, negatively correlated with a measure of depression (the Center for Epidemiologic Studies Depression Scale- CES-D Scale), and positively correlated with measures of Optimism (the LOT) and life satisfaction.

Cronbach's alpha from a number of samples were in the range of .77 to .88 and test-retest correlations were in the range of .82 to .88 (Blascovich & Tomaka, 1991). It includes items such as "All in all, I am inclined to feel like a failure", and "On the whole I am satisfied with myself". The current study scored on a four-point Likert scale of 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree* to 4= *strongly agree*. After reverse scoring items, all 10 items are totalled and a total self-esteem score is reported, ranging between 10 and 40, with higher scores indicating higher self-esteem. The current study found a Cronbach's alpha of .92 ( $M = 27.24$ ,  $SD = 5.01$ ).

### **Empathy.**

To measure a participant's level of empathy the Interpersonal Reactivity Index (IRI-28 items) (Davis, 1980) was chosen and still continues to be used as recently as 2012 (Hofelich & Preston, 2012; see also Achim, Ouellet, Roy, & Jackson, 2011) . It was developed to measure empathy as multi-dimensional rather than a single unipolar construct. The scale consists of four subscales measuring

- Fantasy assesses the ability to imagine the feelings and actions of others in books, movies and plays (e.g., "I really get involved with the feelings of the characters in a novel").
- Empathic Concern assesses the other-oriented feelings of sympathy and concern for others (e.g., "When I see someone being taken advantage of, I feel kind of protective toward them").
- Perspective Taking assesses the tendency to adopt the point of view of others (e.g., "When I am upset at someone, I usually try to 'put myself in their shoes' for a while").
- Personal Distress assesses "self-oriented" feelings of personal anxiety and unease in tense interpersonal settings (e.g., "I sometimes feel helpless when I am in the middle of a very emotional situation").

In the original study, participants were 579 male and 582 female ( $N = 1161$ ) students in a psychology class at the University of Texas. The author reported that all four scales had satisfactory internal and test-retest reliabilities (internal reliabilities range from .71 to .77; test-retest reliabilities range from .62 to .71). Research has shown that most empathy measures show a gender difference, with females scoring higher than males on all four subscales. Davis reported that the "...IRI scales not only exhibit the predicted relationships among themselves but are also related in the predicted fashion with other empathy measures and with indexes of social competence, self-esteem, emotionality, and sensitivity to others" (p.123). As the IRI taps both cognitive and affective components of empathy, testing construct validity is not a straightforward process. Individual subscales were found to be related (or not), as predicted, with measures, such as the Extended Personal Attributes Questionnaire (EPAQ), which measures socially undesirable qualities, and measures of intellectual functioning such as the WAIS III (Davis, 1983).

The original 28-item self-report questionnaire consists of four 7-item subscales on a 5-point scale, from 0 (does not describe me well) to 4 (describes me very well). This study changed the wording slightly to 0 = not at all like me, 1 = *not much like me*, 2 = *somewhat like me*, 3 = *quite a lot like me* 4 = *just like me*. The reason for the different range was to ensure a consistent metric across all measures. The Cronbach's alphas, means, and standard deviations are reported in Table 2. For scales with 10 or more items a Cronbach's alpha of .7+ indicates good internal consistency (Tabachnik & Fidell, 2013). For scales with less than 10 items, however, a Cronbach's alpha of around .6 will generally suffice (Loewenthal, 2001).

Table 2  
*Cronbach's Alphas, Means (M) and Standard Deviations (SD) of the Interpersonal Reactivity Index (IRI)*

Scale (# of Items)	Cronbach's Alpha	M	SD
Total (28)	.83		
Fantasy (7)	.82	M: 22.08 F: 24.01	M: 4.87, F: 5.07
Empathic Concern (7)	.80	M: 25.09 F: 27.59	M: 3.48, F: 3.83
Perspective Taking (7)	.80	M: 24.07 F: 25.27	M: 4.40, F: 4.63
Personal Distress (7)	.84	M: 17.20 F: 17.79	M: 4.152, F: 4.00

### **Personality.**

The Big Five Personality framework (Extroversion, Agreeableness, Conscientiousness, Openness and Neuroticism) was measured using the Big Five Inventory (BFI) developed by John, Donahue and Kentle in 1991 (as cited in John et al., 2008). The BFI is a reliable, valid and importantly in this context, a brief measure of the Big Five personality dimensions. In a comparison study between the BFI, NEO-FFI and the Trait Descriptive Adjectives (TDA), John, Naumann and Soto (2008) reported that the BFI showed an average internal consistency of .83 (range: .79 - .87) across the five factors and compares favourably with the NEO-FFI and the TDA (mean Cronbach's alphas = .81 and .84 respectively). Convergent validity was tested by comparing all three measures, with the BFI showing an average Cronbach's alpha of .75 when compared to the NEO-FFI and TDA, which increased to .93 after corrections for attenuation. The original study, and this study, scored on a five-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. It includes items such as "I see myself as someone who is a reliable worker" (conscientiousness), "I see myself as someone who is talkative" (extraversion), "I see myself as someone who is helpful and unselfish with others" (agreeableness), "I see myself as someone who worries a lot" (neuroticism), "I see myself as someone who is original, comes up with new ideas" (openness). The current study found the following Cronbach's alpha's for the BFI subscales, presented in Table 3.

Table 3  
*Cronbach's Alphas, Means (M) and Standard Deviations (SD) of the Big Five Inventory (BFI)*

Scale (# of Items)	Cronbach's Alpha	M	SD
Extroversion (8 items)	.86	3.24	.749
Agreeableness (8 items)	.77	3.72	.556
Openness (9 items)	.82	3.79	.594
Conscientiousness (8 items)	.81	3.58	.644
Neuroticism (10 items)	.87	2.93	.782

For scales with 10 or more items a Cronbach's alpha of .7+ indicates good internal consistency (Tabachnik & Fidell, 2013). For scales with less than 10 items, however, a Cronbach's alpha of around .6 will generally suffice (Loewenthal, 2001).

#### **Locus of Control.**

The LOC construct has been extended by Levenson (1974), from Rotter's (1966) uni-dimensional construct, to a multi-dimensional construct, consisting of three factors, Internal (I), Powerful others (P) and Chance (C). Levenson developed her 24-item scale using Rotter's items, and further questions were developed to capture the powerful others and chance components. The original scale consisted of 36 items but was narrowed to 24 items after testing. Levenson's uses a Likert scale, unlike Rotter's forced choice measure and consists of three distinct factors rather than one, with internal reliabilities of I =.64, P =.77 and C = .78. Each scale had a range of 0 - 48. Wilkinson (2007), using a modified version, found internal reliabilities of I =.55 P = .72 and C = .75. Confirmatory factor analysis confirmed a three-factor model fit better than a two-factor model.

Levenson's (1974) factor analyses ( $N = 329$  psychology students), reported that each of the three factors was composed of the items designed to capture the construct. Levenson's LOC scale is still in use in recent times (Kirkpatrick, Stant, Downes, & Gaither, 2008; Pickering, Simpson, & Bentall,

2008; Sinha & Watson, 2007; Wang, Bowling, & Eschleman, 2010; Watson, 2011; W. W. Wilkinson, 2007). This study utilised a five-point Likert scale ranging from 0 = *strongly disagree* to 5 = *strongly agree*. Items include, “Whether or not I get to be a leader depends mostly on my ability” (internal), “To a great extent my life is controlled by accidental happenings” (chance), and “Getting what I want requires pleasing those people above me” (powerful others). However, W. Wilkinson (2007) has recently reported further evidence that this measure best represents a 2-factor model. Internal and External, but when parcelling is employed the external factor can be further delineated, into P, O and C (Parceling is when similar items are grouped together Kishton & Widaman, 1994). This study utilised scale ranges of 0-35, and found the internal reliabilities presented in Table 4

Table 4  
*Cronbach’s Alphas, Means (M) and Standard Deviations (SD) of Levenson’s Locus of Control Scale (LOC)*

<i>Scale (# of Items)</i>	<i>Cronbach’s Alpha</i>	<i>M</i>	<i>SD</i>
LOC-Internal (8)	.56	17.79	3.115
LOC-Chance (8)	.77	11.99	4.507
LOC-Powerful Others (8)	.78	9.55	3.566

For scales with 10 or more items a Cronbach’s alpha of .7+ indicates good internal consistency (Tabachnik & Fidell, 2013). For scales with less than 10 items, however, a Cronbach’s alpha of around .6 will generally suffice (Loewenthal, 2001).

### **Need for Affiliation.**

This construct was assessed by the sociability subscale of the Shyness and Sociability scale, developed by Cheek and Buss (1981). It was developed to investigate the hypothesis, that shyness and sociability were in fact two separate factors and not a bi-polar construct. The authors found clear evidence for this, finding that the questions loaded on two distinct factors and that these factors were negatively correlated at only -.30. The items include “I like to be with people” and “I would be sad if I were prevented from making

many friends". The Sociability subscale had a Cronbach's alpha of .70. Further research has shown that the scale continues to be a useful measure in assessing the sociability (or the need for affiliation) in individuals. Chan (2011) and Miller, Schmidt and Vaillancourt (2008) reported alphas for the sociability scale of .86 and .88 respectively. The authors reported that the scale has also shown good convergent and discriminant validity, by being correlated (or not) with measures such as the Public (.03 *ns*) and Private Self-consciousness (.22 *sig*) scales (of the Self-Consciousness Inventory); a Fearfulness scale (-.09, *ns*, of the EASI Temperament Survey), and a measure of global self-esteem (.18, *sig*). No p-values were provided. The Sociability scale is scored on a Likert scale ranging from 1 = *doesn't sound like me at all*, 2 = *doesn't sound like me*, 3 = *sounds a little bit like me*, and 4 = *sounds a lot like me*. The original instrument used a 0-4 Likert scale. A 1 - 4 Likert scale was used in the present study to ensure a consistent metric across all measures. The current study found a Cronbach's alpha of .81 ( $M = 15.47$ ,  $SD = 3.09$ ) and a range of 5 - 25. The original study found means for males and females,  $M = 13.2$ , ( $SD = 3.4$ ) and  $M = 13.9$ , ( $SD = 3.4$ ) respectively.

### **Demographic Information.**

Information regarding a number of demographic and background factors was also collected. Participants were asked to report town/shire, country, length of residency, gender, ethnicity, level of education, marital status, economic status and type of employment, number of children in the home, and negative life events in the past 6 -12 months (Please see [Appendix C](#) for full demographic questions).

### **Ethical and Risk Matters**

Prior to discussing participants and recruitment, it is important to address a number of ethical matters relevant to this study. This study was conducted in accordance with the guidelines stipulated by the Australian Psychological Society (2007) and the National Health and Medical Research Council (2007) and was approved by Curtin's HREC (Approval Number HR 95/2011

– see [Appendix D](#)). Further clearance was acquired each year and at every point of change from the original proposal. The following areas were addressed in the ethics submission:

- *Consent.* The study involved the participation of adults over the age of 18. Participants were provided with information regarding the study and were then asked to complete an online electronic consent form.
- *Risk.* The risk for this study was negligible, as it focused on the adults' current status and we were not affecting change or providing an intervention. Depression or anxiety symptoms were not being assessed; therefore, there was no need for the reporting of clinical cases.
- *Inconvenience.* There was a minor inconvenience associated with the study, in that it would take time to complete the surveys.
- *Psychological discomfort.* It was unlikely that this research would induce any psychological discomfort and in the rare case that it did, this was likely to be minimal. Participants could be provided with local psychological services contacts and telephone counselling service contacts. No participant appeared to require, nor did they make contact seeking further support.
- *Benefits.* There is heuristic value in understanding the relationship between personality, personological variables and the construct of PSOC. This research also allows for comparisons between urban and rural communities on PSOC, as well as between countries (i.e., Australia, USA, and Europe).
- *Incentives:* According to Goritz (2010) "by handing out incentives to respondents, researchers can increase the likelihood of people participating in web-based studies, and incentives may improve the quality of respondents' responses. In particular, incentives can increase the response and the retention rates in a study" (p. 219). Therefore, an incentive to participate in the study was offered. Each participant who completed the questionnaire (and was willing to provide their details) was placed into a random draw for one of 15 \$50 iTunes vouchers. This was only available to Australian residents, due

to the changes in ethics clearance after the study had already commenced. However, students who completed the study as a part of the student 'pool' and who chose to participate as credit for their course were unable to enter the draw for these vouchers.

- *Distribution of results.* Following completion of the study, the results and conclusions will be uploaded to a website. Participants have not been (and will not be) identified in any publications resulting from this research.

## **Procedure**

The complete measure was uploaded on to the Qualtrics website, with demographic variables interspersed in between the scales, to 'break-up' a participant's experience (i.e., participants were presented with one full scale, such as the MTSOC and then two to three demographic questions in a row, rather than an unremitting barrage of questions. With the questions presented this way, participants were not confronted by a request for a significant amount of personal information all at the same time, which could be overwhelming. The questionnaire was thought to take approximately 20 - 25 minutes, but ranged from 15 minutes to over 24 hours (thought to be people starting, breaking, and completing the survey later). The link to the questionnaire was provided in the Participant Information sheet (see [Appendix B](#)), which was hosted on the Curtin School of Psychology website. After accessing the questionnaire, the initial question regarded consent, and for participants' to proceed any further they needed to select that they were willing to participate. The questionnaire was available for approximately nine months, in which time 733 responses were obtained. The data were downloaded from Qualtrics and then analysed using SPSS (Statistical Package for the Social Sciences, Version 20.0) and LISREL (Linear Structural Relationships, Version 8.80; Jöreskog & Sörbom, 2006).

## **Research Questions**

No research to date has considered investigating the relationship between PSOC and a wide variety of both personality and personological variables;

consequently this research is in part exploratory. The research has two primary aims: 1) to explore and examine the relationships between personality and personological factors/predictors and a psychological sense of community and 2) to present and test a model of these relationships using structural equation modelling.

Research Question 1: What is the factor structure of the MTSOC

H1: The factor structure of the MTSOC will support five distinct but correlated factors; *Membership, Influence, Need Fulfilment, Social Climate and Shared Values*.

Research Question 2: Will adults who live in a rural/remote setting show higher levels of a psychological sense of community?

H2: Australian and New Zealand residents identified as living in a rural or remote community will report higher levels of psychological sense of community than those living in urban/metropolitan settings.

Research Question 3: Is “personality” a significant predictor of a psychological sense of community?

H3a: Adults with higher extroversion, will report higher levels of PSOC

H3b: Adults with higher agreeableness will report higher levels of PSOC

H3c: Adults with higher openness scores will report higher levels of PSOC.

Research Question 4: Are “personological variables” significant predictors of a psychological sense of community?

H 4a: Adults with a higher Sociability score (or Need for Affiliation – NfA) will report higher levels of PSOC

H4b: Adults higher in optimism will report higher levels of PSOC

H4c : Adults with higher self-esteem will report higher levels of PSOC

H4d : Adults with a secure attachment style will report higher levels of PSOC

H4e : Adults with an internal locus of control will report higher levels of PSOC

H4f: Adults higher in empathy will report higher levels of PSOC

Research Question 5: When combined to what extent do personality and personological variables predict psychological sense of community?

## **Data Analysis**

### **Overview of the SEM analysis**

Structural equation modelling (SEM) implemented via LISREL (Version 8:8, Jöreskog & Sörbom, 2006) was used to test the measurement and structural models presented in Figure 10. Due to the complexity of the structural model, the personality constructs were analysed independently of the personological constructs. The most parsimonious personality and personological structural models were then integrated into a single structural model for testing the conjoint effects of the personality and personological constructs on SOC. Most hypotheses were tested within the context of the four stage procedure described below. This procedure applied to both the personality and personological models.

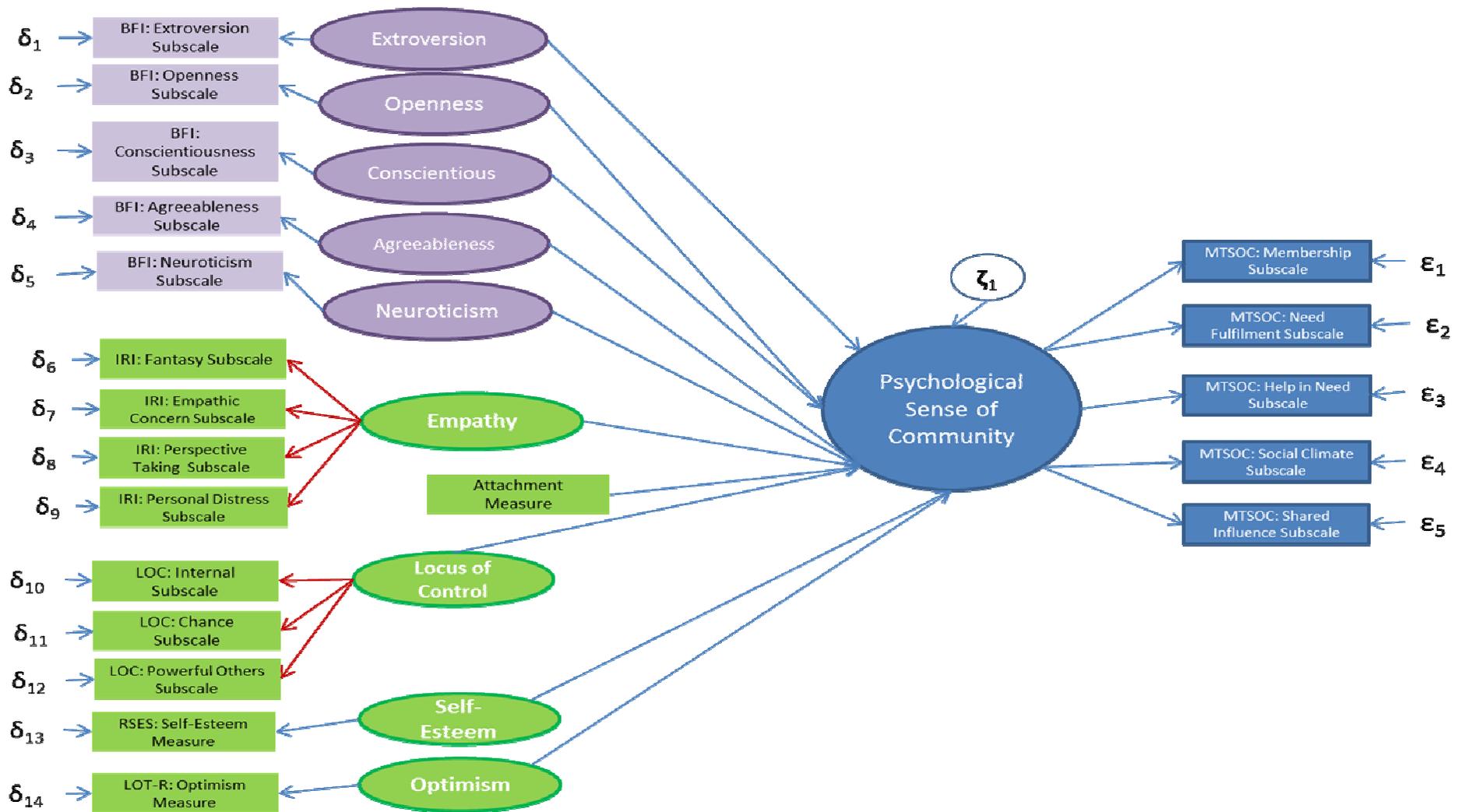


Figure 10. Structural model: Full personality and personological model including all study variables

Note.  $\zeta$ = disturbance;  $\epsilon$ = error of the endogenous variables and  $\delta$ = error of the exogenous variables)

*Stage 1 SEM analysis: Confirmatory factor analyses of the individual questionnaires*  
A CFA, was conducted on each of the six scales – MTSOC, Big 5, IRI, LOC, LOT-R, and NfA – to confirm the factor structure proposed by previous research. These results were used to inform the measurement aspect of the model.

*Stage 2: Testing the measurement model*

The results from Stage 1 were used to formulate the measurement component of both the personality and personological models. The measurement model was then tested.

*Stage 3: Testing the structural model*

After testing the measurement model, the structural model (Figure 3) was tested.

*Stage 4: Testing the combined model.*

An integrated model was developed from the reduced Stage 3 personality and personological models. This model allowed the testing of the conjoint effects of the personality and personological constructs on PSOC.

This chapter has provided an overview of the research design and approach, including how the research has evolved over time. It has provided an overview of the how participants were recruited and how the information was collected. This chapter has also provided a thorough overview of each of the measures used in the study and a brief reminder of the research questions of interest before moving on to a brief introduction to how the data were analysed. In addition to reporting the results, the next chapter, will provide an initial description of the hypothesis testing procedures.

## Chapter 5: Results

### Chapter Overview

#### Research Questions & Statistical Analysis

- There are two research aims:
  - 1) to explore and examine the relationships between personality and personological factors and a psychological sense of community and,
  - 2) to test a model of these relationships using structural equation modelling
- As part of this exploration, the following research questions have been proposed
  - Does the factor structure of the MTSOC agree with previous research? Analysed via Confirmatory Factor Analysis.
  - Do Australian adults who live in rural or urban settings show differences in the psychological sense of community? Analysed via Multivariate Analysis of Variance.
  - Is personality a significant predictor of psychological sense of community? Analysed via Structural Equation Modelling .
  - Are personological factors significant predictors of psychological sense of community? Analysed via Structural Equation Modelling.
  - When combined, how much variance do personality and personological factors account for in psychological sense of community? – Analysed via Structural Equation Modelling. .

#### Research Design and Approach

- The study employed a cross-sectional correlational, survey design to investigate the relationship between personality, personological factors and psychological sense of community. The study was conducted entirely online.

#### Results

- Structural Equation Modelling found that extroversion, openness, optimism and attachment were significant predictors of psychological sense of community, after controlling for education, age, marital status, prior relationships, and length of residence. Further analysis suggests that Attachment Style may mediate the relationship between extroversion, openness and optimism and PSOC.

The study has two aims, 1) to explore and examine the relationships between personality and personological factors/predictors and a psychological sense of community and 2) to examine these relationships using structural equation modelling.

In particular, the study was designed to assess the influence of Personality (extroversion, openness, conscientiousness, agreeableness and neuroticism; Big Five - John, Naumann, & Soto, 2008); Locus of Control (Levenson, 1974), Optimism-Pessimism tendencies (Scheier, Carver, & Bridges, 1994), Attachment style (Hazan & Shaver, 1987), Empathy (Davis, 1980), and Self-Esteem (Rosenberg, 1965), on a psychological sense of community (PSOC).

Structural equation models include both observed and latent variables. By convention, latent variables (or factors) are represented by ovals and observed

variables (or indicators) are represented by squares in the SEM diagrams. The latent variables are the psychological constructs being measured by the observed variables (Kline, 2011) . Latent variables are either exogenous or endogenous. Exogenous variables receive no input from any of the other variables in the model - they therefore initiate the causal chain of events. An exogenous variable is therefore similar to an independent variable. As indicated in Figure 11, the personological variables (coloured green) and the personality variables (coloured purple) are the exogenous variables. An endogenous latent variable is similar to a dependant variable in that it is thought to be influenced, either directly or indirectly by the exogenous variables in the model. In this model, PSOC (coloured blue) is the endogenous variable. Endogenous variables can be influenced by factors outside of the model, such as demographic and background characteristics. It is assumed that the exogenous variables are immune to these factors. By including both observed and latent variables in the modelling process, SEM is able to account for measurement error in the observed variables (Kline, 2011; Tabachnik & Fidell, 2013).

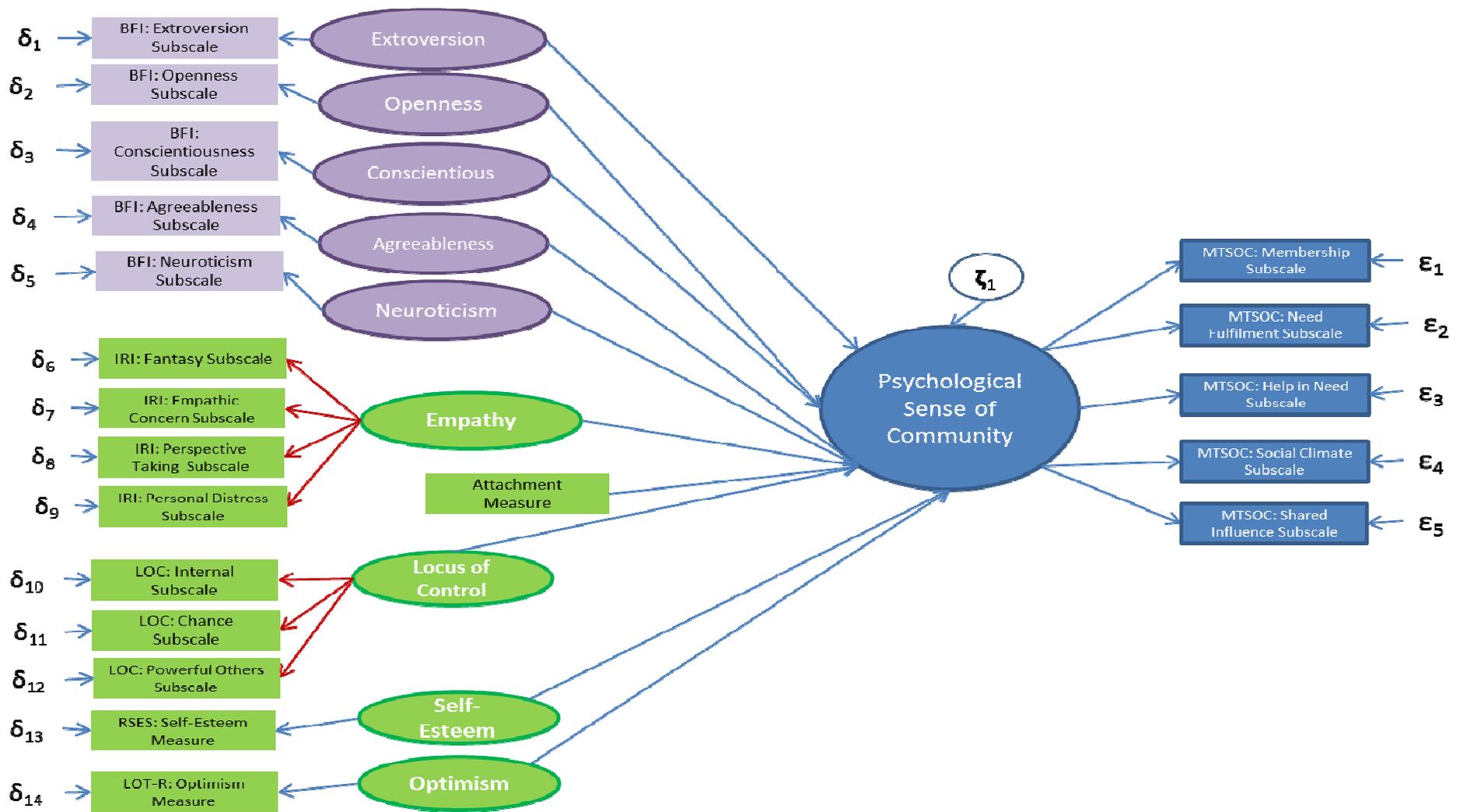


Figure 11: Structural model: Full personality and personological model including all study variables

Note.  $\zeta$ = disturbance;  $\epsilon$ = error of the endogenous variables and  $\delta$ = error of the exogenous variables

## **Data Screening**

Before proceeding with data analysis, all variables were screened for possible code and statistical assumption violations, as well as for missing values and outliers. The SPSS Frequencies, Explore, Plot, Missing Value Analysis, and Regression procedures were used for the data screening (Tabachnik & Fidell, 2013). In total, 733 individuals accessed the survey. There were 116 participants who did not complete the full research instrument and therefore were not included in the final data file. Seven participants were younger than 18 years of age or did not indicate their date of birth, and were removed prior to data analysis and seven people had completed the survey in its entirety more than once. One person answered many of the questions with the same response, e.g., all 4s on the Big 5 personality measure and all 3s on the LOC measure, and was therefore removed. The remaining 602 participants were screened for missing values on all continuous variables and no missing values were discovered, a reflection of the 'forced choice' nature of the survey.

When entering year of birth, six participants entered values such as 1057 or 2959, which were taken as typographical errors and their year of birth was corrected (e.g., 1957 or 1959). Some individuals declined to answer the age/DOB question, and were subsequently deleted as it could not be determined if they were at least 18 years of age. It had been decided that individuals have the capacity and maturity to make the choice about where they live from the age of 18 years of age. Negative items were reverse-coded. As previously discussed in the Measures section, means or total scores were calculated for each participant for use in all subsequent analyses.

Most of the 116 participants who did not complete the survey answered the first section of questions, but appeared reluctant to answer further questions that might provide identifying information.

Two problems occurred during the creation of the Qualtrics survey that only came to light when data were analysed. The Qualtrics program has the option to set up “skip” questions, where participants, after answering a question, are diverted to a different question, solely based on the answer they gave. It was thought that this process would allow for a more personalised experience. One question with a skip function attached to it asked, “Are you: Married, Single, De Facto or Other?”. It became evident that an error occurred and those who had answered “Other” were not directed to the next appropriate question, which assessed whether they “lived with others”, and this caused a large amount of missing data on this variable. It was later assumed that participants who stated they were 18-22 years of age, and had lived in their suburb for more than 10 years, were still living with family ( $N = 47$ ). The rest were coded as “Unknown”, as they subsequently indicated that they were widowed or in a relationship, but it was not clear if they were living with other people.

The second error arising from the skip function was that all participants who had answered “None” to the question “Please indicate how many people you knew in your town before you moved here”, had not been then directed to the question “How many children live in your home under the age of 18?”. This produced a large amount of missing, and therefore unanalysable data for this variable.

The question about income posed another problem. As a result of changing from a local to a global sample, income ranges would not be comparable across countries. It was therefore decided to exclude income from the analysis.

### **Descriptive Statistics**

Demographic and background characteristics of the sample are reported in Table 5. As the age variable was positively skewed, the mean and standard deviation were therefore inappropriate indicators of central tendency and dispersion for this variable. The median age was 28, with an interquartile

range of 21 - 43. The modal age was 19 and accounted for 12.8% of the sample (which was due to the use of the University participant pool). The sample consisted of 602 participants, the majority of whom were female (79.9%). Just over half of the participants identified as Australian or New Zealand ethnicity (52.2%), with 29.7% identifying as mixed ethnicity. Forty-two percent (42.4%) of the sample consisted of participants who identified as students. If a student indicated that, they worked part-time or casually they were identified as “students” for the purposes of the study. The majority (44.2%) of participants had lived in their suburb for longer than 10 years and 6.1% had lived there for less than 6 months (Table 6), and 89.2% of participants had identified that they were living with other people.

Table 5  
*Demographic and Background Characteristics of the Sample (N = 602)*

Age in years	Mean = 32.95 ( <i>SD</i> = 14.13) Median = 28 (inter-quartile range = 21-43) Mode = 19, 12.8% of sample.
Gender	79.9% Female 20.1% Male
Current Country	87.0% Australia/NZ 8.8% USA/Canada 1.0% South America 3.0% Europe 0.2% Asia
Education level	2.2% Some high school 15.9% High school graduates 10.8% TAFE Diploma or Certificate 55.1% Some or completed undergraduate study 15.9% completed postgraduate study
Occupation (2 most common) <sup>a</sup>	42.4% Student 19.8% Health-related
Employment status	46.3% Some form of fulltime paid employment
Relationship Status	44.1% Married or De Facto 43.7% Single 7.0% In a relationship 5.2% Other
Ethnicity (2 most common) <sup>b</sup>	52.2% Australia/NZ 29.7% Mixed

*Note.* a: Other occupations: Managers/Admin/Business Professionals= 6.3%, Hospitality/Service/Food/Trades/Clerical=9.3%, Science/Educational Professionals= 10.8%, Missionaries=3.8%, Not Paid Employment=7.3% & Unknown=0.3%

b: Other Ethnicities: North American= 4.7%, South American= 0.5%, European= 4.8%, Asian= 3.5%, Unknown= 3.3%

Table 6  
*Length of Residence in Suburb/Town for Total Sample (N = 602)*

Length of time	Frequency	%
More than 10 years	266	44.2%
5-10 years	106	17.6%
2-5	88	14.6%
1-2 years	68	11.3%
6-12 months	37	6.1%
Less than 6 months	37	6.1%

### **Australian Demographics**

Upon closer inspection of the Australian/New Zealand (Aus/NZ) data the majority of participants (72.7%) were residing in Western Australia, which, considering the original target population of the study combined with the use of the participant pool, is not surprising. Table 7 has further information regarding the breakdown of the Aus/NZ descriptives.

Interestingly, particularly in relation to the original focus of the study, only three of the 602 participants, identified themselves as a 'farmer'; in each case this was a female and they indicated that they were a 'part-time farmer'; no males indicated they were farmers or had jobs attached to farming. Most jobs upon inspection of the data for rural communities were occupations such as nurses, teachers, ambulance officers, psychologists, and speech pathologists. Considering the original focus of the study, and considering that 21.6% of the sample identified as rural residents, it is somewhat surprising that more participants have not identified as 'farmers' or working on the land in some fashion.

Table 7  
*Australian & New Zealand-State or Territorial Breakdown and  
 Urban and Rural Percentages (N = 524)*

State/Country	Frequency	Percentage
<b>Australia</b>		
Western Australia	381	72.7%
New South Wales	41	7.8%
Victoria	60	11.5%
Queensland	19	3.6%
South Australia	16	3.1%
Northern Territory	1	0.2%
Tasmania	4	0.8%
New Zealand	2	0.4%
Urban	411	78.4%
Rural	113	21.6%

### **Descriptive Statistics**

The means and standard deviations for the survey measures are reported in Table 8. When comparing the mean scores in the current study to the scores found in the literature, the MTSOC (measuring psychological sense of community) in the current sample appears mostly comparable with those found in previous research, however there were significant differences on the total MTSOC,  $t(601) = 6.054, p < .001$ , as well as all subscales (Prezza et al., 2009). Scores for the locus of control measure (LOC) cannot be compared as the original study to develop the measure (Levenson, 1974) had a range of 0-48 whereas the current study had a range of 0-35. No means or standard deviations were reported for the self-esteem measure (Rosenberg, 1965) and many studies have used slightly varied Likert scales therefore means cannot be compared. The Sociability scale (Cheek & Buss, 1981) used to measure, Need for Affiliation (NfA), had an original range of 0-20, with a mean of 13.2, whereas the current study had a range of 5-25, and a mean of 15.54, which was a significant difference  $t(601) = 18.621, p < .001$ .

Table 8  
*Descriptive Statistics for Survey Measures (N = 602)*

<b>Measure (n items)</b>	<b>Range (Original Ranges)</b>	<b>M (Original Means)</b>	<b>SD (Original SD)</b>	<b>Cronbach's <math>\alpha</math> (Original <math>\alpha</math>)</b>
Sense of Community <sup>a</sup> (MTSOC)- Total (19)		2.80 (2.69)	.43 (.53)	.90 (.88)
Membership (4)		2.71 (2.92)	.59(.58)	.75 (.80)
Shared Influence (3)	0-5	2.86 (2.61)	.47 (.49)	.63 (.61)
Need Fulfilment (4)	(0-5)	2.78 (2.35)	.55 (.53)	.76 (.71)
Social Climate (4)		2.83 (2.98)	.57 (.47)	.79 (.75)
Help in Need (4)		2.80 (2.61)	.46 (.49)	.67 (.69)
Empathy (IRI) <sup>b</sup> (28)				.83
Fantasy (7)		M: 22.12, F: 24.00 (M:15.73, F: 18.75)	M: 4.86, F: 5.06	M: .79, F: .82 (M: .79, F: .89)
Empathic Concern (7)	0-28 (0-28)	M: 25.06, F: 27.55 (M:19.04, F: 21.67)	M: 3.51, F: 3.84	M: .72, F: .79 (M: .72, F: .70)
Perspective Taking (7)		M: 24.08, F: 25.24 (M:16.78, F: 17.96)	M: 4.17, F: 4.00	M: .80, F: .80 (M: .61, F: .62)
Personal Distress (7)		M: 17.24, F: 17.79 (M: 9.46, F: 12.28)	M: 4.40, F: 4.61	M: .83, F: .83 (M: .68, F: .76)

Big 5 <sup>c</sup>					.75 (.83)
Extroversion (8)		3.24		.74	.86 (.86)
Openness (10)	0-5	3.78		.59	.82 (.83)
Conscientiousness (8)	(0-5)	3.64		.61	.79 (.82)
Agreeableness (9)		3.71		.55	.77 (.79)
Neuroticism (9)		2.96		.65	.78 (.87)
Locus of Control (LOC) <sup>d</sup> (24)					.74
Internal (8)	0-35	20.71		3.39	.56 (.64)
Chance (8)	(0-48)	12.15		4.53	.77 (.78)
Powerful Others (8)		12.51		4.72	.79 (.77)
Self-Esteem (RSES) <sup>e</sup> (10)					.92 (.77-.88)
Optimism-Pessimism (LOT-R) <sup>f</sup> (6)					.85
	6-30	20.85		4.52	
	(0-24)	(14.33)		(4.28)	(.78)
Need for Affiliation (NFA) <sup>g</sup> (5)					.81 (.70)
	5-25	15.55		3.09	
	(0-20)	(13.20)			
Attachment <sup>h</sup> (1 question- 3 choices)					
Secure		70.6% (56%)			
Avoidant		20.9% (25%)			
Anxious/Ambivalent		8.5% (19%)			

*Note.* a: MTSOC = Multi-dimensional Territorial Sense of Community Scale (Prezza, Pacilli, Barbaranelli, & Zampatti, 2009); b: IRI = Interpersonal Reactivity Index (Davis, 1980); c: BFI = Big Five Inventory (John & Srivastava, 1999); d: LOC= Levenson's Locus of Control Scale (Levenson, 1974); e: RSES = Rosenberg's Self-Esteem Scale (Rosenberg, 1965); f: LOT-R = Life Orientation Test-revised (Scheier et al., 1994); g: Need for Affiliation (Cheek & Buss, 1981); h: Attachment Measure (Hazan & Shaver, 1987)

Scores for the current study showed a much higher level of empathy on each of the subscales than those reported by the original study (Davis, 1980), which could be due to the nature of the sample (i.e., a significant portion of the current sample (19.8%) work in health or counselling related fields and a significant proportion (42.4%) are students in psychology related studies. One sample *t*-tests showed that for each subscale, for each gender, there were significant differences between the original research by Davis and this research. These results are reported in [Appendix E](#).

The means and standard deviations could not be compared for the Big Five Inventory (John, Naumann, & Soto, 2008) as the original technical report could not be accessed and this information was not provided in any of the subsequent literature. However, the internal reliabilities were comparable, if not identical in some cases. The measure for optimism, the LOT-R (Scheier et al., 1994) originally showed a mean of 14.33 (*SD*= 4.28), with a range of 0-24. Even with corrections for variations in scale use, the current sample showed higher levels of optimism  $t(601) = 35.375, p < .001$ . Finally Hazan and Shaver's (1987) research suggested that half of the population is likely to identify as Secure with the rest of the population tending to be split equally between Avoidant and Anxious/Ambivalent. In contrast, considerably more than half the participants identified as 'securely attached in the current sample (with a significant difference between sample populations selected,  $z = -5.68, p < .05$ ).

### **Correlation between Key Variables**

Pearson's correlations among the study variables are reported in [Appendix E](#). Correlations among the personality variables the PSOC are presented in Table 9 and the personological variables and PSOC are presented in Table 10.

Both total and subscale PSOC scores were positively correlated with Extroversion, Conscientiousness, and Agreeableness. PSOC scores were also positively correlated with Self-Esteem, Optimism, and an Internal Locus

of Control and Empathy - in particular, empathic concern and perspective taking. Total and subscale PSOC scores were found to be negatively correlated with Neuroticism, an external locus of control (related to both Chance and to Powerful Others) and Empathy - in particular, Personal Distress.

Table 9  
*Pearson's Correlations Between Personality and Sense of Community Measures (N = 602)*

		Extroversion	Openness	Conscientious	Agreeableness	Neuroticism
MTSOC-Total	Correlation					
	Coefficient	<b>.259**</b>	-.047	<b>.212**</b>	<b>.318**</b>	<b>-.335**</b>
	Sig. (2-tailed)	.000	.246	.000	.000	.000
MTSOC-Membership	Correlation					
	Coefficient	<b>.190**</b>	-0.08	<b>.161**</b>	<b>.265**</b>	<b>-.247**</b>
	Sig. (2-tailed)	.000	.051	.000	.000	.000
MTSOC-Need Fulfilment	Correlation					
	Coefficient	<b>.144**</b>	-0.05	<b>.153**</b>	<b>.234**</b>	<b>-.246**</b>
	Sig. (2-tailed)	.000	.219	.000	.000	.000
MTSOC-Help in Need	Correlation					
	Coefficient	<b>.179**</b>	-0.065	<b>.157**</b>	<b>.250**</b>	<b>-.284**</b>
	Sig. (2-tailed)	.000	.112	.000	.000	.000
MTSOC-Social Climate	Correlation					
	Coefficient	<b>.312**</b>	0.001	<b>.177**</b>	<b>.281**</b>	<b>-.304**</b>
	Sig. (2-tailed)	.000	.987	.000	.000	.000
MTSOC-Shared Influence	Correlation					
	Coefficient	<b>.215**</b>	0.023	<b>.225**</b>	<b>.248**</b>	<b>-.278**</b>
	Sig. (2-tailed)	.000	.571	.000	.000	.000

Note. Significant correlations are shown in boldface.  
\*\*. Correlation is significant at the < .001 level (2-tailed).

Table 10

*Correlations between Personological Predictors and PSOC (as measured by the MTSOC) (N = 602)*

		Self-Esteem	Optimism	Need for Affiliation	Attach <sup>a</sup>	LOC Internal	LOC Chance	LOC Powerful Others	Empathy (Fantasy)	Empathy (Empathic Concern)	Empathy (Perspective Taking)	Empathy (Personal Distress)
MTSOC-Total	Correlation											
	Coefficient	<b>.360***</b>	<b>.380***</b>	<b>.312***</b>	<b>.368***</b>	<b>.225***</b>	<b>-.237**</b>	<b>-.235**</b>	-0.015	<b>.131**</b>	<b>.173***</b>	<b>-.190***</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.715	.001	.000	.000
MTSOC-Membership	Correlation											
	Coefficient	<b>.303***</b>	<b>.337***</b>	<b>.253***</b>	<b>.289***</b>	<b>.177***</b>	<b>-.163**</b>	<b>-.188**</b>	-0.009	<b>.115**</b>	<b>.088*</b>	<b>-.128**</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.825	.005	.031	.002
MTSOC-Need Fulfilment	Correlation											
	Coefficient	<b>.296***</b>	<b>.313***</b>	<b>.233***</b>	<b>.240***</b>	<b>.178***</b>	<b>-.231***</b>	<b>-.196***</b>	0.024	<b>.095*</b>	<b>.141**</b>	<b>-.125**</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.556	.020	.001	.002
MTSOC-Help in Need	Correlation											
	Coefficient	<b>.261***</b>	<b>.286***</b>	<b>.174***</b>	<b>.240***</b>	<b>.150***</b>	<b>-.206***</b>	<b>-.190***</b>	-0.068	0.075	<b>.138**</b>	<b>-.173***</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.095	.065	.001	.000
MTSOC-Social Climate	Correlation											
	Coefficient	<b>.298***</b>	<b>.299***</b>	<b>.336**</b>	<b>.372***</b>	<b>.196***</b>	<b>-.168***</b>	<b>-.187***</b>	0.003	<b>.113**</b>	<b>.145***</b>	<b>-.178***</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.934	.006	.000	.000
MTSOC-Shared Influence	Correlation											
	Coefficient	<b>.287***</b>	<b>.283***</b>	<b>.243***</b>	<b>.269***</b>	<b>.214***</b>	<b>-.194***</b>	<b>-.189***</b>	-0.024	<b>.132**</b>	<b>.218***</b>	<b>-.175***</b>
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.550	.001	.000	.000

Note. Significant correlations are shown in boldface.

a: Spearman's rho

\* Correlation is significant at the < .05 level (2-tailed).

\*\* Correlation is significant at the < .01 level (2-tailed)

\*\*\* Correlation is significant at the < .001 level (2-tailed).

Whilst on the topic of correlations between variables, during the SEM analysis, which is reported in detail later in this chapter, it was found that the variable need for affiliation (NfA) was correlated with predictors in each of the models, in which it was included. It was initially included in the personological measurement and structural models and then included in the combined final model, which included both personality and personological variables. Table 11 presents the correlations between variables from the SEM analysis, from a first run through of the combined model with NfA included. This table shows that NfA is highly correlated at with Extroversion at .71, as well as all other predictors and the criterion. For this reason, it was decided to remove NfA from any further analysis and to retest the structural model without NfA. Table 10 also provides information about the relationship between NfA and PSOC.

Table 11  
*Correlation Matrix of Latent Variables (N = 602)*

	PSOC	Extro	Open	Agree	Neuro	NFA	Att1
Extro	.322**	1					
Open	-.113*	.239**	1				
Agree	.354**	.239**	.117*	1			
Neuro	.366**	-.375**	.024	-.361**	1		
NFA	.452**	.708**	.096	.393**	-.289**	1	
Att1	.375**	.353**	-.012	.363**	-.368**	.491**	1

Note: PSOC = Psychological Sense of Community; Ext = Extroversion; Open = Openness; Agree = Agreeableness; Neuro = Neuroticism; NFA = Need for Affiliation; Att1 = Attachment

\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.001 level (2-tailed).

## **Examining the Relationships between Demographic/ Background Variables and PSOC**

In order to test the structural relationships among the study variables, background and demographic variables that might confound these relationships need to be controlled during modelling. Therefore, all demographic/background variables were analysed in relation to their correlation with psychological sense of community. The following section reports the results of this analysis.

As suggested by Field (2005), statistics of skewness and kurtosis were converted to z-scores by dividing the skewness and kurtosis values by their respective errors. Results indicated that the univariate normality assumption was violated for all ordinal variables. Tabachnik and Fidell (2013) however, argue that skewness and kurtosis standard errors decrease with large *N*s which can lead to inflated skewness and kurtosis statistics when in fact there are only small normality violations. Nevertheless, the non-parametric Pearson correlation (which does not assume normality) was used to estimate the correlation between ordinal Demographic/ Background variables and PSOC. Associations between categorical Demographic/ Background Variables and PSOC were estimated with eta-squared ( $\eta^2$ ). An alpha-level of .05 was used for significance testing.

### **Gender.**

There were no significant associations between any of the MTSOC subscales and Gender.

### **Marital Status.**

All subscales except Social Climate were significantly associated with Marital Status. On the *Membership* subscale the married group ( $M = 2.88$ ) scored significantly higher than the 'Single' group ( $M = 2.65$ ) and the 'De Facto' group ( $M = 2.65$ ). On the *Need Fulfilment* subscale the 'Married' group ( $M = 2.89$ ) scored significantly higher than the 'In Relationship' group ( $M = 2.59$ ). The 'Widowed' group ( $M = 3.33$ ) scored significantly higher than the 'In Relationships' group ( $M = 2.59$ ), and the 'Other' group ( $M = 2.59$ ). On the *Help in Need* subscale the 'Married' group ( $M = 2.92$ ) scored significantly higher than the 'Other' group ( $M = 2.50$ ) and the 'Single' group ( $M = 2.78$ ). On the *Social Climate* subscale there were no significant group differences. On the *Shared Influence* subscale the 'Married' group ( $M = 2.99$ ) scored significantly higher than the 'Single' group ( $M = 2.83$ ) and the 'In Relationship' group ( $M = 2.68$ ). Interestingly, Widowed participants (with means ranging from 2.88 - 3.33) showed higher means on all subscales of PSOC (except Social Climate), although these effects were not statistically significant.

### **Occupation.**

All subscales showed significant associations with Occupation. For all MTSOC subscales, 'Missionaries' (with means ranging from 2.88 – 3.33) showed significantly higher scores than all other groups, except the 'Unknown' group. On the *Membership* subscale, the 'Science/Educational

Professionals' group ( $M = 2.88$ ) also scored significantly higher than the 'Students' group ( $M = 2.61$ ).

### **Education.**

Two MTSOC subscales showed significant associations with Education. On the *Need Fulfilment* subscale, the mean score for those who had completed postgraduate education, in particular 'Master's' level qualifications ( $M = 2.99$ ), was significantly higher than those who reported 'Less than High School' ( $M = 2.25$ ), "Year 12" ( $M = 2.70$ ) and 'Some University' ( $M = 2.73$ ). On the *Shared Influence* subscale, the mean score for 'Master's' graduates ( $M = 3.00$ ) was significantly higher than those who reported 'Less than High School' ( $M = 2.39$ ).

### **Ethnicity**

One MTSOC subscale showed significant associations with Ethnicity. On the *Shared Influence* subscale, the mean score for those designated 'Unknown' ethnicity ( $M = 2.58$ ) was significantly lower than those who were identified as 'North American' ( $M = 3.01$ ) or European ( $M = 3.01$ ).

### **Country.**

The MTSOC subscales were not-significantly associated with Country.

### **Length of Residence.**

Two MTSOC subscales showed significant associations with Length of Residence. Participants who had been a resident in their suburb/town for

'More than 10 years' showed significantly higher scores on the *Membership* subscale ( $M = 2.82$ ) compared to the '2-5 years' group ( $M = 2.58$ ) and on the *Social Climate* subscale ( $M = 2.95$ ) compared to the '2-5 years' group ( $M = 2.69$ ) and the '6-12 months' group ( $M = 2.59$ ).

### **Age.**

Spearman's rho indicated the presence of strong positive correlations between age and all MTSOC subscales.

### **Negative Life Events.**

The MTSOC subscales were not-significantly associated with Negative Life Events.

### **Presence of Prior Friends.**

Four MTSOC subscales showed significant associations with the Presence of Prior Friends. Upon closer inspection of group differences, there were no differences between groups on the *Membership* subscale. On the *Need Fulfilment* subscale, those who had not known anyone (None) prior to arriving ( $M = 2.69$ ) showed significantly lower scores than those knowing 'More than 8' friends ( $M = 2.91$ ) and those knowing '4-6 friends' ( $M = 2.94$ ) before arriving. On the *Help in Need* subscale, those who had known 'More than 8' friends prior to arriving ( $M = 2.88$ ), scored significantly higher than those knowing 'None' ( $M = 2.73$ ). On the *Social Climate* subscale those who had known 'More than 8' friends prior to arriving ( $M = 3.04$ ), showed significantly higher scores than those knowing 'None' ( $M = 2.74$ ) and those

knowing '1-3 friends' ( $M = 2.74$ ). On the *Shared Influence* subscale those who had known 'More than 8' friends prior to arriving ( $M = 2.98$ ), showed significantly higher scores than the knowing 'None' group ( $M = 2.79$ ).

### **Live with Others.**

The MTSOC subscales were not-significantly associated with Live with Others.

Table 12 summarises the relationships between PSOC and various background and demographic variables. It was found that, relationship status, occupation, presence of prior friends in the town/suburb before they arrived, length of residence, ethnicity, age and education are all significantly correlated with psychological sense of community. Before moving on to discussing individual hypotheses, some general discussion about assumption testing and fit indices will be presented.

Table 12  
*Associations ( $\eta^2$ ) Between the MTSOC subscales and the Demographic Variables*

	MTSOC Total	MTSOC Membership	MTSOC Need Fulfilment	MTSOC Help in Need	MTSOC Social Climate	MTSOC Shared Influence
Gender	.000	.000	.000	.001	.000	.001
Relationship Status	<b>.006*</b>	<b>.037**</b>	<b>.037**</b>	<b>.039**</b>	.011	<b>.040**</b>
Occupation	<b>.094*</b>	<b>.077**</b>	<b>.080**</b>	<b>.071**</b>	<b>.038*</b>	<b>.064**</b>
Education	<b>.025*</b>	.021	<b>.043*</b>	.015	.012	<b>.032*</b>
Ethnicity	<b>.011*</b>	.010	.008	.007	.013	<b>.033*</b>
Country	.009	.010	.010	.007	.006	.008
Length of Residence	.014	<b>.028*</b>	.009	.009	<b>.046**</b>	.008
Age <sup>a</sup>	<b>.194**</b>	<b>.191**</b>	<b>.199**</b>	<b>.164**</b>	.070	<b>.195**</b>
Negative Life Events	.000	.000	.000	.000	.000	.000
Presence of Prior Friends	<b>.039**</b>	.015	<b>.036**</b>	<b>.019*</b>	<b>.052**</b>	<b>.033**</b>
Live with Others	.004	.003	.002	.004	.007	.002

*Note.* Significant correlations are shown in boldface.

a: Spearmans rho

\* Association is significant at the < .05 level (2-tailed).

\*\* Association is significant at the < .001 level (2-tailed).

## Structural Equation Modelling (SEM)

### Analytical strategy

To conserve statistical power (discussed below), and because the personological measures were considered to be conceptually independent of the personality measures, the personality constructs and their inter-relationships (see Figure 12) were analysed independently of the

personological constructs and their inter-relationships (see Figure Figure 13). On the basis of these initial SEM analyses, the two structural models were refined and then combined into a single structural model for testing the joint effects of the personality and personological constructs on PSOC.

Structural equation modelling (SEM) techniques – implemented through LISREL (Version 8.8; Jöreskog & Sörbom, 2006) - were used to test the measurement and structural components of the personological and personality models. The measurement component consists of the observed variables (aka: indicators) and their error variances and factor loadings; the structural model consists of the constructs (aka: latent variables or factors) and the causal pathways among the constructs. Sample size considerations dictated that the analyses be comprised of four conceptually distinct stages. At Stage 1, a confirmatory factor analysis (CFA) was conducted on each of the six scales (MTSOC, BFI, LOC, LOT-R, RSES, and IRI) in order to test and compare the various factor structures that have been uncovered in previous research. The results from Stage 1 were used to formulate the measurement components for the personological and personality models. At Stage 2, the measurement components of the personological and personality models were tested. If the measurement components adequately fit the data, the analysis moved to a third stage in which the corresponding structural components were tested (in Figures 12 and 13, the structural component is represented by the ovals and the inter-oval pathways). At Stage 4, the combined structural model (incorporating components of the personological and personality models) was tested.

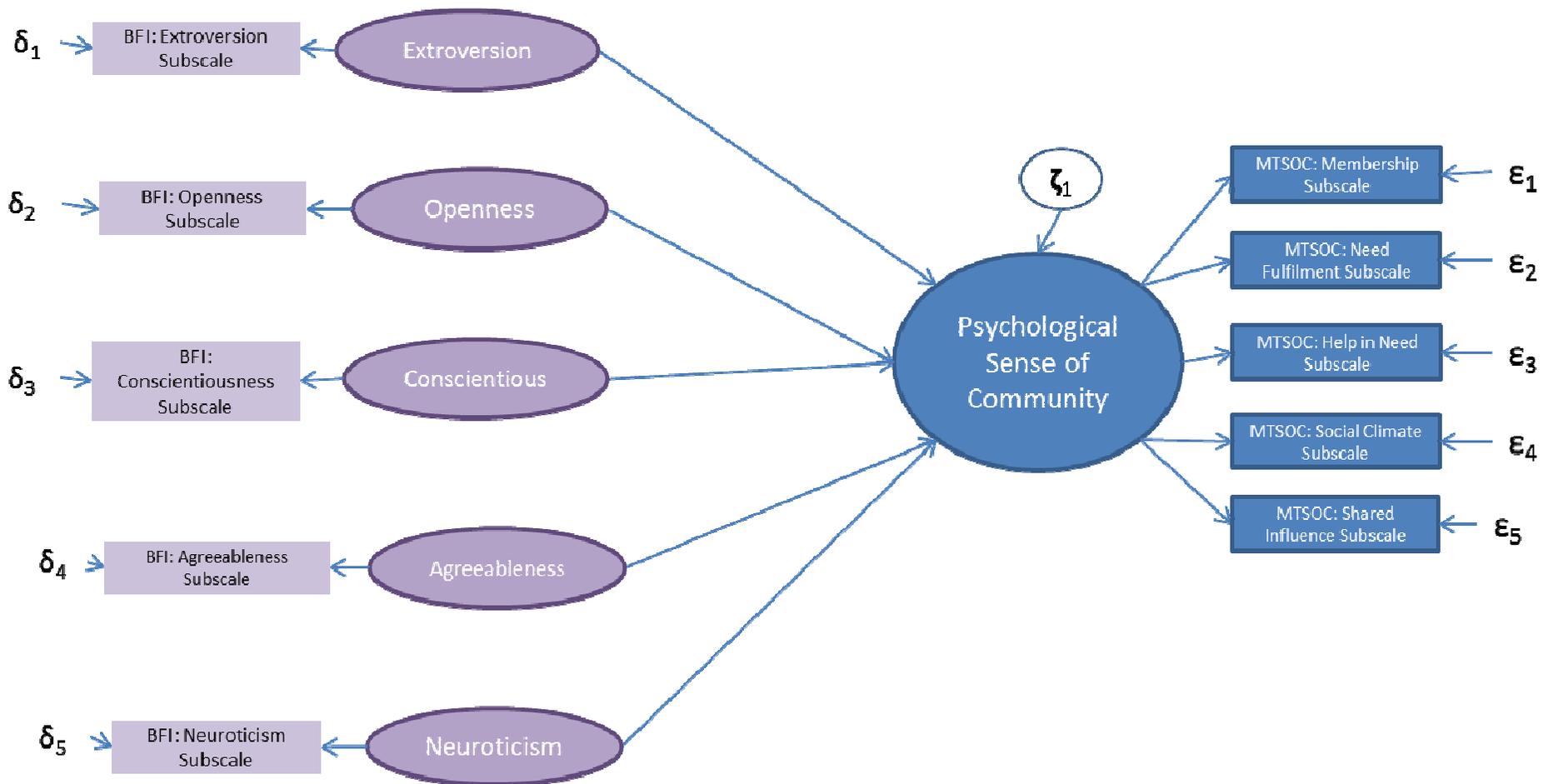


Figure 12. Personality Model

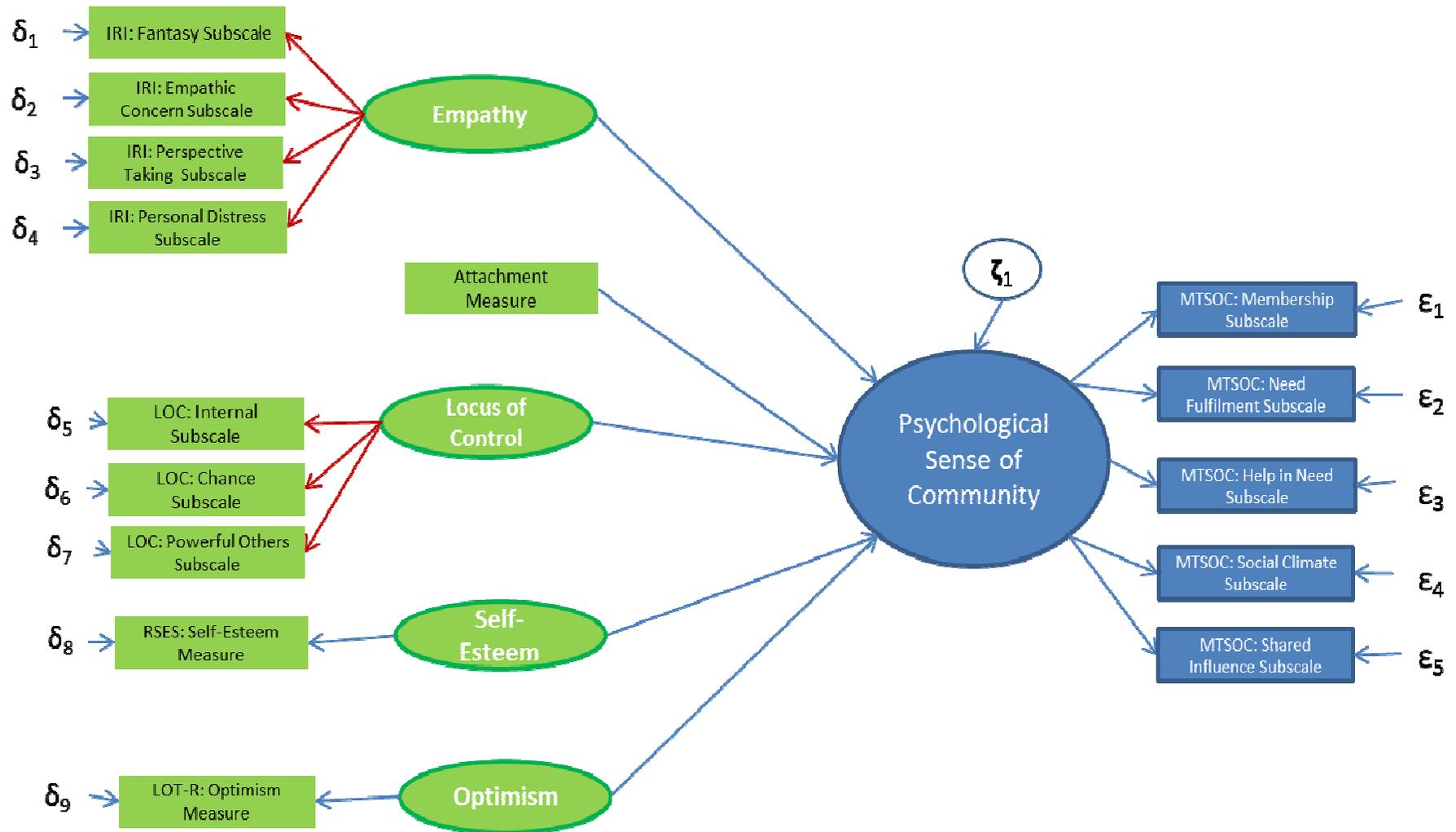


Figure 13. Personological Model

### **Fit statistics.**

A range of fit statistics was used to test the fits of the factor models (Stage 1), the measurement models (Stage 2), and the structural models (Stages 3 and 4); each fit statistic examined model fit from a different perspective.

These statistics are discussed below.

- Chi-square ( $\chi^2$ ) is a measure of evaluating overall model fit, and assesses the magnitude of the difference between the sample and the fitted covariance matrices. Smaller values of  $\chi^2$  imply a better fit. Kline (2011) refers to  $\chi^2$  as the 'badness of fit' statistic, because non-significant  $\chi^2$  values normally required to indicate an adequate fit. In larger samples, however,  $\chi^2$  is often significant regardless of model fit (Wheaton, Muthen, Alwin, & Summers, 1977).
- The relative or normed  $\chi^2$  (i.e.,  $\chi^2$  divided by its degrees of freedom) corrects for sample size (Wheaton et al., 1977). The general consensus appears to be that values no higher than 5 and preferably less than 3 are required to indicate an adequate fit (Tabachnik & Fidell, 2013); (see also Hooper, Coughlan, & Mullen, 2008).
- The comparative fit index (CFI) measures the relative improvement of the proposed model over a null model in which all measured variables are uncorrelated. Values range between 0 and 1 with values closer to 1 indicating good fit. A value greater than or equal to .90 is currently recognised as indicative of good fit (Hu & Bentler, 1999). This is reportedly a popular statistic as it least affected by sample size (Hooper et al., 2008).

- The non-normed fit index (NNFI) compares the  $\chi^2$  statistic for the proposed model to that of the null model. Due to the NNFI being non-normed, it can exceed 1, but in general ranges from 0 to 1 with values closer to 1 indicating good fit. A value greater than or equal to .90 is currently recognised as indicative of good fit (Hu & Bentler, 1999).
- The standardised root mean square residual (SRMR) is the square root of the difference between the residuals of the sample covariance matrix and those of the predicted matrix. Kline (2011) states that the SRMR should be “about zero” for an acceptable model fit whereas Hu and Bentler (1999) argue that a value less than .08 is an acceptable fit (see also Hooper et al., 2008).
- The root mean square error of approximation (RMSEA) is another “badness of fit” statistic where a value closer to 0 indicates a better fit. The RMSEA tends to decrease as there are more degrees of freedom or with a larger sample size. An RMSEA of greater than .1 may indicate problems. If the 95% confidence intervals straddles .08, however, then this is not an issue (Hooper et al., 2008; Kline, 2011).

### **Sample size**

In order to reliably test an SEM model, it has been recommended that there is at least 10 participants for each free parameter in the model - although 20 participants per free parameter is the ideal (Kline, 2011). A free parameter is a parameter that must be estimated from the sample data. The most

complex model (i.e., the model with the most free parameters) in the present study was the personological measurement model, Figure 13. This model has the following free parameters:

- An error variance for each indicator (14 parameters).
- A factor loading for each indicator (14 parameters).
- The bivariate correlations among the factors (15 parameters).
- A variance for each factor (6 parameters).

A minimum sample size for testing this model would therefore be 410 ( $10[10+10+15+6] = 410$ ), but an ideal sample size would be 980 ( $20[14+14+15+6] = 980$ ). The current sample size of 602 falls between these two sample size estimates and should therefore have been an adequate sample size for testing the personality measurement model. As noted above, the personological measurement model was the most complex SEM model. A sample size of 602 would therefore be adequate for testing the less complex SEM models.

In order to reliably test the structural model, Kline (2011) has once again recommended that we have at least 10 participants for each free parameter in the structural model - although 20 participants per free parameter would once again be the ideal. Generally speaking, the free parameters in the structural model include the path coefficients, the disturbances of the endogenous variables, the variances of the exogenous variables, and the bivariate correlations among the exogenous variables.

### **Stage 1 SEM analysis: Confirmatory factor analyses of the individual questionnaires**

A confirmatory factor analysis (CFA) was conducted on each of the six scales (MTSOC, BFI, LOC, LOT-R, RSES, and IRI) in order to test and compare the various factor structures that have been uncovered in previous research. The Attachment Style scale could not be factor analysed because it only had one item. For some of the factor models, it was necessary to add theoretically plausible error covariances between items to achieve an adequate fit. Fit statistics for each factor model are reported in Table 13.

A one-factor model provide a good fit for the Rosenberg's self-esteem scale. Self-Esteem was therefore treated as a uni-dimensional latent construct in the measurement model. A one-factor model also provided a good fit for the Life-Orientation Test-Revised. This test purports to measure optimism. Optimism was therefore treated as a uni-dimensional latent construct in the measurement model.

Table 13

*Goodness-of-fit Statistics for Confirmatory Analyses of Measures (N = 602)*

Measure	$\chi^2$	df	$\chi^2/df^a$	CFI <sup>b</sup>	NNFI <sup>c</sup>	SRMR <sup>d</sup>	RMSEA (90% CI) <sup>e</sup>
<b>Multi-dimensional Territorial Sense of Community Scale<sup>f</sup> (MTSOC - 19 items)</b>							
5-factors: Membership, Need Fulfillment, Help in Need, Social Climate, Shared Influence Prezza et a. (2009)	976.037	130	7.507	.952	.937	.062	.104 (.098, .110)
1 factor: Total PSOC- Prezza et al. (2009)	1658.315	140	11.845	.923	.906	.075	.134 (.129, .140)
<b>Interpersonal Reactivity Index<sup>g</sup> (IRI - 28 items)</b>							
4-factors: Empathic Concern, Fantasy, Perspective Taking, Personal Distress -Davis (1980)	1576.325	316	4.988	.927	.913	.079	.081 (.077, .085)
1-factor: Empathy	4387.325	322	12.625	.802	.767	.154	.145 (.141, .149)
<b>Big Five Inventory<sup>h</sup> (BFI-44 items)</b>							
5 factors: Extroversion, Conscientiousness, Openness, Agreeableness, Neuroticism - John & Srivastava (1999)	3844.222	813	4.728	.894	.876	.094	.078 (.076, .081)
1-factor: Personality	6653.909	823	8.084	.832	.807	.129	.109 (.106, .111)
<b>Life Orientation Scale-Revised<sup>i</sup> (LOT-R - 6 items)</b>							
1 factor: Optimism – Scheier et al. (1994)	49.659	8	6.207	.984	.970	.035	.093 (.069, .119)
<b>Rosenberg's Self-Esteem Scale<sup>j</sup> (RSES - 10 items)</b>							
1 factor: Self Esteem - Rosenberg (1965)	229.403	29	7.910	.982	.972	.034	.107 (.094, .120)
<b>Levenson's Locus of Control Scale<sup>k</sup> (LOC - 24 items)</b>							
3-factors: Internal, Chance, Powerful Others - Levenson (1974)	888.284	232	3.828	.944	.934	.059	.068 (.063, .073)
2-factors: Internal, External - Wilkinson (2007)	1000.437	234	4.275	.937	.926	.061	.073 (.069, .078)
1-factore: Control	1092.022	235	4.646	.931	.919	.063	.077 (.073, .082)
<b>Sociability Scale<sup>l</sup> (NfA - 5 items)</b>							
1 factor: Need for Affiliation	9.436	4	2.359	.997	.993	.017	.047 (.0.0, .087)

Note. a. Chi-square ( $\chi^2$ )divided by its degrees of freedom; b. Comparative Fit Index; c. Non-Normed Fit Index; d. Standardised Root Mean Square Residual; e. Root Mean Square Error of Approximation; f. MTSOCS = Multi-dimensional Territorial Sense of Community Scale (Prezza et al., 2009); g. IRI = Interpersonal Reactivity Index (Davis, 1980); h. BFI = Big Five Inventory (John & Srivastava, 1999); i. LOT-R = Life Orientation Test-revised (Scheier et al., 1994); j. RSES = Rosenberg's Self-Esteem Scale (Rosenberg, 1965); k. LOC= Levenson's Locus of Control Scale (Levenson, 1974); l. NfA = Need for Affiliation- Sociability Scale (Cheek & Buss, 1981).

A correlated five-factor model fit the Big Five inventory better than a more parsimonious one-factor model. There are two options for incorporating these five factors (extroversion, openness, conscientiousness, agreeableness and neuroticism) into the measurement model. Firstly, the factors could be treated as indicators of a common 'personality' latent variable; secondly, they could be treated as five correlated but separate uni-dimensional latent variables. It was argued that the five personality factors are better understood as conceptually distinct constructs rather than as indicators of a common construct. The five factors were therefore treated as five separate uni-dimensional latent variables in the measurement model.

Like the Big Five inventory, a correlated five-factor model fit PSOC better than a more parsimonious one-factor model. Once again, this suggested two options for incorporating the five PSOC factors (*Membership, Need Fulfilment, Help in Need, Social Climate, Shared Influence*) into the measurement model. Firstly, the factors could be treated as indicators of a common 'psychological sense of community' latent variable; secondly, they could be treated as five correlated but separate uni-dimensional latent variables. This time, it was argued that the five factors are better understood as indicators of a common construct rather than as conceptually distinct constructs, as suggested by Prezza et al., (2009). The five factors were therefore treated as indicators of a common 'psychological sense of community' construct in the measurement model.

One-, two-, and three-factor models were fit to the Levenson's Locus of Control scale. The three-factor model proved to be the best fit. It was argued, as it was for PSOC, that the three factors are better understood as indicators of a common construct rather than as conceptually distinct constructs. The three factors were therefore treated as indicators of a common 'locus of control' construct in the measurement model.

One- and four-factor models were fit to the Interpersonal Reactivity Index. The four-factor model proved to be the better fit. It was argued, as it was for the PSOC and Levenson's Locus of Control scale, that the four factors are better understood as indicators of a common construct rather than as

conceptually distinct constructs, as indicated by Davis (1980). The four factors were therefore treated as indicators of a common 'empathy' construct in the measurement model.

Hazan & Shavers attachment measure is a single-item question with three response options (secure, avoidant and anxious/ambivalent). In the present study, there were no differences between the anxious and avoidant groups on any of the PSOC subscales; there were however significant differences between the secure group and each of the other two groups. Attachment was therefore reduced to a binary variable by collapsing the avoidant and anxious/ambivalent groups into a single avoidant /anxious/ambivalent group. Those in the secure group were coded '1' and those in the other group were coded 0. Reducing a categorical variable with three levels to a binary variable conserves statistical power (Kline, 2011).

Before proceeding to the SEM stages of the data analysis (Stages 2 and 3), the SEM assumptions must be tested. SEM assumes multivariate normality, linearity, and an absence of multicollinearity. These assumptions apply to the indicators in the personality model (the five MTSOC measures, and the five BFI measures), and the indicators in the personological model (the five MTSOC measures, the RSES measure, the LOT-R measure, the three LOC measures, the four IRI measures, and the attachment measure). Multivariate normality was violated for both models, which means that the chi-square statistic that is normally used to test model fit will be inflated (Jöreskog & Sörbom, 1989). In these circumstances, Jöreskog and Sörbom (1989) recommend testing for model fit with a chi-square statistic that corrects for the inflation. Jöreskog (2004) argues that the Satorra-Bentler chi-square provides such a statistic, and therefore, this was used as the fit statistic for the SEM analyses.

Linearity is satisfied when the relationships among the indicators are essentially linear rather than curvilinear. No serious departures from linearity were observed in the 45 scatterplots derived from the 10 personality

indicators, and the 105 scatterplots derived from the 15 personological indicators.

Multicollinearity exists when there are substantial correlations among indicators. In order to determine whether there were substantial correlations among the personality indicators and among the personological indicators, a tolerance value was computed for each indicator. Long (1983) stated that an indicator's tolerance value indicates the degree to which the indicator does not correlate with the other indicators in the model. If an indicator has a low tolerance value, then it is highly correlated with the other indicators suggesting a multicollinearity problem. It has been argued that multicollinearity may be a problem if the smallest tolerance value is less than .1 (e.g., Bowerman & O'Connell, 1990; R. Myers, 1990). For both the personality and personological indicators tolerance values were sufficiently high ruling out any serious multicollinearity problems for the SEM analyses.

### **Stage 2 SEM analysis: Testing the measurement model**

The Stage 1 results were used to formulate the measurement components of the personality and personological structural models. The personality measurement model consisted of six latent variables and 10 indicators and the personological model consisted of five latent variables, one observed variable, and 15 indicators. The measurement models are depicted in Figure 14 and Figure 15, with the correlations among latent variables displayed in Table 14 and Table 15.

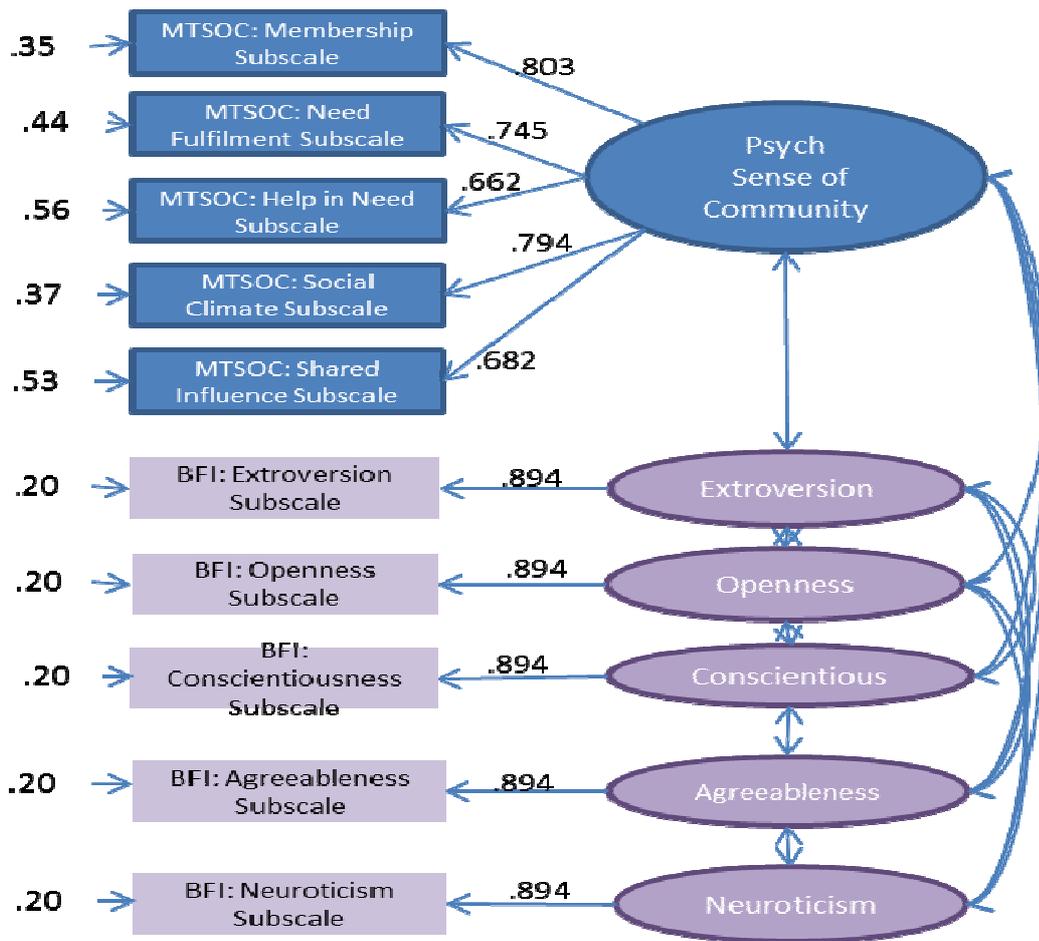


Figure 14. Personality Measurement Model

Table 14  
Correlation matrix of Latent Variables for Personality Measurement Model  
(N = 602)

	PSOC	Extro	Open	Consc	Agree	Neuro
Extro	.316**	1				
Open	-.108*	.243**	1			
Concs	.211**	.143*	-.010	1		
Agree	.354**	.236**	.117*	.465**	1	
Neuro	-.361**	-.380**	.010	-.208**	-.311**	1

Note. Ext = Extroversion; Open = Openness; Consc = Conscientiousness; Agree = Agreeableness  
\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.001 level (2-tailed).

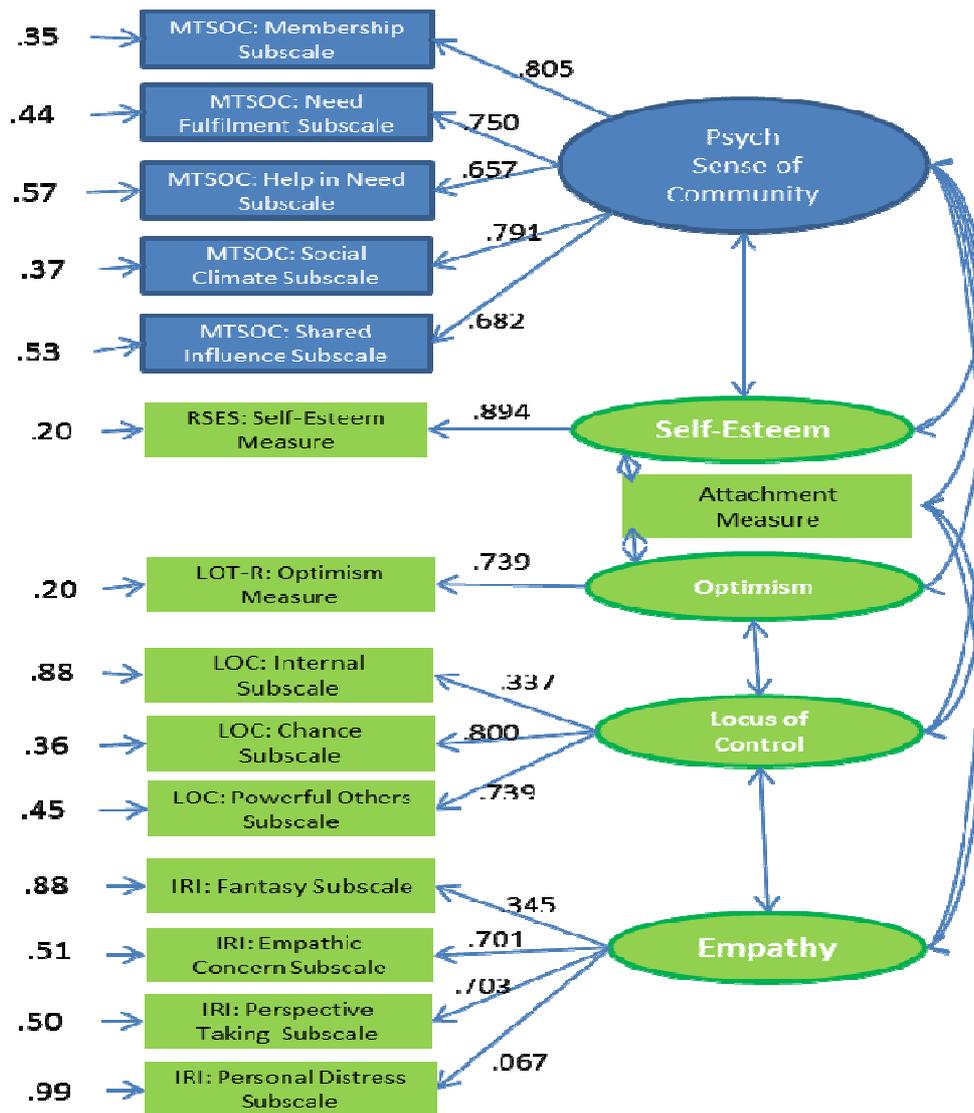


Figure 15. Personological Measurement Model

Table 15  
Correlation matrix of Latent Variables for Personological Measurement Model (N = 602)

	PSOC	SE	OPT	LOC	EMP	ATT1
SE	.391**	1				
OPT	.430**	.786**	1			
LOC	.295**	.670**	.651**	1		
EMP	.193**	.102	.219**	.154*	1	
Att1	.374**	.438**	.410**	.269**	.126*	1

Note. SE= Self-Esteem; OPT= Optimism; LOC= Locus of Control; EMP =Empathy; ATT1= Attachment  
\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.001 level (2-tailed).

By incorporating a measurement component into the structural model, we can control for the measurement error inherent in using observed variables (indicators) to measure latent variables (the psychological constructs that ‘drive’ the indicators). There must be at least two indicators per construct in order to estimate measurement error from the data (Kline, 2011). The personality model, however, consists entirely of single-indicator latent variables; and the personological model includes two single-indicator latent variables (Self-Esteem and Optimism).

Measurement error for single-indicator latent variables must be estimated from the published reliabilities of the indicators. When we do this, the measurement errors are no longer free parameters (i.e., they are no longer estimated from the data); they become fixed parameters (i.e., we fix their values based on the published reliabilities of the indicators). Specifically, we set the measurement error associated with an indicator to one minus its reliability coefficient, and we set its factor loading to the square root of its reliability coefficient (see Goodwin & Plaza, 2000, p. 286). The binary attachment measure was treated as an observed variable in the structural model and therefore was assumed to be measured without error (Kline, 2011).

The fit statistics for the personality measurement model and the personological measurement model are presented in Table 16. Most of the fit indices concur that the measurement models provide a good fit for the data.

Table 16  
*Goodness-of-fit Statistics for the Measurement Models (N=602)*

	$\chi^2$	df	$\chi^2/df^a$	CFI <sup>b</sup>	NNFI <sup>c</sup>	SRMR <sup>d</sup>	RMSEA <sup>e</sup> (90% CI)
Personality	132.380	25	5.295	.958	.924	.035	.084 (.070, .099)
Personological	410.237	87	4.715	.940	.917	.079	.078 (.071, .086)

*Note.* a. Chi-square ( $\chi^2$ ) divided by its degrees of freedom; b. Comparative Fit Index; c. Non-Normed Fit Index; d. Standardised Root Mean Square Residual; e. Root Mean Square Error of Approximation

Confirming the measurement model is an important step in the SEM process. If the measurement model does not fit the data, we conclude that our latent variables are being measured inappropriately – which means that there's no point in testing the structural model; the analysis stops and we conclude that the structural model is not viable. As the measurement models fit the data, the next stage of the analysis was to test their structural components.

### **Stage 3 SEM analysis: Testing the structural model**

When assessing structural relationships between independent and dependent variables, it is important to account for any demographic or background variables that may be significantly correlated with the dependent variable PSOC. As reported earlier, it was found that age, marital status, prior relationships, length of residence, occupation, ethnicity, and educational level were correlated with the PSOC. LISREL therefore tested the structural model by analysing a bivariate correlation matrix of the observed variables that partialled out most of these potentially confounding influences.

Occupation and ethnicity both had seven categories and would therefore need to be recoded into six 'dummy' variables before their influence could be partialled from the correlations among the observed variables (Tabachnik & Fidell, 2013). Partialling so many control variables (six dummy variables plus age, marital status [binary], prior relationships, length of residence, and educational level) can lead to computational errors. Occupation and ethnicity are therefore best treated as variables that might moderate the pathways in the structural models. A multi-group SEM would need to be conducted in order to test this possibility (Kline, 2011). The multi-group SEM involves testing the personality and personological structural models for each of the seven occupational groups and then determining whether the structural pathways in these models vary as a function of group. The present sample size prohibited such an analysis. Both Occupation and Ethnicity were therefore omitted from the SEM and subjected to a secondary analysis, along with two other categorical variables ('urban versus rural' and attachment style), in order to determine whether PSOC varied as a function of these variables.

The structural components of the personality model and the personological model are depicted in Figure 16 and Figure 17 respectively. The personality model describes the impact of personality factors on psychological sense of community; the personological model describes the impact of personological factors on psychological sense of community. The fit statistics for these models are reported in Table 17. Most of the fit indices concur that the structural models provide a good fit for the data. In the Personality model, almost a quarter (24.3%) of the variance in PSOC was accounted for by the Big Five personality factors and in the Personological Model the percent of variance was 25.5%.

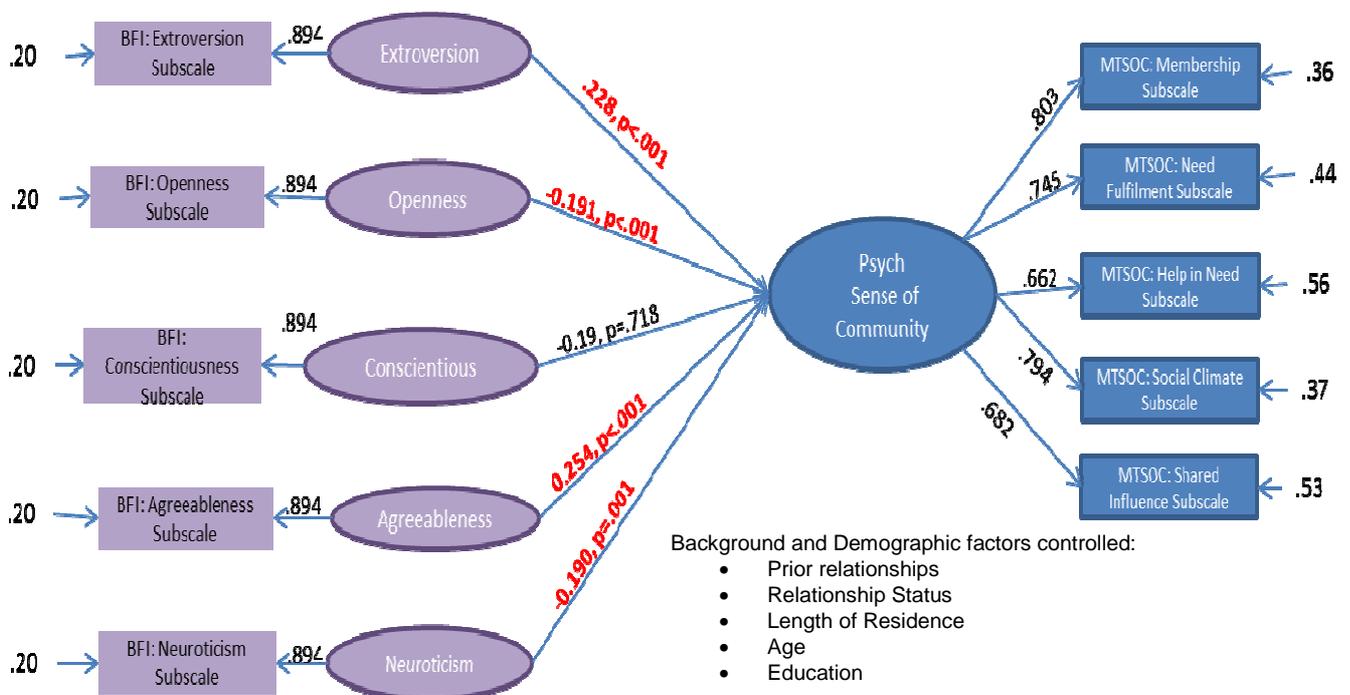


Figure 16. Personality Structural Model

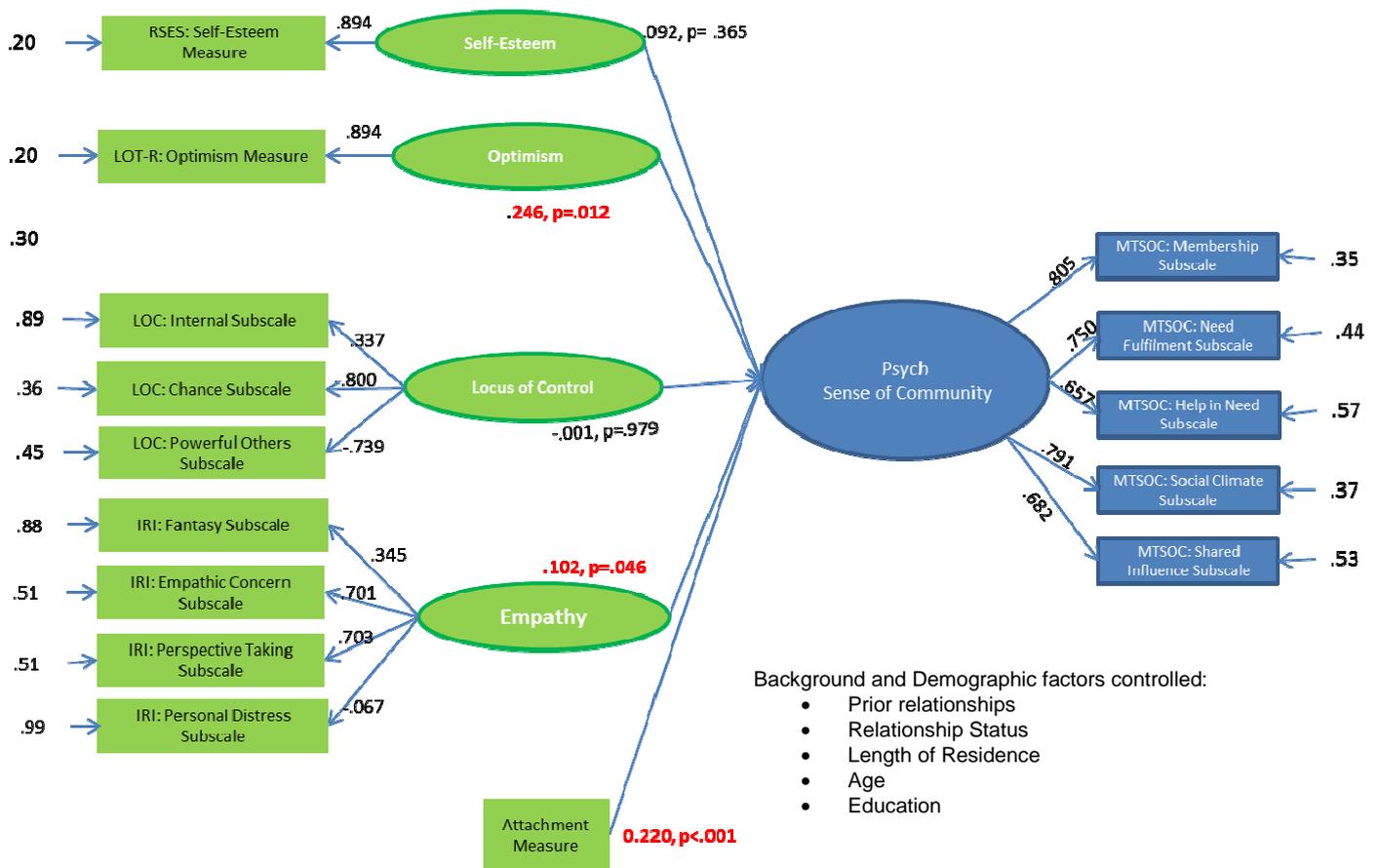


Figure 17. Personological Structural Model

Table 17  
Goodness-of-fit Statistics for the Structural Model (N=602)

	$\chi^2$	df	$\chi^2/df^a$	CFI <sup>b</sup>	NNFI <sup>c</sup>	SRMR <sup>d</sup>	RMSEA <sup>e</sup> (90% CI)
Personality	132.380	25	5.295	.958	.924	.035	.084 (.070, .099)
Personological	410.237	87	4.715	.940	.917	.079	.078 (.071, .086)

Note. a. Chi-square ( $\chi^2$ ) divided by its degrees of freedom; b. Comparative Fit Index; c. Non-Normed Fit Index; d. Standardised Root Mean Square Residual; e. Root Mean Square Error of Approximation

### Stage 4 SEM analysis: Testing the combined model

Until this point, the personality and personological models (depicted in Figure 12 and Figure 13) have been tested independently in order to conserve statistical power. The significant personality and personological predictors identified in the Stage 3 analysis (namely Extroversion, Openness, Agreeableness, Neuroticism, Optimism, Empathy, and Attachment) were included in a combined personality/personological model, and the non-significant predictors were excluded from further analysis. The combined structural model is depicted in Figure 18. The fit statistics for the combined model are reported in Table 18.

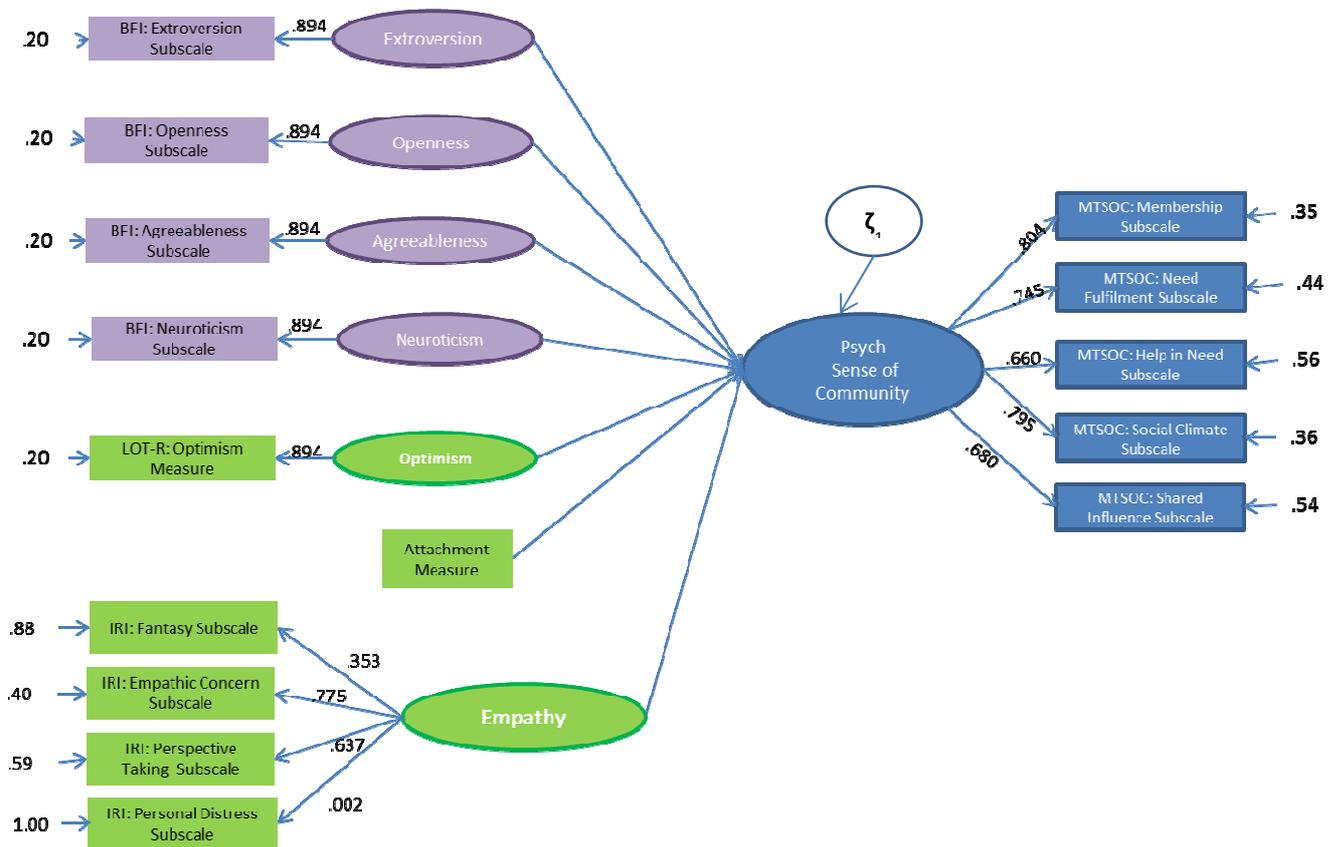


Figure 18. Proposed Combined Model

Table 18  
*Goodness-of-fit Statistics for the Combined Model (N=602)*

$\chi^2$	df	$\chi^2/df^a$	CFI <sup>b</sup>	NNFI <sup>c</sup>	SRMR <sup>d</sup>	RMSEA <sup>e</sup> (90% CI)
129.499	21	6.166	.958	.928	.037	.092 (.077, .108)

*Note.* a. Chi-square ( $\chi^2$ ) divided by its degrees of freedom; b. Comparative Fit Index; c. Non-Normed Fit Index; d. Standardised Root Mean Square Residual; e. Root Mean Square Error of Approximation. The measurement model goodness of fit are identical to the structural model.

Most of the fit statistics reported in Table 18 indicate a good fit for the model. Extroversion, Optimism, and Attachment were all significant and positive predictors of Psychological Sense of Community; Openness was a significant negative predictor of Psychological Sense of Community. These predictors were used to create the final Personality/Personological model. The non-significant predictors (Agreeableness, Neuroticism, and Empathy) were excluded from further analyses. The final structural model is presented in Figure 19. When combined, both personality and personological factors account for 26.8% of the variance in PSOC.

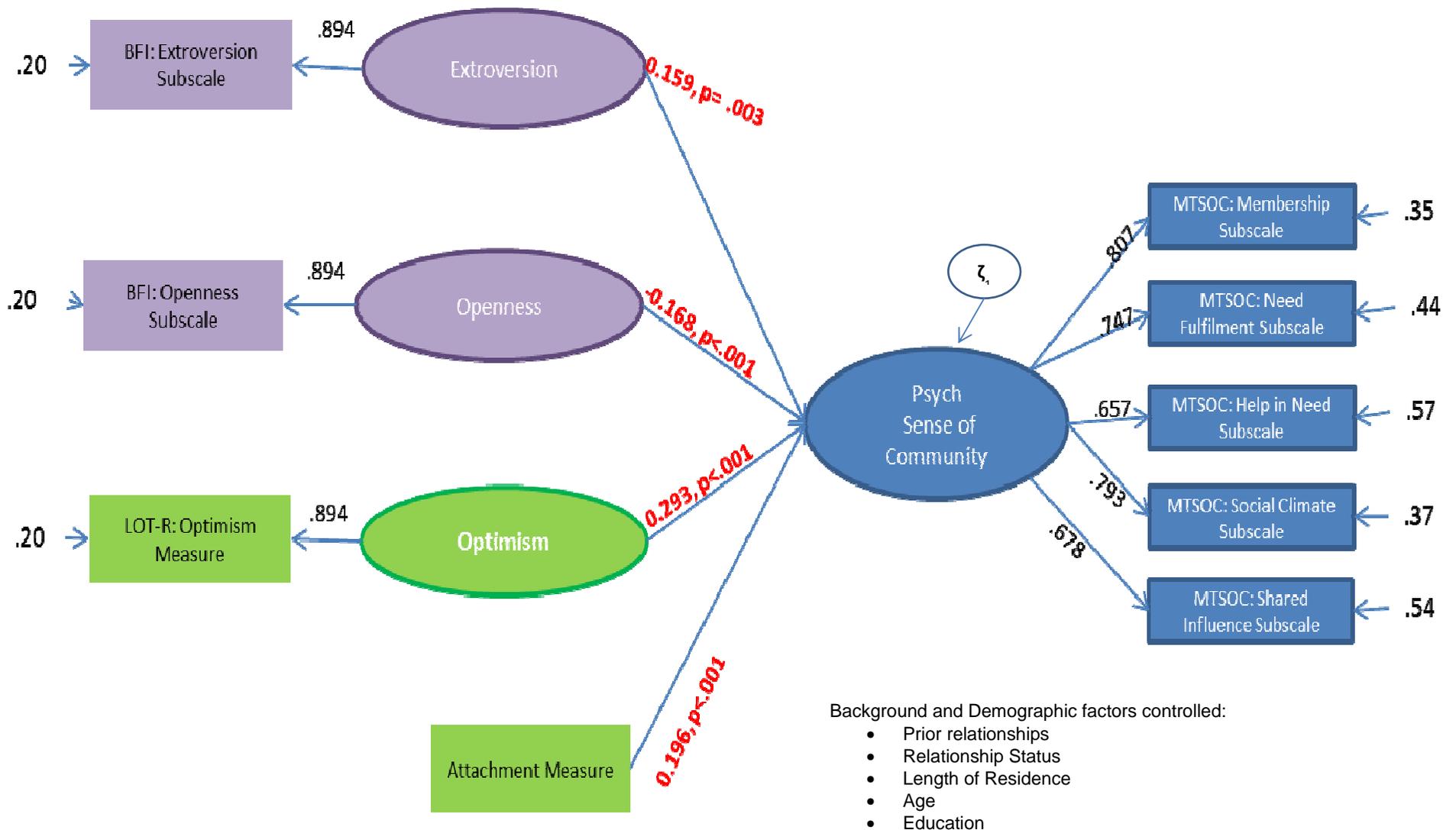


Figure 19. Final Model

The correlations between the latent variables for the final model are presented in Table 19 and it can be seen that aside from Openness, all other predictor variables are significantly correlated with each other.

Table 19  
*Correlation Matrix of Latent Variables (N = 602)*

	PSOC	Extro	Open	Opt	Att
Extro	.316**	1			
Open	-.108*	.243**	1		
Opt	.430**	.434**	.075	1	
Att	.374**	.358**	-.003	.410**	1

*Note.* Ext = Extroversion; Open = Openness; Opt = Optimism; Att = Attachment

\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.001 level (2-tailed).

### Testing mediator models

Keeping in mind that the correlational data are purely correlational and therefore no causal relationships among the variables can be inferred, it was decided to test two possible mediator models. One model, proposed that the personality variables (extroversion and openness) and the personological variable (optimism) mediated the relationship between attachment and psychological sense of community (see Figure 20). The other model proposed that attachment mediated the relationships between psychological sense of community and the personality (extroversion and openness) and personological (optimism) variables (see Figure 21).

The fit statistics for the two mediator models are reported in Table 20.

According to most of the fit statistics, both models provided an adequate fit for the data but according to the Akaike Information Criterion (AIC: where lower values are indicative of better fit), Model 2 fit the data better than Model 1 and will therefore be analysed further.

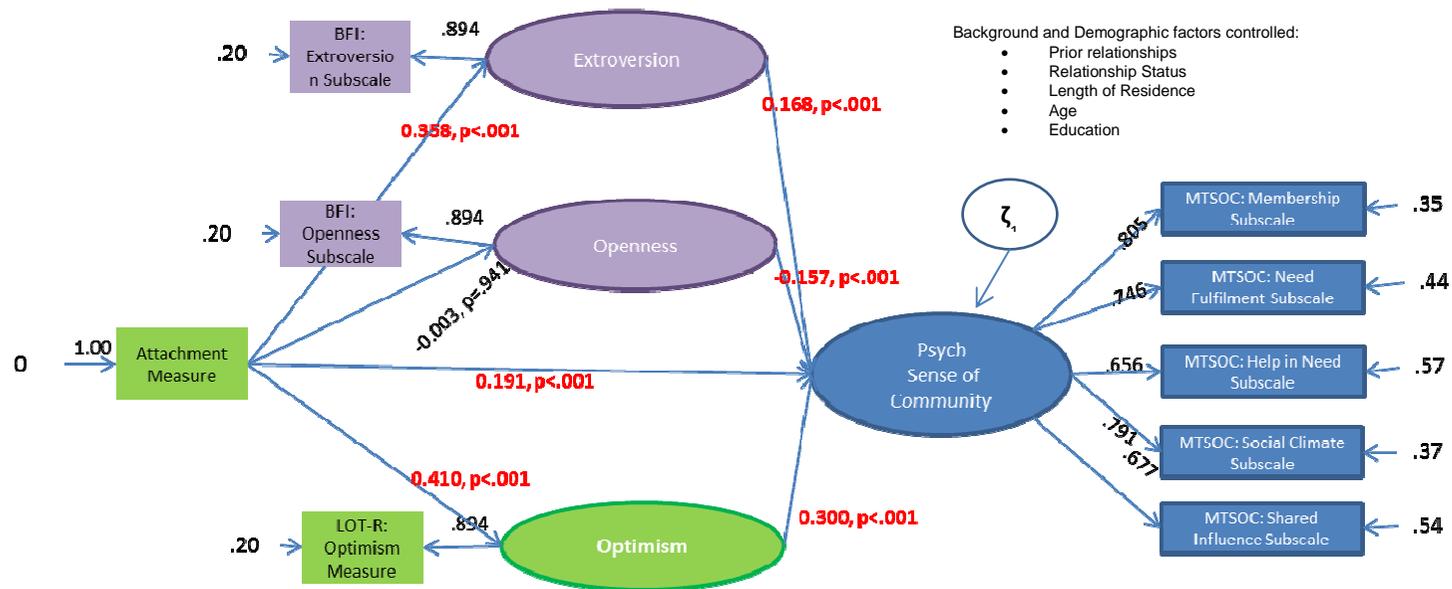


Figure 20. Model 1: Personality and Personological variables as mediators

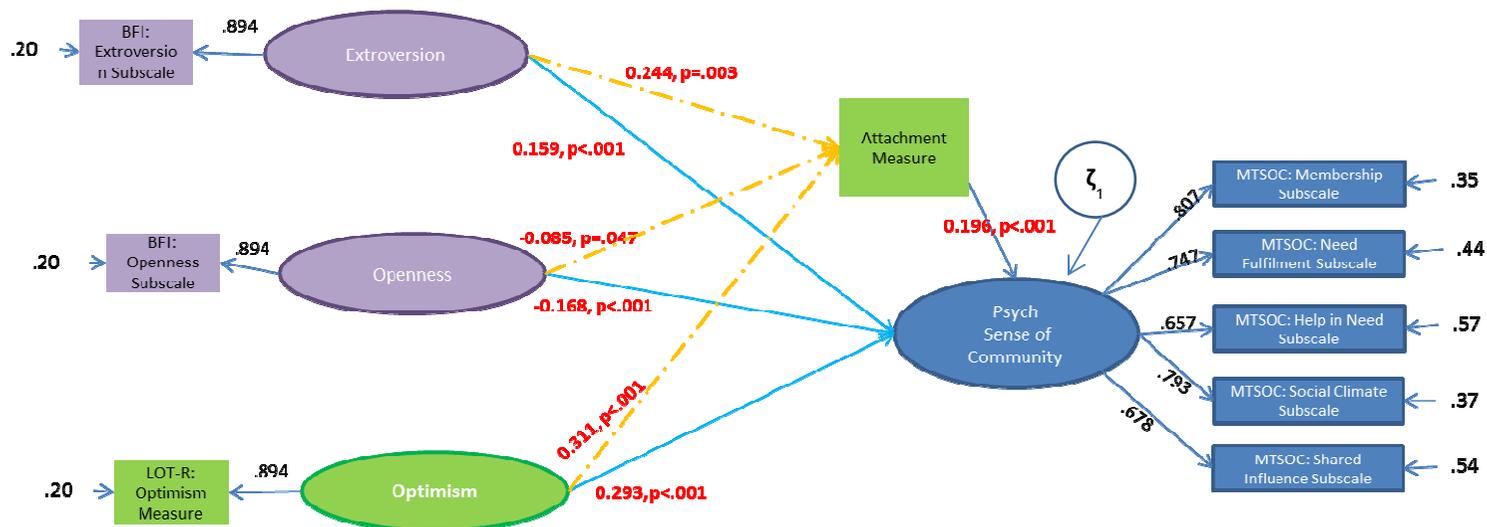


Figure 21. Model 2: Attachment as the mediator

Table 20  
*Goodness-of-fit Statistics for the Mediator Models – (N=602)*

	$\chi^2$	df	$\chi^2/df^a$	CFI <sup>b</sup>	NNFI <sup>c</sup>	SRMR <sup>d</sup>	RMSEA <sup>e</sup> (90% CI)	AIC <sup>f</sup>
Model 1	198.247	24	8.260	.933	.900	.061	.110 (.096, .124)	240.247
Model 2	129.499	21	6.166	.958	.928	.037	.092 (.077, .108)	177.499

*Note.* a. Chi-square ( $\chi^2$ ) divided by its degrees of freedom; b. Comparative Fit Index; c. Non-Normed Fit Index; d. Standardised Root Mean Square Residual; e. Root Mean Square Error of Approximation; f. Akaike Information Criterion.

In order for attachment to be a mediator of the endogenous/endogenous relationships, three conditions must be satisfied. Firstly, each of the two component pathways that comprise the mediation effect must be significant. The mediator model satisfies this initial condition. Secondly, the overall indirect effect from the exogenous variable to the endogenous variable via attachment must be significant. Thirdly, the direct pathway from the exogenous variable to the endogenous variable must be significantly reduced in the presence of the mediator. The strength of the indirect effect is given by the product of its two component path coefficients. The indirect effect from Extroversion to PSOC via attachment was significant (indirect effect = .048,  $z = 3.22$ ,  $p = .001$ ), as was the indirect effect from Optimism to PSOC (indirect effect = .061,  $z = 3.57$ ,  $p = .001$ ). The indirect effect from Openness to PSOC, however, was not significant (indirect effect = -.017,  $z = 1.79$ ,  $p = .074$ ).

There are therefore potentially two mediating pathways: From Extroversion to PSOC via attachment, and from Optimism to PSOC via attachment. The third condition for mediation states that the direct pathway from the exogenous variable to the endogenous variable must be significantly reduced in the presence of the mediator. The direct pathway from Extroversion to PSOC was reduced from .205 ( $SE = .055$  (attachment absent) to .159 ( $SE = .055$ ) (attachment present); the direct pathway from Optimism to PSOC was reduced from .355 ( $SE = .053$ ) (attachment absent) to .293 ( $SE = .054$ ) (attachment present). The reduction from .205 to .159 was not significant ( $z = 0.59$ ,  $p = .555$ ), and neither was the reduction from .355 to .293 ( $z = 0.83$ ,  $p = .407$ ). It appears that extroversion and optimism have both a direct and indirect (via attachment) impact on PSOC. Attachment, however, does not mediate the direct effects.

## Summary

In summary, the SEM analyses revealed that 'personality' is a predictor of PSOC. In particular, Extroversion was a positive predictor of PSOC, whilst Openness was a negative predictor of PSOC. Analyses also indicated that 'personological' variables are predictors of PSOC. In particular, both Optimism and Attachment style are positive significant predictors of PSOC. In the Personality model, almost a quarter (24.3%) of the variance in PSOC was accounted for by the Big Five personality factors and in the Personological Model the percent of variance was 25.5%.

Results indicated that when combined personality and personological variables predict PSOC. In particular Optimism, Attachment style and Extroversion were all positive predictors of PSOC and Openness is a negative predictor of PSOC. When combined, both personality and personological factors account for 26.8% of the variance in PSOC.

It appears that extroversion and optimism have both a direct and indirect (via attachment) impact on PSOC. Attachment, however, does not mediate the direct effects.

## Secondary Analyses: MANOVAs and Canonical Correlations

### *Rural/Urban differences in PSOC*

A MANOVA was conducted to investigate whether Australian/New Zealand residents who were identified as living in rural ( $n = 113$ ) or urban ( $n = 411$ ) locations differed in their sense of community. The Australian/NZ data was separated from the full data and categorised as rural or urban based on postcode and the use of mapping technology. Box's M was non-significant at  $\alpha = .001$ , which indicates that homogeneity of variance-covariance matrices could be assumed. The MANOVA for Rural/Urban was significant,  $F(5, 518) = 7.429, p = .000, \eta^2 = .067$ .

Three subscales showed significant effects with Urban/Rural at  $\alpha = .05$

- Membership:  $F(1, 522) = 2.515, p = .113, \eta^2 = .005$
- Need Fulfilment:  $F(1, 522) = 1.644, p = .200, \eta^2 = .003$
- Help in Need:  $F(1, 522) = 16.113, p = .000, \eta^2 = .030$
- Social Climate:  $F(1, 522) = 6.493, p = .011, \eta^2 = .012$

- Shared Influence:  $F(1, 522) = 3.900, p = .049, \eta^2 = .007$

Rural residents showed higher means on all subscales except Need Fulfilment, and although this difference was not significant, this is not surprising considering rural residents are, in general, further away from resources and opportunity.

### *Attachment Style*

A MANOVA was conducted to investigate whether individuals identifying with different attachment styles showed differences in psychological sense of community. Box's M was non-significant at  $\alpha = .001$ , which indicates that homogeneity of variance-covariance matrices could be assumed. The MANOVA for Attachment was significant,  $F(10, 1192) = 10.369, p = .000, \eta^2 = .080$ .

All subscales showed significant effects with Attachment at  $\alpha = .05$

- *Membership:*  $F(2, 599) = 28.527, p = .000, \eta^2 = .087$ .
- *Need Fulfilment:*  $F(2, 599) = 19.528, p = .000, \eta^2 = .061$
- *Help in Need:*  $F(2, 599) = 20.328, p = .000, \eta^2 = .064$
- *Social Climate:*  $F(2, 599) = 48.414, p = .000, \eta^2 = .139$
- *Shared Influence:*  $F(2, 599) = 23.470, p = .000, \eta^2 = .073$

Post hoc analyses with Hochberg's GT2 (for groups of unequal sizes) using an alpha of .05, shows that on all subscales of psychological sense of community, individuals who identified as securely attached had significantly higher scores (Means ranging from 2.82 - 2.97) than those who identified as either avoidant (Means ranging from 2.42 – 2.65) or anxious/ambivalent (Means ranging from 2.43 – 2.69) types.

However, avoidant and anxious/ambivalent types did not differ significantly from each other.

### *Canonical Correlations*

Canonical correlation analysis was conducted to map the relationships between two sets of indicators; one set included the five MTSOC variables and the other set included the nine personological variables together with the five personality variables. Canonical correlation analysis begins by deriving a canonical variate (essentially a linear combination of variables) in each of the two sets such that the two canonical variates are optimally correlated. Additional pairs of canonical variates are generated in order of decreasing relatedness. The number of canonical variates is limited to the number of variables in the smaller set. Therefore the present canonical correlation analysis generated five pairs of canonical variates. The Pearson correlations for the five pairs of canonical variates, from highest (Correlation 1) to lowest (Correlation 5), were .525, .230, .213, .153, and .130. The first two canonical variates explained most of the variance in the data (84.02%). The results for the first two canonical variates are reported in Table 21. The correlations between the indicators and their respective canonical variates were used to interpret the relationships between two sets of variables.

Table 21  
*Correlations, Standardised Canonical Coefficients, Canonical Correlations, and Percentages of Variance Between the MTSOC and the Personality/Personological Variables and Their Corresponding Canonical Variates*

	1 <sup>st</sup> canonical variate		2 <sup>nd</sup> canonical variate	
	Correlation	Coefficient	Correlation	Coefficient
<b><u>MTSOC variables</u></b>				
Membership	<b>-.789</b>	-.132	<b>.489</b>	1.000
Need fulfilment	<b>-.736</b>	-.166	<b>.376</b>	.346
Help in need	<b>-.710</b>	-.134	.200	.395
Social climate	<b>-.913</b>	-.527	-.200	-.939
Shared influence	<b>-.775</b>	-.256	-.188	-.602
<b><u>Personality/Personological</u></b>				
IRI fantasy	.021	-.074	-.058	.126
IRI empathic concern	-.256	.033	-.027	.050
IRI perspective taking	<b>-.353</b>	-.129	-.272	-.387
IRI personal distress	<b>.379</b>	-.051	.117	-.021
Extroversion	<b>-.557</b>	-.136	<b>-.401</b>	-.421
Openness	.040	.208	<b>-.491</b>	-.507
Conscientiousness	<b>-.416</b>	-.117	-.090	-.231
Agreeableness	<b>-.607</b>	-.159	.116	.354
Neuroticism	<b>.653</b>	.254	.033	.381
LOT total	<b>-.695</b>	-.107	<b>.384</b>	.755
RSES total	<b>-.674</b>	-.135	.200	.310
NfA total	<b>-.637</b>	-.253	-.211	-.105
LOC internal	<b>-.440</b>	-.048	-.052	-.087
LOC chance	<b>.429</b>	.041	-.179	.051
LOC powerful others	<b>.438</b>	.017	-.146	-.089
Attachment	<b>-.717</b>	-.301	-.121	-.256
<b>Canonical correlation</b>	.525		.230	
<b>Percentage of variance</b>	68.7		15.32	Total = 84.02

With a cutoff correlation of .3 (see Tabachnick & Fidell, 2013), all the variables in the MTSOC set were correlated with the first canonical variate. The variables in the personality/personological set that correlated with the first canonical variate were IRI-perspective taking and personal distress, and conscientiousness, agreeableness, neuroticism, LOT total, RSES total, NfA total, LOC internal, LOC chance, LOC powerful others, and attachment. The first pair of canonical variates indicates that individuals with higher levels of *Membership, Need Fulfilment, Help in Need, Social Climate, and Shared Influence* are associated with lower levels of Personal Distress (empathy), Neuroticism, LOC chance, and LOC powerful others, in conjunction with higher levels of Perspective Taking (empathy), Extroversion, Conscientiousness, Agreeableness, Optimism (LOT total), Self-Esteem (RSES total), Need for Affiliation (NfA total), LOC internal, and a Secure Attachment.

With a cutoff correlation of .3, only two of the variables in the MTSOC set – membership and need fulfilment - were correlated with the second canonical variate. The variables in the personality/personological set that correlated with the second canonical variate were Extroversion, Openness, and Optimism (LOT total). The second pair of canonical variates indicates that individuals with higher levels of *Membership and Need Fulfilment* are associated with lower levels of Extroversion and Openness, in conjunction with higher levels of Optimism (LOT total).

## **Conclusions**

In summary, the purpose of this study was 1) to explore and examine the relationships between personality and personological factors/predictors and a psychological sense of community and 2) to examine these relationships using structural equation modelling. Results indicate that both personality and personological variables predict a psychological sense of community, individually and when combined.

When combined in the SEM analysis, Extroversion was a positive significant predictor of PSOC and Openness was a significant predictor of PSOC. From the personological variables, in the SEM analysis, Optimism and Attachment style were

both positive significant predictors of PSOC. The next chapter presents a discussion of these results, including the implications of the results, limitations of the research and recommendations for future work.

## Chapter 6: Discussion

### Chapter Overview

#### Brief Review of Thesis

- Key themes developed in the literature, regarding the universality of the PSOC theory.
- The fragmentation or lack of cohesion in the PSOC literature and the structure developed to review the literature.

#### Discussion of Research Questions

- The structure of the MTSOC supports a five factor model as proposed by previous research
- Australian adults who live in rural settings showed differences (compared to residents in urban environments) in their psychological sense of community.
- Personality and personological factors are significant predictors of psychological sense of community.
- When combined, personality and personological factors are able to predict psychological sense of community

#### Implications/Speculations

- Those higher in extroversion, optimism and are securely attached and with lower levels of openness are less likely to require intervention or support however those high in introversion, low in optimism, less securely attached may find that further intervention may be required.

#### Limitations and Future Directions

- Issues of generalisability and the need for longitudinal research is discussed.

#### Summary

- Structural Equation Modelling found that extroversion, openness, optimism and attachment were significant predictors of psychological sense of community, after controlling for education, age, marital status, prior relationships, and length of residence.
- PSOC is a unique individual experience that is significantly impacted by the personality and personological differences present in the individual.

In this chapter a brief review of the key themes explored in the [historical](#) and [literature](#) reviews is presented. A summary of the results derived from this study is discussed and the limitations and suggestions for future research will also be explored. The study addressed a number of research questions but had one overall aim, to investigate the relationship between psychological sense of community (PSOC) and a variety of both personality and personological variables. In the study I collected data from participants, through the use of an online survey, on psychological sense of community, personality (the Big Five), self-esteem, optimism/pessimism, locus of control, need for affiliation, attachment and empathy.

As indicated in the literature review there has been a sense of fragmentation in the PSOC literature that contributes to the 'deja-variable' phenomenon (Hagger, 2014). This lack of cohesion necessitated the creation of an artificial structure, which was originally presented in the literature review (see Figure 22) to capture the key themes that guided the research presented here. The process to develop this structure, whilst not a formal thematic analysis, was informed by key procedural elements

suggested by Braun and Clark (2006), such as familiarisation, generating concepts that might appear in the literature, and searching and reviewing the themes present in the literature. This approach to interpreting and synthesising a highly fragmented body of literature was necessary. Identifying and consolidating themes in the literature, albeit informally meant that the meaning and key messages could be identified despite the theoretical and empirical fragmentation in the topic area.

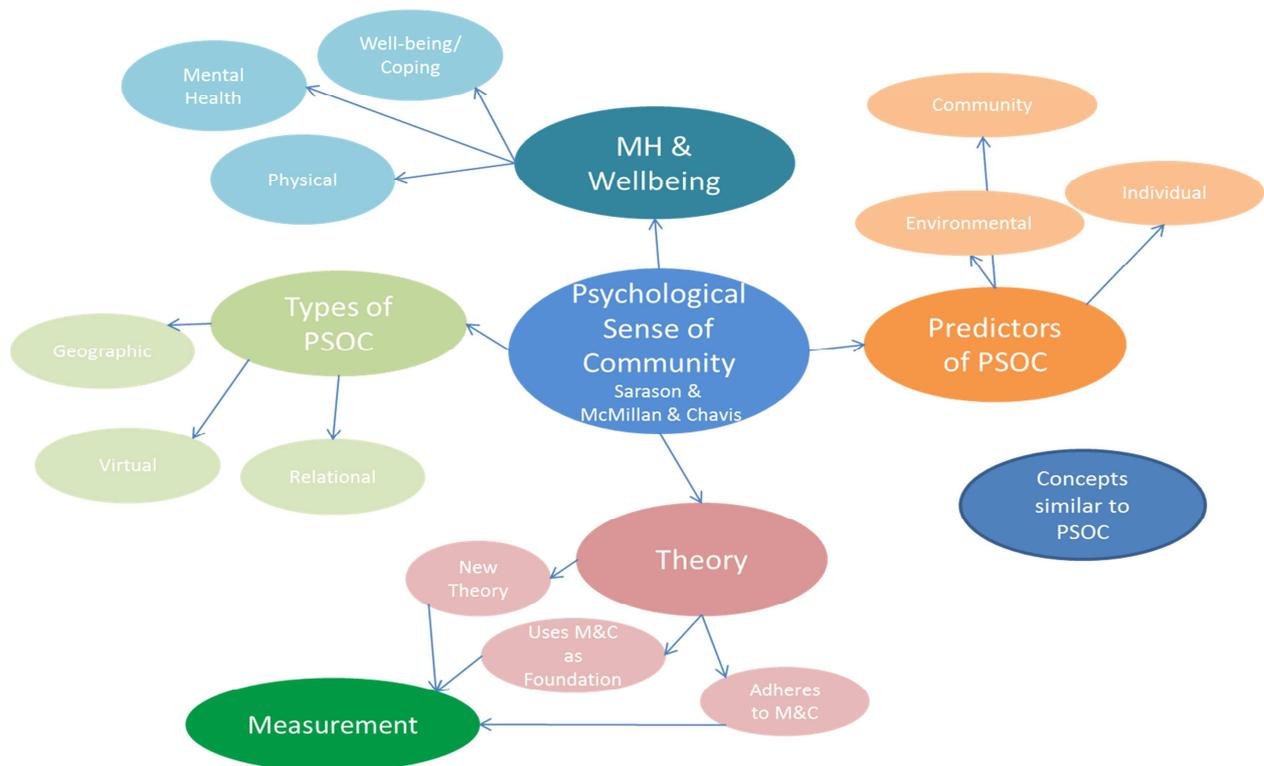


Figure 22. Conceptualisation of the psychological sense of community research.

In reviewing the PSOC concept advanced by Sarason (1974) and the theory developed by McMillan and Chavis (1986) as well as the resulting literature over time the following key themes were developed for this thesis. The theory and measurement of a psychological sense of community, the types of environments in which PSOC has been investigated (i.e., geographical, relational or virtual), mental health and wellbeing associated with PSOC and finally the research about the predictors of PSOC.

Two important concepts or ideas have emerged through this research 1) PSOC is a universal experience, that has been delineated neatly by McMillan and Chavis (1986), potentially capturing key elements, that have been reflected in Western literature throughout the ages and 2) the perception of PSOC as a unique and individual experience that is affected by a number of personality and personological characteristics, as reported in this study, as well as previous history, and a number of community and environmental contexts.

As reflected in the historical chapter and the literature review, in performing a review of the literature, it appeared that the elements suggested and developed by McMillan and Chavis (1986) are actually present in the literature going back as far as Plato and Aristotle (approx. 350BCE). Many of the elements are reflected in the writings of various author's throughout the years, some only touching on one element, particularly *Membership* (e.g., Hills, 1968; Nelson, 1955), whilst others discuss factors similar to all four elements (e.g., Tönnies, 1887/2001). As stated earlier, this suggests that perhaps McMillan and Chavis (1986), whether intentionally or by chance, may have tapped in to possible universal elements of a psychological sense of community.

Interestingly, upon reflection at the completion of the literature reviews, both historical and the more contemporary research, it appeared that the development of the word *Community* evidenced a far more linear development (than the PSOC literature) which clearly synchronised with the development of society over time. It was easy to see the development in the contextual understanding of this word, *Community*, reflected in the societal, academic and conceptual trends present at the time. Since the advancement of the PSOC theory however, there has been a distinct sense of fragmentation regarding this literature.

This review also showed that there has been an almost implicit assumption that the word *Community* refers solely to a geographic community, however, as we have seen, the context of community has clearly developed to include relational communities as well as virtual or online communities. This was undeniably reflected in the current study, as indicated in the methods section, where the study grew beyond its original conceptualisation, and so what began as an investigation in a

purely isolated geographical environment expanded to include extended social and relational communities as well as virtual communities.

This lack of direction in the ongoing development of the PSOC literature may actually be a result of the very nature of the researchers themselves (i.e., their personality and personological factors). Each individual sees something different or valuable and sets a different path resulting in differentiation or fragmentation, rather than in a clear linear path. Perhaps one solution for this is that researchers from different worldviews or ideologies could come together with the express purpose of developing the concept and structure of the PSOC theory and eventually the measurement of this experience, with a view to creating a guide for future research (Hagger, 2014).

Emerging from the results there are a number of key areas that are worth commenting on. Firstly, the Multidimensional Territorial Sense of Community Scale (MTSOC) is a reasonably new measure and has been rarely used, therefore addressing the validity and usefulness of this measure is an important step in providing further support for the measure as well as the psychological construct. Next, arising out the original conceptualisation of the study, the distinction between rural and urban populations with regards to the level of PSOC was deemed valuable. Then the individual predictors will be explored in isolation, with regards to PSOC before finally moving on to discuss how these predictors may work in combination with each other.

It was important to the validity of the current thesis/study that the MTSOC scale measure what it was supposed to, particularly as the measure has only been utilised on three occasions. Results of the confirmatory factor analyses, supported the hypothesis and showed that the MTSOC measure of psychological sense of community supports a five-factor structure, as indicated by the authors (Prezza et al., 2009). Goodness of fit indices showed that a five-factor model fitted the data better than a one-factor model (with error co-variances added to improve model fit). The first goal of this study was to ensure that the main construct being measured was in fact reliable and valid, which proved to be the case. This supports both Prezza et al.(2009) and Manarini et al.(2009) who found that the MTSOC showed not only a

first-order five factor model with the same factor structure, but also a second-order one-factor model. Unfortunately there were no reliability or validity results provided in the D'Aprile and Talo (2013) study.

The second research question, originally proposed based on the initial focus of this study, related to the levels of PSOC in Western Australian country towns. This question was still deemed valuable after moving to an international sample, to investigate whether rural and urban participants would show differences in terms of their levels of PSOC. The hypothesis was that rural residents would report higher levels of PSOC than residents in urban areas. Due to the inability to assess the rural nature of towns or communities in other countries, it was decided that only the Australian and New Zealand data would be utilised. Results showed that rural residents showed higher scores on PSOC on all subscales of the MTSOC except *Need Fulfilment*, which was not surprising considering rural residents are, in general further away from resources and opportunity, and in Australia at least, have significantly less reliable access to broadband internet, according to what appears to be the most recent research available (Ewing & Thomas, 2010), thereby potentially limiting greater online involvement. This result was supported by Prezza et al. (2009) who found that "...for those who live in the metropolis, the territorial community satisfied their needs more than for those who lived in the cities, and both of these groups felt their needs were more satisfied than those who lived in the small towns" (p. 320), proposing that this result was due to the towns being isolated and offering limited resources (Obst et al., 2002c; Prezza & Costantini, 1998; Roussi et al., 2006).

Before discussing research questions three to five, a brief overview of the demographic variables measured and the relationship with PSOC will be provided. A number of demographic and background variables were assessed.

Age*	Gender
Ethnicity*	Education level*
Occupation*	Relationship Status*
Living with others	Length of Residence*
Negative Life Events	Presence of Prior Friends*
Country of Residence	Presence of Children

Those highlighted in orange with an asterisk were those found to be significantly correlated with PSOC and were therefore controlled for during analysis. However, Occupation and Ethnicity were not controlled because both variables had seven categories which would have required significant recoding before their influence could have been partialled from the observed variables which could have caused significant computational errors, and unfortunately the sample size did not allow for multi-group SEM.

In terms of Occupation, it was interesting that even with a very small sample of participants who identified as Missionaries ( $n = 23$ ), there were strong significant differences in terms of PSOC compared to all other groups (except those identified as Unknown). As the Missionaries in this sample generally lived in the same suburb/location as well as sharing a relational or interest community (that of religious evangelism), this would be interesting to pursue whether these types of communities (i.e., combined interest and geographical communities) and possibly even Missionaries in particular show higher levels of PSOC in general. Further investigation with this data revealed that Missionaries showed significant differences from other occupations in terms of personality and personological factors and these results are presented in [Appendix G](#). This too is a topic that requires further investigation with a larger sample.

Presence of children could not be analysed because of an error that occurred during data collection. For the most part, where information was available regarding background or demographic factors, the current research in general supported the previous literature. However, the education variable showed a different trend at odds with previous literature. Prezza and Constanini (1998) found that lower education was actually associated with higher levels of PSOC, suggesting that as people become more educated their focus in terms of their 'community' changes, so they are unlikely to find the same sense of connection in a residential environment. However, the current results showed that individuals with postgraduate education, in particular Masters level showed higher levels of *Need Fulfilment* and *Shared Influence* particularly in relation to those with less than high school qualifications. This could be due to the nature of the sample, in that the sample consists of a high proportion of health related employees or health related students, and it may mean

that these individuals are therefore more geared towards connecting with their community, as it was found that Occupation was significantly correlated with PSOC.

Research questions three to five are the core of the thesis, and were concerned with whether personality and personological factors were significant predictors of PSOC<sup>5</sup>. Most of the previous research conducted in this area has been limited to one or two individual personality factors, rather than a number of factors in combination. However, it is necessary to understand the relationships between these individual predictors and PSOC singly, prior to understanding how they may work in combination, hence the following individual presentation.

*Extroversion.* Based on previous research (DeNeui, 2003; Lounsbury & DeNeui, 1996; Lounsbury et al., 2003) it was hypothesised that Extroversion would be a significant predictor of PSOC, and this was strongly supported by the results which showed that Extroversion was still a significant predictor of PSOC even after controlling for all other variables (demographic and other personality variables). As Extroversion was found to be significant in the personality model, it was included in combined model, and still after including a number of personality and personological variables, Extroversion was found to be a significant predictor of PSOC.

These findings support previous research in the PSOC area (DeNeui 2003; Lounsbury & DeNeui 1996; Lounsbury et al., 2003) as well as in related areas (Asendorpf & Wilpers, 1998; Cullen & Morse, 2011; Murberg, 2010). Individuals higher in Extroversion and who therefore are viewed as more outgoing, social, talkative, and prone to involvement in groups, are more likely to approach strangers in new environments and have an energetic approach to their social world (John, Naumann & Soto, 2008, 2010; see also Lounsbury & DeNeui, 1996), which fits well with someone who shows higher levels of PSOC. Someone higher in Extroversion is perhaps more likely to or more easily engage with others, therefore creating opportunities for ongoing connection, and influence.

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<sup>5</sup> Research questions 3-5 were analysed using structural equation modelling methods.

It is not surprising that Extroversion was found to be significantly correlated with all the PSOC elements and in particular *Membership* and *Need Fulfilment*. Particularly when one considers the original theory developed by McMillan and Chavis (1986) which suggests that the elements (related to *Membership*) of belonging and identification, emotional safety, and personal investment would most likely be almost second nature for those higher in extroversion. As well as the nature of reinforcement that comes with the fulfilment of needs; i.e., as the group readily meets the extrovert's needs for connection, this repeatedly reinforces the desire to belong and connect with others. Extroversion would most likely be important at all stages of PSOC development, however, this clearly requires further investigation particularly with a longitudinal design.

*Agreeableness*. Previous literature indicated that individuals higher in Agreeableness are likely to score more highly on measures of PSOC (Lounsbury et al., 2003). However results from this study were mixed. Agreeableness was significant only when included in the personality model, and yet was no longer significant when included in the combined model with both personality and personological predictors.

This is somewhat surprising, on a face-valid level, as the conceptual definition of Agreeableness, according to John and colleagues (2008) is someone who has a pro-social and communal orientation toward others, and includes traits such as trust and altruism, all seemingly important factors in developing connections with others. In terms of McMillan and Chavis' (1986) theory these qualities would be vital in helping an individual to invest and develop a sense of belonging or identification with the group as well as a sense of emotional safety (*Membership*). It would also seem that, at least initially that Agreeableness would be important in the element of *Influence*, where an individual can be influenced by the group, but can also expect to influence the group. This result also differs from the research by Lounsbury and colleagues (2003) who found that, at least in adolescents Agreeableness is an important factor in determining someone's level of PSOC, (using step-wise regression and showing a significant positive correlation). However interestingly, in college students, although inter-correlations also revealed a significant positive relationship, Agreeableness did not enter the regression equation at a significant level.

Perhaps this difference speaks to the development of personality over time (Roberts et al., 2007) or may even reflect other developmental tasks or contextual events that are occurring in the lives of college students, or even adults. The current study was not restricted in terms of age (ranging from 18- 77 years), and as age was found to be correlated with PSOC, all analyses were conducted after controlling for age. The differences found in this study compared to the Lounsbury et al. (2003) study could be due to the nature of the data collection and/or the definition of community used in the study (to be discussed in more detail later), as well as the more adult sample. It could also be a realistic representation of what personality and personological factors are important in the development of PSOC, however this would require further investigation, in particular a longitudinal analysis.

*Openness.* Contrary to the expected hypothesis, bivariate correlations showed that individuals with higher levels of Openness showed mixed relationships with PSOC, all non-significant. However, when included in the personality, as well as the combined, structural models, Openness showed strong negative correlations with PSOC, which was supported by further analyses using canonical correlation. These results were somewhat at odds with research by Lounsbury, Loveland and Gibson in 2003 who found that in high school students Openness was positively correlated with PSOC, however, in a college sample Openness was found to be non-significant.

John and colleagues (2008, 2010) describe Openness as originality, open-mindedness, complexity, someone who will take the time to learn for the sake of learning, idealistic, adventurous, non-traditional or non-conservative and someone who is often creative and will often create distinctive looking environments. The differences found in this study, compared to previous research, could also be due to the fact that Lounsbury and colleagues used the NEO measure of the Big Five which John et al. indicated may have less convergence with the lexical meaning of the term openness used in the BFI. It would seem that an individual who is high in Openness then, might in fact find the close-knit nature of a community potentially stifling. This may be due again, to how community was defined for this study, as well as the type of participants that chose to be involved in this research. It may be that individuals

who are lower in Openness do better at joining communities than those who are higher, because they are less likely to offer challenging views or creating dissonance and may therefore be more easily accepted which in turn aids in their willingness to connect.

*Neuroticism and Conscientiousness.* Before moving on to research question 4 and 5, although no specific hypotheses were developed regarding the personality variables Neuroticism and Conscientiousness, a brief review of these should be presented. Although Neuroticism showed a significant negative relationship with PSOC in both bivariate correlations and the personality structural models (which was reflected in follow up analyses), when it was entered into the combined structural model, Neuroticism was not found to be a significant predictor. Being lower in Neuroticism may be important in developing higher levels of PSOC because a certain level of emotional stability is required when dealing with multiple personalities, opinions, views, options and challenges. This may be important at various stages of PSOC development, for example when someone is joining a new community, and becomes less important as relationships within the community progress and the PSOC experience develops.

Conscientiousness was found to have a positive significant correlation with PSOC when investigating the bivariate correlations, (supported in the canonical analysis), and yet when included in the personality model Conscientiousness was found to have a negative but non-significant relationship with PSOC and was therefore not included in the combined model. This finding again differs slightly from the result reported by Lounsbury et al. (2003) who reported a significant positive correlation with PSOC in the bivariate correlations (for both high school and college students) as well as the stepwise regression (high school students only). It also differs from the DeNeui (2003) research that found a positive significant relationship between PSOC and Conscientiousness. This discrepancy in the previous research as well as with the results in this study could again be related to age or developmental issues, or could also be due to measurement issues as different tools have been used to measure both personality as well as PSOC. It could also be that the DeNeui study was investigating the PSOC of the school community which may have strong

correlations with conscientiousness within this setting. However in the current study, which assessed neighbourhood PSOC, conscientiousness has no bearing (i.e., context matters).

This negative (although non-significant) relationship is somewhat surprising (particularly the bivariate correlations) based on the previous research as well as the lexical meaning of the word Conscientiousness and how it is likely to relate to PSOC. John and Srivastava (1999) describe Conscientiousness as including traits such as "...thinking before acting, delaying gratification, [and] following norms and rules" (p. 121). It appears that these particular aspects of the meaning of conscientiousness would imply that an individual high in this trait is likely to score high in terms of PSOC and in particular appears to fit well within the elements of *Influence* (i.e., those higher in conscientiousness are more likely to conform to the norms of the community) as well as *Membership* (i.e., those higher in conscientiousness are more likely to make an effort in terms of connecting with others, developing emotional safety, being responsible to invest and so on). It is somewhat more understandable that in the SEM analysis that Conscientiousness may not be particularly important when a number of other factors are also being considered, but again surprising that there was no relationship in the bivariate correlations. This requires further investigation.

Research question four dealt with the personological variables and their relationship with PSOC. Three personological variables were found to be positive significant predictors of PSOC (*Optimism, Empathy and Attachment*).

*Need for Affiliation.* Individuals with higher levels of NfA showed higher levels of PSOC, both total and across subscales. However, when NfA was included in both the personological and the combined structural models, it was found that NfA was too highly correlated with Extroversion in particular (and thus a potential multicollinearity), but also PSOC, and it was felt that the NfA variable was possibly swamping the model and was therefore removed. Further analyses using canonical correlation also showed that Need for Affiliation was significantly correlated with all the PSOC elements. The NfA variable is perhaps one of those 'de-ja variables'

described by Hagger (2014). Need for Affiliation is conceptually very similar to PSOC, and in this study it is statistically similar with Extroversion, which requires further investigation and clarification, before it should be utilised in similar analyses.

*Optimism.* Results showed that Optimism was a strong significant predictor of PSOC, even after controlling for all other variables. This is consistent with the only study that has directly researched the relationship between PSOC and Optimism (Dewar, 2004) as well as related studies (Ciarrochi & Heaven, 2008). In research related to optimism rather than PSOC, Brissette and colleagues (2002) specifically noted that individuals who were reported as being more optimistic showed higher levels of perceived social support. It is not surprising that Optimism is significantly correlated with PSOC, as an optimist is more likely to believe that something useful or beneficial can be gained from participating or connecting with a community (whether geographic or relational) and therefore is more likely to identify with this perception or experience of PSOC. Carver, Scheier and Sergerstrom (2010) also suggest that optimists are easier to like than pessimists which will serve them well in their efforts to connect with others in a new community. As reflected in the canonical correlations Optimism is significantly correlated with all PSOC elements, which indicates that individuals higher in optimism are more likely to believe that they can feel connected, belong, influence others, have their needs met and develop history with others, thereby reflecting all of the major elements of McMillan and Chavis' (1986) theory.

*Self-Esteem.* Results for self-esteem showed mixed results, with significant positive relationships in bivariate and canonical correlations. However, there was no relationship between self-esteem and PSOC on the personological structural model, and therefore self-esteem was not included in the final combined model. These results conflict with previous related research that indicate that a sense of community or connection with others has a corresponding increase in self-esteem (Lam, 2006; Lee & Robbins, 1998; Prezza & Costantini, 1998). It is somewhat surprising that self-esteem did not emerge as more important in the combined models, particularly as it emerged so strongly in bivariate and canonical correlations. In a face-valid or logical sense it makes sense that self-esteem would be an important predictor (as well as

an outcome) of PSOC. Like Optimism it seems necessary for that first connection to be made. It could be that other factors within this model were more important or relevant to the development of PSOC, in particular, attachment style (to be discussed next). It may also be that self-esteem is important in the early stages of developing connections within a community, but that over time with regards to maintaining this perception it loses its importance. This clearly requires further investigation with a longitudinal focus.

*Attachment Style.* Type of attachment style (secure, avoidant and anxious/ambivalent) showed strong relationships with PSOC on both the bivariate correlations as well as the personological and integrated structural models. Analyses indicated that there was no difference between individuals who experienced an anxious/ambivalent style and those who expressed an avoidant attachment style on any of the PSOC subscales; there were however, significant differences between the secure group and each of the other two groups. Remarkably, no matter what combination of variables were included in the structural models, attachment always remained a strong significant predictor. Attachment style is a clear precursor of an individual connection with a community. The development of an attachment style starts at birth or even before (Lucas-Thompson & Clarke-Stewart, 2007), and this sets the stage for an individual's belief about how they are likely to be treated or perceived in any new environment. It makes sense that this clearly will impact the development of any connection with communities throughout the lifespan. If you have positive and secure relationships with your caregiver as a child, during a time when you are developing your understanding about relationships then it makes sense that you are naturally and more easily going to join in with groups when you are an adult.

Tartaglia (2006) has been the only other research that has specifically investigated attachment style and PSOC. However, Tartaglia found that only ambivalent attachment styles were related (negatively) to PSOC in preliminary analyses and therefore chose to allow attachment style, to be constrained to only specific PSOC subscales. These observed differences between Tartaglia and the current study, could be due to differences in measurement tools as well as error, or even due to

sample differences. The current study used a simple one-question assessment, so perhaps it was too simple and was not capable of capturing the true relationship between PSOC and attachment style. This relationship requires further investigation, particularly in a longitudinal fashion.

*Locus of Control.* Having a higher internal locus of control showed a significant positive increase in PSOC, along with a corresponding low level of external or chance locus of control. However, the SEM results showed that the latent variable, Locus of Control (LOC) was not a significant predictor of PSOC on the personological structural model and therefore was not included in the combined structural model. There is limited research relating LOC to PSOC and none directly investigating the relationship. Wandersman and Giarmartino (1980) did find that LOC was correlated with participation, in that those with higher levels of an internal LOC were more likely to show higher levels of participation, which was thought to contribute to the development of PSOC or be an outcome of PSOC. In terms of the direct relationship, as indicated by the bivariate correlations, it is clear that there is a relationship between these two constructs, but when accounting for a number of other personality and personological factors it becomes less important. It may be that LOC is important at the beginning stages of the development of PSOC, but that in terms of the maintenance of this experience it is less relevant. This therefore requires further investigation, particularly with a longitudinal design.

*Empathy.* Empathy showed mixed results both within the latent variable and across various models. Although Empathy was found to be significant in the personological structural analysis, in the combined model, results showed that the latent variable Empathy was not a significant predictor of PSOC. This is somewhat surprising on a theoretical level, as discussed in the literature review, as having the ability to understand the feelings and experiences of another person would be important in whether someone is able to develop shared emotional connection with others. However, as no previous research has been conducted in this area, there is no existing literature to compare with. When this variable was included in the structural models, it was clear, despite generally good alpha's and confirmatory factor analyses for the Interpersonal Reactivity Index which measured the Empathy variable, that on

a structural level, the subscales may not have effectively captured the latent variable Empathy, in particular the Personal Distress subscale which showed almost no relationship to the latent variable Empathy. This area is still worth further investigation, particularly with a measure that may be more theoretically sound. It could also be that Empathy may be relevant or important at the beginning of someone's connection with their community but not so important during the ongoing maintenance of this experience.

### **Personality and Personological Predictors of PSOC**

When integrated, in the final combined model, both Personality and Personological variables are important predictors of PSOC. In the Personality model, almost a quarter of the variance in PSOC was accounted for by the Big Five personality factors and in the Personological model, the percent of variance was just over a quarter of the variance. When combined, both personality and personological factors (specifically attachment, openness, extroversion and optimism) account for a significant proportion (26.8%) of the variance in PSOC;

Figure **23** is represented as a brief visual reminder of these relationships.

Considering that the experience of the connection with community (PSOC) and individual differences (personality and personological factors) are thought to be theoretically distinct and independent constructs, it is remarkable and somewhat surprising that individual factors (i.e., personality and personological factors) account for such a significant proportion of the variance in PSOC. This commonality clearly requires further investigation and exploration.

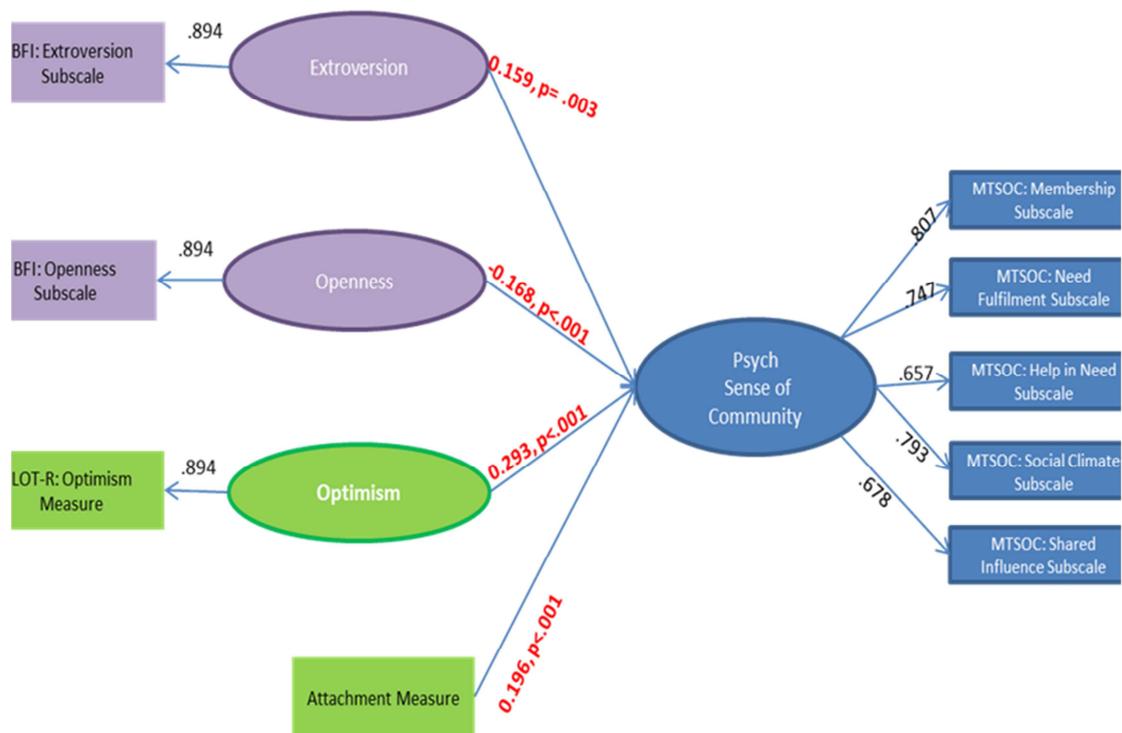


Figure 23. Final Combined Model

In this particular study, which included a number of personality (extroversion, agreeableness, conscientiousness, openness and neuroticism) and personological variables (need for affiliation, optimism, attachment, locus of control, empathy, self-esteem), *Extroversion*, *Optimism*, and *Attachment* were all positive significant predictors of a psychological sense of community, and *Openness* was a significant negative predictor. Even after controlling for all other variables (demographic/background and error) these variables were the strongest factors in the experience of the connection an individual has with their community.

This research tells us that there are four major predictors of PSOC, working in combination with each other. The final combined model almost shows us the model for the ideal personality and personological profile in which PSOC is likely to develop and develop well. An individual who has these particular factors in this particular combination is more likely to report higher levels of PSOC than those on the opposite end of the spectrum.

Someone who has a secure attachment style is likely to find it fairly easy or simple to join with a new community as well as maintain a connection with a community as they have repeatedly and continuously experienced positive experiences regarding their connections with significant figures during their development. Combined with higher levels of Extroversion (i.e., an individual who enjoys being with other people and seeks out others and is talkative, and outgoing) which means they are more likely to do well at connecting with others, initially and over time. Add to this, this individual is higher in Optimism, and is going to develop higher levels of PSOC because they are more likely to believe that at joining with this community is of benefit to them, as well as they might have something of value to contribute. Finally, lower levels of Openness, means that they are more likely to develop higher levels of PSOC because they are less likely to go against the norms, are more likely to be traditional and are more likely to feel comfortable with following rules and structures, which fits the structures of most types of communities. This research has shown that in combination, 26.8% of the variance in a psychological sense of community is made-up from these four factors.

Further to this, initially it seemed that Attachment style may play a role in mediating the relationship between the personality variables, other personological variables and a psychological sense of community, however upon closer inspection of the data, it appears that Attachment does not mediate the direct effects between Extroversion and PSOC and between Optimism and PSOC. However, further investigation with a more thorough measure of attachment may provide more complete information. It could be that perhaps those that are secure in their attachment style function better despite differences in terms of personality or personological factors, whereas those who are extroverted and optimistic but show evidence of an avoidant or anxious/ambivalent attachment style may report difficulties in developing a PSOC. This requires further investigation to understand the context and nature of the role of attachment style in mediating the relationship between individual differences and the development of a psychological sense of community.

## **Limitations and Directions for future research**

The findings of this study represent new and important information regarding the personality and personological factors that contribute to or predict psychological sense of community. However, like every study, this study has room for improvement.

Tuten (2010) describes a number of sources of error that are associated with the online collection of data. *Coverage error* relates to the presence or availability of the internet. This is something that cannot be controlled for, however is still a concern in that many countries would not have had access to the internet let alone the opportunity to participate in the survey. However, in terms of the variables that are measured, there is no sense that the sample achieved was not a representative sample of the general population. As indicated earlier, personality factors and the like have been reported in many cultures around the world, as too, the concept of PSOC. It was also found that there were no differences in terms of PSOC regarding country of residence and only minor differences in terms of Ethnicity.

*Sampling error* incorporates a number of related issues, in terms of the self-selected nature of the sample. Participants only became aware of the survey, either through accessing the website where the survey was listed, seeing flyers in local areas, being offered class credit, or seeing advertising on Facebook. It is difficult to assess the differences, both in terms of personality and personological characteristics as well as PSOC in those people who choose not (non-response bias) to participate or started and did not complete. Further work in this area should look to ensure a true random sample of participants, either through random telephone and similar techniques.

The data were collected through a single method (self-report surveys), and therefore it is possible that a shared method variance may have influenced some of the reported relationships, although there is some debate about the degree to which a shared method variance impacts self-report surveys (Crompton & Wagner, 1994; Spector, 2006; Williams, Cote, & Buckley, 1989). Unfortunately, during the original development of the study, although it was proposed that a multi-method approach be utilised, due to the size of the study at that time, it was actively discouraged by

higher levels of University Faculty. Therefore future work, should aim to include quantitative, qualitative, as well as possible observational methods to further develop the robustness of these results and concepts. This was addressed in a minor way by endeavouring to present the questions in different ways, for example interspersing the demographic questions in between measures, as well as presenting measures in different ways.

Other factors that will clearly influence the interpretation of these results: the length of the survey; it was a long survey, which clearly seemed to differentiate those who chose complete from those who did not. Also, due to errors with the survey platform, information regarding the presence of children in the home was not collected and therefore this will limit the generalisability of this research because we know from previous research that children in the home is significantly associated with PSOC. Occupation and ethnicity were also clearly correlated with PSOC but could not be controlled for due to the nature of the variable and the chosen method of analysis. This needs further investigation.

Each individual accessing this survey came with a different understanding of the word *Community*. Even though it was stipulated to think about your town/suburb, these are still open to interpretation. It may have been more beneficial or relevant to allow individuals to choose their own 'community' (whether geographic or relational) and answer the survey based on this community. In addition, in terms of measurement, due to the study changing half way through, moving from local WA communities to a world-wide sample, the measurement tool chosen was not assessed appropriately in regards to this change. It may be that a more appropriate and shorter tool such as the Brief Sense of Community Scale (N. A. Peterson et al., 2008) may have been more relevant.

One of the main important factors is that this research is only correlational and no causal effects can be applied or attributed. Originally, a longitudinal study was proposed, but this was met with too many barriers and was therefore discontinued. A longitudinal approach, particularly over a significant period of time to investigate *how* people develop a sense of community, and what personality or personological characteristics might be important to that experience, (especially in a newly forming

community). It would be interesting as well to investigate the reverse relationships, i.e., does a positive (or negative) psychological sense of community change the expression of personality or personological characteristics.

As indicated due to the manner in which the data was collected, and the changes to the study over time has led to some limitations on its generalisability, however, this research has laid down the footings and further research could be addressed to more representative or targeted samples.

### **Implications**

The information gained from this research adds to our knowledge about which personality and personological traits might be important in the process of connecting with an environment/community. If there are problems that are occurring then perhaps assessment of these factors may prove insightful and beneficial and allow us to provide intervention. There is clear evidence that someone's level of optimism can be improved upon, or at least their level of negative thinking; in particular, an entire field of research that endeavours to challenge negative thinking using cognitive behavioural therapy (CBT) (A. T. Beck, 1991; J. Beck, 2011; Carver et al., 2010; O'Connor & Cassidy, 2007; C. Peterson, 2000). Early intervention, for example the Aussie Optimism project, where young children and preadolescents are taught the principles of optimistic thinking and social life skills has also been found to be a valid and useful tool in changing negative attributional styles and reducing depression and anxiety as well as externalising behaviours (C. M. Roberts, 2006; C. M. Roberts, Kane, Bishop, Matthews, & Thompson, 2004; C. M. Roberts, Kane, Thomson, Bishop, & Hart, 2003; Rooney, Hassan, Kane, Roberts, & Nesa, 2013).

Research in the area of attachment therapy is also beginning to show that intervention, sometimes referred to as priming, may be a useful treatment option for individuals who have had insecure attachment histories (Davila, Burge, & Hammen, 1997; Gillath, Selcuk, & Shaver, 2008) as "...attachment and general security are associated with many positive personal and social outcomes, it would be of great benefit to humanity if we could find additional ways to increase people's sense of security on a lasting basis" (Gillath et al., p. 1662).

In terms of the factors, extroversion and openness, intervention, as such, is more likely to look at the types of communities that individuals who are high or low on these facets are more likely respond well to. For example, those high in extroversion would do well in larger groups with opportunities for lots of ongoing social interaction, possibly more face-to face interaction, whereas those low in extroversion (therefore introverted) are possibly more likely to respond to smaller groups or even online environments, with less requirements for the sharing of self. The same concept applies for those high or low in Openness. Based on this research it would seem that those very high on Openness are less likely to experience this sense of connection with a community, however, it may be that individuals high in Openness (as well as low Extroversion), may not have a need to connect with others, but this requires further investigation. Nonetheless, where this core need of belonging or connecting to others is being denied or unfulfilled and is causing ongoing difficulties or mental health concerns it should be addressed.

Interestingly, it seems that in terms of the value of PSOC with regards to wellbeing or positive mental health, those people that, at least on the surface, appear not to need support regarding the development of PSOC are those that are highest in PSOC or develop it more easily. Those that are gregarious, outgoing, securely attached and naturally inclined to join groups are more likely to have a higher sense of community, and therefore have no need of specific support or intervention. They also might respond well to encouragement to participate in more social activities (such as picnics, social groups, organised sporting or local community involvement or activities). Similarly, those that are extroverted, optimistic, securely attached and are, in particular, high on *openness*, are less likely to feel that they any need to join or connect with groups, particularly structured or organised societies, specifically due to their high openness. They are happy being independent.

### **Extrapolations/Speculations**

The following section contains speculations or conceptualisations based on both my own clinical experience and the outcome of the data collected.

In our society there is this sense that Extroversion is good and Introversion is bad. For example, in my work as a psychologist I have clients, in particular young people who have presented for therapy, who simply have been highly introverted and have been convinced by others, either directly or through the media that because of this interpersonal style that they do not fit, they do not belong, that somehow they are wrong or defective. This at times has led to some significant risky behaviours associated with these feelings such as self-harm or suicidal ideation, along with mental health problems such as anxiety and depression. Is it really my job to 'fix' this Introversion? I have seen my role as helping the client to deal with negative thinking, understand themselves, their identity and find where they might best fit within the world, and help the world fit them. In relation to a psychological sense of community this might mean that after helping the young person to recognise and develop their own sense of self that we might look at the types of communities that they might best fit. It could also be that we may help the individual who is high in Introversion to look at their behaviours to assist them to develop skills in managing their environments. For example, as mentioned above an introverted person may feel more comfortable meeting in smaller groups, online environments, or even face to face situations prior to larger group settings or they may need to practice speaking up in group settings.

As previously mentioned early intervention programs (such as Aussie Optimism; C. M. Roberts, 2006) have been found to be useful with regard to the negative automatic thinking. Taking a similar perspective with regards to attachment style, it might be interesting to investigate the development of an early intervention program to address attachment problems, which may then be 'rolled-out' at a community level. Issues with attachment are common in a therapy setting and if these were addressed earlier, then the resulting negative outcomes associated with these would be diverted. It would then make sense that if issues related to attachment style are addressed and potentially resolved then an individual is more likely to find it simpler and easier to join with others and see this as inviting rather than threatening.

Based on the understanding that PSOC is a valuable and worthwhile goal to achieve or recommend to individuals, this research confirms that supporting individuals to develop this experience arises from a purely individual contextual approach. This is reflected in the concept that psychological sense of community is a unique

experience that cannot be itemised and ticked off a list. It is an experience that is purely unique, based on the needs and identity of the person developing this perception. In each case, intervention to develop PSOC will also be unique. It could be that we need to intervene in some of these areas earlier rather than later, such as Optimism and/or Attachment style, whereas others are more about developing an understanding of self, and finding the most appropriate place in the world. However, telling all individuals that they should join a group or sporting club and assuming that this works for all of the people, all of the time, to increase their PSOC as well as the potential positive mental health outcomes misses the point, and becomes a 'shotgun' or a 'one-size fits all' style of approach rather than an individual targeted intervention. As already stated the development of PSOC is clearly impacted by individual personality and personological factors which are complicated by the current contextual environment. Supporting the individual to find what best fits for them and assisting them to develop this, should be the goal rather than a one-size fits all approach.

It should be noted that the relationship between mental health or wellbeing and PSOC is not unidirectional. This is a bi-directional or reciprocal relationship whereby mental health/wellbeing contributes to the generation of PSOC and whereby mental health/wellbeing is similarly influenced by the experience of a PSOC. Given this, it is difficult to determine whether an individual's state of mental health or wellbeing or experiences of PSOC comes first or which deteriorates first. This relationship prompts some questions, for example; Does PSOC decline which then causes loneliness to increase and therefore other mental health problems to incubate, or does an individual develop mental health problems or loneliness which then impacts their ability to participate or contribute to a community or to "feel" like they are a part of the community or that they should be, and therefore their PSOC then decreases, which further contributes to their feelings of isolation and despair? On the other hand, does PSOC increase first and then positive mental health and wellbeing improves or does an individual begin to feel better then seek out more community involvement, and therefore feel better? These are important questions that might be answered by some longitudinal analysis, however, I suspect that the relationship is more synergistic and it may be difficult to tease out the specifics of which comes first.

## **Summary/ Conclusion**

The purpose of this study was to collect information about and to explore the relationships between psychological sense of community and a number of personality and personological variables. A number of variables were investigated; Personality (the Big Five: Extroversion, Agreeableness, Openness, Conscientiousness, and Neuroticism); Optimism; Self-Esteem; Locus of Control; Empathy, Need for Affiliation and Attachment Style. After controlling for a number of demographic and background variables, it was found that Optimism, Extroversion, Openness and Attachment were all statistically significant predictors of a psychological sense of community and accounted for 26.8% of the variance in a psychological sense of community. However, a number of demographic factors which remained uncontrolled may impact these findings and therefore any interpretations based on this study. For the most part however, these results support and extend previous research in this area (Lounsbury, Loveland and Gibson 2003).

Despite seeing universal elements of PSOC in work throughout the years, historically and currently, this does not mean that the PSOC theory or experience can be broken down or itemised into single comprehensible elements that will always be true for every person on the earth. It is a dynamic ever changing process, worthy of further exploration as PSOC is perhaps greater than the sum of its parts. An individual's experience cannot be captured in its entirety, much like faith. It is a truly unique and individual experience.

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## Appendices

### Appendix A: Example of Flyers and Posters for Rural and Metropolitan Recruitment



#### Sense of Community and Personality- Research Study

Most people know when they have a Sense of Community and when they don't. There are many factors that contribute to the development of a Sense of Community. Some factors are Environmental (i.e., size of town), others are Individual factors (i.e. extroversion or optimism). Little research has been done on whether individual personality type factors have any bearing on how someone develops a Sense of Community



I'd like to invite you to take part in a study which will provide information to help us understand how people connect to their community as well as how we might support and even improve these connections.

Surveys will be collected online, with an opportunity to win a \$50 iTunes voucher (and you can choose to remain anonymous).

If you think this might be of interest to you, or to others you know, please go to <http://psych.curtin.edu.au/research/phd/psocioinfo.cfm> for further information. See also [www.facebook.com/SOCPersonality](http://www.facebook.com/SOCPersonality)

Or you can contact Kath Boekamp on 0414 266 151 or [Kath.Boekamp@postgrad.curtin.edu.au](mailto:Kath.Boekamp@postgrad.curtin.edu.au).

Thanks!



#### Sense of Community and Personality- Research Study

Rural communities are important to the overall growth and development of the Australian economy and psyche, but are facing tough times with issues of economic uncertainty and climate change. Some towns are growing, whilst others are experiencing stagnation or decline.



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Or you can contact Kath Boekamp on 0414 266 151 or [Kath.Boekamp@postgrad.curtin.edu.au](mailto:Kath.Boekamp@postgrad.curtin.edu.au).



Thanks!



Please tear off as required

Kath Boekamp 0414 266 151 <a href="http://psych.curtin.edu.au/research/phd/psocinfo.cfm">http://psych.curtin.edu.au/research/phd/psocinfo.cfm</a>									
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### Sense of Community and Personality Research Study



Most people know when they have a Sense of Community and when they don't. There are many factors that contribute to the development of a Sense of Community. Some factors are Environmental (i.e., size of town), others are Individual factors (i.e. extroversion or optimism). Little research has been done on whether individual personality type factors have any bearing on how someone develops a Sense of Community.

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### Information Sheet

#### **Dear Participant.....**

My name is Kath Boekamp and I am a Clinical Psychology PhD student at Curtin University. I would like to invite you to participate in this research.

#### **The Purpose of this Study**

Most people know when they experience a Sense of Community and when they don't. There are many factors that contribute to the development of a Sense of Community. Some factors are environmental, (for example, the size of your town) others are individual factors (i.e. those things that make you who you are, for instance, being introverted or extroverted). However, little research has been done on whether individual personality type factors have any bearing on how someone develops a Sense of Community.

#### **What Participation Involves**

**Questionnaires:** I would like to invite you to participate using an online method of survey collection. Surveys will be collected only once. Using an Online method means that you won't have to remember to post back survey.

#### **Risk**

If you decide to participate in this study there are no known risks for you, nor are there any costs for taking part. If you feel you have been hurt in any way then please feel free to contact either myself or my supervisor. *This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 95/2011). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au)*

#### **Confidentiality**

Please be assured that confidentiality is guaranteed and no identifying information is kept on file at the completion of the research. Although names and email addresses are collected so that you can be contacted, at the completion of the study, the data will be non-identified, which means that any identifying information will be permanently removed. The data will be stored electronically, will be password protected, and any printed material will be kept in a locked storage cabinet in my office.

#### **Withdrawal from the Study**

Participation in this study is completely voluntary and you may withdraw your participation at any time. The decision to do so will not affect the research in any way.



### **Further Information**

You can contact myself (Kath Boekamp) on 0414 288 151 ([Kath.Boekamp@postgrad.curtin.edu.au](mailto:Kath.Boekamp@postgrad.curtin.edu.au)) or my Supervisor, Brian Bishop ([B.Bishop@curtin.edu.au](mailto:B.Bishop@curtin.edu.au)) at the School of Psychology, Curtin University on 9288 7279. Please do not hesitate to contact us for further help and/or assistance. If you find that you wish to make a complaint, or have concerns regarding the conduct of myself or others involved, please do not hesitate to call Neville Hennessy or Sarah Egan on 9288 7279 (Course Coordinators) at the School of Psychology Curtin University.

### **What Next?**

If you are willing to participate in this research please click on the following link which will take you to the Qualtrics Survey site to fill in a consent form, and then on to the research questions.

As an incentive for people to participate, for each round of data collection, all participants will go into a draw to receive, a \$50 iTunes voucher (a 1 in 50 chance to win-only available to Australian Residents).

Thank you for your willingness to participate in this research.

Kind Regards

Kath Boekamp



<http://psych.curtin.edu.au/research/phd/psocinfo.cfm>

## Appendix C: Measures

### MTSOC

Towns are different from each other in how people, young people, elderly people etc work, interact and play together, and what they think and feel about each other and the town.

How well do the following items describe what you may say about your town? (If "town" does not apply to you please think about your "suburb").

For each question, please select the item that best describes how you feel...

	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel like I belong here.	1	2	3	4
This town provides opportunities for me to do a lot of different things.	1	2	3	4
In this town people are not willing to help those in need.	1	2	3	4
This town is a part of me	1	2	3	4
I feel at ease with the people in my town.	1	2	3	4
If the people here get organized, they can achieve their goals	1	2	3	4
If I had a problem few people in this town would try to help me	1	2	3	4
I feel I can contribute to town politics if I want to.	1	2	3	4
I would like to live somewhere else.	1	2	3	4
If I need help this town has many excellent services to meet my needs.	1	2	3	4
Many people in this town are available to give help if somebody needs it.	1	2	3	4
I have good friends in this town	1	2	3	4
It is difficult for me to form bonds with the people in my town.	1	2	3	4
People are sociable here.	1	2	3	4
Surely here if I had an emergency even people I do not know would be willing to help me.	1	2	3	4
When I travel, I am proud to tell others where I live.	1	2	3	4
In this town I have few opportunities to satisfy my needs.	1	2	3	4
In this town there is never much to do.	1	2	3	4
If there is a serious problem in this town, the people who live here can get it solved	1	2	3	4



### IRI

The following statements ask about your thoughts and feelings in a variety of situations. For each item, show how well it describes you by choosing the appropriate number on the scale at the top of the page: 1, 2, 3, 4, or 5. When you have decided on your answer, fill in the letter in the blank next to the item. **READ EACH ITEM CAREFULLY BEFORE RESPONDING.** Answer as honestly and as accurately as you can. Thank you.

#### **ANSWER SCALE:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>DOES NOT DESCRIBE ME WELL</b>				<b>DESCRIBES ME VERY WELL</b>

- \_\_\_ 1. I daydream and fantasize, with some regularity, about things that might happen to me.
- \_\_\_ 2. I often have tender, concerned feelings for people less fortunate than me.
- \_\_\_ 3. I sometimes find it difficult to see things from the "other guy's" point of view.
- \_\_\_ 4. Sometimes I don't feel very sorry for other people when they are having problems.
- \_\_\_ 5. I really get involved with the feelings of the characters in a novel.
- \_\_\_ 6. In emergency situations, I feel apprehensive and ill-at-ease.
- \_\_\_ 7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.
- \_\_\_ 8. I try to look at everybody's side of a disagreement before I make a decision.
- \_\_\_ 9. When I see someone being taken advantage of, I feel kind of protective towards them.
- \_\_\_ 10. I sometimes feel helpless when I am in the middle of a very emotional situation.
- \_\_\_ 11. I sometimes try to understand my friends better by imagining how things look from their perspective.
- \_\_\_ 12. Becoming extremely involved in a good book or movie is somewhat rare for me.
- \_\_\_ 13. When I see someone get hurt, I tend to remain calm.
- \_\_\_ 14. Other people's misfortunes do not usually disturb me a great deal.
- \_\_\_ 15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.
- \_\_\_ 16. After seeing a play or movie, I have felt as though I were one of the characters.
- \_\_\_ 17. Being in a tense emotional situation scares me.
- \_\_\_ 18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.
- \_\_\_ 19. I am usually pretty effective in dealing with emergencies.
- \_\_\_ 20. I am often quite touched by things I see happen.
- \_\_\_ 21. I believe that there are two sides to every question and try to look at them both.
- \_\_\_ 22. I would describe myself as a pretty soft-hearted person.



- \_\_\_\_ 23. When I watch a good movie, I can very easily put myself in the place of a leading character.
- \_\_\_\_ 24. I tend to lose control during emergencies.
- \_\_\_\_ 25. When I am upset at someone I usually try to "put myself in their shoes" for a while.
- \_\_\_\_ 26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me
- \_\_\_\_ 27. When I see someone who badly needs help in an emergency, I go to pieces
- \_\_\_\_ 28. Before criticising somebody, I try to imagine how I would feel if I were in their place.



**LOT-R**

Below is a list of statements dealing with your general feelings about yourself  
Please select the item that shows how strongly you agree or disagree with each statement

Try to be as accurate and honest as possible and try not to let your answer to one question influence the answer to another.

There are no right or wrong answers.

- 1 = I agree a lot
- 2 = I agree a little
- 3 = I neither agree nor disagree
- 4 = I DISagree a little
- 5 = I DISagree a lot

1. In uncertain times, I usually expect the best	1	2	3	4	5
2. It's easy for me to relax	1	2	3	4	5
3. If something can go wrong for me, it will	1	2	3	4	5
4. I'm always optimistic about my future	1	2	3	4	5
5. I enjoy my friends a lot	1	2	3	4	5
6. It's important for me to keep busy	1	2	3	4	5
7. I hardly ever expect things to go my way	1	2	3	4	5
8. I don't get upset too easily	1	2	3	4	5
9. I rarely count on good things happening to me	1	2	3	4	5
10. Overall, I expect more good things to happen to me than bad.	1	2	3	4	5

**Big Five Inventory**

Here are some statements that may or may not describe what you are like. In the blank next to each statement, write the number that shows how much you agree or disagree that it describes you. For example, do you agree that you are someone who is bossy? Write a **5** if you agree strongly, a **4** if you agree a little, a **3** if you neither agree nor disagree, a **2** if you disagree a little, or a **1** if you disagree strongly. **Ask if you don't know what a word means!**

1 Disagree Strongly	2 Disagree a little	3 Neither agree nor disagree	4 Agree a little	5 Agree strongly
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

**I see myself as someone who...**

	1	2	3	4	5
Is talkative					
Tends to find fault with others					
Does things carefully and completely					
Is depressed, blue					
Is original, comes up with new ideas					
Reserved; keeps thoughts and feelings to self					
Is helpful and unselfish with others					
Can be somewhat careless					
Is relaxed, handles stress well					
Is curious about many different things					
Is full of energy					
Starts quarrels with others					
Is a reliable worker					
Can be tense					
Is clever, thinks a lot					
Generates a lot of enthusiasm					
Has a forgiving nature					
Tends to be disorganized					
Worries a lot					
Has an active imagination					
Tends to be quiet					
Is generally trusting					
Tends to be lazy					
Doesn't get easily upset, emotionally stable					
Is creative and inventive					
Takes charge, has an assertive personality					
Can be cold and distant with others					
Keeps working until things are done					
Can be moody					
Likes artistic and creative experiences					
Is sometimes shy, inhibited					
Is considerate and kind to almost everyone					
Does things efficiently (quickly and correctly)					
Stays calm in tense situations					
Likes work that is the same every time (routine)					
Is outgoing, sociable					
Is sometimes rude to others					
Makes plans and sticks to them					
Gets nervous easily					
Likes to think and play with ideas					



Doesn't like artistic things (plays, or music)	1	2	3	4	5
Likes to cooperate; goes along with others	1	2	3	4	5
Is easily distracted; has trouble paying attention	1	2	3	4	5
Knows a lot about art, music, or books	1	2	3	4	5
Is the kind of person almost everyone likes	1	2	3	4	5
People really enjoy spending time with	1	2	3	4	5



Please read the following 3 statements and pick the one that describes you the best

- I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me.
- I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being
- I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares

---

**NFA Scale**

Here are some statements about being with others

Please indicate how much you agree or disagree with each statement

Please remember there are no right or wrong answers

I like to be with people	1	2	3	4
I look for the chance to mix socially with people	1	2	3	4
I prefer working with others rather than alone	1	2	3	4
I find people more stimulating than anything else	1	2	3	4
I'd be sad if I were prevented from making many friends	1	2	3	4

.

**LOC**

Here are some statements about your general feelings about yourself. Please indicate how much you agree or disagree with each statement.

Please remember there are no right or wrong answers

0 Disagree Strongly	1 Disagree a little	2 Neither agree nor disagree	3 Agree a little	4 Agree strongly
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

Whether or not I get to be a leader depends mostly on my ability	0	1	2	3	4
To a great extent my life is controlled by accidental happenings	0	1	2	3	4
I feel like what happens in my life is mostly determined by powerful people	0	1	2	3	4
Whether or not I get into a car accident depends mostly on how good a driver I am.	0	1	2	3	4
When I make plans, I am almost certain to make them work.	0	1	2	3	4
Often there is no chance of protecting my personal interests from bad luck happenings.	0	1	2	3	4
When I get what I want, it's usually because I'm lucky.	0	1	2	3	4
Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.	0	1	2	3	4
How many friends I have depends on how nice a person I am.	0	1	2	3	4
I have often found that what is going to happen will happen.	0	1	2	3	4
My life is chiefly controlled by powerful others.	0	1	2	3	4
Whether or not I get into a car accident is mostly a matter of luck.	0	1	2	3	4
People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	0	1	2	3	4
It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	0	1	2	3	4
Getting what I want requires pleasing those people above me..	0	1	2	3	4
Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	0	1	2	3	4
If important people were to decide they didn't like me, I probably wouldn't make many friends.	0	1	2	3	4
I can pretty much determine what will happen in my life.	0	1	2	3	4
I am usually able to protect my personal interests.	0	1	2	3	4



Whether or not I get into a car accident depends mostly on the other driver.	0	1	2	3	4
When I get what I want, it's usually because I worked hard for it.	0	1	2	3	4
In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	0	1	2	3	4
My life is determined by my own actions.	0	1	2	3	4
It's chiefly a matter of fate whether or not I have a few friends or many friends.	0	1	2	3	4

0 Disagree Strongly	1 Disagree a little	2 Neither agree nor disagree	3 Agree a little	4 Agree strongly
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

LOC



### RSES

Below is a list of statements dealing with your general feelings about yourself

Please select the item that shows how strongly you agree or disagree with each statement

Try to be as accurate and honest as possible and try not to let your answer to one question influence the answer to another.

There are no right or wrong answers

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



**Demographics/Background Questions**

**Please complete the following details**

Name: \_\_\_\_\_ Gender: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Email address: \_\_\_\_\_

(Please supply your email address if you wish to enter the iTunes draw. Thank you)

Suburb: \_\_\_\_\_

Town: \_\_\_\_\_ Postcode: \_\_\_\_\_

- Are you (please circle)

Married

Singe

De Facto

Other

If you are single, do you live with or share a house with other people (whether family or friends):

\_\_\_\_\_

- What is your occupation: \_\_\_\_\_

- How long have you lived in this town: (please circle one)

Less than 6 months

6-12 months

1-2 years

2-5 years

5-10 years

More than 10 years

- Please choose up to 2 groups that you feel that you belong to:

African

Vietnamese

Indian

Aboriginal/Torres Strait Islander

Australian

Greek

Italian

Chinese

Malaysian

Thai

Iranian

Other: \_\_\_\_\_

- Have there been any significant negative events that have impacted your life over the last 6-12 months? (for example: a death of close friend or family; moving house/jobs/towns; you or someone close to you suffered a serious illness .... )

If so please write a brief sentence about this event:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



- Please indicate how many people you already knew in your town before you moved here

None

1-3

4-6

7-8

More than 8

Of these people how many did you consider good friends?: \_\_\_\_\_

- How many children (under the age of 18) live in your home?

None

1

2

3

4

More than 4

- What is the highest level of education you have completed?

Less than high school

Year 10 certificate

High School Certificate (Year 12)

Some University

TAFE Certificate or Diploma

3-4 year University Degree

Masters Degree

Doctoral Degree

- What is your annual income range?

Below \$20,000

\$20,000-29,000

\$30,000- 39,000

\$40,000- 49,000

\$50,000- 59,000

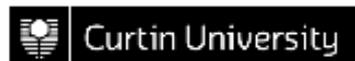
\$60,000- 69,000

\$70,000- 79,000

\$80,000- 89,000

\$90,000 or more

## Appendix D: Ethics Approval



### Memorandum

<b>To</b>	Associate Professor Brian Bishop, School of Psychology and Speech Pathology
<b>From</b>	Miss Linda Teasdale, Manager, Research Ethics
<b>Subject</b>	Protocol Extension Approval HR 95/2011
<b>Date</b>	17 May 2012
<b>Copy</b>	Kath Boekamp, School of Psychology and Speech Pathology Dr Robert Kane, School of Psychology and Speech Pathology Dr Rosie Rooney, School of Psychology and Speech Pathology

Office of Research and Development

Human Research Ethics Committee

TELEPHONE 9266 2784

FACSIMILE 9266 3793

EMAIL hrec@curtin.edu.au

Thank you for keeping us informed of the progress of your research. The Human Research Ethics Committee acknowledges receipt of your Form B report, indicating modifications / changes, for the project "*Personality and personological predictors of psychological sense of community*". Your application has been **approved**.

The Committee notes the following amendments have been approved:

1. Change to pilot study;
2. Change to participants type - adults in country towns.
3. Change to title to reflect population.

Approval for this project remains until **25-08-2012**.

Your approval number remains **HR 95/2011**, please quote this number in any further correspondence regarding this project.

Please note: An application for renewal may be made with a Form B three years running, after which a new application form (Form A), providing comprehensive details, must be submitted.

Thank you.

A handwritten signature in blue ink that reads "Linda Teasdale".

Miss Linda Teasdale  
Manager, Research Ethics  
Office of Research and Development

**Memorandum**

<b>To</b>	Associate Professor Brian Bishop, School of Psychology and Speech Pathology
<b>From</b>	Professor Stephan Millett, Chair, Human Research Ethics Committee
<b>Subject</b>	Protocol Extension Approval <b>HR 95/2011</b>
<b>Date</b>	12 October 2012
<b>Copy</b>	Kath Dewar, School of Psychology and Speech Pathology Dr Robert Kane, School of Psychology and Speech Pathology Dr Rosie Rooney, School of Psychology and Speech Pathology

Office of Research and Development  
Human Research Ethics Committee

TELEPHONE 9266 2784

FACSIMILE 9266 3793

EMAIL [oreo@curtin.edu.au](mailto:oreo@curtin.edu.au)

Thank you for keeping us informed of the progress of your research. The Human Research Ethics Committee acknowledges receipt of your Form B progress report and indication of modifications / changes for the project "*Personality and personality predictors of psychological sense of community*". Your application has been **approved**.

The Committee notes the following amendments have been approved:

1. The approved research to be made available to a wider community
2. Promoting the survey on social media and news and radio outlets, and removing the mention of specific towns
3. The change in the information sheet - "only available to Australian residents" added to the end of the incentives section.
4. A new supervisor - Dr Peter Dzidic has been added to the supervisory team

Your project has the following special condition:

- That any social media, news and radio scripts (e.g. advertisements) are submitted for approval prior to use.

It is your responsibility, as the researcher, to meet the condition outlined above and to retain the necessary records demonstrating that these have been completed.

Approval for this project is extended for the year to **25-08-2013**.

Your approval number remains **HR95/2011**. Please quote this number in any further correspondence regarding this project.

Please note: An application for renewal may be made with a Form B three years running, after which a new application form (Form A), providing comprehensive details, must be submitted.

Yours sincerely,



Professor Stephan Millett  
Chair Human Research Ethics Committee

## Appendix E: T-Tests for Interpersonal Reactivity Index

### IRI: Fantasy Subscale

Males:  $t(120) = 14.463, p < .001$

Females:  $t(480) = 22.726, p < .001$

### IRI: Empathic Concern Subscale

Males:  $t(120) = 18.833, p < .001$

Females:  $t(480) = 33.600, p < .001$

### IRI: Perspective Taking Subscale

Males:  $t(120) = 19.280, p < .001$

Females:  $t(480) = 39.392, p < .001$

### IRI: Personal Distress Subscale

Males:  $t(120) = 19.272, p < .001$

Females:  $t(480) = 26.221, p < .001$

## Appendix F: Pearsons Correlations for all study variables

Table 22

*Pearsons Correlations of All Study Variables*

	Country	Length of Res	Gender	Relationship	Livew/others	Occupation	Age	Ethnicity	NLE	Prior	Good Friends	Children	Education	Income	Attach 1
Country	1														
N	602														
LengthofRes	.039	1													
N	602	602													
Gender	-.005	-.073	1												
N	602	602	602												
Relationship	.071	.042	-.066	1											
N	602	602	602	602											
Livew/others	-.014	.039	-.014	.076	1										
N	602	602	602	602	602										
Occupation	.029	-.038	-.048	<b>.108**</b>	-.012	1									
N	602	602	602	602	602	602									
Age	.035	<b>.175***</b>	-.022	<b>-.315***</b>	<b>.162***</b>	<b>-.109***</b>	1								
N	602	602	602	602	602	602	602								
Ethnicity	<b>.283***</b>	-.029	<b>-.100*</b>	.078	-.045	<b>.177***</b>	-.021	1							
N	602	602	602	602	602	602	602	602							
NLE	.017	.041	<b>-.092*</b>	-.033	-.044	.011	<b>-.095*</b>	.076	1						
N	600	600	600	600	600	600	600	600	600						
Prior	<b>.087*</b>	.067	.021	.067	-.012	.042	-.008	-.001	.030	1					
N	602	602	602	602	602	602	602	602	600	602					
Good Friends	.027	<b>.194***</b>	.007	<b>.184***</b>	-.067	.038	<b>-.141**</b>	-.101	-.009	<b>.634***</b>	1				
N	359	359	359	359	359	359	359	359	359	359	359				
Children	-.021	<b>.154**</b>	-.037	<b>-.092*</b>	-.079	-.038	-.008	.004	.018	.022	-.004	1			
N	500	500	500	500	500	500	500	500	499	500	359	500			

	Country	Length of Res	Gender	Relationship	Livew/ others	Occupation	Age	Ethnicity	NLE	Prior	Good Friends	Children	Education	Income	Attach 1
Education	<b>.115**</b>	-.057	<b>.106**</b>	<b>-.276**</b>	.039	<b>-.119***</b>	<b>.404***</b>	-.041	-.042	-.033	<b>-.173**</b>	<b>-.109*</b>	1		
N	602	602	602	602	602	602	602	602	600	602	359	500	602		
Income	-.065	.024	.023	<b>-.325***</b>	<b>.088*</b>	<b>-.181***</b>	<b>.456***</b>	-.011	<b>-.089*</b>	-.060	<b>-.129*</b>	-.045	<b>.521***</b>	1	
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	
Attach1	-.068	.035	.022	<b>-.121**</b>	.018	-.036	<b>.082*</b>	-.064	.070	.038	.095	-.044	<b>.108**</b>	.046	1
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC Total	-.077	.080	.010	<b>-.081*</b>	-.065	-.004	<b>.195***</b>	-.077	-.019	<b>.178***</b>	<b>.190***</b>	.055	<b>.122**</b>	.066	<b>.358***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC Membership	-.069	<b>.141**</b>	-.005	<b>-.091*</b>	-.046	-.018	<b>.171***</b>	<b>-.090*</b>	-.014	<b>.105*</b>	<b>.203***</b>	.087	<b>.109**</b>	.066	<b>.293***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC NeedFulfilment	<b>-.088*</b>	-.065	-.010	-.075	-.038	.042	<b>.172***</b>	-.057	-.018	<b>.144***</b>	<b>.123*</b>	.010	<b>.180***</b>	<b>.098*</b>	<b>.247***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC HelpinNeed	-.076	-.005	.044	<b>-.093*</b>	-.064	-.033	<b>.162***</b>	-.026	-.016	<b>.100*</b>	-.007	.037	.062	.056	<b>.247***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC SocialClimate	-.022	<b>.191***</b>	-.009	-.004	-.077	-.005	<b>.099*</b>	-.037	-.004	<b>.220***</b>	<b>.281***</b>	.047	.006	-.004	<b>.370***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
SOC SharedInfluence	-.059	.022	.037	-.067	-.033	-.009	<b>.200***</b>	<b>-.113**</b>	-.031	<b>.141**</b>	.101	.030	<b>.155***</b>	.053	<b>.269***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
IRI Fantasy	.048	-.037	<b>.149***</b>	<b>.158***</b>	-.001	.065	<b>-.255***</b>	.000	-.038	.055	.071	-.053	-.077	<b>-.195***</b>	-.059
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
IRI EmpathiConcern	-.060	-.027	<b>.256***</b>	-.038	.040	.002	<b>.081*</b>	<b>-.102*</b>	<b>-.112**</b>	.079	.054	-.024	<b>.113**</b>	.030	<b>.104*</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
IRI PerspectivTaking	-.064	-.004	<b>.115**</b>	-.027	.003	.007	.079	-.062	-.045	.041	.063	-.032	<b>.144***</b>	.061	<b>.115**</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
IRI PersonalDistress	-.025	<b>-.095*</b>	.049	<b>.161***</b>	.017	.057	<b>-.292***</b>	.026	.026	.011	.009	-.023	<b>-.234***</b>	<b>-.282***</b>	<b>-.214***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
Extroversion	-.077	<b>-.086*</b>	<b>.123**</b>	<b>-.133**</b>	-.056	.007	-.014	-.050	-.007	<b>.080*</b>	<b>.134*</b>	-.045	.077	.076	<b>.330***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602

	Country	Length of Res	Gender	Relationship	Lives/others	Occupation	Age	Ethnicity	NLE	Prior	Good Friends	Children	Education	Income	Attach 1
Openness	<b>.105**</b>	.012	.051	<b>-.083*</b>	.069	-.068	<b>.130**</b>	.079	<b>-.176**</b>	.048	.045	-.060	<b>.151***</b>	<b>.105*</b>	.022
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
Conscientiousness	-.001	-.042	<b>.162***</b>	<b>-.131**</b>	-.037	-.076	<b>.146***</b>	-.078	-.049	<b>.083*</b>	.037	-.035	<b>.167***</b>	<b>.166***</b>	<b>.181***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
Agreeableness	<b>-.131**</b>	-.034	<b>.124**</b>	<b>-.146***</b>	.007	<b>-.085*</b>	<b>.152***</b>	-.060	.002	.045	.073	-.016	<b>.148***</b>	<b>.081*</b>	<b>.343***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
Neuroticism	.008	<b>-.092*</b>	<b>.152***</b>	<b>.100*</b>	.030	-.015	<b>-.197**</b>	.020	<b>-.138**</b>	-.035	-.047	-.021	<b>-.122**</b>	<b>-.188***</b>	<b>-.326***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
LOT Total	-.041	-.026	.042	<b>-.232***</b>	.014	<b>-.088*</b>	<b>.200***</b>	-.037	.046	.013	-.003	-.044	<b>.219***</b>	<b>.275***</b>	<b>.388***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
RSES Total	-.001	.022	-.001	<b>-.195***</b>	.068	<b>-.107**</b>	<b>.223***</b>	-.037	<b>.086*</b>	.037	.006	-.010	<b>.218***</b>	<b>.263***</b>	<b>.413***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
NfA Total	<b>-.137**</b>	<b>-.101*</b>	<b>.122**</b>	.000	.026	.015	<b>-.124**</b>	<b>-.119**</b>	.012	.057	<b>.156**</b>	-.014	.038	.011	<b>.396***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
LOC Internal	-.060	-.003	<b>.091*</b>	<b>-.141**</b>	-.042	<b>-.113**</b>	<b>.087*</b>	<b>-.127**</b>	-.016	.057	.043	.001	<b>.112**</b>	<b>.138**</b>	<b>.249***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
LOC Chance	.032	.068	-.024	<b>.199***</b>	.007	.060	<b>-.124**</b>	-.014	-.058	-.065	-.034	.018	<b>-.119**</b>	<b>-.159***</b>	<b>-.189***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602
LOC Powerful Others	.034	-.007	-.006	<b>.176***</b>	-.002	.048	<b>-.233***</b>	-.029	-.021	-.009	.029	-.001	<b>-.187***</b>	<b>-.213***</b>	<b>-.259***</b>
N	602	602	602	602	602	602	602	602	600	602	359	500	602	602	602

\*\*\* Correlation is significant at the .001 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed).

	SOC Total	SOC Membership	SOC NeedFulfilment	SOC HelpinNeed	SOC SocialClimate	SOC Shared Influence	IRI Fantasy	IRI Empathic Concern	IRI Perspective Taking
SOC Total	1								
N	602								
SOC Membership	<b>.855**</b>	1							
N	602	602							
SOC NeedFulfilment	<b>.817**</b>	<b>.667**</b>	1						
N	602	602	602						

	SOC Total	SOC Membership	SOC NeedFulfilment	SOC HelpinNeed	SOC SocialClimate	SOC Shared Influence	IRI Fantasy	IRI Empathic Concern	IRI Perspective Taking
SOC HelpinNeed	<b>.747**</b>	<b>.485**</b>	<b>.485**</b>	1					
N	602	602	602	602					
SOC SocialClimate	<b>.832***</b>	<b>.665***</b>	<b>.513***</b>	<b>.562***</b>	1				
N	602	602	602	602	602				
SOC SharedInfluence	<b>.748***</b>	<b>.513***</b>	<b>.576***</b>	<b>.531***</b>	<b>.541***</b>	1			
N	602	602	602	602	602	602			
IRI Fantasy	-.015	-.009	.024	-.068	.003	-.024	1		
N	602	602	602	602	602	602	602		
IRI EmpathicConcern	<b>.131**</b>	<b>.115**</b>	<b>.095*</b>	.075	<b>.113**</b>	<b>.132**</b>	<b>.266***</b>	1	
N	602	602	602	602	602	602	602	602	
IRI PerspectiveTaking	<b>.173***</b>	<b>.088*</b>	<b>.141**</b>	<b>.138**</b>	<b>.145***</b>	<b>.218***</b>	<b>.191***</b>	<b>.498***</b>	1
N	602	602	602	602	602	602	602	602	602
IRI PersonalDistress	<b>-.190***</b>	<b>-.128**</b>	<b>-.125**</b>	<b>-.173***</b>	<b>-.178***</b>	<b>-.175***</b>	<b>.184***</b>	.002	<b>-.158***</b>
N	602	602	602	602	602	602	602	602	602
Extroversion	<b>.259***</b>	<b>.190***</b>	<b>.144***</b>	<b>.179***</b>	<b>.312***</b>	<b>.215***</b>	.001	<b>.151***</b>	<b>.101*</b>
N	602	602	602	602	602	602	602	602	602
Openness	-.047	-.080	-.050	-.065	.001	.023	<b>.278***</b>	<b>.178***</b>	<b>.237***</b>
N	602	602	602	602	602	602	602	602	602
Conscientiousness	<b>.212***</b>	<b>.161***</b>	<b>.153***</b>	<b>.157***</b>	<b>.177***</b>	<b>.225***</b>	-.061	<b>.258***</b>	<b>.241***</b>
N	602	602	602	602	602	602	602	602	602
Agreeableness	<b>.318***</b>	<b>.265***</b>	<b>.234***</b>	<b>.250***</b>	<b>.281***</b>	<b>.248***</b>	.063	<b>.546***</b>	<b>.507***</b>
N	602	602	602	602	602	602	602	602	602
Neuroticism	<b>-.335***</b>	<b>-.247***</b>	<b>-.246***</b>	<b>-.284***</b>	<b>-.304***</b>	<b>-.278***</b>	<b>.216***</b>	<b>.094*</b>	<b>-.111**</b>
N	602	602	602	602	602	602	602	602	602
LOT Total	<b>.380***</b>	<b>.337***</b>	<b>.313***</b>	<b>.286***</b>	<b>.299***</b>	<b>.283***</b>	-.079	<b>.126**</b>	<b>.209***</b>
N	602	602	602	602	602	602	602	602	602
RSES Total	<b>.360***</b>	<b>.303***</b>	<b>.296***</b>	<b>.261***</b>	<b>.298***</b>	<b>.287***</b>	<b>-.092*</b>	.076	<b>.114**</b>
N	602	602	602	602	602	602	602	602	602
NfA Total	<b>.312***</b>	<b>.253***</b>	<b>.233***</b>	<b>.174***</b>	<b>.336***</b>	<b>.243***</b>	<b>.126**</b>	<b>.258***</b>	<b>.194***</b>
N	602	602	602	602	602	602	602	602	602

	SOC Total	SOC Membership	SOC NeedFulfilment	SOC HelpinNeed	SOC SocialClimate	SOC Shared Influence	IRI Fantasy	IRI Empathic Concern	IRI Perspective Taking
LOC Internal	<b>.225***</b>	<b>.177***</b>	<b>.178***</b>	<b>.150***</b>	<b>.196***</b>	<b>.214***</b>	.048	.050	.079
N	602	602	602	602	602	602	602	602	602
LOC Chance	<b>-.237***</b>	<b>-.163***</b>	<b>-.231***</b>	<b>-.206***</b>	<b>-.168***</b>	<b>-.194***</b>	<b>.097*</b>	<b>-.086*</b>	<b>-.115**</b>
N	602	602	602	602	602	602	602	602	602
LOC PowerfulOthers	<b>-.235***</b>	<b>-.188***</b>	<b>-.196***</b>	<b>-.190***</b>	<b>-.187***</b>	<b>-.189***</b>	<b>.134**</b>	<b>-.109**</b>	<b>-.145***</b>
N	602	602	602	602	602	602	602	602	602

\*\*\* Correlation is significant at the .001 level (2-tailed)  
 \*\* Correlation is significant at the .01 level (2-tailed)  
 \* Correlation is significant at the .05 level (2-tailed).

	IRI Personal Distress	Extroversion	Openness	Conscientiousness	Agreeableness	Neuroticism	LOT Total	RSES Total	NfA Total	LOC Internal	LOC Chance	LOC Powerful Others
IRI PersonalDistress	1											
N	602											
Extroversion	<b>-.250***</b>	1										
N	602	602										
Openness	<b>-.148***</b>	<b>.203***</b>	1									
N	602	602	602									
Conscientiousness	<b>-.281***</b>	<b>.139**</b>	.031	1								
N	602	602	602	602								
Agreeableness	<b>-.204***</b>	<b>.207***</b>	<b>.125**</b>	<b>.401***</b>	1							
N	602	602	602	602	602							
Neuroticism	<b>.564***</b>	<b>-.296***</b>	-.026	<b>-.194***</b>	<b>-.274***</b>	1						
N	602	602	602	602	602	602						
LOT Total	<b>-.361***</b>	<b>.361***</b>	<b>.104*</b>	<b>.258***</b>	<b>.372***</b>	<b>-.569***</b>	1					
N	602	602	602	602	602	602	602					
RSES Total	<b>-.422***</b>	<b>.335***</b>	<b>.181***</b>	<b>.334***</b>	<b>.344***</b>	<b>-.593***</b>	<b>.658***</b>	1				
N	602	602	602	602	602	602	602	602				
NfA Total	<b>-.090*</b>	<b>.535***</b>	.074	.072	<b>.285***</b>	<b>-.198***</b>	<b>.302***</b>	<b>.238***</b>	1			
N	602	602	602	602	602	602	602	602	602			

	IRI Personal Distress	Extro- version	Openness	Conscient iusnes	Agreeable ness	Neuroticism	LOT Total	RSES Total	NfA Total	LOC Internal	LOC Chance	LOC Powerful Others
LOC Internal	<b>-.248***</b>	<b>.273***</b>	<b>.098*</b>	<b>.275***</b>	<b>.183***</b>	<b>-.302***</b>	<b>.3658***</b>	<b>.431***</b>	<b>.204***</b>	1		
N	602	602	602	602	602	602	602	602	602	602		
LOC Chance	<b>.281***</b>	<b>-.208***</b>	<b>-.101*</b>	<b>-.184***</b>	<b>-.285***</b>	<b>.374***</b>	<b>-.502***</b>	<b>-.475***</b>	<b>-.123**</b>	<b>-.248***</b>	1	
N	602	602	602	602	602	602	602	602	602	602	602	
LOC Powerful Others	<b>.347**8</b>	<b>-.204***</b>	<b>-.119**</b>	<b>-.191***</b>	<b>-.295***</b>	<b>.369***</b>	<b>-.436***</b>	<b>-.479***</b>	<b>-.167***</b>	<b>-.212***</b>	<b>.628***</b>	1
N	602	602	602	602	602	602	602	602	602	602	602	602

\*\*\* Correlation is significant at the .001 level (2- tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed).

## Appendix G: Occupational Differences in terms of Personality and Personological factors.

Table 23

*Associations ( $\eta^2$ ) Between Occupation and the Personality and Personological Factors*

<b>Extroversion<sup>a</sup></b>	<b>Openness<sup>a</sup></b>	<b>Conscientious<sup>a</sup></b>	<b>Agreeableness<sup>a</sup></b>	<b>Neuroticism<sup>a</sup></b>
.010	.042**	.045***	.030*	.070***
<b>IRI-Fantasy<sup>b</sup></b>	<b>IRI-Empathic<sup>b</sup></b>	<b>IRI-Perspective<sup>b</sup></b>	<b>IRI-Personal<sup>b</sup></b>	
.075***	.014	.023	.105***	
<b>LOC-Internal<sup>c</sup></b>	<b>LOC-Chance<sup>c</sup></b>	<b>LOC-Powerful<sup>c</sup></b>		
.033**	.081***	.062***		
<b>Optimism<sup>d</sup></b>	<b>Self-Esteem<sup>e</sup></b>	<b>NfA<sup>f</sup></b>		
.090***	.077***	.034**		

Note. a: BFI = Big Five Inventory (John & Srivastava, 1999); b: IRI = Interpersonal Reactivity Index (Davis, 1980); c: LOC= Levenson's Locus of Control Scale (Levenson, 1974); d: LOT-R = Life Orientation Test-revised (Scheier et al., 1994); e: RSES = Rosenberg's Self-Esteem Scale (Rosenberg, 1965); f: Need for Affiliation (Cheek & Buss, 1981)

\*\*\* Correlation is significant at the .001 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed).

### **Occupational Categories and percentage of sample**

Managers/Admin/Business Professionals (6.3%)	Science/Educational Professionals (10.8%)
Health Related Professionals (19.8%)	Students (42.4%)
Hospitality/Service/Food/Trades/Clerical (9.3%)	Missionaries (3.8%)
	Not Paid Employment (7.3%)
	Unknown (0.3%)

Table 24  
*Means and Standard Deviations of the Big Five Inventory according to Occupation*

Occupation	Extro	Open	Consc	Agree	Neuro
Managers	3.37 (.70)	3.85 (.63)	3.97 (.55)	3.82 (.44)	2.77 (.60)
Health Related	3.25 (.79)	3.80 (.60)	3.76 (.58)	3.83 (.54)	2.80 (.56)
Hospitality	3.19 (.76)	3.72 (.64)	3.54 (.56)	3.58 (.57)	2.96 (.61)
Science	3.38 (.74)	3.97 (.54)	3.66 (.60)	3.68 (.49)	2.97 (.69)
Students	3.21 (.71)	3.75 (.56)	3.56 (.60)	3.66 (.57)	3.10 (.65)
Missionary	3.18 (.70)	3.37 (.52)	3.86 (.57)	3.90 (.45)	2.42 (.61)
Not Paid employment	3.09 (.83)	3.94 (.56)	3.54 (.71)	3.71 (.60)	3.07 (.62)
Unknown	3.56 (.26)	3.15 (.64)	3.25 (.71)	3.06 (.71)	2.33 (1.26)

**The Big Five**  
**Extroversion**

There were no significant associations between the Extroversion scale and Occupation

**Openness**

Missionaries were significantly higher than

- Managers
- Health Related
- Hospitality/Clerical
- Science/Educational
- Students
- Not Paid Employment

Students were significantly lower than

- Not Paid employment
- Science/Educational professionals

Science/Educational professionals were significantly higher than

- Hospitality/Clerical
- Unknown

**Conscientiousness**

Missionaries were significantly higher than

- Hospitality
- Students
- Not Paid Employment

Managers were significantly higher than

- Hospitality
- Science/Educational professionals
- Students
- Not paid Employment

Health Related professionals were significantly higher than

- Hospitality
- Students
- Not Paid Employment

### ***Agreeableness***

Health Related Professionals are significantly higher than

- Hospitality
- Students and
- Unknown

Hospitality are significantly lower than

- Managers
- Missionaries

Missionaries are significantly higher than

- Unknown

### ***Neuroticism***

Missionaries are significantly higher than

- Managers
- Health Related
- Hospitality
- Science/Educational
- Students
- Not Paid Employment

Managers are significantly lower than

- Students
- Not Paid

Health Related are significantly lower than

- Students
- Not paid

Table 25

*Means and Standard Deviation of the Interpersonal Reactivity Index according to Occupation*

Occupation	Fantasy	Empathic	Perspective	Personal
Managers	22.29 (4.42)	27.21 (3.45)	24.82 (3.98)	16.34 (3.50)
Health Related	22.01 (4.79)	27.46 (4.05)	25.71 (4.04)	15.38 (4.08)
Hospitality	22.18 (4.82)	25.86 (3.82)	23.71 (4.43)	17.77 (4.85)
Science	23.92 (4.91)	27.63 (3.06)	25.78 (3.76)	17.74 (4.49)
Students	25.09 (4.87)	26.91 (4.00)	24.95 (4.17)	19.15 (5.45)
Missionary	22.96 (6.60)	27.13 (4.01)	24.09 (3.54)	16.09 (4.67)
Not Paid employment	22.20 (5.00)	27.18 (4.43)	24.59 (3.25)	17.20 (3.15)
Unknown	25.50 (.71)	27.50 (2.12)	26.50 (3.54)	17.50 (4.95)

IRI

***Fantasy***

Students are significantly higher than

- Managers
- Health related professionals
- Hospitality
- Missionaries
- Not Paid employment

Science/Educational Professionals are significantly higher than

- Health related professionals

***Empathic Concern***

Hospitality are significant lower than

- Health related professionals
- Science/Educational professionals

***Perspective Taking***

Hospitality/Clerical are significantly lower than

- Health Related professionals
- Science/Educational professionals
- Students

***Personal Distress***

Students are significantly higher than

- Managers
- Health related professionals
- Hospitality
- Science/Educational professionals
- Missionaries
- Not Paid employment

Table 26

*Means and Standard Deviations of Locus of Control Scale according to Occupation*

Occupation	LOC-Internal	LOC-Chance	LOC-Powerful
Managers	22.16 (2.72)	11.89 (4.25)	11.37 (4.50)
Health Related	21.09 (3.04)	11.17 (4.36)	10.90 (4.50)
Hospitality	20.98 (3.53)	13.04 (4.94)	13.04 (4.88)
Science	20.89 (3.22)	11.86 (3.06)	11.92 (4.12)
Students	20.53 (3.54)	12.92 (4.60)	13.64 (4.62)
Missionary	19.96 (3.31)	6.83 (3.63)	10.39 (4.47)
Not Paid employment	19.45 (3.56)	12.45 (4.36)	12.55 (5.22)
Unknown	16.50 (2.12)	16.00 (2.83)	13.00 (4.24)

### **LOC Internal**

Managers are significantly higher than

- Students
- Missionaries
- Not Paid Employment and
- Unknown

Not paid Employment is significantly lower than

- Health related professionals
- Hospitality
- Science/Educational professionals

### **LOC Chance**

Missionaries are significantly lower than all other occupations

Health related are significantly lower than

- Hospitality
- Students

### **LOC Powerful Others**

Health related professionals are significantly lower than

- Hospitality
- Not paid employment

Students are significantly higher than

- Managers
- Health related
- Science/Educational professionals
- Missionaries

Missionaries are significantly lower than

- Hospitality

Table 27

*Means and Standard Deviations of the LOT-R, RSES and NfA and Occupation*

Occupation	LOT-R	R-SES	NfA
Managers <sup>a</sup>	21.58 (.70)	31.53 (.87)	14.89 (.50)
Health Related <sup>b</sup>	22.79 (.40)	32.08 (.49)	15.87 (.28)
Hospitality <sup>c</sup>	19.43 (.58)	29.79 (.72)	14.84 (.41)
Science <sup>d</sup>	21.03 (.54)	30.58 (.66)	16.06 (.38)
Students	19.80 (.27)	28.53 (.34)	15.80 (.19)
Missionary	23.74 (.91)	32.70 (1.12)	15.17 (.64)
Not Paid employment	21.32 (.65)	30.07 (.81)	14.05 (.46)
Unknown	16.50 (3.07)	24.00 (3.79)	17.00 (2.6)

**LOT-R**

Hospitality are significantly lower than

- Managers
- Health related
- Science/Educational
- Missionaries
- Not Paid employment

Missionaries are significantly higher than

- Science
- Students
- Not Paid
- Unknown

Students are significantly lower than

- Managers
- Health related
- Science/Educationals
- Not paid employment

Health related professionals are significantly higher than

- Science
- Students
- Unknown

**R-SES**

Health related professionals are significantly higher than

- Hospitality
- Students
- Not Paid employment
- Unknown

Missionaries are significantly higher than

- Hospitality
- Students
- Unknown

Students are significantly lower than

- Managers
- Science

**NfA**

Hospitality are significantly lower than

- Health related
- Science
- Students

Not Paid employment are significantly lower than

- Health related
- Science
- Students