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# How Social Identity Influences Social and Emotional Loneliness

Curtis N. Peterson  
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# Walden University

College of Social and Behavioral Sciences

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Walden University  
2018

Abstract

How Social Identity Influences Social and Emotional Loneliness

by

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MS, Walden University, 2005

BS, Idaho State University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

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## Abstract

Social identity theory (SIT) is a robust theory that explains in-group versus out-group behaviors. Two qualities of one's social identity include emotional connection and social connection with others, which someone who is experiencing loneliness tends to lack in their current situation. This dissertation explored whether when one's social identity becomes salient it results in a lower evaluation of one's current state of loneliness. An experiment was conducted in which college student participants, who were 18 years of age or older and currently enrolled in college courses, were randomly assigned to a social identity saliency group (college student) or 1 of 3 control conditions (personal identity group, cognitive control condition, and no prime condition). The sample consisted of 207 participants of which 189 were analyzed for social loneliness and 190 were analyzed for emotional loneliness, after excluding participants who did not meet scoring criteria. To analyze the data a planned contrast procedure was conducted in which the social identity group's mean was compared to the combined means of the 3 control conditions. Results indicated that when social identity is made salient, participants report a lower level of emotional and social loneliness when compared to the other 3 conditions. Loneliness, which is being considered a major public health crisis, is becoming more common in modern society, making finding mechanisms to reduce loneliness important. This research supports the notion that social identification can reduce one's evaluation of loneliness. As an example, from the findings in this research, to reduce loneliness among college students, college programs should focus on the positive attributions of being a college student.

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## Dedication

This dissertation is dedicated to my two adult children Curtis (Taylor) and Latasha, the love of my life Elsa, and my mother Becky. Without their support and love this would have never been possible.

## Acknowledgments

I like to acknowledge my dissertation chair Dr. Brad Bell, for his dedication and persistence in mentoring and helping me through the dissertation process. Thank you to Dr. Anthony Perry for his support as committee member, and his feedback and continued support.

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## Chapter 1: Introduction to the Study

### **Introduction**

One of the most basic needs of humans is having a social connection with others. However, when connections with other humans are thwarted, it can produce loneliness. Loneliness is a common human experience when individuals do not have sufficient social and emotional connections with other people. Although loneliness is a common human experience, researchers have become concerned with the increase of loneliness during the past three decades along with associated negative outcomes. These negative outcomes include depression, reduced mortality, obesity, and reduced quality of life, especially when loneliness is experienced chronically (Cacioppo, Cacioppo, & Capitanio, 2014; Holt-Lunstad, 2015). These researchers state that loneliness is experienced more often in the general population and in congruence with an increase in the negatively associated variables to loneliness. Although research has focused on potential negative consequences of loneliness (de Minzi, 2006) and some attention on how to reduce loneliness within the clinical setting (Fokkema, Gierveld, & Dystra, 2012), little attention has been placed on how loneliness can be reduced within a person's immediate social world.

Although during the past couple decades researchers have been looking at the increases and associated negative outcomes, researchers focusing on intergroup processes have been looking at the positive influences of the social identification process. Social identity theory (SIT) was originally proposed by Tajfel (1982), in the 1970s and 1980s, as

an explanation for discrimination; however, current researchers have started examining the benefits of enhancing and emphasizing one's social identity. Current research findings have indicated that when one's social identity is salient, it can improve individual performance (Burford, 2012), cooperation (Jackson, 2011), self-esteem (Simon, & Hastedt, 1999), and sense of worth (Veelen, Eisenbeiss, & Otten, 2016). In addition, when certain social identities are salient, they can produce beneficial behaviors. For example, research by Carter (2013) provided evidence that when an individual's moral identity is salient, it reduces the probability of cheating behaviors. More recent research has also examined how social identity influences individual health. A meta-analysis conducted by Steffens, Haslam, Schuh, Jetten, and van Dick (2016) indicated that individuals with a strong social identity were healthier and had better psychological health than individuals who had a weaker social identity. The improved health of individuals with strong social identities are the different negative health outcomes associated with loneliness. In addition, the psychological health benefits are known to reduce symptoms of depression, one of the main psychological problems associated with loneliness.

In this research, I aimed to further the literature on loneliness and social identity by investigating whether the salience of one's social identity may reduce individual's subjective evaluation of loneliness. If correct, this may provide mechanisms that groups, communities, and practitioners may use to develop programs to assist individuals in reducing loneliness and potentially the subsequent problems associated with loneliness.

In this dissertation, I provide an argument on how social identity may reduce an individual's subjective experience of loneliness, through making one's social identity salient. To investigate this, I viewed loneliness from a negative emotional motivation state that drives the individual to seek out close emotional relationship and/or social connections. One key way to do this is through the categorization and identification processes proposed by social categorization theory (SCT) and social identity theory. These processes allow an individual to develop social connections, but more important, provide the opportunity to develop close emotional attachments with others, through shared meaning via their social identity.

In this chapter, I will argue that social identity may be a key variable in the reduction of an individual's experience of loneliness. In the next section, I will provide the background on research and theoretical development of social identity and loneliness. Then I will provide the problem statement, followed by the purpose of this study. The problem statement will center on the notion that increased social disconnection, which leads to loneliness, can negatively influence the individual experiencing the disconnect, physically and psychologically. This process will lead to the section on the purpose of this study, which is a potential social mechanism that may reduce one's loneliness via the social identification process. The problem question section and background will lead to the specific hypotheses regarding the relationship between loneliness and social identity.



## Background

Loneliness and social identity developed from two separate areas of research, with loneliness usually seen within the study of emotions and social identity being studied within the context group processes and intergroup relations. The notion of social identity was first conceptualized by James (1890), whose ideas of the *self-concept*, which is defined as the totality of everything a person can say, is theirs. Within the self-concept, James described what would be later divided into one's social identity (all things that define an individual in the social world) and one's personal identity (James called the spiritual self but eluded to all the things that make the individual unique). However, social identity as a fully developed theory did not come until the late 1970s, when a psychologist Tajfel wanted to identify the process in which one group will discriminate and be prejudice toward other groups. The basis of SIT is that through the process of categorization of individuals into different groups based on similar attributes (e.g., men and women, differentiated by different physical structures and dress) individuals come to associate with that group which has similar attributes to them.

Per Tajfel (1969), when the individual develops a sense of identity through group affiliation, this identity becomes a core component of one's self-concept. Tajfel's research indicated that because individuals like to be thought well of, they go to great lengths to protect this newly developed identity. This new social identity then leads to social comparison, whereby an individual wants their group—and by proxy themselves—to appear as better than other groups. This process, Tajfel argued, leads to discrimination

and prejudice. Although research since Tajfel and Turner (1986) has supported the hypothesis, that individuals discriminate based on this categorization and identification process, recent research has focused on the positive aspects of social identity theory. This research has indicated that when specific social identities are salient, it can promote prosocial behavior. For example, when one's moral identity is made salient individuals are less likely to cheat (Carter, 2013). When a physician's identity is made salient, they communicate with others and are more efficient during medical procedures (Haslam, 2014). When flight attendants are made to think as a congruent social identified group versus individually, they made fewer mistakes and were more efficient at their work (Ford, O'Hare, & Henderson, 2013). This focus on the positive aspects of social identity has led some psychologists, such as Haslam (2014), to provide recommendations to professionals who work with mental disorders to emphasize the exploration and importance of the client's social identity, to improve an individual's mental health. More recently, research by Steffens et al. (2016) has indicated that the more one's social identity is made salient, the healthier physically and psychologically individuals tend to be.

Loneliness as a scientific study dates to the 1920s where loneliness was viewed as either a symptom of, or a consequence of, mental health issues (Brooks, 1933). The early conceptualization did not recognize that individuals who do not have mental health issues can experience loneliness. This idea will develop into the theoretical conceptualization in the 1950s of the lonely personality, that is, some individuals, due to personality and

developmental issues, are more likely to experience loneliness (Sullivan, 1953). This idea was drastically changed by Weiss (1973), who argued that loneliness is a natural human emotion experienced when an individual either lacks close emotional relationship (i.e., emotional loneliness) or insufficient amount of social contact and social connection (i.e., social loneliness, a.k.a. social isolation). This change in conceptualization from a feature of one's personality to a commonly experience negative emotional state will change the way in which loneliness will be researched into contemporary times.

Much of the contemporary research focuses on the various psychological and physical states that are associated with loneliness (Jones et al., 2011). These findings have resulted in important implication in things such as mortality and morbidity (Cacioppo, Hawkley, & Thisted, 2009). However, this has led to two problems with the current state of the loneliness literature. The first issue is the research focuses on correlational research, with little experimental research supporting many of the claims made by researchers. The second is the research has diverted attention away from understanding the situational conditions that contribute to loneliness, and situational variables that may reduce the subjective experience of loneliness. In response to this trend in this dissertation, I aimed to investigate whether one's social identity—that is made salient within a situation—would reduce one's experience of loneliness. Specifically, I will argue that when an individual's social identity becomes salient within the situation, this would have a priming effect on the individual which may make memories of individual's social and emotional connection with others more prominent in

one's evaluation of loneliness. This process may have led the individual to experience less loneliness.

### **Problem Statement**

Research conducted during the past 3 decades has shown an association between chronic loneliness and well-being (Jones, et al., 2011), mortality (Cacioppo et al., 2009), and physical health (Victor, & Bowling, 2012). Much of this research has focused on the long-term effects of loneliness (Victor, & Bowling, 2012). An example of how loneliness is associated with later life experiences is research by Jones et al. (2011), who found adolescent depression was predicted by middle childhood loneliness. Research has also focused on older adult issues such as recovery from illness (Segrin & Domschke, 2011), mortality (Shankar, McMunn, Banks, & Steptoe, 2011), and well-being (Segrin, & Passalacqua, 2010). All this research has focused on long-term effects of loneliness, yet what is unclear is how loneliness is developed and maintained in the present and the mechanisms that either drives the continued experience of loneliness or alleviates the symptoms. One potential avenue of investigation is group processes, specifically, how identification with a group either supports or reduces loneliness.

Research on social living (Smith, 2012) and social groups (Gentina, 2014) is associated with less loneliness. Some explanations provided by Smith (2012) include increased social interaction and social engagement; however, because this research was not conducted using a controlled experimental design, there may be several other reasons for the association. I argue that the potential variable that may reduce loneliness among

these populations is a sense of identity. But because these studies are correlational in nature, this is speculative, and there may be, and likely are, several variables that contribute to the negative association between loneliness and individuals living socially. Gentina (2014) found that social categories and social hierarchy influenced teen self-esteem and loneliness. According to Gentina, the more teen girls accepted their social category and place the higher their self-esteem and they experienced less loneliness. In contrast, research by Smith (2012) indicated that as individuals age and start to disengage from their social world they tend to become lonelier. However, those who maintain a sense of community, and engage in social groups tend to be less lonely. In this dissertation, I argue that it is a sense of belonging to a group as explained by SCT (Turner, & Reynolds, 2003) and the formation of a social identity within these setting, as explained by SIT (Tajfel, & Turner, 1986), could reduce an individual's sense of loneliness within a group living setting. By investigating the influence of social identity on the affective state of emotional loneliness, this fills the gap in the literature between loneliness and social identity. The potential of loneliness and social identity having some relationship is was currently explored by Peterson (2017), who found that social identity strength is negatively associated with loneliness. That is, as social identity strength increases, overall scores on loneliness decrease, and vice versa. In this study, therefore, I explored the potential causal relationship between social identity and loneliness.

### **Purpose of the Study**

My primary purpose in this quantitative research dissertation was to investigate whether an individual's experience of loneliness is reduced when the individual's social identity becomes salient. Specifically, I investigated two research questions. The first examined whether making salient one's social identity would decrease emotional loneliness, and the second investigated whether social identity decreased social loneliness. To test this idea, participants were randomly assigned to one of four groups. Group one individual's social identity was made salient through priming and compared it with three other conditions, which included a personal identity priming condition and the two other no prime control conditions—one including a non-priming task and two will be a no task control. If assumptions of this dissertation were correct, individuals whose social identity was primed should experience less emotional loneliness and less social loneliness than the no identity groups or the personal identity group.

### **Research Questions and Hypotheses**

**Research Question 1:** Does social identity, when made salient, reduce an individual's social loneliness?

**Null hypothesis:** There is no difference in individual's measure of social loneliness between social identity saliency group when compared to a personal identity group, cognitive task control group, and a no-task control group. This relationship can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} = 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research hypothesis:** Individuals who participate in the social identity saliency group will score less on a scale of social loneliness when compared to individuals in a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} < 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research Question 2:** Does social identity, when made salient, reduce an individual's emotional loneliness?

**Null hypothesis:** There is no difference in individual's measure of emotional loneliness between social identity saliency group when compared to a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} = 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity saliency,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research hypothesis:** Individuals who participate in the social identity saliency group will score less on a scale of emotional loneliness when compared to individuals in a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} < 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity saliency,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

### Theoretical Framework

This research is based on the theoretical foundation from neuroscience (Cacioppo et al., 2013) and social psychological research (Fiske, 2013) that indicates that individuals have a basic drive and need to belong in a social world. When this need for belonging is thwarted either socially (social isolation) or emotionally (emotional isolation) the individual will experience the negative state of loneliness.

As a potential mechanism of increasing belonging and decreasing loneliness, this research builds on the research conducted on SIT and SCT by providing more evidence on the positive aspects of the social identification and categorization processes and link the positive aspects of social identification and other psychological processes such as loneliness. Per SIT, individuals seek groups which have similar attributes that they have.



This leads to group affiliation and the development of a social identity based on the qualities of that group (Turner, 1982). Once individuals start to develop a social identity to protect that identity, he or she will categorize individuals into either in-groups or out-groups as described by SCT (Abrams, 2014). Like one's personal identity, individuals like to think of themselves as worthy people in general. Therefore, they will implement protective mechanisms to enhance and have their social identity protected (Carter, 2013). Accordingly, most research on SIT has focused on how individuals protect their social identity through engaging in prejudice and discrimination (Kumar, Seay, & Karabenick, 2011). However, recent research has focused on the positive aspects of social identity; for example, Haslam (2014) showed how a sense of social identity among medical doctor residency students could enhance their educational experience through developing a sense of identity as a doctor.

The original assumption of SIT is that individuals seek out a social identity to enhance their self-esteem (Turner, 1982). However, although individuals with strong social identity seem to have heightened self-esteem, research on individuals with lower self-esteem seek out social identity has been inconsistent and does not support this view (Abrams, 2014). The relationship between the situation and the person are represented and explained in further detail in Chapter 2, Figure 1, which represents the interaction between the situation and the individual. The model in Figure 1 represents an interaction between the situation (i.e., social identity saliency versus no social identity saliency) and the psychological and emotional states of loneliness. This interaction is based on the idea

that if the situation provides information that makes a given social identity salient, the individual is more likely to use that identity to navigate through the given situation.

When thinking about the identity within the situational contexts, individuals have better access to memories associated with that identity, including the social and emotional connections they have within that social category for which the identity represents. In this research, I assumed that the individual will access memories associated with their emotional and social connections with others when evaluating their current state of loneliness, which may lead to a reduction in loneliness.

### **Nature of the Study**

This study was a quantitative experimental research design. The reason for the selection of an experimental design is because in this dissertation, I aimed to investigate the causal direction between social identity and loneliness. Social identity is, therefore, the independent variable, and will consist of two experimental priming conditions: social identity prime, personal identity prime, and two no identity prime conditions—a no task condition and an unrelated cognitive task condition. The use of priming in research on social identity has become increasingly popular in answering questions of how social identity influences a given behavior or emotional state (Carter, 2013; Hogg, & Turner, 1987). This research includes two priming conditions and two no prime conditions, to rule out other possible explanations. The personal identity condition will assure that it was the individual's social identity that influenced loneliness, and no other aspects of one's identity. In the two no prime conditions, a task unrelated to identity will rule out the

potential of just engaging in some cognitive task may reduce loneliness, and a no task condition.

Two dependent variables measured in this research: emotional loneliness, and social loneliness. Loneliness was measured using standardized measurement tools that have been consistently found to be both valid and reliable in previous research. Using standardized measures allowed for a more objective evaluation of the consequences of the social identity manipulation, but also allowed the finding of this research to be more easily compared with other research using similar measurement tools.

The social identity that used in this research will be “college student.” A college student was chosen because it has fewer confounding issues than other social identities such as gender, parent, or national identity. In addition, by using college student as social identity this allows for investigation across a broad range of college student populations. Two of the conditions will engage individuals to do an activity that will either engage them in thinking about their personal or social identity, although the no prime control conditions will either engage the participant in a nonsense cognitive task or no task condition. After completion of the task, individuals will then complete the dependent measures including the De Jong Gierveld loneliness scale (de Jong Gierveld, & van Tilburg, 2006). After completion of this dependent measures, individuals were asked basic demographic information including age and gender. The demographic information was asked for at the end so that other social identities such as one’s gender do not confound the identity that is being primed: college student. The analytical approach was

completed by using SPSS software to conduct planned contrasts to help answer the research questions and hypotheses presented in the section titled “Research Questions and Hypotheses” in this chapter. The next section will provide specific definitions of variables and concepts, both theoretical and construct, that are important to understand and are used throughout this dissertation.

### **Definitions**

*Loneliness*: “Loneliness is described as a state of emotional distress due to incongruity between actual and desired levels of social interaction (Peplau & Perlman, 1982). Moreover, it is explained as a lack of meaningful social relationships (Fees, Martin, & Poon, 1999)” (Durak & Senol-Durak, 2010, p. 988).

*Social loneliness (social isolation)*: Subjective evaluation of not having sufficient number of social connections within one’s life (Weiss, 1973).

*Emotional loneliness*: The subjective evaluation of lacking a significantly close emotional relationship with another person or group of persons (Weiss, 1973).

*Social identity*: “[S]ocial identity will be understood as that part of the individuals’ self-concept which derives from their knowledge of their membership of a social group (or groups) together with the value and emotional significance attached to that membership” (Tajfel, 1982, p. 2).

*Social identity salience*: Whereas social identity is one’s knowledge of membership to a given group category and the emotional significance of that membership, social identity salience is the degree to which a given situation, makes

knowledge and awareness of that identity present. In this research, this will be done by asking individuals about important qualities of a social category (i.e., being a college student) to which they belong (part of their social identity) (Hogg, & Turner, 1987).

*Social identity theory (SIT)*: A theory which posits that individuals seek out different social groups for which they feel they belong based on similarities, and seek to protect that identity by making positive distinguishable distinctions between the group they belong to (in-group) and groups that are different (out-groups) (Tajfel, 1982).

*Social categorization theory (SCT)*: A theory that explains the cognitive process in which someone distinguishes between two social groups, usually based on social norms and social processes (Turner, 1975).

*Belonging*: A theoretical assumption that one of the basic needs for individuals is social connections and to feel that they belong to their social world (Fiske, 2013). Often seen as the opposite of loneliness, as it is comprised of both having social connection and close emotional ties with others.

### **Assumptions, Limitations, Scope, and Delimitations**

This section will describe the assumptions that are made that may not be directly demonstrable but are important to understanding the potential outcomes of the study. There are three assumptions that will be described in this section. The first is loneliness as a negative emotional state that occurs when an individual's need to belong becomes thwarted through perceived loss of social or close emotional connections. The idea that loneliness is a motivation state to regain belonging is based on the theoretical

assumptions that one of the primary psychological drives of individuals is to have a sense of belonging within their social world. The theoretical assumption that individuals have a need to belong is based on research that indicates an association between individuals who have a strong sense of belonging and positive health and well-being outcomes (Steffens et al., 2016). The need for belonging is also based on the argument that the survival of an individual relies on the social connection and belonging they have with other people (Lieberman, 2013). Although the evidence is robust that individuals have a primary need to belong socially, the ability to directly assess this theoretical hypothesis experimentally is difficult (Fiske, 2013).

The second assumption is that loneliness defined as a negative affective state, that motivates an individual to seek out either, emotional or social connection with others rest on the notion that the individual commits some behavior such as going to a social gathering or calling an old friend. It is assumed that by making one's social category for which they have social and emotional connections cognitive salient, the individual will reduce their subjective evaluation of loneliness as if they were engaging in behaviors that reduce loneliness. This assumption is based on other research that indicates that individuals do not necessarily have to be present within a social group, but merely by making that group cognitive salient, that, in and of itself, is enough to change behavioral and affective states (Haslam, 2014).

The final assumption is that participant will give honest responses to the questions asked in measuring the dependent variable. Although research often runs the risk of

hypotheses guessing and veining response to look good, it is assumed that in general participants want to generate an honest view of who they are and their current condition.

There are some limitations to the study being conducted. First is the issue of social identity. This research will only be testing one type of social identity – college student - which limits the generalizability to other forms of social identity. Another limitation is the confounding issue of the use of college student as a social identity. Because this research is being conducted in an academic setting, and under academic conditions, it may be difficult to assess the degree to which one's social identity of a college student may influence an individual's response to the other two non-social identity priming conditions. One way in which to assess the degree to which social identity of college students may influence the results across conditions is to ask how important and how often does a participant think about being a college student in the demographics section of the research. As an assumption, it would be assumed that individuals who are primed for being a college student would select a higher importance and report thinking about being a college student more often than the other two groups. By asking these questions, this also serves as a manipulation check.

As an important aspect of this section, it is important to explore some potential alternative explanation for the potential results. For this discussion, I will start by explaining alternative explanations if the null hypothesis for research question one and two, regarding whether social identity influences one's state of loneliness is true. Under a null condition it may be that priming one's social or individual identity has no influence

on one's state of loneliness. That is, although loneliness is influenced by the lack of social and emotional conditions it lies outside one's identity to either some other dispositional quality of the person as argued by early research on loneliness (Sullivan, 1953) or to some other social condition (Rokach, 2000; Rokach, 2001; Rokach, & Brock, 1997). Another potential finding is that it is one's personal identity, rather than one's social identity which influences an individual's state of loneliness. It may be the case that individuals become lonelier when they are thinking and evaluating a social group, and that it is the evaluation of their personal qualities which others may see as valuable that reduces a person's state of loneliness.

The second type of alternative explanation that needs to be explored is whether there is a different explanation for the findings of this dissertation if there is evidence for all the experimental hypotheses? The first alternative explanation is that the pure act of engaging in a social activity, that has some social meaning (i.e., contributing to science and helping someone complete their dissertation), may reduce one's loneliness. There is some support for this explanation. For example, research by Martina and Stevens (2006) found using a sample of women who age was greater than 65 years and who reported being highly lonely, reduced their loneliness when engaging in activities that directly addressed reducing loneliness (i.e., providing techniques to develop friendships) or a control group where women participants just got together and talked. This research indicated that merely doing something socially meaningful can reduce loneliness. One way to reduce the potential of other social influences, is to have participants engage in the



experiment utilizing an online modality. This will provide a means where the individual is likely to engage in the experiment that is semi-isolated in fashion. In addition, one can interpret the findings of Martina and Stevens (2006) by the social identification of the participants within the groups. Because there was no individual education modality in the research, their results can be interpreted through a social identity lens.

In broad terms, the scope of this project is the investigation of situational factors that influence one's state of loneliness. The choice of situational factors was made because there is no current research on the influence of situational factors on a person's experience of loneliness. The situational factor chosen for this research was social identity salience. The social identity literature has a robust history (Mackia, & Smith, 2015) and research on social identity saliency has shown to have a positive influence on individual's health and well-being (Steffens et al., 2016)). Lastly, the social and emotional components of a salient social identity fit well with emotional and social variables that could reduce loneliness. That is, social identity allows a person to feel more emotionally connected to others (reduced emotional loneliness) and provide the social opportunity to make social connections (reduced social loneliness). Because of these factors it was decided to limit situational factors to the saliency of one's social identity. In the next few paragraphs a detailed explanation of why other social variables was not selected and why loneliness was decided as a dependent variable versus other variables.

The delimitations of this dissertation should start with discussion on why the topic of loneliness was chosen versus any of the associated physical or psychological factors

such as mortality rate or depression? The major reason loneliness was selected is because it is associated with several other physical and psychological variables. The key variables being associated as it is associated with lower mortality and higher morbidity rates (Grageset, Eide, Kirkevold, & Ramhoff, 2012; Newall, Chipperfield, & Stewart, 2013); morbidity (Segrin, & Domschke, 2011); depression (Segrin, Powell, Givertz, & Brackin, 2012; Zimmer-Gembeck, Trevaskis, Nesdale, & Downey, 2014); suicide (Jones, Schinka, van Dulman, Bossarte, & Swahn, 2011; Lasgaard, Goossens, & Alklit, 2011); and physical disabilities such as obesity and unhealthy lifestyles (DeWall, & Pond Jr., 2011; Ganley, 1989). Although longitudinal studies indicate the potential directions of these associations such as loneliness in childhood being associated with depression and suicide in adolescents (Jones et al., 2011), and chronic loneliness in middle adulthood being associated with lower mortality rates in older age (Cacioppo, Christakis, & Fowler, 2009), this research is correlational and not causal in nature. In addition, the ethical ability to conduct such causal experimental methods are a barrier to understanding the actual causal direction. This research therefore chose to investigate how situational variables such as social identity saliency can influence one's current experience of loneliness. There has been some research using experimental design which induces loneliness versus a control group and then have participants engage in some belief or perceptual task. The methods of this research support the situational view on loneliness. For example, research by (Cacioppo, & Patrick, 2008), had participants take a fake personality test and then randomly told participants that they would either have good

social relationships in the future (control condition) or would have poor social relationship and are more likely to live alone (experimental condition). In this research, the experimenter found an effect on their dependent measure and as a manipulation check found that individuals in experimental condition scored higher on a scale of loneliness compared to the control condition. This research and research like it indicates that loneliness can be situationally manipulated via feedback from their environment. If loneliness can be induced by a situational factor, it is valid to argue, that situational variables should have an influence on reducing one's loneliness. Therefore, this research aims to use loneliness as a dependent variable in response to a situational factor: saliency of one's social identity.

In this dissertation I argue that social identity can reduce loneliness, however it is worth taking some time to explain why other social variables that have been associated with loneliness were not chosen. Some other potential social variables that are associated with loneliness include attachment style (Givertz<sup>1</sup>, Woszidlo, Segrin, & Knutson, 2013), conformity (Hansson, & Jones, 1981), rejection (Howe, & Dweck, 2016), and social isolation (Cacioppo et al., 2010). Rejection and social isolation have been indicated to increase one's experience of loneliness (Cacioppo et al., 2010). However, this research is the investigation of mechanisms that can be added to the situation, that decrease one's loneliness. The best candidate is social identity, based on organizational research on social identity, because saliency of social identity is associated with reduced sense of rejection and reduced sense of isolation (Cacioppo et al., 2010). If saliency of social

identity can reduce two potential situational variables that influence loneliness, it can be argued again that saliency of social identity can reduce loneliness as well. Research has also indicated that lonely individuals are less likely to conform to group pressures (Hansson, & Jones, 1981). The interpretation of this research is that individuals who are lonely do not conform as a self-protective mechanism to shield themselves from further loneliness. Although I believe more research on the association between conformity and loneliness needs to be conducted, the lack of a theoretical understanding on how conformity may reduce loneliness is just not there in the current state of the literature, making it a less likely candidate to reduce loneliness. Attachment has been associated with loneliness (Givertz<sup>1</sup>, Woszidlo, Segrin, & Knutson, 2013) and social identity (Kawamoto, 2015). Attachment theory has a long and robust history and is associated and expected to influence several psychological and social variables. However, because attachment styles are relatively difficult to change (Seedall, Butler, Zamora, & Yang, 2016), and require extended professional or self-help services, it does not make a good immediate situational variable for reducing an individual's immediate evaluation of loneliness. Because this research focuses on the immediate situation, this make one's attachment style a poor candidate for either an independent or dependent variable.

The decision to study loneliness as a dependent measure was made because loneliness is seen as a modern living problem, and because there is limited knowledge on the situational conditions that influence the symptoms associated with loneliness. There has been a large body of research that has associated social living and social relationships

with reduced loneliness. However, there are few studies that have explored the immediate situational variables that influence one's experience of loneliness, that may better explain the correlational findings. In addition, situational (Costabile, 2016) and perceptual (Epley et al., 2008) variables that have been studied focus on the consequences of experienced loneliness and not situational factors that reduce loneliness. Therefore, the scope of this research is to explore the immediate social conditions that contribute to an individual's experience of loneliness. Based on these factors, the scope of this research is limited to understanding loneliness in the immediate situation and cannot state anything about previous experiences of loneliness or on-going states of loneliness.

### **Significance**

This research is significant in two important ways. First, it advances the knowledge of SIT and loneliness by integrating two separate lines of research one dealing with inter-group processes and the other with individual emotive processes. There is a growing body of research that indicates that having a strong social identity can have positive health outcomes (Steffens et al., 2016). What is not known is the mechanisms present within one's social identity that create conditions for better health. This dissertation is the start of an investigation on whether social identity reduces a person's evaluation of their loneliness. This will be an original contribution to the literature, because the relationship between social identity and loneliness has not been investigated. Although there is correlational evidence that indicates individuals, who live in social groups tend to be less lonely, and social identity is negatively associated with loneliness

(Peterson, 2017; Segrin, & Passalacqua, 2010), the direction of this relationship has not been established, from an experimental design perspective. In addition, there can be a correlation with no causal associations, which is another reason for the importance of an experimental design. If correct, this may be why individuals with a strong social identity tend to have better physical and psychological health. If correct this can open new approaches to alleviate the lonely aspects of depression by focusing on the positive aspects of one's social identity. This information can be used by suicide prevention programs, by focusing on developing strong and healthy social identities within a community that can include: increasing an individual's student identity, identity as a parent, or identity as a community member. By helping lonely individuals have a sense of social identity, this may reduce the probability of suicidal and depressive symptoms associated with loneliness. Another hopeful aspect of this dissertation is to help inform policies and social practices when it comes to obesity crises that is occurring across the globe. Per some research, loneliness is a better predictor of obesity than is diet and exercise (Cacioppo, & Patrick, 2008). One, aspect of obesity is the feeling of ostracism, or what is known as fat shaming, from other individuals. This leads to greater loneliness, but within the context of social identity theory, being ostracized from the broader community and culture makes it difficult to develop strong and positive social identities. If there is a link between social identity and loneliness, this may help to frame further research on the association between obesity and loneliness. In a vision of the future, this may lead to social programs that focus on developing strong and healthy social identities

in weight control programs that may lead to greater success in weight loss efforts.

However, before taking the leap from concept to application, this dissertation focuses on empirically investigating whether one's social identity does indeed influence their evaluation of loneliness. That is, in the scheme of creating positive social change, this research focused on the beginning phases of developing potential social interventions that can better the lives and well-being of individuals.

In summary from a practical and social change potential, this research extended arguments made by Haslam (2014) who stated that when individuals who are having emotional and social problems often underplay the importance of their identity with others. However, individuals with a strong social identity tend to be more psychologically and physically healthy (Steffens et al., 2016). Loneliness is a growing common problem in modern life and is associated with several psychological and physical problems. Finding a solution to this growing problem can have a positive influence on individuals and groups, through increasing psychological and physical well-being and reducing ever-growing healthcare costs. Some examples of how the results of this research could be used include recommendations established by Haslam (2014) who argued that within the clinical setting therapist should consider client's social identity as an important factor of health and well-being. Some practical examples could be in the couple therapy setting exploring the social identity of being a "husband" or a "wife" and how those socially defined identities influence the couple's relationship. In this example Haslam (2014) would argue that being a "husband" as defined as part of an identity, is just as important

as defining one's individuality within the relationship. By focusing on these social identities allows the individual important insight to how important being a "husband" or a "wife" can help the couple although they work on individual characteristics that impede relationship success. If the research questions presented in this dissertation are correct, it may also reduce the loneliness and isolation many individuals feel when experiencing a relationship crisis. This research may provide direct support for this notion when it comes to working with individual who suffer from loneliness. Beyond potential clinical applications, community policy makers may use this information to promote a sense of community identity. Likewise, companies who want to promote well-being of their staff, and decrease health risks, may use this information to increase individual's sense of occupational identity – which is under the umbrella of social identities. The social identification process is a strong candidate for potentially reducing loneliness within a population. This research is a start of an investigation into the relationship between social identity and loneliness, the hopes are that social change can be created by understanding situational mechanism – such as saliency of social identity – that can reduce individual's experience of loneliness and the negative correlates of loneliness. By doing so this will allow individuals to live a more engaging, social, and healthy lifestyle. In addition, it is hoped that this research will reinforce and continually help interpret social psychological concepts into clinical practices. As mentioned early Haslam (2014) has already made a strong argument into the exploration of an individual's social identity is during the treatment process. This research can potentially show how integrating and making salient



and important one's social identity can reduce the effects of loneliness a common symptom of individuals who suffer from psychological disorders. Although these social change goals may seem lofty, I believe that if the assumptions of this research are correct, it will lend itself to other research ideas and programs that will allow us to understand how one thinks and feels about their social world within a situational context influences individual's affective and emotional experiences.

### **Summary**

Loneliness and the associated negative correlates are of concern, especially as individuals become more disengaged and isolated from each other. However, little is known about ways of alleviating loneliness within one's immediate situation, and outside of the clinical setting. This research aimed to investigate whether social identity can reduce one's subjective evaluation of their current state of loneliness. In the next chapter, an in-depth exploration of loneliness and social identity will be explored. The theoretical relationship between the two variables will be provided which argues that a salient social identity within the situation, when attended to, primes the individual to evaluate the situation as less lonely, due to the social and emotional connection qualities of one's social identity. These ideas will be expressed using five general themes that will be elaborated on in Chapter 2 and are the guiding ideas of this dissertation. Theme 1: Individuals have a need to belong and when thwarted can produce the emotional state of loneliness. Theme 2: The emotional and social qualities of one's social identity may reduce the experience of loneliness. Theme 3: For one's social identity to influence their

behavioral and emotional state it must be salient within the situation. Theme 4: The more positive the social identity, the more likely it will influence one's emotional state in a more positive direction. The last theme is aimed at the social change aspect of the dissertation which is to reduce loneliness and the negatively associated health outcomes; loneliness needs to be understood by how it is triggered or reduced within a given social or cultural context. These five themes will be further explored in Chapter 2 and act as a guide for the development of this dissertation.

## Chapter 2: Literature Review

### **Introduction**

My primary purpose in this dissertation was to investigate the potential influences of one's social identity on their subjective experience of loneliness. One potential way of reducing loneliness is through increasing one's sense of social belonging through their social identity. Recently, researchers have looked at the positive aspects of social identity (Carter, 2013). In this study, I wanted to expand this work by examining whether loneliness can be reduced when one's social identity is salient within the situation. In this chapter, I will explore the importance of the need to reduce loneliness, and how the social identification process may be one way to reduce loneliness.

In the field of psychology, a persistent interest exists in determining what variables are associated with well-being but also what predicts adverse life events. One variable that has emerged as a significant correlate of well-being is loneliness. Loneliness has been shown to be related to physical declines, mortality (Grageset et al., 2012; Newall et al., 2013), morbidity (Segrin, & Domschke, 2011), obesity (Ganley, 1989), smoking behaviors (DeWall, & Pond Jr., 2011) and psychological problems such as depression (Alpass, & Neville, 2003; Cacioppo et al., 2010; Jaremka, et al., 2014; Segrin et al., 2003; Zimmer-Gembeck et al., 2014;), suicide (Jones et al., 2011; Lasgaard et al., 2011), and high-risk behaviors in teens (Jones et al., 2011). Because of these strong associations, it is important to explore the immediate mechanisms and responses that drive loneliness and, more important, what lessens the degree to which someone

experiences loneliness. Although other researchers have examined what happens when loneliness is induced and subsequent changes in perceptions (Epley et al., 2008) and beliefs (Costabile, 2016), insufficient empirical literature exists on what can reduce loneliness within an immediate context. In this research, I proposed one potential mechanism that may reduce loneliness is the social categorization and social identity process. Social categorization and social identity literature has a robust and rich history, which started with research on how the social identity process can create conditions for prejudice and discrimination to occur (Abrams, 2014). However, recent research has focused on the positive aspects of the social categorization and social identity process in concepts such as stress reduction (Ketturat, Frisch, Ullrich, Hausser, van Dick, & Mojzisch, 2016), team cohesion and performance (Cooke, 2015; Ford et al., 2013), and judgment making (Costabile, 2016). Because both loneliness and social identity both seem to drive individuals to social belonging, it is reasonable to investigate how these two variables are related.

In the next section of this dissertation, I will provide a review of the search strategies that I used to give the reader an indication of the different databases, search terms, and requirements for inclusion used in the development of this dissertation. After this section, a presentation on the theoretical framework for this project. The theoretical framework will consider three complimentary theoretical foundations including Hawkey, Cacioppo, and Preacher (2010) theoretical framework for loneliness, Tajfel (1982) SIT and recent updates by Haslam (2014); and Fiske's (2013) theoretical ideas of the need for

belonging. In the conceptual framework section, research is presented that provides a better understanding of what loneliness and social identity are as psychological processes and their potential relationship will be provided. As the reader studies this, section they should keep in mind the five themes presented at the end of Chapter 1 and will be reviewed again at the end of this chapter.

### **Literature Search Strategy**

An exhaustive literature review search which culminated into 793 articles, books, and publications. After reading and reviewing all 793 publications, the review was narrowed down to the articles and books listed in the reference section. The main databases used included: PsycINFO, PsycARTICLES, SAGE Premier, SocINDEX, PsycTESTS, and Mental Measurements Yearbook with Tests in Print, all provided through Walden University Library. The search engines, Google and Amazon, were used to locate books that were found to be relevant to this dissertation. The search years used were 1,750 (or based on earliest date of the database) to 2016. Only four types of publications were included in the development of this dissertation: peer reviewed research articles, peer-reviewed literature reviews, articles published with editor review in psychology related handbooks, and books that had major theoretical influences and were cited in at least two peer reviewed research articles as majoring contributing works. In addition to use of databases, research based on article citations and references were included. The following terms and combination of terms were used in database searches: *loneliness, lonely, social identity, social identity theory, social categorization, social*

*belonging, identity, physical well-being, depression, social connection, neuroscience, emotional loneliness, rejection, social rejection, social isolation, isolation, priming, self-esteem, social support, emotional connection, UCLA loneliness Scale, De Jong Gierveld Loneliness Scale, shyness, introversion, interpersonal isolation, episodic loneliness, chronic loneliness, affect, neurological, alcohol, drinking, sex, sexuality, physical health, self, personality, interpersonal attachment, attachment, cognition, cognitive load, and cognitive attribute.* Using these search terms and combination of terms resulted in more than 5,000 articles and publications, of which 793 were reviewed for their relevance to this dissertation. Selection of articles and publications that are listed in the reference section were included based on the following criteria for which an publication had to at least meet the first criteria and two of the other criteria (2-9): (a) the research was significantly related to the topic of loneliness and/or social identity (i.e., were major variables in the publication), (b) the publication synthesized other research, (c) the publication was cited in at least two other articles, (d) the publication explained gaps in previous research, (e) the publication found gaps in current research, (f) the research contradicted previously established research, (g) the publication provided a theoretical and/or conceptual understanding of the important variables based on established research, (h) if it was review of literature or theoretical paper, the article presented findings from empirical research to support claims, and (i) if empirical research, report reported to have moderate to high effect sizes within statistical reports.

### Theoretical Foundation

In this section, the theoretical basis for the hypothesis that salience of social identity may reduce an individual's current subjective experience of loneliness will be explored. Figure 1 represents the combination of four formalized theories (i.e., Fiske's (2013) theory of need for belonging; Goldenberg, Halperin, Zomeran and Gross's (2016) theory of group emotions; Weiss's (1973) theory of loneliness; and Tajfel's (1982) social identity theory) that together explain the theoretical relationship between social identification and loneliness. This model will be used to argue that when important aspects of one's social identity are present in one's situation this provides a priming effect on a person's memories of their social and emotional connection which may reduce their experience of loneliness, increasing belongingness, and increase self-esteem.

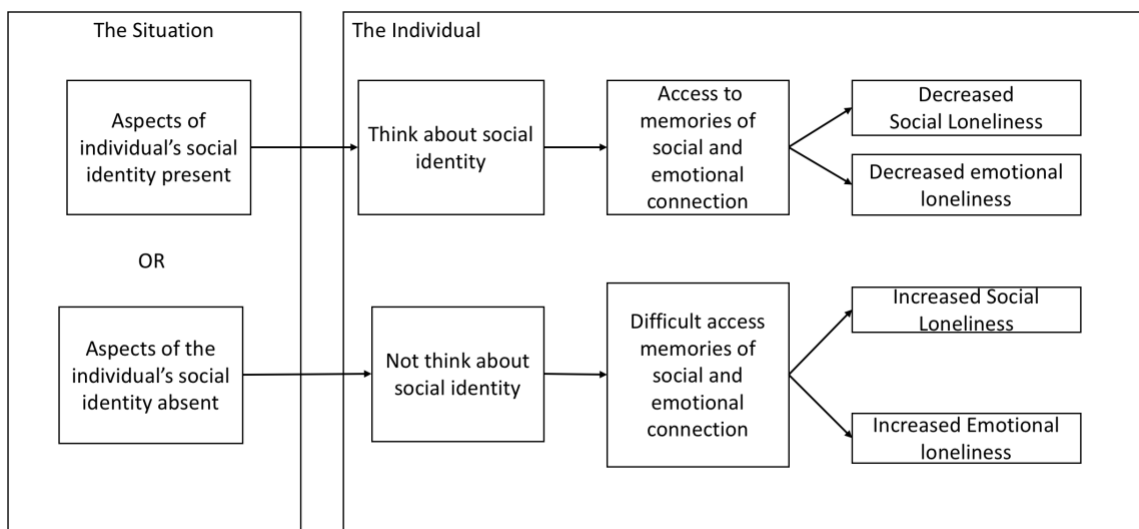


Figure 1. Proposed model of loneliness reduction through social identification.

Based on the factors presented in Figure 1, the theoretical model represents an interaction between a given situation and the individual. It has been argued that emotional

states – such as loneliness – are situationally and contextually bound, although affective states can be relatively stable (Goldenberg et al., 2016). When it comes to social identity research, for one to be influenced by a given social identity, cues of the identity must be present (Carter, 2013; Hogg, & Turner, 1987). This process is represented by the two smaller boxes located within the situational box. For example, walking into a room filled with tables and chairs, a lecture podium, and whiteboard makes one's identity as either a teacher or a student salient within the situation. However, if one walks into a room with a toilet, urinal, and sink, this will more likely trigger one's identity as a man rather than trigger one's identity as a student or teacher. For the sake of this example, we will stick with situational contexts that are either present or absent to trigger one's identity as a student. Within the individual, as they attend to the features of the situation and try to determine the appropriate course of action, they will quickly identify that within the classroom setting, I am a student. This notion of being a student within the situation then provides easier access to memories associated with identification as a student. Per SIT, when an identity is evoked, individual tend to think about their social and emotional connections with others (Haslam, 2014), and their belonging within that situation. What this research aims to investigate is whether or not salient positive social identity can decrease an individual's loneliness? This idea is represented in the far right set of boxes in Figure 1.

An important aspect of this research emphasizes the saliency of one's social identity (represented by the situation box of Figure 1), as research on social identity



suggests that for an individual to use their social identity to evaluate a given outcome, the features of that identity must be salient within the situation (Carter, 2013). For example, research on moral identity, suggests that individuals are more likely to act according to their moral identity (i.e., not cheat on a game) when reading about moral identification (moral identity salience) versus reading about a control topic before a cheating scenario (Carter, 2013). This research along with other research on social identity salience suggests that for one to use their identity, they must be able to be aware of it within the situation (Haslam, 2014). This notion also suggests that not only does identity need to be salient in the situation, but the individual must have the ability to attend to the stimuli to determine saliency of a potential source of social identity information (Carter, 2013). Attending is displayed in Figure 1 as the arrows going from the situation to the individual. Attending to a given stimulus requires (a) the ability to recognize the stimulus, (b) the stimulus must be personally significant, and (c) the individual must be able to cognitively understand the stimulus to react to that stimuli (Goldenberg et al., 2016). Once one has attended to the situation and a social identity has become salient, this trigger associated memories of that identity which may include their emotional and social closeness to others, via the emotional features of a social identity.

Research on how social identity influences individual's emotional state has focused on group based emotions (Kuppens, Yverbyt, Dandache, Fischer, & Schalk, 2013), however Goldenberg et al., 2016) suggest that experience of personal emotions (such as loneliness) and group based emotions do not differ in any qualitatively manner

by the individual. Given this, an assumption that is made by this me is that findings on how social identity influences group based emotions can be applied to personal emotions as well. This assumption will partially be tested in this research by using loneliness as a dependent variable and social identity as an independent variable. One example of how saliency of social identity influences emotional state is research by Kuppens et al. (2013).

Research conducted by Kuppens et al. (2013) provided evidence that identity saliency can influence one's emotional state. In their research, they randomly assigned individuals to either a social identity saliency group or a control group, then provide a scenario which could potentially illicit the emotion of anger. The researchers found that the social identity group scored significantly higher ( $p < .05$ ) on a measure of anger than did the control group. The explanation that Kuppens et al. (2013) provided for these findings is the saliency of a person's social identity inflates the appraisal of emotion inducing stimuli, by providing a significance of the situation not only to just the individual but to all members of a given group. An alternative explanation I have and with supporting research by Goldenberg et al. (2016) and Carter (2013), is that saliency of social identity does not inflate one's emotions but rather provides guidelines on how one should feel in a given situation. By having a clear understanding of how one should feel, the person is better able to gauge the appropriate emotional response. A clear example of this is the relationship between a therapist and their client. The social identity of being a therapist - which provides guidelines on how a therapist should act and feel - provides the individual with the ability to inhibit natural emotional responses to hearing

about others traumatic experiences. This allows the therapist to maintain a level of objectivity not based on their subjective emotional experience, but rather through the lens of their identity as a therapist. However, when the therapist is not in the identifying role as a therapist, but rather a friend or a family member, they are likely to experience similar levels of hurt and anxiety of a friend or loved one's traumatic experience as much as everyone else who is identifying as a friend or family member.

Based on Figure 1, what is of interest in this research is whether that identifying experience can result in reduction of loneliness, because of the emotional and social aspects of the social identification experience. Indeed, Haslam (2014) argued that for the social identification process to have a positive influence on one's well-being, first an individual must have a positive evaluation of the identity and second that identity must afford the opportunity for one to feel more emotionally and socially connected with individuals within that identity group. The idea that social identity will reduce loneliness (and therefore increasing well-being), is based on the notion that individuals are driven by a need to belong. The need for belonging provides opportunities for individuals to live successfully within the context of being in a complex social species situation. Therefore, it is necessary for a theory of belonging to be included within the relationship between social identity and loneliness, as it is a connecting feature between the two concepts. The next section will review Fiske's (2013) model of the need for belonging, which provide a framework for not only why individuals have a need to belong but mechanisms which drive that need for belonging.

### **The Need to Belong.**

To understand the interplay between loneliness and social settings it important to start with a meta-theory of the need to belong (Cacioppo, & Patrick, 2008; Fiske, 2013; Lieberman, 2013). Lieberman (2013) who studies the neurological basis of social behavior and Cacioppo and Patrick (2008) who studies the neurological basis of loneliness both agree that the human brain has largely evolved to meet the social demands of the human species, which drives us to socially connect and have a sense of belonging. Lieberman (2013) extends this to the notion of evolution, stating that if evolution had a purpose and a consciousness, it made a bet on the social aspects of the human brain rather than the individual survival skills of the human brain to assure it continued survival of humans. Indeed, both Lieberman (2013); and Cacioppo and Patrick (2008), provide significant evidence that the higher evolved areas of the brain are used in the processing of social information rather than non-social information. Lieberman (2013) even provides compelling evidence that when individuals stop engaging in non-social actions the brain immediately reverts to the activation of the social areas of the brain with or without conscious knowledge or effort. Based on this neurological evidence, it has lead these researchers to theorize that one of the most basic needs of human beings is to create and maintain social belonging and connection.

While Lieberman (2013) and Cacioppo and Patrick (2008) developed a neurological basis for social belonging, Fiske (2013) develop a social cognitive needs model which places the need for belonging as an overarching motivation to four other

cognitive and affective-cognitive reasons for creating and maintaining social connections. In one's motivation to belong, Fiske (2013) theorizes that there are two relatively cognitive needs and motives, and two relatively affective needs and motives. The cognitive needs include the need for understanding and the need for control. The need to understand is the need to have shared experiences that makes both the social and non-social world predictable. The second cognitive need is the need and motivation for control as defined as being able to have some control over behavior and the outcome of behavior. Again, this can arise through shared meaning, storytelling, and knowing the experiences of others. For example, one can argue that although there are self-enhancements that drive this me to complete this dissertation there is also another reason that drives me to complete this research and that is to provide a shared meaning of social identification and loneliness. This shared meaning of loneliness and identity provide a potential control between one's behavior resulting from experience of loneliness and the potential positive outcomes through engaging in the social identification process. Fiske (2013) also argued that there are two relatively affective needs and motives that are driven by the belonging process. The first is the need for self-enhancement, this is the basic need to be able to see one's self as fundamentally worthy and improvable. It can be argued that this can only occur within a social context either through direct social feedbacks or by comparing one's self to some social norm. The second affective need is the need for trust which is defined by Fiske (2013) as seeing others as basically benign. Lieberman (2013) argued that the reason the human brain evolved in a large part to meet

their social world is because it was an evolutionary advantage for human being to live in groups and work as a coherent unit. This social system also requires seeing individuals within that social system as relatively benign and safe. Therefore, Fiske (2013) believed this was an important aspect of one of the sub-categories of the need to belong, as she argues the more benign others are within a group, the more open and creative; and less closed and apprehensive the individual is able to behave.

### **Emotional Basis of Loneliness.**

Loneliness fits within two groups of emotions; the first is personal emotions where one has an individual experience of loneliness, which aspects of this experience of loneliness is best explained by theories of emotions presented by Cacioppo and Gardner (1999). The second is loneliness can be experienced as a social and group emotion, and be driven through social and group processes, which is best explained by the group based emotion theory of Goldenberg et al. (2016). A full evaluation of Goldenberg et al. is provided in the section on social identity. The purpose here is to provide the theoretical underpinnings of each of these theories as they relate to the experience of loneliness.

To begin the exploration of emotions it should start with some basic ideas of emotions presented by Goldenberg et al. (2016) who provide evidence that the majority of research on emotions indicates that it is a situationally bound experience, what is being attended to and how they are appraised based on the individual's identity and memories that person associates with that given situation. The idea of affective and emotional states being situationally bound is not new in the field of psychology. Indeed, Wilhelm Wundt

in 1902 differentiated between the notion of ideas and affective and emotional states, by describing affective and emotional states as being time based whereas ideas transcend time to some finality. Indicating emotions occur based on the situation and the time in which they are experienced. The idea and notion of emotions being situationally bound emphasize a shortfall in both the research on emotions and the personal experiences of emotions. Per Goldenberg et al. (2016), emotions are well understood as they are experienced, but not well explained as how to alleviate a given emotional experience, because they are seen as transcending situational boundaries. This may explain why at times individuals may try to alleviate emotions through more destructive means rather than in a manner consistent with what the emotion means to the individual. Goldenberg et al.'s (2016) theory and ideas of emotions are explored more deeply starting on page 85 and represented in Figure 2 on page 78.

The second theory of emotions used for the development of this theoretical framework come from Cacioppo and Gardner (1999). Like Goldenberg et al. (2016), Cacioppo and Gardner (1999) theorized that emotions, although not always rationally based have cognitive processes by which a person may determine the meaning and purpose of a given emotional state. Cacioppo and Gardner (1999) theorized that emotions have both a safety and appetitive pathway or what they called channels. The safety channel is emotions that signal either the need to gain safety or that the organism is in a safe situation. The appetitive channel (also called hedonic needs by Goldenberg et al. (2016) are emotions that satisfy the basic needs of the organism and the pleasure needs of

the organism. In the context of loneliness and the belonging model of Fiske (2013), safety needs (fulfilled through trust, understanding, and control) when thwarted can lead to the negative emotional state of loneliness signaling to the organism that these basic needs are not being fulfilled. Appetitive needs under Fiske (2013) may include self-enhancement needs when not being satisfied may lead to the experience of loneliness. In addition to this emphasis on cognitive process, Cacioppo and Gardner (1999), also placed emphasis on socio-emotional development as an essential understanding of not only how one will experience an emotion but understand and cope with it as well. Indeed, aspects of this research that are not being explored are how one's attachments throughout life influence one's experience of loneliness. This is largely not done because there already exists a body of evidence that indeed attachment through socio-developmental processes do influence an individual's ability to socially connect (Lieberman, 2013) and a person's experience of loneliness (Cacioppo, & Patrick, 2008). One question that this is examined here is trying to determine is if emotional states – such as loneliness – are situationally bound, then there must be a way to change situational variables that can lead to a changing evaluation of one's emotional state, in this case loneliness. Thus, a potential situational variable is the saliency of one's social identity. The next section will provide a theoretical overview of social identity theory.

### **SIT and SCT**

This research builds on the research conducted on SIT and SCT research findings, which was originally formulated by Tajfel and Turner (1982). Per SIT, individuals seek



groups which have similar attributes that they have, to have a sense belonging. This leads to group affiliation and the development of a social identity based on the qualities of that group (Turner, 1982). Once individuals start to develop a social identity to protect that identity he or she will categorize individuals into either in-groups or out-groups as described by SCT (Abrams, 2014). Like one's personal identity, people like to think of themselves as good and worthy individuals, in general, therefore they will implement protective mechanisms to enhance their social identity and have their social identity protected (Carter, 2013). Accordingly, most research on SIT has focused on how individuals protect their social identity through engaging in prejudice and discrimination towards out-groups (Kumar et al., 2011). However, recent research has focused on the positive aspects of social identity, for example Haslam (2014) provided evidence that a sense of social identity among medical doctor residency students can enhance their educational experience through developing a sense of identity as a doctor. Haslam (2014) also argues that social identity is becoming such a key variable in individual's social and personal experiences that both mental health and physical health practitioners should not deny the importance of one's social identity has and should work to enhance their social identity for the welfare of their clients and patients.

The original assumption of SIT is that individuals seek out a social identity to enhance their self-esteem (Turner, 1982). However, research on this self-esteem hypothesis has been inconsistent and generally does not support this view (Abrams, 2014). This has lead Abrams (2014) to believe that there are probably multiple

mechanisms which motivates an individual to engage in social identification. The argument I make here is the experience of loneliness maybe one motivating factor for one to participate in social identification. More importantly, the social and emotional qualities of a social identity may reduce one's evaluation of loneliness. For example, an individual who is currently experiencing a bout of loneliness, may feel a reduced sense of loneliness by engaging in activities with individuals for which they have a shared social identity. This shared social identity reduces an individual's loneliness, via the close emotional connection the person has with being a member of that group, and the social connection they have with others when they are engaging with other within that group. Because the individual can evaluate the situation as both emotionally and socially engaging their subjective level of loneliness should theoretically be reduced. If this assumption is correct, it will indicate that, social identity does indeed have a vital role in an individual's experience of loneliness. As will be shown in later sections in this chapter social identities provide the opportunity for social belonging and the development of emotional bonds based on similar attitudes, behaviors, and beliefs. This emotional bond and the feeling of social belonging may provide relief of the emotional pains of loneliness. In addition, if there is evidence for this lonely reduction experience, enhancing and making salient one's social identity within loneliness evoking situation may be a preventative and intervention method that can be used to reduce one's loneliness. Indeed, Haslam (2014) recommends that the mental health field should, as part of regular practice, identify individual's social identities and realize the important emotional and protective factors

they can provide an individual. Emphasis on the saliency of one's social identity is important in this context, because continued research on social identity indicates that saliency of one's social identity can have significant influences on one's decision making processes (Carter, 2013).

Based on this discussion of theoretical framework there are some themes that will be explored through this dissertation and are presented here and summarized in Table 1.

Theme 1: Individuals have the need to belong and connect with others, and that when those needs are thwarted, either socially or emotionally, individuals will experience loneliness as a form of negative emotional states. This emotional state motivates the individual to seek out social connections. Although Theme 1 is not directly tested by this research, however it is an important theoretical assumption and one that has supporting evidence from other research (see Cacioppo, & Patrick, 2008).

Theme 2: Social identities contain qualities (emotional belonging and social connections) that may work as mechanisms to reduce an individual's loneliness.

Theme 3: For an individual to use their social identity, the identity must be salient within the situation, and the individual must have the cognitive ability to attend and evaluate the situation to determine the appropriate social identity.

Theme 4: When a positive social identity is made salient, this not only can influence one's behavioral choices, but their emotional evaluation as well.

Finally, theme 5: Loneliness as an increasing social problem, and being associated with several negative physical and psychological problems, requires changing the social and cultural structures that increase the chances of individuals experiencing loneliness. One way social and

cultural systems may be able to decrease loneliness is by strengthening individual's sense of belonging through enhancing the saliency and importance of individual's social identities. The remaining sections of this dissertation will focus on understanding what is known about loneliness and social identity in order to have a clear understanding of the current state of scientific knowledge on the subjects. This will begin with a literature review on loneliness.

Table 1

*Summary of Five Themes and Theoretical Alignment*

Theme	Explanation	Major supporting research
1	Individuals have a need to belong and when thwarted can produce loneliness.	Lieberman (2013); Fiske (2013); Cacioppo & Patrick (2008)
2	The emotional and social qualities of the social identification process may reduce the experience of loneliness.	Haslam (2014); Goldenberg et al. (2016); Halperin et al. (2016); Kuppens et al. (2013)
3	To use one's social identity, it must be salient in the situation and hold an importance to the individual.	Carter (2013)
4	When a positive social identity is made salient, it may not only influence one's behavior but also one's emotional state.	Haslam (2014); Carter (2013)
5	To reduce the increasing problem of loneliness, social and cultural factors must be considered.	Cacioppo et al. (2014); Holt-Lunstad (2015)

### **Theoretical Framework and Literature Review**

To have a complete understanding of loneliness, SIT, and SCT, contemporary studies and ideas that have been explored about each of these variables is important. This section is broken down into three major parts. The first major section provides contemporary studies on loneliness. The second section provides the same analysis, as it applies to SCT and social identity theory. Although the connection between loneliness and social identity will be explored throughout this chapter, the final section looks at

research that provides supporting evidence of the relationship between social identity and reduction of loneliness.

### **Loneliness**

This section will define and describe what loneliness is and what being lonely means to individuals. This will be done by reviewing loneliness from a contemporary perspective and what scientists who study loneliness are focusing on today. In the first chapter, loneliness was defined as a negative emotional state that develops from a subjective lack of social connections or lacking in emotionally close relationships (Weiss, 1973). Based on this definition, contemporary research indicates that when this emotional state is experienced chronically, it is associated with negative physical and psychological problems (Ang, Mansor, & Tan, 2014).

### **Contemporary Research - Loneliness**

This section will highlight research that has been conducted between 2007 to 2015. The goal of this section is to provide an overview of research that is currently being done and to identify potential gaps in the literature. Because the relationship between loneliness and health outcomes has already been established, this section will focus on research that looks at different ways individuals experience loneliness perceptually, behaviorally, and social-emotionally.

**Anthropomorphism and loneliness.** This section will focus on research that indicates that individuals may use coping strategies that seems counterintuitive and maladaptive, when trying to reduce feelings of loneliness. The first research to be

explored, indicates that individuals may seek non-social forms of coping with loneliness. One such research was by Epley et al., (2008) who investigated whether or not lonely individuals were more likely to anthropomorphize non-human objects than non-lonely individuals. To research this, the researchers did a series of three studies. The first study compared individuals who scored high versus individuals who score low on the UCLA Loneliness Scale on a task of anthropomorphism. These tasks included how much an individuals attribute human qualities on pictures of objects (ex. Cellphone), pictures of a pet (ex. Dog), and description of a religious figure such as a god. In the second experiment, the researchers randomly assigned individuals to an experimental group (i.e., lonely induction group where individuals read a story about being alone), and a control condition (i.e., individuals read a story about a non-socially related topic), and then did the same anthropomorphism measure completed in Study 1. In the third experiment, the experimenters did the same as in Study 2, using a loneliness induction technique, but they controlled for any other negative affective states. In all three studies, the researchers found that individuals were significantly more likely (with moderate effect sizes) to give human qualities to non-human agents, when lonely versus non-lonely. The significance of this research is it provides a clue into how individuals may compensate for the loss of human social connection, through providing human qualities to non-human objects. Going back to the two-channel approach of understanding emotions and affect, by Cacioppo and Gardner (1999), it could be that during chronic loneliness and early stages of loneliness that individuals see other humans as such a threat (safety channel) that other

people are avoided and opportunity to relieve a sense of loneliness is seen through non-human objects (appetitive channel). This may also explain why research looking at older populations found that lonelier older adults are more likely to become more religious (Smith, 2012). First through seeing more human qualities in their god, therefore can bring them closer to that God and more likely to engage themselves in religious activities. Then through the process of community that religion often brings, a socialized reduction of loneliness is felt. However, this is purely hypothetical, and needs tested, because what is not clear from research conducted by Epley et al., (2008) is whether this anthropomorphizing process actually reduced individuals experience of loneliness. Therefore, although it seems that individuals who are lonely engage in anthropomorphizing, it is unclear whether this anthropomorphizing reduces loneliness.

**Materialism and loneliness.** The interest in continuing to understand how individuals compensate for loss of social connection using non-socializing means, was research conducted by Ang, Mansor, and Tan (2014). These researchers investigated whether loneliness produced a more materialistic lifestyle, which would compensate for a lack of life satisfaction often experienced by individuals who were lonely. To test this idea Ang, Mansor, and Tan gave 366 Malaysian undergraduate students the UCLA Loneliness Scale, Material Values Scale, and the Satisfaction with Life Scale. The researchers found that loneliness was significantly negatively related to the quality of life ( $r = -.48$ ) and positively related with materialism ( $r = .36$ ). Using materialism as a mediating variable, they found that materialism partly mediated the negative relationship



between loneliness and life satisfaction. The researchers theorized that materialism was used to reduce the need for actual social connection, by investing interest in non-human material goods. In addition, they found a moderating effect of gender. That is, materialism significantly reduced the relationship between loneliness and life satisfaction for males, but not for females. There are issues with theorizing causal relationships using mediation and moderation techniques. These methods work both directions, for example it could be stated that materialism partially mediated the relationship between life satisfaction and loneliness, placing life satisfaction as the independent variable. Caution should also be made because these models are based on correlational and regression techniques, therefore, a third variable may also explain these relationships. Despite these drawbacks of methodology, Ang, Mansor, and Tan (2014) discovered a potential difference between men and women on how they cope with loneliness and reduction in life satisfaction, however, due to the correlational nature of this research, the actual causal relationship cannot be determined. Further research needs to be conducted on how gender difference influence individual's coping through non-human outlets such as materialistic fulfillment. Also, more work needs to be done on determining whether a lowered sense of life satisfaction brings on bouts of loneliness or whether loneliness causes reduced sense of life satisfaction.

**Trust, hypervigilance, and loneliness.** It has been well documented by both researchers and theorists that individuals who experience loneliness can also have issues with trust. Indeed, early research indicated that lonely individuals are less likely to

conform to group norms (Hansson, & Jones, 1981), and evaluate information more critically (Jones, Hobbs, & Hockenbury, 1982) than non-lonely individuals. Recent research has focused on the hypervigilant nature of being lonely (Lodder, Scholte, Clemens, Engels, Goosens, & Verhagen, 2015). Although being non-conformist, less trusting, and hyper-vigilant may seem counterintuitive in our modern world, from an evolutionary perspective, these behaviors start to make sense. In past times, instantly trusting any stranger that came along, because one felt lonely, could immediately lead to death or enslavement. Therefore, it became an evolutionary advantage for individuals to be somewhat weary when trying to regain social and emotional connections (Cacioppo et al., 2009).

Two studies to test the hypothesis of hypervigilance have been conducted with mixed results, the first study by Bangee, Harrism Bridges, Rotenberg, and Qualter (2014) and a second by Lodder, et al., (2015). In research by Bangee, et al. (2014) the hypervigilance hypothesis was supported using a sample of 85 young adults (17 to 19 years of age), whereas research conducted by Lodder, et al. (2015) on 50 lonely and non-lonely women the hypervigilance hypothesis was not supported. These differences can be methodological issues or a product of the use of two different populations. It could be that the research by Lodder, et al. (2015) did not have sufficient power to detect a difference due to the lower sample size and lower effect sizes in comparison to Bangee, et al. (2014). Bangee et al. (2014) also used a single novel stimuli and measured eye tracking over time, whereas Lodder, et al., (2015) research used multiple stimuli and

measured hypervigilance through feature detection, possibly leading to a learning effect. The other possibility may be the difference in the sampling used by two research projects. In the research conducted by Lodder, et al., (2015), they used a smaller sample size, only included 50 women out of a pool of 515 individuals and had a wider age range (18 to 24). Therefore, it may be the homogeneity of the research conducted by Lodder, et al., (2015) that failed to see any significant difference. What is clear from these two research projects is more work needs to be done on understanding how individuals who are lonely differ in attentional and perceptual ways when interacting in social cues, given they are less likely to trust others in a given social situation.

To this point, in the review of loneliness, different contemporary issues from sensations and perception (anthropomorphism) to behavioral issues (hypervigilance) have been explored, for the last portion of this section, a quick review of the neurological basis of loneliness will be provided. Although this research is more interested in the social aspects of loneliness, the review of the neurological basis will be brief but will help bridge the gap between neurological processes and behavioral processes.

**Social neuroscience and loneliness.** The main interest of this research focuses on the social aspect of loneliness, over the past 25 years there has been an increased focus on the neurological processes associated with loneliness. Because of this increased attention, it is worth providing just a summary of some the findings that have come out of the neurological data. Investigations continue to develop evidence that these social behaviors (specifically in this examination loneliness and group behavior) change the structure of

brain and brain processes, which may explain the associated outcomes of increased morbidity and mortality among the chronically lonely (Cacioppo, Balogh, & Cacioppo, 2015). Of major interest to this research is the relationship between the experience of loneliness, and areas of the brain associated with emotional-motivational states. Indeed, the areas related to motivational states included the ventral striatum, caudate nucleus, and temporal gyrus, whereas states that are associated with emotions included the amygdala, thalamus, and hypothalamus, and increased scores of loneliness are associated within increased activation in these areas (Cacioppo et al., 2013).

The structures of the brain associated with loneliness have been indicated, other research has been conducted to see how loneliness influences perceptions and associated neurological processes. It was reported earlier in this dissertation that individuals who are lonely tend to be hypervigilant to social but not non-social cues (Hansson, & Jones, 1981). In attempt to investigate the neurological processes associated with this hypervigilance Layden, et al. (2017) had individuals do a Stroop test with non-social and social words when hooked up to EEG tests. Consistent with the hypervigilance hypothesis individuals who scored high on a scale of loneliness were significantly faster at identifying social words than non-social words compared to individuals who scored low on a scale of loneliness. This, per the authors, not only supports the hypervigilance hypothesis but also indicates this hypervigilance may occur at an implicit level given that it was done using a Stroop test. According to the EEG data, the presentation of negative social and negative non-social words produced a microstate that is analogous to the

orienting reflex for negative social words but not negative non-social words. The areas associated with this microstate orienting reflex were the “extrastriate cortex, fusiform cortex, frontal cue field, dorsolateral prefrontal cortex and anterior prefrontal cortex extending to the dorsal anterior cingulate” (p. 220). In addition to this orienting reflex feature the authors also discussed how these areas are also associated with providing quicker access to the higher functional areas of the cortex, providing quicker higher functioning processing. Layden, et al. (2017) used this evidence to make the argument that hypervigilance and sensitivity to social cues, when a person is experiencing high social loneliness, is an evolutionary adapted trait that can respond to threats when a person is experiencing moments of isolation.

As has been mentioned throughout this dissertation loneliness is implicated in mortality and morbidity and one of the questions that has been of concern is how does this psychological state have ramifications on these physical outcomes? To investigate this Cacioppo et al. (2015) provided a review of literature on social isolation (social loneliness) and the neuroendocrinology system. Their review of over 28 research findings, in both animal models and human investigations, suggests that the stress response related to prolonged social isolation not only creates an immediate effect on the individual, it also associated with genetics implicated in stress responses (specifically sympathetic adrenomedullary axis and hypothalamic-pituitary-adrenocortical axis). Although only the animal studies used randomized conditions, and therefore should be interpreted with caution, the conclusion these authors reached was prolonged social

loneliness leads to a degradation of the stress response and immune system to effectively respond to life situations. This conclusion, at least based on current evidence, provides potential evidence of the biological processes that explain the relationship between reduced mortality rates and morbidity issues associated with loneliness.

As the neurological evidence presented here suggests, the experience of loneliness can produce physical changes that can have future negative effect. The field of social neuroscience continues to provide evidence that social-environmental experiences not only can influence neurological responses (Lieberman, 2013) but also can influence change in gene expression (Layden, et al. 2017). This work though mainly based on animal models provides a glimpse to the potential causal connection between prolonged isolation and emotional loneliness and the associated physical problems (Cacioppo et al., 2014). This contemporary view of loneliness provides an understanding of loneliness as it is experienced. The next section will review research on the mechanism which is proposed to reduce one's experience of loneliness: social identity.

### **Social Identity and Social Categorization**

The purpose of this research is to investigate whether social identity reduces an individual's experience of loneliness. However, the study of loneliness and social identity grew independent of each other with loneliness studied under the umbrella of emotions and social identity under the umbrella of group dynamics. However, as will be shown in the last section of this literature review, there is an argument to be made that social identity and loneliness are related via the need for social belonging. Another difference

between the study of loneliness and social identity is their research methods lineage. As can be seen in the section of loneliness, the study of loneliness has primarily relied on descriptive, correlational, longitudinal, and regression methodologies. But as will be seen, social identity grew out of experimental research on groups by manipulating an individual's sense of identity. Because of these differences it is worth giving a brief history and contemporary views on the research on social identity as it was for research on loneliness.

Before starting on contemporary exploration of SIT it is important to provide a detailed definition of SIT and a closely related theory SCT. Understanding of SIT and SCT first must start with the broader field of identity theory. Carter (2013) explains that identity theory has become a robust and empirically supported explanation of the concept of the self. Identity as defined by Carter (2013) "is an 'internal positional designation' that represents meanings actors use to define themselves as unique individuals (person identities), role occupants (role identities) or group members (social identity)" (p.204). This definition represents some important points regarding identity, (1) they are internal representations of who a person is, and (2) they are contextually bound to the situation. For example, a classroom may represent an individual's identity of a student or an instructor based on being in the classroom and the socially meaningful role the person has in that setting (i.e., the learner or the teacher). From this larger field of social identity theories narrow down to emphasized different aspects of the identity process. This research is specifically interested in SIT and SCT theories as a potential process of

lowering one's sense of loneliness. SIT has mainly been interested in defining the features of one's identity that differentiates their group membership with the membership of another group (Tajfel, 1982). Whereas SCT theory focuses on the group categorization process and how individuals use the categorization process to understand where they belong within the social world (Haslam, 2014). The definition of social identity comes from Tajfel (1982) who stated "social identity will be understood as that part of the individuals' self-concept which derives from their knowledge of their membership of a social group (or groups) together with the value and emotional significance attached to that membership." (p. 2). Within this definition there are some defining features that should be noted. First social identity is as much as a component of one's self-concept or identity as their personal identity or any other features of one's individuality. Second, the identity that is salient in the situation must be emotionally significant to the individual for it to influence one's emotional or behavioral states. For example, a person can have a social identity as a "man" but if the individual does not place high emotional value on being a "man", that will not be a salient feature in the determinations of his emotions or behavior. The saliency of one's social identity is an important point that was made by Tajfel (1982) and current researchers such as Carter (2013) who both state that saliency of a social identity is determined by two factors. The first factor is the emotional importance the individual places on the identity and whether there are situational cues which elicit that identity. The earlier example of the classroom is a perfect example. If "student" is significant to the individual, but the individual sees their professor not in the



classroom but the cafeteria, the student may approach the professors with the same formalities of the classroom by address the person as “professor” but because of the absence of situational cues (i.e., classroom) the student may ask more informal questions regarding class topics. With this definition in mind it is now important to provide a more detailed account of the development of SIT and SCT which will be followed by current contemporary work done on the topic. Within these descriptions emphasis will be placed on how social identity may or may not influence loneliness, and provide recommendations for further research beyond this dissertation. After having a full understanding of SIT and SCT this research will then examine evidence that may suggest how social identity may reduce individual’s sense of loneliness derived largely from the literature on belongingness and loneliness.

### **Contemporary Research**

Research done on social identity can be summarized within three categories (a) social identity as it relates to relationships with others, (b) how social identity influences behavior when activated under different situations, and (c) applied aspects of social identity specifically within the workplace and uses for social identity in increasing employee and organizational performance. The important part of contemporary research that influences the development of this dissertation is research consistently indicates that the saliency and activation of identity can influence different behavioral, attitudinal, and emotional states. As will be argued, it may be the activation of one’s social identity, under positive conditions, that reduces one’s subjective evaluation of loneliness.

**Social identity and relationships with others.** In a contemporary review of the relationship between social identity and relationships it makes sense to start with new membership into a group and the process of intragroup and intergroup relationships. Veelen et al. (2016) investigated the question of what was more important for newcomers to a social category, intragroup trust or intergroup differential? According to these researchers, individuals see social identification out of two basic human needs (a) the need to belong to a group (arguably to avoid loneliness), and (b) the need to feel distinctive and unique. This research raises the question of what is more relevant to an individual when they enter a group - intragroup process - that fulfills the need to belong or the need to feel distinctive – intergroup comparisons? To investigate this Veelen et al. (2016) did two studies, one cross-sectional and one longitudinal measuring newcomer process over three different time periods. Both their cross-sectional evidence and longitudinal evidence suggests that social identification of new members begins with intragroup attraction and affiliation. Their longitudinal data which spanned four months suggests that intergroup favoritism and distinctiveness comes later in the process when their in-group social identity is more well established. Results from Veelen et al. (2016) suggest that in-group trust, relationship building, and group understanding are important variables to new member integration, whereas, in-group distinctiveness seems to be a later process. These findings are interesting in relation to membership recruitment which often relies on making a distinction between one organization (ex. Coming to Stanford University) verses another option (ex. attending California State University). What this

research suggests is groups should recruit based on the value of the group membership alone rather than in comparison to other potential out-groups. In context of the current research, this provides some evidence of the loneliness reducing capacities of the social identification process. As reported earlier in this report, individuals who are experiencing loneliness often are weary about others, lack trust, and are hypervigilant of others (Cacioppo, & Hawkley. 2009; Lodder, Schote, Engels, Goosen, & Verhagen, 2015). Given this, it would make sense that individuals would have the need to develop intragroup trust and cohesion before engaging in intergroup comparison and distinctiveness. In addition, as will be seen by research by Leonardelli and Loyd (2016) the later process of group distinctiveness is another mechanism of increasing group trust.

Leonardelli and Loyd (2016) investigated the importance of group member trust for each other based on optimal distinctiveness measured by the size of the group. Per Leonardelli and Loyd (2016) the smaller a group is the more distinct the group, this assumption is known as optimal distinctiveness theory. Based on this, Leonardelli and Loyd (2016) asked the question whether optimal distinctiveness increased membership trust, which in turn would increase membership loyalty and social identification? To test this, these researchers used the minimal group paradigm where individuals were randomly assigned to a minority group (group representing 46% of a given population) and smaller minority group (representing only 20% of a given population) with three dependent variables measures: group trust, distinctiveness of group, and group inclusion. In a second experiment, the researchers measured membership preference.-The results of

the first experiment found the 20% group had significantly higher intragroup trust, and perceived as more optimally distinctive. Using mediating regression modeling the researchers found that group distinctiveness mediated the relationship between group size and group trust. As has been mentioned earlier on correlational and mediation models, there are several considerations that should be made when interpreting correlational and mediation models, this research suggests that it was the distinctiveness of the smaller group that increased the evaluation of group trust. In the second experiment, the researchers wanted to see if group trust based on group size would manifest itself behaviorally. In this experiment, the researchers gave individuals a choice to be a part of the 45% or 20% group but first they provided a story in which their group decision would need to be based on how much they could trust their group members. In addition to assessing choice they also measured the same variables as in Experiment 1. Although participants saw the 45% group as being more powerful, individuals overwhelmingly 3:1 chose the 20% group over the 45% group based on group distinctiveness and group trust. How may this relate to the study of the relation between social identity and loneliness? Rockach and Brock (1997), developed a five-factor model of loneliness, which comprised of (1) emotional distress, (2) social inadequacy and alienation, (3) growth and discovery, (4) interpersonal isolation, and (5) self-alienation. Research conducted by Rockach and Brock's (1997) research suggests that a major contributing component to emotional distress, growth and discovery, and self-alienation is lack of trust or the loss of trust with current or past individuals or groups. By looking for groups that are optimally

distinctive this allows an individual to clearly differentiate the values, beliefs, and attitudes of the group and how they are distinct from others. This process could allow the lonely person to develop trust easier and enable them to integrate the identity of the group in a more efficient manner.

At this point, in this contemporary review, it is important to return to the topic of SCT as the cognitive component of social identification. To this stage, the reader may have noted that social categorization has traditionally relied on the assumption of social comparison between "us" (in-group) and "them" (out-group) (Tajfel, 1982). It is through this comparative process that one understands the distinctiveness of a given group and through understanding the similarities between a person and a group to make the decision of group membership. Although this is still a major assumption for the group relations research, recently two other types of social categorization processes have been explored and identified (Leonardelli & Toh, 2015). Beyond the 'us' versus 'them' traditional categorization, Leonardelli and Toh (2015) argue that individual can social categorize in two other ways. First is through categorization that occurs with no reference group comparison – that is "this is who we are" (with no reference to out-group). The second type is the use of only out-group reference to define the self or group as "what we are not" (with no reference to what the group is). Each type of categorization is driven by similar processes of the individual and context, category salience, normative fit, meaningfulness of the category and level of perceived identification, each type of categorization is driven by a separate process as well (Leonardelli & Toh, 2015). For

example, Leonardelli and Toh (2015) argue that ultimate distinctiveness of a group drives an individual to use an in-group-only categorization process because the group is so distinct there is no need to make between group comparisons. As an example, the more similar that groups become, the more group comparison is needed, therefore an individual is more likely to engage in in-group to out-group comparisons. Here distinctiveness as indicated by Leonardelli and Loyd (2016) is widely determined by the size of the group, with smaller groups being more distinctive than large groups. On the other side negation groups, may use out-group only comparisons to avoid negative aspects of one's current social category. This process according to Leonardelli and Loyd (2016), reserved for situations in which individuals are categorized into groups that are seen by broader culture as being negative or have severely tarnished reputations. In addition to distinctiveness the use of one of these three categorization processes per Leonardelli and Toh (2015) can also be based on security seeking, which can be more closely related to the topic of loneliness reduction.

It has been theorized that the social nature of humans builds on the need for safety and security and that through evolutionary times, individuals have established strategies of group affiliation to assure that these needs are met. Through this selective process, people have become highly sensitive to not only evaluating their social world but the understanding of how belonging to a group provides some sense of security (Leiberman, 2013). Leonardelli and Toh (2015) presented findings that suggest seeking security is determined mainly by the situation of group membership which will then drive the type

of categorization the individual will use to provide a sense of identity and therefore security. For instance, Leonardelli and Toh (2015) presented research where individuals were prevented from becoming a part of a favored group or promoted to become part of a favorable group. Interesting this research has suggested that individuals in the prevention status are more likely to either maximize the value of the group or to categorization in such a way that makes all group preferences equal, compared to the promotion group. This is to say individuals may engage in a different categorization process dependent on whether they feel welcomed to the group or whether they feel they are being prevented from having membership. In the context of loneliness, it would be theorized that the prevention group may be both a source of loneliness or make loneliness worse. Whereas the promotion group would alleviate an individual's experience of loneliness. So far from this contemporary review there are three aspects of social identification that may need to be in place to reduce loneliness through the social identification process. The first is inclusion, the person must be able to feel they are a member of the given social category and have a sense of belonging. The second is a social identity must have a positive influence; it should be seen as positive to the individual. Finally, the third factor is the person must see this identification with others as trustworthy. Using Fiske's (2013) definition of trust, that the group itself must be benign. So far, we have discussed entry into groups as it relates to the individual's perceptions and evaluation of the group, another question before moving on is how does a group assure that the single member fits? One potential way is through group ritualization.

Watson-Jones and Legare (2016) investigated the social functions of group rituals. In the previous few paragraphs it was argued that individuals form groups to provide a sense of security and belonging. However, groups have often found that open entrance to a group can lead to the group being taken advantage of, including individual members. Therefore, Watson-Jones and Legare (2016) argue that group rituals were formed as protective mechanisms for the group by solving “adaptive problems associated with group living by (a) identifying group members, (b) demonstrating commitment to in-group values, (c) facilitating cooperation with social coalitions, and (d) increasing social group cohesion” (p. 43). Although these may be group reasons for ritual processes, this research is interested in the individual influence of social identification, mainly loneliness. It should be noted that according to other research that investigate a demonstration of commitment, group cohesion, and social coalitions, individuals report being more commitment and feel a stronger sense of belonging and emotional connection to their group (Perry, & Sibley, 2011), which may be the reason why individuals go to such great lengths to become members of exclusive clubs that have difficult entry requirements. This may also be a key component that reduces a person’s sense of loneliness, indeed, research on older individuals who belong to social clubs (Change, Chang, Biegel, Pernice-Duca, Min, & D’Angelo, 2014), or are a part of a close gated community which requires certain rules and parameters to be a part of (Smith, 2012) experience less loneliness than their non-member counterparts.



Moving from group entrance to the meaning of being a part of a group or within a social relationship this contemporary review will look at two reasons individuals maintain social groups, identification, and social connection. The first will look at specifically close relationships, as they are a primary cause of emotional loneliness, then we will look at research on social support and how insufficient subjective levels can bring a sense of social loneliness (social isolation). Orehek and Forest (2016) presented a new model of close relationships that instead of placing the emotional significance of a person in determining relationships satisfaction, they argued that goal achievement of both partner as the more important aspect of why individuals are motivated to have close relationships. Per a review of close relationship literature done by Orehek and Forest (2016), there is substantial evidence that individuals report having higher relationship satisfaction and commitment when they feel they support the achievement goals of their partner, and they feel their achievement goals are supported by their partner. This reciprocal relationship seems to a fundamental property of relationship satisfaction for both men and women and across age groups according to Orehek and Forest. How may this relate to emotional loneliness? The defining features of loneliness are either a lack of close emotional relationship or sufficient social contact (social isolation). In both conditions, the individual's needs are not being met, under the goal approach to close relationships, Orehek and Forest (2016) argued, it may be that a person who is emotionally lonely may lack a significant other that supports their achievement goals. Indeed, measurements of loneliness often include questions about the lack of support,

satisfaction in the relationship, and lack of close commitment (Cacioppo et al. , 2013). Therefore, it may be that a social identified group which supports the achievement goals of individuals may reduce the individual's subjective evaluation of loneliness. This is partly supported in the social support and social identification literature on employee well-being by Bizumic, et al. (2009) who looked at different schools where either the students and staff felt a well-defined social identity and social support versus schools in which this was less salient. In the schools that had a strong sense of identity, students had less emotional problems and staff used less sick days and were more motivated to support school activities.

In the loneliness section, it was discovered that there are negative health associations to the experience of loneliness (Segrin, & Domschke, 2011). However, research on social support and having a healthy social support system suggest that it is strongly linked to both positive mental and physical well-being (Newall et al., 2013). Indeed, research conducted with older populations, which tend to have higher occurrences of loneliness, suggests that the weaker the social support system the person has the more loneliness an individual experience and the more health problems a person's experiences (Jones et al., 2011). However, older individuals with a stronger social support system tend to be healthier, live more independently for longer, and tend to die at a later age on average (Winningham, & Pike, 2007). Feeney and Collins (2015) to provide an understanding of how social support provides health outcomes suggests that social relationships provide a means of thriving. That is social groups and social systems

provides a means to successfully cope with adversity and conversely provide support and motivation to grow and develop. It should be noted that under this model social relationships address two of Rockach and Brocks (1997) five factor model of the contributors to loneliness. First through helping each other through adversity it addresses emotional distress and interpersonal isolation, and second through encouragement and means of goal achievement social groups address growth and discovery needs. A model developed by Feeney and Collins (2015) also suggests that the relationship within the social setting must be reciprocal, and that for everything the person takes out of the social situation they also must return some value. This addresses the two other factors remaining in Rockach and Brocks's (1997) model: self-alimentation and social inadequacy. Through the process of giving and receiving this prevents the individual from self-alienation and through this reciprocal relationship allows the individual to feel socially adequate. It may be observed that in the explanation of close relationships and social relationships that the words social identity or social categorization were not used. However, close relationships (father, mother, brother, sister, husband, wife, best friends) are by their nature socially defined and go through social categorization and social identification. Likewise, social relationships (friends, coffee club, book club, co-workers) are also social defined categorizations and become a part of our social identification. Therefore, the literature may treat research on close relationships, social relationships and social identity research separately they all tend to have similar categorization and identification processes. The last two topics that will be covered in this section are topics

on autonomy about the need for power and issues of social rejection as it can be argued that is an involuntary denial of identity.

The most traditional definition of power is having control over one's self and their environment (Conoley, & Garber, 1985). Based on this definition Lammers, Stoker, Rink, and Galinsky (2016) asked when do individuals want to seek power the most, when they need to have influence over others or when they are seeking autonomy from others? Over a series of nine experiments these researchers found that individuals seek power when they feel a lack of autonomy but not to have mastery and control over others. This research may explain some of the features of loneliness as well. Lonely individuals often report a lack of power and control over their lives (Sachdev, & Bourhis, 1985). In addition, early research on loneliness indicates that lonely individuals are less likely than non-lonely individuals to conform to group demands and group norms (Hansson, & Jones, 1981; Mehrabian, & Stefl, 1995). Although this may seem counter to what SIT would suggest, it makes sense for the research conducted by Lammers, Stoker, Rink, and Galinsky (2016). If a lonely individual feels a loss of power in their life, based on Lammers, Stoker, Rink, and Galinsky (2016) they will seek to regain that power through restoring a sense of autonomy. Therefore, what looks like rejection of social norms and therefore rejection of social identification, is really an individual's desire to regain power over their life. Indeed, Lammers, Stoker, Rink, and Galinsky (2016) found that need to have power over others was unrelated to the feeling of loss of power, due to group pressure or authority, but rather loss of a sense of autonomy.

It seems reasonable to end a discussion on social identity and individual's relationship with others by ending on research on involuntary rejection from a social category through rejection, specifically rejection recovery. Research by Howe and Dweck (2016) looked at rejection recovery and whether recovery from social rejection was facilitated or impeded by having an unalterable view of the self. Over the course of five experiments Howe and Dweck (2016) either had individuals who reported that they think personality is unchangeable versus people who viewed personality as changeable or they experimentally manipulated changeable versus non-changeable. Then they either had them experience an experimentally induced rejection, or they had individuals recall experiences of rejection. The dependent variable for these studies was how much time it took to get over the rejection and how intensely they felt the rejection. Over the course of the five studies, Howe and Dweck (2016) consistently found that individuals who had a view that personality was not changeable or who were told that is not changeable, experience rejection longer and more intensely than individuals who viewed or were told that personality was changeable. Included in these findings individuals who thought personality was not changeable had greater fear of future rejection. It was explained earlier in this paper that rejection may be the pain that is experienced by social loss whereas loneliness is the emotional experience. However, it may be that individuals who are chronically lonely may experience their personality and self as unchangeable, although this is an assumption, future research may want to explore this connection as well. As far as application, it may not be good advice to tell someone who was just

rejected that "they need to find who they were and always have been before he or she came into your life" as this may make the intensity and the length of rejection longer for a good friend.

**Contextual nature of social identity.** In the last section, the role of relationships from group entry to group rejection was explored. This section will look at different contextual findings within the contemporary social identity research. One important aspect of this research is social identity activation (also known as social identity salience or social identity priming) influences one's behavioral and psychological worlds. This section will start with Carter's (2013) article on advancing SIT by exploring the relationship between identity activation and behavior.

An article by Carter, (2013) entitled "Advancing identity theory: Examining the relationship between activated identities and behavior in different social context" tested what happened when an individual was given the opportunity to cheat for a financial gain in conditions where a participant's social identity (in this case their moral social identity) was activated or not. The participants were randomly assigned to one of three conditions where their moral identity was activated or in condition in which it was not, individuals were then assigned to three group conditions: (1) alone, (2) social group, or (3) social group in which they were pressured into cheating. The cheating conditions is where the participant was knowingly awarded more points than what they earned, and by lying in the situation they would make more money upon completion of the experiment. Across conditions individuals who had their moral identity made saliently consistently cheated

less than individuals whose moral identity was not made salient. Interesting to Carter's research is 60 days before the experimental condition, participants were given a measure of the importance of their moral identity in guiding an individual's behavior. However, under the experimental condition 60 days later, importance of one's moral identity did not predict whether an individual would cheat or not, it was only in conditions in which the person's moral identity was salient (whether 60 days earlier they scored low or high on scale of importance of moral identity) predicted whether a person engaged in cheating or not. The importance of research such as Carter (2013) is it highlights the notion that it is not how one feels or thinks about their social identity when engaging in a given behavior but how salient that social identity is within that given contextual moment. It should be noted that since Carter's research Hertz and Krettenauer (2016) recently did a meta-analysis on moral identity and moral behavior which supported the situational accounts of Carter (2013). This may partly explain why individuals can be in a large social group but still feel completely alone. Within this context it may be the saliency of their identity within that group is not present or weak, creating a sense of loneliness. However, this is an assumption that would need tested directly. Carter furthered the understanding of social identity through the connection between identity salience and behavior. Indeed, it will be argued in the experimental design that it is the salience of one's social identity that potentially can lower one's subjective evaluation of loneliness.

Before leaving the topic of contextual and theoretical contemporary understandings of social identity, it is worth exploring advances in the understanding of

group-based emotions. Probably the best representation of group-based emotions that integrates social categorization and social identity is work by Goldenberg et al. (2016). Much of Goldenberg et al.'s work was introduced in the theoretical framework section of this dissertation, the following will provide a more in-depth analysis. Intergroup emotions theory has focused on how individuals within a group experience group emotion such as pride, however, little work has been done on how group-based emotions are regulated and how social categorization and social identity influence individuals experience of group-based emotions. To address this Goldenberg et al. (2016) presented a model that integrates what is known about social categorization and group emotional regulation into one coherent model of group-based emotions. In understanding emotions Goldenberg et al. made some important remarks regarding the current knowledge of emotional states and that is they are (1) situationally bound, (2) emotions go through an appraisal process, and (3) the cause of an emotional state is more readily understandable than on how to eliminate the emotional state. Included in these findings, Goldenberg et al. (2016), state that our current knowledge about the difference between individual and group-based emotions are the same with no real qualitative difference. The point of this is that individuals who experience guilt for eating too much chocolate cake on their diet, also experience the same guilt when the person's country unnecessarily invades another country. The importance and significance of the emotion may differ, the evaluative and biological processes remain the same in both situations. In addition, this would suggest that group-based loneliness (group socially or emotionally isolated from the broader



culture or other groups) would have the same process as individual loneliness as defined in this research. However, this assumption would need further testing. According to Goldenberg et al. (2016) this should make identity an important aspect in the evaluation of emotional states. Based on Goldenberg et al.'s research, Figure 2 represent a theoretical representation of a model that combines emotional evaluation with social identity.

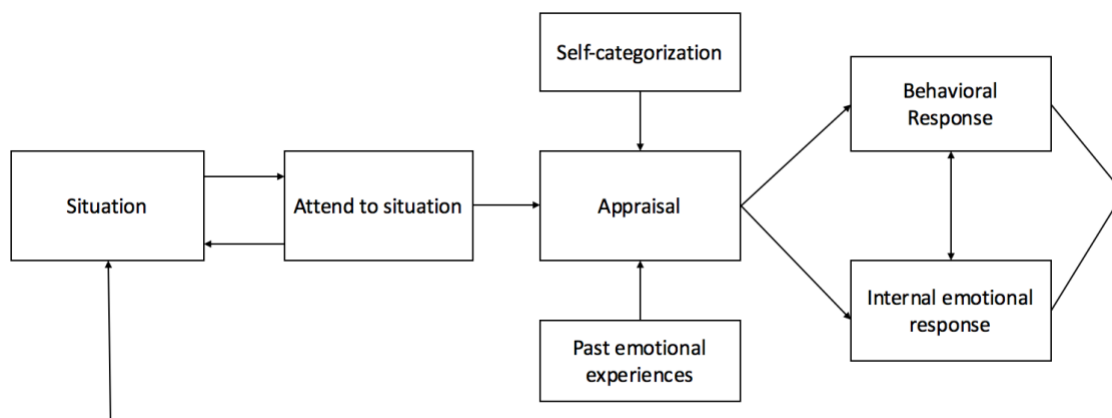


Figure 2. Model of group and individual based emotion appraisal.

As, Figure 2, represents the emotion appraisal process starts with attending and as the back and forth arrows suggest continued attending to the situation. Based on the features of the situation in which one attends to results in an appraisal that takes into account different factors of the attended situation. The element that is added by Goldenberg et al. (2016) is the self-categorization fit for the appraisal process. This process Goldenberg et al. suggests involves the appraisal of whether the given situation is important or not to the individual's identity. For example, if a specific group is being attacked, if the individual self-categorizes into that group they may appraise the situation

as fearful, whereas if the person self-categorized out of that group may feel sympathy or empathy instead. Added to this model, by me, is the notion of past emotional memories that are congruent with the current situation. It is well documented that past emotional experience informs current emotional experience either through congruency with the situation or incongruence making the situation a new novel emotion for the individual (Mackia, & Smith, 2015). In the original model by Goldenberg et al. (2016) they also put a singular response to an appraised situation, however consistent with research on emotions, I add both a behavioral response and an internal response. Research on emotions indicates an individual's emotional behavioral response can be incongruent with their internal response (Newall et al., 2013). This is often due to the cognitive appraisal process in determining what is the most appropriate response given the social situation (Ganley, 1989). Indeed, research on loneliness suggests that individuals often feel a social stigma about being lonely therefore they often do not behaviorally report being in an emotional state of loneliness. One will note the double arrow between behavioral response and internal emotional response. This double arrow represents the understanding at some level that individuals have of the incongruence between their behavior and their actual emotional states.

Goldenberg et al. (2016) provides a theoretical mechanism of understanding the relationship between emotions and SCT and SIT processes. Within the context of this research the emotional evaluation is only one component of the overall process represented in Figure 1. However, it is an important element because it explains many

aspects of individual's emotional experiences within the context of groups and group identification. Now that the contextual basis of SIT has been reviewed, it is now time to shift focus to the applied aspects of SIT. As mentioned earlier applied areas of SIT are providing the benefits of the saliency of one social identity in several contexts, and is important to review in the potential development of using SIT processes to reduce loneliness if the assumptions of this research are supported.

Professional identification and social identity in workplace. The purpose of this section to provide a quick review of some of the research that has been conducted in the applied research on social identity. The goal of this section is to indicate how social identity can be used in applied setting to improve behaviors and attitudes. This is important in establishment of potential applied uses of social identity in reducing loneliness, in future development of intervention programs is the assumptions of this dissertation are shown to be supported.

To start the exploration of the applied aspects of social identity it is good to start with what is considered a landmark article by Haslam in 2014, where Haslam outlines five lessons that have been learned through applying SIT approaches to different areas such as organizations, health practices, and clinical applications. The first lesson Haslam (2014) reviews is that groups and group identities matter. A major assumption that underlies both clinical and individual performance is that symptomology and performance are primarily driven by individual variables. However, Haslam (2014), points out that when the meaning of a group is made salient and when the social systems

a client has are considered as contributing to a person's psychological problems individual performance increases, and individuals are more likely to recover. More importantly, social identities as key components of a person's self-concept make exploring what it means to be a member of a given social category, and the importance the person's places on that social identification. Within this lesson, Haslam argues that often in the organizational and clinical setting the protective factors that encourage well-being and healthy behaviors are often either overlooked, or completely ignored.

The second lesson that Haslam (2014) argued is important in the understanding and application of social identity approaches is that self-categorization matters. Haslam (2014) claims that just recognizing that a person fits into a social category is insufficient in promoting the beneficial aspects of the social identification process. As he argued research on social categorization suggests the categorization process is based on meaning the person provides for that identity and whether the individual can make meaningful similarities between the individual's experience of group members and their experience. This can be captured in the idea of gender, a person can be social defined as a male or a man, but unless that person finds personal meaning within that category and can see the similarities between their behavior and the group that represents men, the person will not place much weight on the social identity of being male, and therefore the individual is unlikely to change when the social identity of being male is made salient.

Lesson three, Haslam (2014) describes as "[t]he power of groups is unlocked by working with social identities not across or against them" (p. 8). What Haslam (2014)

means by this statement is that often intervention programs that are group based often overlook the way in which individuals socially identify themselves with a group often leading to failure of the given intervention. Haslam (2014) provides research examples from organizational change literature which suggests that one reason organizational change processes (such as changing job titles and positions) fail because the organization fails to take into account how this change in identity may be difficult for some employees because of their current emotional and psychological investment in their current position identity. As this review, has pointed out several times, a social identity is protected and resistant to change because it is integrated as a core part of one's self-concept. Haslam (2014) also provides evidence from a wide range of interventions that integrate the importance of how one socially identifies with the given situation, group, or cause has shown to have a broad range of positive health-related outcomes.

The fourth lesson, Haslam (2014) drew from applied research on social identity, is that social identities, when being denied and are relevant to the individual, need to be made to matter. Research that will be reviewed in this section will clearly indicate the positive effects of what happens when a person's social identity is not only made salient but is made to matter in the outcomes of a given behavior.

The last and fifth lesson Haslam (2014) emphasized is an individual's awareness that any type of psychological intervention is political because it is always driven by social identity management. This can be clearly seen in an example of this author's experience with his colleague in a psychology department. Social psychologists tend to

look at different conditions that lead to such things as depression and anxiety as being primarily driven by social forces and that the brain is responding to those social forces. However, the author's colleague is a psychiatrist who based on his psychiatrist identity may view psychological problems mainly driven by brain dysfunctions and abnormalities in the brain. Although much of the literature suggests that it is probably an interaction between the two both of our approaches are driven by our socially identifying approach as a social psychologist versus a psychiatrist. This example emphasizes the political role in which social identification has in determining how an individual approaches a given situation. Haslam (2014) argues that by understanding how individuals socially identify within a certain situation, it can help guide the conversation in producing better outcomes. The remaining parts of this section will review some applied research that emphasizes some of the lessons learned from Haslam's (2014) review.

In order to emphasize the applied aspects of social identity four contemporary articles were selected. The two articles selected are research conducted on the influence of social identity salience on medical physician education (Burford, 2012) and nursing education (Willettts, & Clarke, 2014). Burford (2012) argued that medical training can be enhanced through seeing a given medical identity (i.e., nurse or doctor) as not something that is attained or achieved but as something that one comes to have a social identity for. Indeed, Burford (2012) found that when individuals see their position as a core part of the social identity, instead of a given position they attained through education or through being hired, the social identifiers tend to make fewer mistakes, communicate across

disciplines more efficiently, and tend to report being more highly satisfied and engaged in their work and find more meaning in what they do regardless of they are at in the medical hierarchy. These findings were highlighted in research conducted by Willetts and Clarke (2014) who recognize the complicated professional identity of nurses, but finds that when providing the opportunity to develop a well-defined social identity as a nurse during the educational processes nurses tend to retain a sense of the meaning of being a nurse and their professional standards of practice. This section was meant to provide a quick glimpse at the potential application of SIT within an intervention type program. As can be seen from current applied research taking a social identity approach to intervention and other socially based processes has benefits both for the group and the individual.

Through this exploration of social identity theory, the connection between loneliness and social identity has been highlighted. Some of the connections are theoretical in nature and will be tested in this research, some of the connections will need continued research beyond this work. The main point that has been tried to be made is that there is a relationship between how individuals experience loneliness and the values of social identification process may have in reducing that sense of loneliness. The next section will look deeper into the potential connections between social identity and loneliness.

### **Relationship between SIT and Loneliness**

This section will review research that is more directly related to loneliness, belonging, and social identification and categorization. A warning should be made, as

with most of the research on loneliness, is that most research on the relationship between loneliness, belonging, and social identification is correlational and regression in design. This makes any directional assumptions of this research theoretical, but not empirical, in nature. This also emphasizes the importance of the use of an experimental model in this document, as the directionality of these relationships may be established.

In the theoretical framework section of this dissertation, it was mentioned that social identity salience is a necessary ingredient in the emotional evaluation process that leads to loneliness (see Figure 1). Support for this notion comes from research that looks at individual's situation and their relative experience of loneliness. For example, research by Chang, Chang, Biegel, Min, Pernice-Duca, and Angelo (2014) examined the frequency of clubhouse involvement and loneliness. Their results indicated that frequency of clubhouse use was negatively associated with individual's subjective experience of loneliness. Although the conclusions by Chang et al., (2014) were that active involvement in clubhouse activities increased individual's social support thereby decreasing individuals experience of loneliness. Because this is correlational data, it is just as likely that the social identity of clubhouse member, made salient by increased visitation, created an evaluative process promoting belongingness, instead of experiencing loneliness. However, this is the importance of research that is being proposed here, in that more work needs to be done on understanding what situational variables influence loneliness, given the correlation between such variables and social situation and loneliness.



There have been psychosocial support groups that have been designed to help individuals reduce their sense of loneliness. One such program was one designed by Martina and Stevens (2006) and was marketed as a friendship enrichment program for lonely older women. Interesting to their work was the use of an experimental design with a control group and experimental treatment group. The program interestingly focused on individual variables such as self-esteem and subjective well-being, along with friendship building techniques. Their results indicated that the experimental group reported improved friendship quality both the control group and experimental group experienced reductions in loneliness. Martina and Steven's (2006) conclusion that both groups saw a decrease in loneliness by the opportunity to socially engage. Under the theoretical model presented here it may be that for both the control group and experimental group, the social identity of friend and friendship became salient for both groups, thereby reducing the situational based subjective evaluation of loneliness.

Psychologists have also looked at research with groups that have defined social identities due to a disability (known as disability identity) (Beart, Hardy, & Buchan, 2005; Most, Ingber, & Heled-Ariam, 2011; Rokach, 2007; Rokach, 2012; Segrin, & Domschke, 2011) or being a member of a non-main stream population such as the LGBTQ populations (Kuyper, & Fokkema, 2010; Stokes, & Levin, 1986; Wheeler, Reis, & Nezelek, 1983). Research on both these groups have indicated the reduced loneliness is associated with being around other individuals with same or similar disability; or around other LGBTQ individuals. In addition, this research has suggested that individuals in

these populations have reduced loneliness when with individuals who are not disabled or LGBTQ emphasize the positive aspects of diversity and try to understand the experiences of both groups. The conventional explanation for the ladder result is the reduction of identity threat (Kuyper, & Fokkema, 2010). What is clearly seen by this author in both lines of research is the positive saliency of the individual's social identity. This may lead to feeling less lonely both emotionally and socially.

The last line of research that will be looked at in this section is research conducted on older individuals (60 years of age or older), as they tend to have much higher rates of loneliness compared to other age groups (Nurmi, Toivonen, Salmela-Aro, & Eronen, 1997; Rokach, 2000; Rokach, 2001; Russell, Cutrona, McRae, & Gomez, 2012; Segrin, & Passalacqua, 2010; Shankar et al., 2011). Much of this research looks at the relationship between belonging, loneliness, and communal versus non-communal living. It is well supported within this literature that individuals who live in communal areas (ex. retirement community), where there are lots of opportunities for social engagement, have higher levels of feelings of belonging and lower rates of loneliness than individuals who live alone or are isolated (i.e., live alone in rural area) (Shankar et al., 2011). Several explanations have been provided for these results that probably all have some role in these differences including increased social support (Segrin, & Passalacqua, 2010) and increased social engagement (Russell, Cutrona, McRae, & Gomez, 2012). In the theoretical framework section and Figure 1, loneliness is represented as dependent variables, with social identity salience being the key independent variable. Here it is

argued that communal living does indeed provide more means of social support, but it also provides the opportunity to identify with others, develop emotional relationship, and provide a sense of place within the world. All these processes are attributes of social categorization and social identification processes. As the reader may have identified from reading this section, there is much work needed to be done to understand the causal relationship between identification and loneliness. There is at this point different interpretations of this relationship, all of which probably have some role in these relationships, I argue that the key variable of loneliness reduction is through the social identification process.

### **Summary and Conclusion**

As was mentioned in the theoretical foundations section of this chapter there are five guiding themes that developed the hypothesis that social identity can reduce loneliness, they are:

1. Individuals have a need to belong and connect with others as an adaptive way of dealing with a complex social system.
2. Social belonging and connections often occurs as an individual develops a social identity. In addition, a social identity has two qualities - (a) provide a sense of belonging, and (b) sense of emotional connection – that may reduce an individual's evaluation of loneliness.
3. For a social identity to influence one's behavioral and emotional state it must be made salient within the situation the individual is currently residing.

4. The more positive an individual view their social identity the more it will influence one's behavioral and emotional state in a positive direction.
5. Because of the negative psychological and physical associations with loneliness and due to the increased experience of loneliness within one's life, it is important to find social and cultural interventions that positively reduce individual's sense of loneliness, social identity being one such variable.

These five themes are highlighted in contemporary research on social identity and loneliness, that indicates that strengthening one social identity does indeed increases an individual's sense of well-being and belonging. Loneliness can also be reduced through increasing one's sense of belonging to a given social group. Put together this literature review provided strong evidence that when one's social identity is positively made salient in a situation that it can indeed assist an individual in reducing their sense of loneliness. To test this notion, in Chapter 3 I will provide a way to test whether when an individual's social identity is positively made salient does it reduce loneliness. This will be done through the development of an experimental design which will test whether loneliness is less when a social identity is made salient versus a control condition.

## Chapter 3: Research Method

### **Introduction**

In this chapter, I will provide the research methods that I used to test the relationship between social identity and loneliness. As stated in Chapter 1, my goal was to explore two research questions. The first asks whether social identity saliency would reduce a person's subjective evaluation of emotional loneliness, and the second whether social identity saliency would reduce one's social loneliness. In addition, I was interested in investigating a causal relationship between social identity and loneliness, an experimental design with social identity saliency as the independent variable and emotional loneliness and social loneliness as the dependent variables are the best fit for this investigation. In this chapter, I will provide a detailed plan to execute the investigation of the relationships described previously. This chapter will begin with explaining the research design and rationale, in which I will provide a detailed construct definition of the independent and dependent variables, provide an overview the research design, and explain why I chose it over other research design options. This will lead into a section on the specific methodology including recruitment and sampling techniques, instrumentation, and research procedure. After the methodology section, a review of the potential threats to validity are presented along with ethical consideration and procedures.

### **Research Design and Rationale**

I designed this research to test two research questions: (a) Does making one's social identity salient reduce a person's subjective experience of social loneliness; and (b)

Does making one's social identity salient reduce a person's subjective experience of emotional loneliness? As mentioned in Chapter 1, this resulted into the following hypotheses:

**Research Question 1.** Does social identity, when made salient, reduce an individual's social loneliness?

**Null hypothesis:** There is no difference in individual's measure of social loneliness between social identity saliency group when compared to a personal identity group, cognitive task control group, and a no-task control group. This relationship can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} = 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research hypothesis:** Individuals who participate in the social identity saliency group will score less on a scale of social loneliness when compared to individuals in a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} < 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research Question 2:** Does social identity, when made salient, reduce an individual's emotional loneliness?

**Null hypothesis:** There is no difference in individual's measure of emotional loneliness between social identity saliency group when compared to a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} = 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity saliency,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

**Research hypothesis:** Individuals who participate in the social identity saliency group will score less on a scale of emotional loneliness when compared to individuals in a personal identity group, cognitive task control group, and a no task control group. This can be expressed as follows:

$$\frac{\mu_1}{1} - \frac{\mu_2 + \mu_3 + \mu_4}{3} < 0$$

Where  $\mu_1$  = social identity saliency,  $\mu_2$  = personal identity salience,  $\mu_3$  = cognitive control,  $\mu_4$  = no task control.

Based on these hypotheses this section will provide a detailed explanation of the research design, which was a quantitative research methodology, and rationale for the use of this design. To begin, this section will start with defining the independent and

dependent variables. The independent variable of interest is social identity saliency. This can be defined as the level in which one's social identity is made prominent within a situation and the ease of which the identity comes to mind (Carter, 2013). Social identity saliency is most often researched using priming techniques in which the person is either covertly or overtly made to think about their social identity before engaging in some task leading to the measurement of a given dependent variable (Althaus, & Coe, 2011; Derks, Stedehouder, & Ito, 2011; Mange, Lepastourel, & Georget, 2009; Otten, & Stapel, 2007). Because this research wanted to explore what happens to an individual's subject evaluation of loneliness when they engage in thinking about their social identity an overt priming method was chosen which actively engages the person to think about the meaning and purpose of a social identity. Because one of the goals of this research was to determine a causal relationship between social identity and loneliness, four conditions were established to see if there is a casual direction. The first experimental condition was the social identity prime condition in which asks participants to list qualities of being a college student. The second experimental condition primed one's individual identity by having individuals list personal qualities that make them unique from others. The final experimental conditions included two control conditions which do not prime one's individual or social identity. The first control condition asked a participant to read an unrelated paragraph that approximately takes the same amount of time (2 minutes) that participants in the social identity and personal identity groups were asked to reflect on their identities. After reading the article participants were asked to report at least five



things they learned about the article. The last control condition did not include any task and asked participants just to complete the dependent measures. The purpose of having four conditions was to rule out the influence of individual identity and merely engaging in a cognitive task as mechanisms of reducing loneliness.

The dependent variable of interest was social loneliness and emotional loneliness. De Jong-Gierveld Loneliness Scale (DGLS) (De Jong Gierveld, & van Tilburg, 2006) was chosen to measure loneliness because it is specifically designed to measure social loneliness and emotional loneliness, however other popular scales such as the UCLA Loneliness Scale were designed to measure loneliness as a single construct (Russell, 1996). With the establishment of the level of the independent variable and dependent variable Figure 3 summarizes the research design and procedures to test the hypotheses presented in this section. The next section will cover the detailed methodology of the information provided in Figure 3.

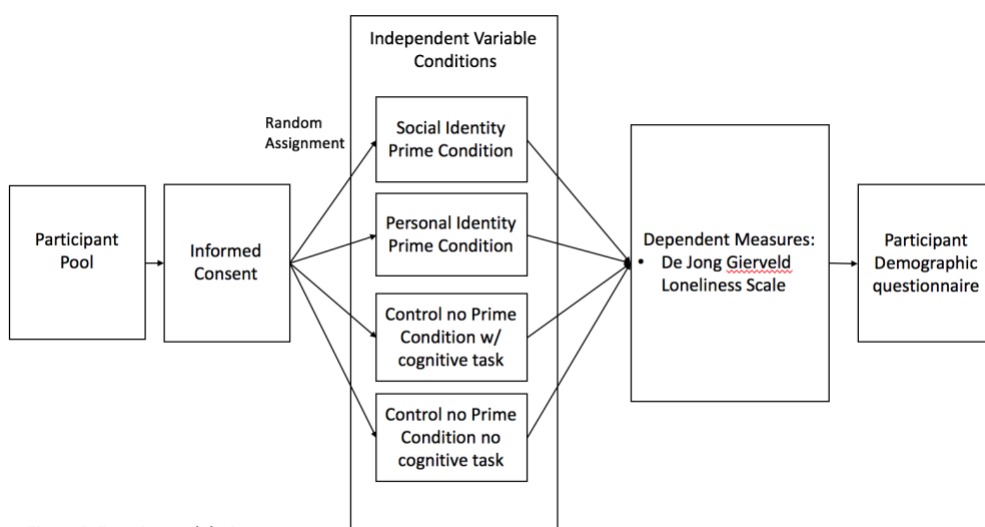


Figure 3. Experimental design.

## **Methodology**

### **Population, Sampling, and Recruitment**

The social identity chosen for this research was “college student”, the decision for this was both practical from a participant recruitment aspect and from a social identity priming perspective. Because being a college student requires special members – i.e., enrollment in a college or university – unlike other social identities such as gender, race, and parent status, choice of the identity is largely voluntary and not forced. Additional recruitment requirements to participate in this research include being 18 years of age or older, and currently a student at the University. This reduces confounding issues such as not being able to choose the social identity being investigated. Further research by Veelen et al. (2016) indicated using longitudinal methods, that college students go through all the identification processes predicted by social identity theory. Therefore, the population of interest was individuals who are enrolled in a college or university and actively engage in common student activities. Sampling was done by soliciting participation from the Walden University research participation pool, solicitation to online group pages through LinkedIn (Social Psychology Group – currently has 16,000 members, Doctorate PHD – currently has 19,000 members), Facebook (i.e., Psi Beta National Honor’s Society for Psychology – public page for students and alumni), and Society for Social and Personality Psychology (i.e., SPSP Connect, reaches both student and professional members of the society). These online groups were selected because of their potential reach and because they all do not prohibit solicitation for research participation.

Sample size was determined by inputting the following values in G\*Power software (Bushman, Erdfelder, Faul, & Lang, 2007): one-way ANOVA model, alpha .05, power .80, number of groups 4, and effect size of  $f = .25$ . The results of this analysis indicated that a sample size of 200 would be recommended.

To assess the make-up of the sample the following demographic variables were measured: gender, age, and length of time at current University. These variables are sufficient to determine potential generalizability. An additional question asked in this section asked participants how important being a college student is to them. This question was used as a manipulation check, as individuals who are primed to think about being a college student should rate this question higher than students who are not primed to be thinking about being a college student.

Individuals who wish to participate in the research were asked to navigate to the following to a website which first provided the participants with an informed consent described in the ethical procedures section. This webpage was only accessible via the link and will not be displayed for general website consumers. After reading the informed consent those participants who wished to continue were randomly assigned to one of the four independent conditions through a randomizing system that was custom programmed into the website, where when an individual selects the link it will take them to one of the four condition pages within the website. After completing the randomly assigned independent condition participants were asked to complete the dependent variable measures and then the participant's demographic information (see Appendix B). The

purpose of completing participant demographics at the end of the experiment was to avoid the potential of priming some other aspect of a participant's social or individual identity. The final section also included a manipulation check that asked participants in all conditions to rate the importance of being a college student on a scale of one to ten, with ten being very important (See Appendix B). If the priming manipulation worked individuals in the social identity group should have rated being a college student as more important than the three other groups. As another potential control question within the research participants were asked how long they have attended college. Research suggests that full development of one's college student identity it takes at least one semester (measured by 16-week sessions) (Veelen et al., 2016). Additional demographic questions included gender and age of participants. After completion of the demographics a debriefing summary was provided, which provided participants with information on the research questions and hypotheses being tested and how the data will be used.

### **Instrumentation and Operationalization of Variables**

This section will provide a detailed description of the independent variable and dependent variables, along with how each is operationalized.

#### **Independent Variable**

Social identity saliency was manipulated with four experimental conditions: social identity saliency group, personal identity saliency group, control condition with activity, and control condition with no activity (scripts for each of these different groups are presented in Appendix A).

First a distinction between social identity saliency and individual (aka personal) identity saliency should be described to develop an operationalization. Social identity saliency occurs when an individual is made aware of their social identity and can access information related to that social identity. In this research participants were asked to reflect on being a college student for two minutes, and then describe five qualities of being a college student. Personal identity which can be defined as the qualities of a person that makes them distinctive different from others, can be operationalized by having participants reflect on their personal qualities of what makes them uniquely different from others for two minutes. As with the social identity group, participants were then asked to list their top five personal qualities.

In addition to having social identity and personal identity groups, there were two additional groups that were aimed at not priming either one's social identity or their personal identity. The first non-prime condition included an unrelated reading task that engaged the participant in a comparable cognitive task that is neutral to priming one's social and personal identity. This was done by having participants in this group read an article that took approximately two minutes to read and ask the participant to list five things they understood from the article. The second no prime condition had the participant complete the dependent variables with no independent variable activity. By having this group, it helped determine whether just engaging in some cognitive task reduces or increases loneliness. As a manipulation check, all participants were asked in the demographic section "How important is being a college student to you right now?",

on a scale of 1 (not important at all) to 10 (very important) with the assumption that individuals whose social identity of 'college student' is currently salient should mark higher on the scale of importance than the other three conditions (see Appendix B).

### **Dependent Variables**

After completing the independent variable participants, if they choose to continue, participants were asked to complete the dependent measures of social loneliness and emotional loneliness. As described earlier the De Jong-Gierveld Loneliness Scale (DGLS) was selected for this research because it is divided into the two scales of emotional loneliness and social loneliness (See Appendix C for permission to use the measure). The scale contains 11 items, five for social loneliness and six for emotional loneliness. For the purposes of this research the five-point scale was chosen to provide more variability in individual's response sufficient enough to detect differences between groups. The scale item choices are "absolutely yes", "yes", "more or less", and "no", "absolutely no". It should be noted that by using this answer schema, higher scores are indicative of higher levels of emotional and social loneliness. Examples of emotional loneliness items include the following statements "I experience a general sense of emptiness", and "I often feel rejected". Examples of the social loneliness items included "There are plenty of people I can rely on when I have problems", and "I can call on my friends when I have problems" (de Gierveld & van Tilburg, 1999/2011).

According to an analysis by de Jong Gierveld and van Tilburg (2006) which looked at the reliability and validity, concluded that DGLS was highly reliable and valid.

To assess reliability de Jong-Gierveld and Tilburg (2006) used Cronbach's alpha procedure which resulted in a range from .70 to .76. According to Devellis (2012) a Cronbach's alpha of .65 to .80 is within the desired range for a given scale. In addition, according de Jong Gierveld and van Tilburg (2011) the scale has been normed for a wide variety of populations including gender, the measure has been normed for adults (> 18 years of age), but not children (< 18 years of age). No participants were under the age of 18. The other variable that normed data was based on was relationship status, for which the measure was sensitive to across age and gender. In this same publication, the authors reported a reliability using Cronbach's alpha of between .80 to .90. It also was determined that the measure exhibited sufficient construct validity across five studies that were used to assess validity by van Jong Gierveld and van Tilburg. In this series of validity testing, the authors found that the measure was strongly associated with a widely used loneliness scale the UCLA loneliness scale ( $r = .40$  to  $.76$ ). The measure also matches with individual's report about being lonely versus not being lonely. In addition, there was no evidence that the method of administration influenced the mean score, indicating that response to items tend to remain consistent across situations. The scoring for loneliness on the scales of social loneliness and emotional loneliness will be done based on de Jong Gierveld and van Tilburg (1999/2011) for which scores can range from 0 to 11 with anyone scoring about a 9 being extremely lonely and anyone scoring below a 2 having the absence of loneliness according to normed scores.

### **Data Analysis Plan**

Data input was completed by first categorizing the participants according to their perspective independent variable condition (1 = Social identity, 2 = Personal identity, 3 = Cognitive control, and 4 = No activity control). After which each dependent measure was coded according to the prescribed methods for that measure. Demographic information was coded for gender (1 = male, 2 = Female, 3 = other), Age (direct input), years in college (direct input), and manipulation check (1 not important at all, to 10 very important).

After data was input into SPSS 24 software, data was assessed for missing variable values, and outliers. Outliers were determined by using the method of interquartile range method (Orr, Sackett, & Dubois, 1991). This was done by subtracting the third quartile from the first quartile and multiplying it by 1.5. This method is used to determine extreme outliers and will be excluded from further analysis. Once missing values and outliers have been analyzed the data will be prepared for analysis. After completing data entry and addressing outliers and missing data, assumptions testing for a one-way ANOVA was completed, as part of the planned contrast that will be used to test the hypotheses of this research. Assumptions for a one-way ANOVA includes: normal distribution of within group scores and homogeneity of variance (Fields, 2013). Distribution of within scores can be checked by looking at the distribution's skewness, with skew scores greater than positive two and less than negative two indicating non-normal distribution. Normality was also tested visually using Q-Q plots. Homogeneity



was tested using Levene's test of homogeneity. After assumption test were complete an analysis of the manipulation check was completed by using a planned contrast in which individuals in the social identity saliency group should rate the question of importance of being a college student higher when compared to the combined scores of the other three control groups, with each group being weighted using schema described later in this section. The reason behind this assumption, is thinking about being a college student versus one's personal identity or the other control conditions, should have a priming effect, making memories of the importance of being a college student more accessible.

The influence of social identity (using four conditions) on social and emotional loneliness was analyzed with two planned contrasts to test differences for both dependent variables. A planned contrast allows for testing the expected hypothesized outcomes and reduces the potential for error using other methods such as a post hoc test (Fields, 2013). The planned contrast was conducted within a one-way ANOVA using SPSS software. The planned contrast conditions were weighted such that social identity = -3, personal identity = 1, cognitive control = 1, and no activity control = 1. These same weights were used when assessing the manipulation check for consistency purposes. If the assumptions of this research are correct the social identity group should score less on scale of emotional loneliness and social loneliness, compared to the other three conditions. The size of the effect was measured using a point-biserial correlation coefficient. Decision to use this method was based on the comparison of one group (social identity saliency group) with the combined results from the other three groups (personal identity saliency,

cognitive busy, and no control group). Research suggests that point-biserial correlation method to measure effect size is a robust method especially when it is used in conjunction with a binary planned contrast (Hsu, 2005; Ruscio, 2008).

### **Threats to Validity**

#### **Threats to External Validity**

Given that this research was conducted via internet, and not in a controlled lab environment there are a few threats to external validity that should be considered. The first is that the potential setting where a participant completes the research can influence validity. Some concerns included completing the research in a distracting environment, confounding other social identities that maybe salient at the time of doing the research. For example, if a parent is doing the research at time they are home and watching their children, the social identity of parent maybe salient at the time of completing the research. Some ways of mitigating this issue includes asking the participant to do the research in a quiet and non-detracting location.

#### **Threats to Internal Validity**

Threats to internal validity include issues such as temporal precedence, confounding variable, and experimenter bias. Temporal precedence which is the ability to establish that the independent variable occurred before the dependent variable has been addressed by having the participant complete the independent manipulation before measuring the dependent variable of loneliness. This assures that the participant will receive the independent variable treatment for conducting the dependent variable

measure. The second threat to internal variable is the issue of confounding variables within the independent measure. There is growing evidence that qualities within one's social identity become infused with similar qualities within one's personal identity (Jong, Whitehouse, Kavanagh, & Lane, 2015). This potentially means that within the independent measure the difference between personal identity and social identity, as qualities of each are identified may overlap. By having overlapping qualities this may inflate the dependent results for the personal identity group by priming qualities identified as both personal and social identity that have been fused. Although this is of concern and may need to be addressed as the results are interpreted, it would still be argued that because in the social identity group individuals are encouraged to think of the qualities of group membership as a college student, this should have a larger influence on measure of loneliness, even if that quality is fused also to a personal quality. In addition, Though there is increasing evidence of identity infusion, research using similar priming methods, have resulted in priming in two separate components of one's self-concept (Althaus, & Coe, 2011). The last threat to internal validity is experimenter bias. As the experimenter was the primary coder and analyst it is important to take some steps to assure data is not input in a manner that would influence the outcome. To partially reduce this potential, participant's dependent measure will be coded into SPSS software first and then the independent variable condition.

### **Threats to Construct Validity**

Some of the threats to construct validity specific to this research include mono-method bias, hypotheses guessing, and evaluation apprehension. Mono-method bias is the use of only one measure. Most research reduces this by including other dependent measures or by including additional measure of the same dependent variable. This is partially reduced by using a reliable and valid measure, which has been established for this research. The second is hypotheses guessing, which is when a participant wants to try and figure out what the research is about and what the outcome should be. Hypotheses guessing is a common concern in any psychological research, it is reduced in this research by having more than two independent variable conditions, and by having the dependent measure immediate follow the independent manipulation. The last concern is evaluation apprehension. Because this research asks personal questions about an individual's qualities either personally (personal Identity condition) or socially (social identity condition), and person maybe apprehensive in answering the questions honestly due to the fear of potentially being seen in a negative light. In addition to apprehension answering questions in the independent variable condition, individuals may have had apprehension in answering questions that evaluates their state of loneliness in the dependent condition. Ethically, the first primary concern was encouraging the participants to discontinue the research if they start having a negative reaction, this as well can help with evaluation apprehension. Another way to evaluate potential apprehension on the participant's part is to identify outliers within the data itself. Outliers

commonly occurs when an individual is providing false or exaggerated responses to questions. By evaluating outliers, this may reduce the analysis of participants who experience apprehension in the research.

### **Ethical Procedures**

Ethical considerations are important to take into consideration when conducting research in which a variable is being manipulated (i.e., social identity) to investigate its influence on an emotion (i.e., loneliness). Standard ethical procedures which are meant to protect participants were complete through ethical review by the Institutional Review Board (IRB approval number 02-14-18-0016012). Informed consent includes providing a defined purpose of the study, what the participant should expect when participating, the right to stop the research at any point, and confidentiality and anonymous. An additional concern will be taken due to the negatively associated state of loneliness and the psychological variables associated with loneliness. Because loneliness is associated with depression and suicidal ideations, individuals will be encouraged to stop the research if they start to experience a negative reaction such as anxious feelings, negative thoughts, or general worry. Resources will be provided for immediate crises, and participants will be encouraged to contact the researcher for further assistance if needed. Although research has indicated that none of the dependent measures have been associated with a negative response, for ethical considerations of doing no harm, these steps are necessary.

Another ethical concern is the issue of data storage. All information will be stored on the researcher's computer for which the researcher is the only one who has access, and

is password protected. The input data from participants will not be stored on the internet site for which the participants input information. Once the participants select submit, the information is transferred to an email that is sent directly to the researcher's secure Walden University email. In addition, the website that participants will complete the research is owned by the researcher and the researcher is the only individuals who knows the passwords and login information, assuring that any data will not be inadvertently stored or hacked by another source. Once all research is analyzed, all raw data and SPSS input and output files will be stored on a UBS external storage device, that will be password protected for five years.

### **Summary**

The social change aspect of this research was to investigate immediate situational ways that may reduce an individual's personal experience of loneliness. Social identity saliency, seems to be a good candidate in reducing loneliness. Therefore, this experimental research was an attempt to establish the causal relationship between social identity saliency and loneliness. By conducting this research using established ethical procedures and standardized measurement methods, this research also aimed to the add to the overall knowledge of social identity and loneliness, a connection that to date has not been made on an experimental research level.

The results of this experiment will be provided in Chapter 4. It will start with introducing how the research conducted in real time including timeframes and conditions. After a description of the research conditions, descriptive statistics will be provided based

on demographic variables, and means, standard deviations, and confidence intervals for each experimental condition. After providing descriptive statistics, assumptions testing results for one-way ANOVA, the chapter will provide the analysis of both hypotheses, and report one whether the nulls for each should be retained or rejected.

## Chapter 4: Results

My purpose in this quantitative experimental design was to determine whether a person's social identity, when made salient, influences one evaluation of their social and emotional loneliness. To determine the influence of social identity saliency, there were two hypotheses developed, one testing social loneliness and the other testing emotional loneliness. Participants were randomly assigned to four groups. These conditions and specific hypotheses associated with these conditions are detailed in Chapter 3. In this chapter, I focus on the analysis of the data collected and will begin with a description of how the data was collected, the timeline for collection, and information on sample size. After describing data collection, basic descriptive analysis is provided, which includes information on demographics of sample, and baseline data for each of the groups. After descriptive analysis, the two hypotheses described in Chapter 3 are tested using planned contrasts followed by further exploratory analysis and concluding thoughts on this analysis.

### **Data Collection Process**

Data collection started on 02/16/2018 and ran through 03/13/2018. A total of 207 individuals participated in the research; however, 189 for the social loneliness scale and 190 for the emotional loneliness scale were retained for final analysis. Reason for non-inclusion included not meeting the scoring criteria of loneliness scale established by de Jong Gierveld and van Tilburg (1999/2011), which stated that the sum of missing items must equal zero for the scale to be valid. In addition, an outlier analysis conducted based



on procedure described in Chapter 3, no outliers were found for the social loneliness scale, which would require a score below  $-.5$  or a score higher than  $5.5$  to be considered an outlier. This was also found for the emotional loneliness scale, which would require a score below zero or a score higher than  $6$  to be considered an outlier. The reason to end data collection on 03/13/2018 was because participation in the research had stopped for days and it was decided that sufficient data has been collected to go ahead and begin the analysis phase. In the next section a review of the basic descriptive statistics will be provided, first an analysis of the demographics and then a summary of the outcomes for the social and emotional loneliness scales based upon experimental group.

### **Descriptive Statistics: Demographic Information**

There were three key demographic variables that were measured: gender, age, and number of months attended college. The first variable of number of months attended college ( $N = 192$ ) had a mean of  $35.46$  ( $SD = 26.52$ ) with a range of 1 month to 140 months. The purpose for measuring this variable was to assure that college students who participated had some college experience which allowed for the development of a social identity as a college student to occur. The next demographic variable of interest was gender (see Figure 4). Of the total 207 participants, 33.30% were male ( $N = 69$ ), 58.00% were female ( $N = 120$ ), 1.40% reported other ( $N = 3$ ), and 7.20% did not provide their gender ( $N = 15$ ).

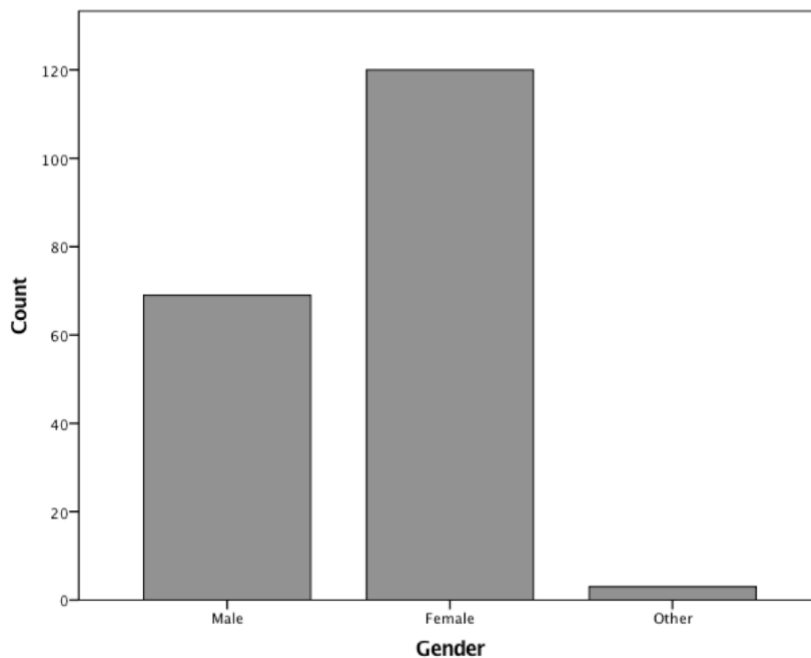


Figure 4. Sample Distribution based on gender: Male, female, and other.

Table 2 provides information on gender and random assignment to experimental conditions.

Table 2

*Sample Gender Distribution Across Experimental Conditions*

Condition	Male <i>N</i> (%)	Female <i>N</i> (%)	Other <i>N</i> (%)	Total <i>N</i> (%)
Social identity	24 (34.8)	29 (24.2)	1 (33.3)	54 (28.1)
Personal identity	23 (33.3)	28 (23.3)	0 (0.0)	51 (26.6)
Cognitive control	6 (8.7)	43 (35.8)	0 (0.0)	49 (25.5)
Control condition	16 (23.2)	20 (16.7)	2 (66.7)	38 (19.8)
Total	69 (100.0)	120 (100.0)	3 (100.0)	192 (100.0)

The last demographic that was measured was age of participants (see Figure 5). The majority of participants (51.2%) were between the ages of 18 to 30 ( $N = 106$ ). The

second (17.9%) and third (17.4%) largest age groups were 31 to 40 ( $N = 37$ ) and 41 to 50 ( $N = 36$ ) respectively. The 51 to 60 age group represented 5.3% ( $N = 11$ ) and the 61+ age group represented 1.0% ( $N = 2$ ), with 7.2% ( $N = 15$ ) not providing their age.

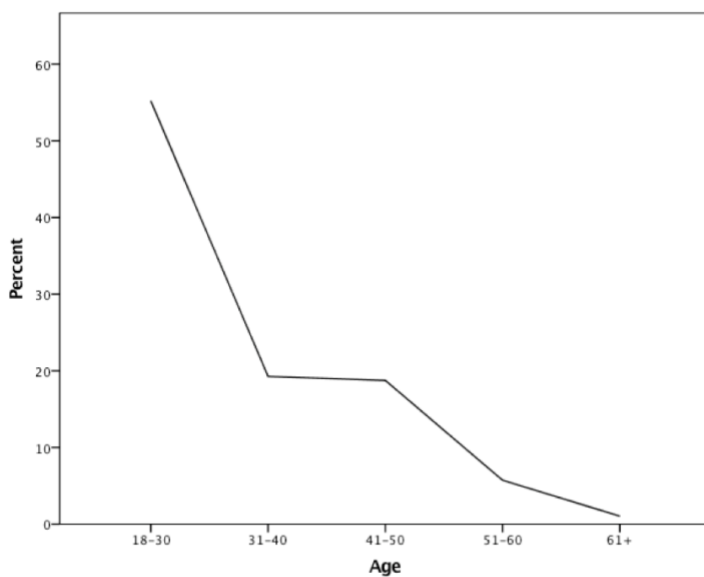


Figure 5. Sample size across age groups.

Table 3 below provides information on the distribution of age by experimental condition.

Table 3

*Sample Age Distribution Across Experimental Conditions*

Condition	18-30 years $N$ (%)	31-40 years $N$ (%)	41-50 years $N$ (%)	51-60 years $N$ (%)	60+ years $N$ (%)	Total $N$ (%)
Social identity	38 (35.8)	7 (18.9)	6 (16.7)	3 (27.3)	0 (0)	54 (28.1)
Personal identity	31 (29.2)	5 (13.5)	10 (27.8)	3 (27.3)	2 (100)	51 (26.6)
Cognitive control	23 (21.7)	15 (40.5)	11 (30.6)	0 (0)	0 (0)	49 (25.5)
Control condition	14 (13.2)	10 (27.0)	9 (25)	5 (45.5)	0 (0)	38 (19.8)
Total	106 (100)	37 (100)	36 (100)	11 (100)	2 (100)	192 (100)

Based on demographic information of age and gender, it was determined that the sample was generally representative of college students, with the majority of students being of younger and more females enrolled in college compared to males or other (National Center for Education Statistics, 2017). Additional analysis of differences based on age and gender on social and emotional loneliness are provided in the exploratory analysis section of this chapter.

### **Manipulation Check and Hypothesis Testing**

#### **Manipulation Check**

The manipulation check for social identity was measured based on how important an individual thought being a college student was, which theoretically, if their social identity of college student was salient they should rate it as more important for the social identity condition when compared to the other three conditions. Therefore, planned contrast was conducted to see if there was a difference between the groups on rating of importance. Before presenting the planned contrast, an analysis was done to determine if the sample scores were normally distribution across the levels of independent variable which was measured via analysis of skewness. Skewness scores ranged from -.07 to -1.61. Based on recommendations by Rose, Spinks, and Cahoto (2015) skewness between -2.00 and 2.00 is acceptable for normality of distribution. A second analysis looked at the homogeneity of the data. Based on a Levene's test of homogeneity,  $F(3,188) = 3.82, p = .011$ , the null hypothesis for Levene's test was rejected, therefore homogeneity could not be assumed. Because homogeneity could not be assumed, the

degrees of freedom within the planned contrast had to be adjusted to correct for lack of homogeneity. Therefore, the degrees of freedom for the analysis was adjusted from 188 to 106.11. As can be observed in Table 4, the social identity group mean was higher when compared to the three control conditions. According to planned contrast there was a statistically significant difference when comparing social identity group with the other three comparison groups: personal identity, cognitive control, and control condition ( $t(106.11) = -3.97, p < .001$ ). The planned contrast indicated that the individuals in social identity group rated college as being more important than the other three groups. This suggested the manipulation of social identity significantly influenced importance ratings, and therefore hypothesis testing could be conducted.

Table 4.

*Manipulation Check: Means, Standard Deviation, and 95% Confidence Interval for Ranking of how Important it is to be a College Student in Person's Current Life*

Group	N	M	SD	95% Confidence Interval	
				Lower Bound	Upper Bound
Social Identity	54	7.52	2.89	6.73	8.31
Personal Identity	51	6.45	3.14	5.57	7.33
Cognitive Control	49	4.78	3.59	3.74	5.81
Control Condition	38	5.63	3.83	4.70	6.56
Combined	192	6.16	3.29	5.69	6.63

### Hypothesis 1: Social Loneliness Planned Contrast Results

The first hypothesis was to determine whether there was a reduced reported level of social loneliness when social identity was made salient as compared to three other groups. Figure 6 displays the mean results for this hypothesis.

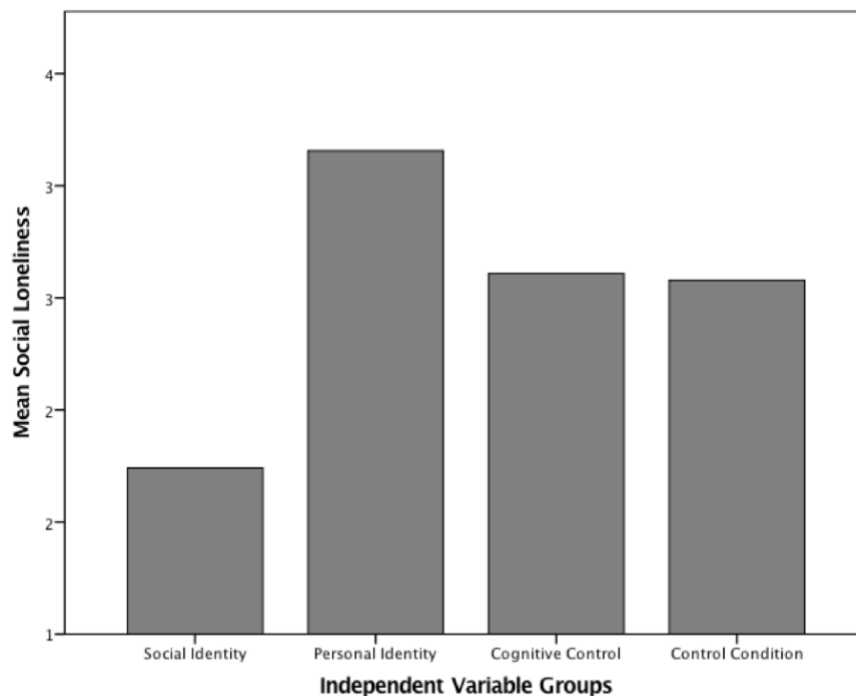


Figure 6. Means for social loneliness across experimental conditions.

**Descriptive Statistics for Hypothesis 1: Social Loneliness.** As can be observed in Table 5 and Figure 6, participants randomly assigned to the social identity condition had the lowest mean level of social loneliness whereas the personal identity group had the highest mean level of social loneliness. The cognitive control condition and control condition were between the two identity conditions with roughly the same means only differing by .03. The standard deviations between groups ranged between 1.54 to 1.80.

Table 5 presents information on 95% confidence interval and standard error for further interpretation of the sample.

Table 5.

*Means, Standard Deviation, 95% Confidence intervals, and Standard Error for Social Loneliness*

Group	N	M	SD	95% Confidence Interval		Standard Error
				Lower Bound	Upper Bound	
Social Identity	54	1.74	1.54	1.32	2.16	.21
Personal Identity	51	3.16	1.55	2.72	3.59	.22
Cognitive Control	46	2.61	1.80	2.08	3.14	.27
Control Condition	38	2.58	1.73	2.01	3.15	.28
Combined	189	2.50	1.72	2.26	2.75	.13

**Planned Contrast Results for Hypothesis 1: Social Loneliness.** To investigate whether these results were significant a planned contrast was conducted. As was conducted for the manipulation check first the psychometric properties of the data was analyzed. Normality across conditions was met with a skewness ranging from -.058 to .581 which is an acceptable range. Additional evidence of normality can be observed in the Q-Q plot in Figure 7. The Levene's test of equality of variance indicated that the null hypothesis was retained therefore equality of variance can be assumed ( $F(3,185) = 1.66$ ,  $p = .18$ ).

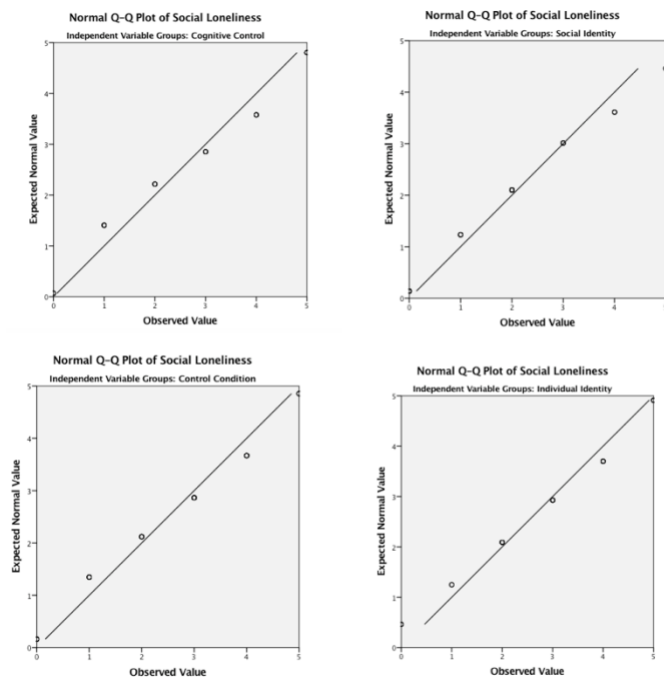


Figure 7. Q-Q Plot for social loneliness across experimental conditions.

According to the results of the planned contrast there was a significant difference in social loneliness scores between the social identity group and the other three conditions ( $t(185) = 3.91, p < .001$ ). When looking at the effect size using the point biserial correlation method this resulted in an effect size of  $-.28 (p < .01)$  which is considered a medium effect size (Becker, 2000). Based on these results the null hypothesis was rejected.

### **Hypothesis 2: Emotional Loneliness Planned Contrast Results.**

The second hypothesis investigated whether there was a reported reduced difference in a person's emotional loneliness in the social identity group compared to three other conditions. Figure 8 contains the mean emotional loneliness scores for each group.



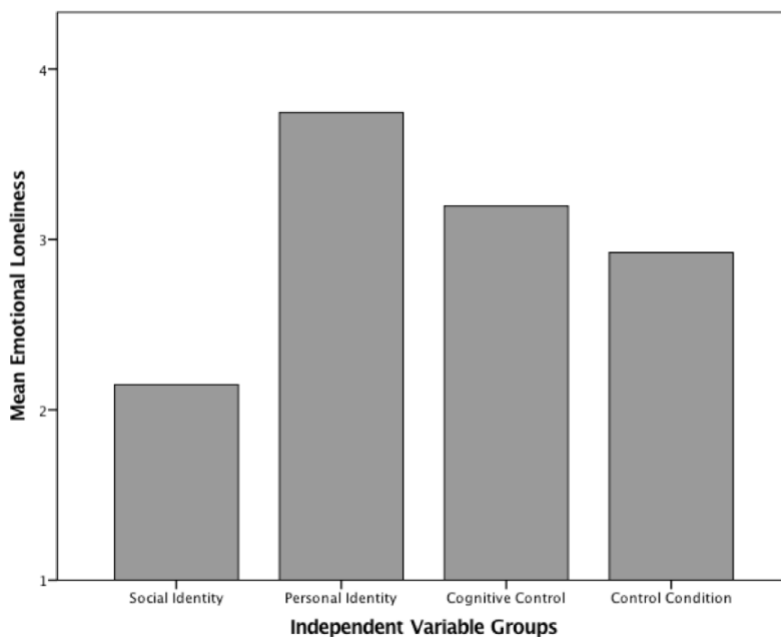


Figure 8. Means for emotional loneliness across experimental conditions.

**Descriptive Statistics for Hypothesis 2: Emotional Loneliness.** As can be observed in Table 6 and Figure 8, there were similar mean trends as the social loneliness data. Participants randomly assigned to the social identity group had the lowest mean level of emotional loneliness with personal identity group having the largest mean level of emotional loneliness. The mean scores in the cognitive control condition and the control condition did differ larger than they did in the social loneliness group with a mean difference of .28. The standard deviation between groups ranged from 1.73 to 1.96. The 95% confidence interval and standard error can be seen in Table 6.

Table 6.

*Means, Standard Deviation, 95% Confidence Interval, and Standard Error for Emotional Loneliness*

Group	<i>N</i>	<i>M</i>	<i>SD</i>	95% Confidence Interval		Standard Error
				Lower Bound	Upper Bound	
Social Identity	54	2.15	1.73	1.68	2.62	.24
Personal Identity	51	3.75	1.59	3.30	4.19	.22
Cognitive Control	46	3.20	1.96	2.61	3.78	.30
Control Condition	39	2.92	1.84	2.33	3.52	.30
Combined	190	2.99	1.86	2.72	3.26	.14

**Planned Contrast for Hypothesis 2: Emotional Loneliness.** The psychometric properties of the emotional loneliness scale were evaluated. For normality across independent variable conditions the skewness ranged from  $-1.14$  to  $.964$ , all within acceptable range. Normality can visually be observed in the Q-Q plot in Figure 9. According to Levene's test for homogeneity, the null hypothesis was retained ( $F(3,186) = 1.97, p = .12$ ), therefore homogeneity was met for this data.

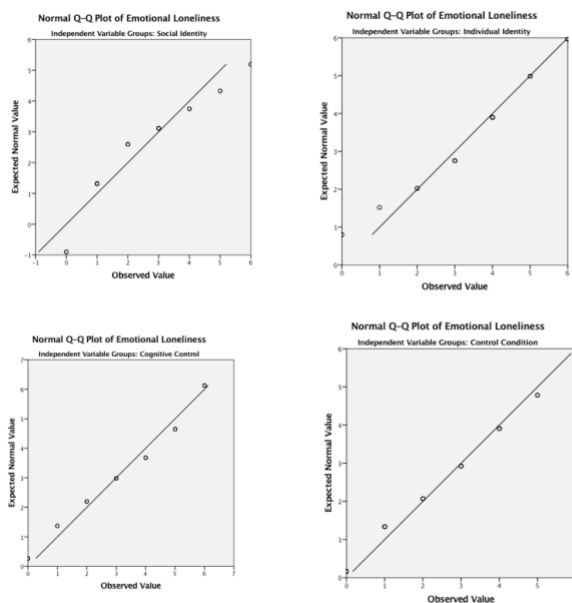


Figure 9. Q-Q Plot for emotional loneliness across experimental conditions.

The planned contrast resulted in a statistically significant difference in emotional loneliness scores between the social identity group and the other three conditions ( $t(186) = 3.98, p < .001$ ). The effect size via the point bi-serial correlation resulted in an effect size of  $-.29 (p < .01)$ . This effect size is considered medium according to Becker (2000). Based on these results the null hypothesis was rejected.

### Exploratory Analysis

In this section an exploratory analysis was conducted to see if there were any statistical differences in social and emotional loneliness based on demographic variables. Also included in analysis an exploratory analysis was conducted using an ANOVA and post hoc testing to further explore possible differences between the experimental groups.

### **Exploratory Analysis Demographic Variable.**

For data based on gender, the mean scores for social loneliness were 2.50 ( $SD = 1.84$ ) for males ( $n = 68$ ), 2.52 ( $SD = 1.66$ ) for females ( $n = 118$ ), and 2.00 ( $SD = 1.72$ ) for the other category ( $n = 3$ ). Because the other category only had three participants it was decided to only compare self-reports of males versus females using an independent sample t-test, which resulted in no significant differences for social loneliness ( $t(184) = -.064, p = .95$ ).

The mean scores for emotional loneliness were 2.91 ( $SD = 1.63$ ) for males ( $n = 69$ ), 3.05 ( $SD = 1.73$ ) for females ( $n = 117$ ), and 2.00 ( $SD = 1.73$ ) for the other category ( $n = 3$ ). As with social loneliness because of the small sample size of individuals reporting other, it was determined to analyze only males and females using an independent sample t-test which resulted in no statistically significant difference ( $t(184) = -.49, p = .68$ ).

The next demographic variable was age. The mean scores for social loneliness based on age group were 2.40 ( $SD = 1.69$ ) for participants between the age of 18-30 ( $n = 105$ ), 2.22 ( $SD = 1.79$ ) for the 31-40 age group ( $n = 37$ ), 2.74 ( $SD = 1.69$ ) for the 41-50 age group ( $n = 34$ ), 3.55 ( $SD = 1.64$ ) for the 51-60 age group ( $n = 11$ ), and 3.50 ( $SD = 2.12$ ) for the 61+ age group ( $n = 2$ ). Because of the unequal age distribution between individuals 18-30 compared to individuals over age of 31, it was decided to combine age categories for individuals who reported being over the age of 31 and conduct an independent sample t-test between ages 18-30 ( $M = 2.40, SD = 1.69$ ) and individuals who reported being over the age of 31 ( $M = 2.60, SD = 1.78$ ). According to independent

sample t-test there was no statistically significant difference based on age ( $t(187) = -.70$ ,  $p = .48$ ).

The mean scores for emotional loneliness based on age group were 3.13 ( $SD = 1.71$ ) for the 18-30 age group ( $n = 104$ ), 3.05 ( $SD = 2.22$ ) for the 31-40 age group ( $n = 37$ ), 2.60 ( $SD = 1.83$ ) for the 41-50 age group ( $n = 35$ ), 2.18 ( $SD = 1.72$ ) for the 51-60 age group ( $n = 11$ ), and 5.00 ( $SD = 1.87$ ) for the 61+ age group ( $n = 2$ ). Because of the unequal age distribution between individuals 18-30 compared to individuals over age of 31 it was decided to combine age categories for individuals who reported being over the age of 31 and conduct an independent sample t-test between ages 18-30 ( $M = 3.13$ ,  $SD = 1.71$ ) and individuals who reported being over the age of 31 ( $M = 2.80$ ,  $SD = 2.01$ ). According to independent sample t-test there was no statistically significant difference based on age ( $t(187) = 1.23$ ,  $p = .22$ ).

### **Exploratory Analysis of Groups**

The null hypotheses were rejected for both social and emotional loneliness and provide evidence for a difference between social identity and three comparison groups, it was determined that a further exploratory analysis using an Omnibus one-way ANOVA and Tukey HSD post hoc test was worth conducting. Based on a one-way ANOVA for social loneliness there was an indication of significant group differences ( $F(3,185) = 6.61$ ,  $p < .001$ ). Further analysis using Tukey HSD post hoc test indicated that there was a statistical difference (based on alpha less than .05) between social identity and personal identity (mean difference = -1.41,  $p < .001$ ), and social identity and the cognitive control

(mean difference =  $-.87$ ,  $p = .04$ ). The difference between social identity and the control difference was  $-.84$  but did not meet the threshold of alpha less than  $.05$  with a p-value of  $.08$ . There was no statistical difference between personal identity group and cognitive control group (mean difference =  $.55$ ,  $p = .36$ ) or control group (mean difference =  $.58$ ,  $p = .35$ ). In addition, there was no statistically significant difference between the cognitive control group and the control group (mean difference =  $.03$ ,  $p = 1.00$ ).

For emotional loneliness there was evidence for significant group differences based on the one-way ANOVA ( $F(3,186) = 7.34$ ,  $p < .001$ ). Further exploration using Tukey HSD, and based on alpha level less than  $.05$ , it was determined that there was a statistically significant difference between the social identity group and personal identity group (mean difference =  $-1.60$ ,  $p < .001$ ) and between social identity group and the cognitive control (mean difference =  $-1.05$ ,  $p = .02$ ). There was no statistically significant difference between the social identity group and the control condition (mean difference =  $-.78$ ,  $p = .17$ ). In addition, there was no statistically significant difference between the personal identity group and cognitive control (mean difference =  $.55$ ,  $p = .43$ ) or personal identity group and control condition (mean difference =  $.82$ ,  $p = .13$ ). There also was no statistically significant difference between the cognitive control and control condition (mean difference =  $-.27$ ,  $p = .90$ ).

According to de Jong Gierveld and van Tilburg (1999/2011) the social and emotional loneliness scales can be combined to provide overall loneliness score. Because measurement issues of the two scales were found to be a limitation of this study and will

be discussed in Chapter 5 in more detail, an analysis of the combined scale is provided as it may be a more sensitive measure of loneliness. The same process was done for the overall scale as for the hypothesis analysis for the social and emotional loneliness scales using a planned contrast. The mean overall loneliness score for the social identity group ( $n = 54$ ) was 3.89 ( $SD = 2.91$ ) whereas the mean overall loneliness scores for the personal identity group ( $n = 51$ ) was 6.90 ( $SD = 2.61$ ). For the remaining two control conditions the mean for the cognitive control group ( $n = 45$ ) was 5.76 ( $SD = 3.13$ ) and for the control group ( $n = 38$ ) the mean was 5.48 ( $SD = 3.12$ ). As was observed for both subscales according to planned contrast there were statistically significant differences between the social identity group when compared to the three control conditions ( $t(184) = 4.58, p < .001$ ). The point bi-serial correlation as measure of effect size resulted in  $-.324$  ( $p < .01$ ), which is slightly higher effect than the two subscales, but still considered moderate in the effect.

As with the omnibus one-way ANOVA and post hoc test done separately for social and emotional loneliness, it was decided to do the same for the overall score as well. According to a one-way ANOVA based on alpha level below .05 there was evidence for significant group differences for the combined loneliness score as well ( $F(3, 184) = 9.47, p < .001$ ). Based on a Tukey post hoc test there were statistically significant differences between the social identity group and all three control conditions: personal identity ( $p < .001$ ), cognitive control ( $p = .01$ ), and control condition ( $p = .05$ ). However, there were no statistical differences between the personal identity group and the other two

control conditions: cognitive control ( $p = .23$ ) and control condition ( $p = .12$ ). There was also no difference between the cognitive control and control condition ( $p = .98$ ).

### **Summary**

The results of this research support the rejection of the null hypothesis for both social loneliness and emotional loneliness. As observed the mean level of social loneliness was less than the observed mean in each of the other three groups. This result was similar for the emotional loneliness group. Given that a medium effect size was observed, and the planned contrasts resulted in an alpha level less than .05 it is reasonable to conclude that these results are not due to error, or chance alone, but rather represent something that occurs within a population. What these findings suggest is that by priming an individual's social identity (in this case college student) individuals evaluate their state of loneliness – both social and emotional – when compared to either priming an individual's personal identity or by having them complete an unrelated cognitive task or just the dependent measure alone. Chapter 5 will provide a more in-depth interpretation of these results and implications for theoretical development and social change. Although these results are encouraging further research will need to consider some of the limitations to this study which will be outlined in Chapter 5 as well, but center around methodology and measurement selection.



## Chapter 5: Discussion, Conclusions, and Recommendations

### **Introduction**

When I started this dissertation in August of 2015, it started with an idea about how individuals identify socially with their world and how that affects their emotional state. After doing research, I decided to specifically target social and emotional loneliness. Social loneliness is characterized as lacking sufficient social connections and networks whereas emotional loneliness is characterized as lacking in close emotional relationships (Weiss, 1973). Based on this idea five themes emerged from the literature. The first theme is that individuals need to belong and connect with other people to adaptively deal with our complex social world. Second is this need to belong and connect often occurs when individual develop and maintain a strong social identity which provides two qualities: (a) a sense of belonging, and (b) a sense of emotional connection, both of which may reduce emotional and social loneliness. The third theme is that for a social identity to influence our behavioral and emotional state, it must be made salient within the situation. This saliency leads to the fourth theme in that the more positively the person views their social identity, the more likely it will influence their behaviors and emotional state in a positive direction. Based on these four themes a fifth emerged that deals with the social change aspect of this research. This fifth theme suggests that if social identification can have a positive influence on a person's emotional and psychological state, through emphasizing a positive social identity, we may be able to reduce the increasing prevalence of loneliness in our society (or at least among a few).

The research findings in this research support these themes and should be further tested via replication.

There has also been recent evidence for this positive influence of social identity in clinical areas and in the treatment of depression. Research in this area suggests that emphasizing the positive aspects of one's social identity can reduce depression symptoms (Cruwys, Haslam, Dingle, Haslam, & Jetten 2014; Haslam, Dingle, & Chang, 2016). As an extension of that research, the results of the current study suggest that making one's social identity salient in a positive way reduces individual's everyday experiences of common negative emotions such as social and emotional loneliness. In this chapter the findings of this research will be reviewed and interpreted. In this interpretation, caution will be made, because this is the first research to experimentally manipulate identity and examine the effect on loneliness. Therefore, scientific caution should be made, which will lead to a discussion of the limitations of the study which includes potential limitations of the measurement tool used and methodological limitations. Based on these limitations, recommendations will be made for future research and direction in this area. Finally, potential social change implications and concluding thoughts will be provided.

### **Interpretation of Findings**

The results in Chapter 4 indicated that the two main null hypotheses for social loneliness and emotional loneliness were rejected. The mean scores on social and emotional loneliness for the social identity group participants was significantly smaller than the combination of means of the three control groups. Indeed, something about

writing five positive things about being a college student (social identity) caused a change in an individual's appraisal of their loneliness when compared to writing five positive things about the self (personal identity), reading an article and writing five things one learned (cognitive control) and just taking a measure of loneliness with no task (control condition). Based on the theoretical model presented, individuals in the social identity group had easier access to their social connections with the group (i.e. college students) and emotional meaningfulness of this relationship. Therefore, this social connectedness and emotional meaningfulness lowered individual's evaluation of social and emotional loneliness. In the other three condition because this social connection and emotional connection was not primed, the likelihood of experience loneliness was higher, as shown in the results. However, as has been mentioned these results should be taken with some caution, as this is the first to investigate the relation between social identity and loneliness, and some methodological limitations must be considered. In addition, this research did not target specifically what aspects of social identity is being primed that lowers the evaluation of loneliness therefore, the theoretical assumptions made here are speculative.

In addition to the main findings, additional analysis indicated that there was an overall observed effect via the omnibus one-way ANOVA, there was no statistically significant group differences between control conditions based on the post hoc test. However, there were statistically significant differences between the experimental condition (social identity) and the control conditions, with the exception of the non-task

control condition. When comparing social identity group and the non-task control condition the p-values did not meet the threshold of less than .05 for emotional loneliness scale or the social loneliness scale. However, when social identity condition was compared to non-task control condition on the combined scale, this was statistically significant, suggesting that when both types of loneliness are considered there is an advantage to reflect on one's social identity when evaluating loneliness when compared to just taking the measure with no reflection. These findings suggest that there is something unique about evaluating one's self in relation to a positively salient group on one's evaluation of their loneliness.

In addition, exploratory analysis indicated that neither age nor gender seemed to have an influence on individual's appraisal of loneliness, as has been observed in other research (Rokach, 2012). This result may be due to the fact that age and gender were asked for after the individual took the loneliness measure and therefore these factors were not salient in the individual's mind, leaving the effects of which group the individuals were randomly assigned to be the larger determinant of one's rating of loneliness.

### **Limitations of Study and Recommendations**

In this section, I will explore issues related to the limitations of this study. As far as the independent variable is concerned, the major limitation is the assumption that college student as a social identity would generalize or be the same for other social identities. The reason college student was selected for this research was that previous research indicated that college students go through the social identification process

(Veelen et al., 2016). Because college students go through the identification and identity process makes studying college students a good example of what SIT would predict. However, it could be argued that there may be qualities of making positive aspects of being a college student salient that reduce loneliness that has nothing to do with being a member of that category or the identity that comes with being a member. For example, it may be the communicative nature of being a college student, such as the continued interaction in the classroom or online chatroom that makes one feel less lonely, and what may be primed is that aspect of being a college student. Therefore, the identity of a college student was being primed, it may be the unique social qualities of being a college student that influenced the participant's evaluation of loneliness. Although this is a viable explanation, it seems that this unique aspect of being a college student would have had an influence on social loneliness and less of an influence on one's emotional loneliness. When college students are socializing, they are usually doing so to make a social connection that might be beneficial for their class or future academic success. However, these connections are less emotionally based, and therefore it seems this should have had less influence on one's emotional loneliness. To control for this, other social identities should be explored using this research process, to see if the results stay consistent across different social identities. If the same results are observed using other identities, then it would lend more support to priming a positive social identity. However, if replications with the same social identity yield the same results observed in this research, but different

results when using different social identities, it would lend support for this alternative explanation.

Although the results seemed not to have been influenced by this, replication of this research should consider shortening the cognitive control condition. The social identity condition, personal identity condition, and cognitive control condition should have taken approximately the same amount of time to complete. However, based on data which provided the amount of time it took to complete, the two identity conditions took on average 11 minutes while the cognitive control took 19 minutes. Because the cognitive control and the no task control condition had similar outcomes on the dependent variable, and the no task group took on average only four minutes to complete, it can be assumed that time to complete a given task was not a large factor. However, it is worth elaborating on the potential issues that this may have created in explaining the outcomes. Because the cognitive control took longer, it may also explain the completion rate of this control group. For the other three conditions there was a 96% completion rate, whereas in the cognitive control group there was an 84% completion rate. For the other three noncognitive conditions the 4% that did not complete was due to a missing response on some of the loneliness measure questions, and not that an individual did not completely go through the entire research. However, the majority of the 16% who did not complete the cognitive control stopped at the independent group activity with very few (6% of 16%) who continued on to the dependent measures. Because of this it can only be assumed that the loneliness scores in the cognitive control group only represent

individuals who were willing to complete the task. Although completion of tasks is true of all the conditions, based on time and non-completion rate of cognitive control condition, the condition was not equivalent to the other two conditions that required a task. Therefore, the cognitive control only represents individuals who were willing to put in the time and effort to complete the cognitive control condition. This suggests that the cognitive control may not have been comparable to the social identity group or the personal identity group. Replication should consider shortening the cognitive control condition, to make it more equivalent to the other two task conditions.

There were two issues that arose as I started to evaluate the de Jong Gierveld and Tilburg (1999/2011) loneliness scale. In Chapter 3 the scale was reviewed and was found to have sufficient reliability and validity, some concerns with the scale arose when scoring the measure. The first is an evaluation of the scale items; the second concern is the scoring of the measure based on positive and negative responses. The scoring of the social and loneliness scales was based on whether a participant responded to a particular item, not to the degree to which someone responded. For example, the question “I often feel rejected” if the participant answered, “more or less,” “yes,” or “absolutely yes” they would receive a score of 1. This scoring procedure suggests that there is no difference between individuals who answer, “more or less” versus those who answer, “absolutely yes.” The second issue is how the scores for social and emotional loneliness were calculated. Items for the emotional loneliness scale were calculated by adding up the items 2, 3, 5, 6, 9, and 10 when participants stated, “more or less,” “yes,” or “absolutely

yes.” Whereas the items for the social loneliness scale was calculated by adding up items 1, 4, 7, 8, and 11 when participants selected either “more or less,” “no,” or “absolutely no.” Because the combined loneliness scale yielded the same results as the individual scales, in future research, it may be worth replicating this research using the UCLA loneliness scale as it is a single measure of loneliness and has been used in the majority of loneliness research. For this current research, the reason why the de Jong Gierveld and Tilburg (1999/2011) loneliness scale was used is that I wanted to see if there was a different influence of social identity on social versus emotional loneliness. The de Jong Gierveld and Tilburg (1999/2011) loneliness scale was a direct measure of both types of loneliness. Because social identity had a similar effect on both and when the scale was combined it yielded the same results, it could be argued that using a single scale of loneliness would be sufficient in replication of this research. By using a combined measure of loneliness, researchers can consider the degree of loneliness based on item response, and issues of dividing a scale based on positive versus negative responses to determine subscales.

### **Implications**

When looking at item responses in this research, it was noticed that 53% of the sample stated, “more or less,” “yes,” or “absolutely yes” to the following statement: “I experience a general sense of emptiness.” This finding emphasizes the important implication of this research and research like this. In a world where emptiness and disconnect are commonplace, along with the associated physical and psychological health



issues, it is important to find mechanisms that can reduce such emotions and disconnect. In this section, the implications for this research will be explored in three contexts. First is the theoretical context and how this research supports the theoretical framework of this dissertation. The second goes along with the theoretical framework but will focus on how a situational factor does indeed influence a person's evaluation of negative emotion such as loneliness, supporting the situational approach to understanding emotions. The last implication deals with the social change aspect of this research. As mentioned in the first paragraph of this chapter, research done when completing this dissertation has shown how social identity has a positive influence on reducing the symptoms of depression (Cruwys et al., 2014; Haslam, Cruwys et al., 2016). As an extension of that research, this research provides further evidence of the importance of developing strong social identities when it comes to reducing common negative emotions such as loneliness.

The theoretical assumptions of this research were that individuals seek social belonging and when that social belonging is thwarted, a negative motivational state is experienced that is referred to as loneliness (Cacioppo, & Patrick, 2008). Loneliness can be divided into two categories, social loneliness (aka social isolation) which is not having a sufficient number of social connections and emotional loneliness which is not having a close emotional relationship. Because individuals have a different level of needs (i.e., some people need little social attention whereas some need lots of social attention) the evaluation of loneliness is subjective. As proposed in Chapter 1 and Chapter 2, social identity was presented as a mechanism that may reduce an individual's subjective

evaluation. It was argued that social identities have two qualities that may reduce loneliness, they provide social connection to a broader group of people with similar attributes to their own, and they provide a close emotional connection to the group and individuals within that group category. Therefore, it was argued that by making a social identity positively salient that it would reduce a person's subjective evaluation of loneliness. Indeed, using college student as a social identity this research supports that notion. By having individuals write down five positive aspects of being a college student they had a reduced evaluation of loneliness when compared to three control conditions. One of the control conditions asked individuals to write down five individual qualities (priming their individual identity), this condition resulted in the highest mean level of loneliness in this sample, although not statistically significantly different from the other two control conditions. However, this may suggest that focusing only on individual qualities, getting further away from our connected qualities we have with other people may result in more loneliness, and should be considered in future research.

The second implication of this research is that it supports Goldenberg et al.'s (2016) conclusion that emotions are situationally based and are more responsive to the situation rather than stable state not affected by the situation. If loneliness was a stable emotional state that was not situationally based, there should have been no differences in self-reported loneliness between experimental conditions. The fact that in this research individuals who were randomly assigned to the social identity condition reported feeling less lonely supports the situational approach to understanding emotional states.

The final implication of this research has to do with the social change aspect of this research. In the last few years, there has been both scientific literature (Hawkey et al., 2010) and popular literature (National Public Radio, 2018) discussing the increase of social disconnect that is occurring in our society along with all the negative physical and psychological problems associated with social disconnection. This research shows that by focusing on our positive qualities as they relate to different groups to which we belong, we experience less loneliness and disconnect. This means that through encouraging understanding our social world and our identity with that social world that we can reduce this ever-increasing problem of loneliness. For example, since this research was conducted using college students, the obvious application of this research would be in a college setting. Many college students who live in student housing often find themselves in new and unfamiliar setting away from loved ones. This can be a place where loneliness can be a risk. Therefore, based on this research, college student housing leaders could encourage the positive aspects of being a college student and what that means to the individual student, which based on these results should result in lower subjective evaluation of loneliness. However, this statement should be made with some caution, in that this is only the beginning of the investigation of how social identity influences loneliness and replication of this research is strongly encouraged. In addition to this, future research should consider using this research technique to determine if it is the positive outcomes of having a positively strong social identity that leads some individuals to strongly identify with socially undesirable groups.

## **Conclusion**

This research should be seen as a promising direction in the area of social identity and loneliness, and further research should attempt to replicate this research to see if similar effects are observed. If further research supports the findings of this dissertation, it will provide a strong argument that the way, we socially engage and identify with our world is important in our evaluation of loneliness. These findings also emphasize the importance of the situation in one's evaluation of loneliness. Both of these lead to the potential of social change by decreasing loneliness through encouraging strengthening one's positive social identity.

## References

- Abrams, D. (2014). Social identity and intergroup relations. In Mikulincer, M., & Chaver, P.R. (Eds.). *APA Handbook of Personality and Social Psychology* (Vol. 2). Washington, DC: American Psychological Association.
- Alpass, F. M., & Neville, S. (2003). Loneliness, health and depression in older males. *Aging and Mental Health*, 7(3), 212-216. doi:10.1080/1360786031000101193
- Althaus, S. L., & Coe, K. (2011). Priming patriots: Social identity processes and the dynamics of public support for war. *Public Opinion Quarterly*, 75(1), 65-88. doi:10.1093/poq/nfq071
- Amoit, C .E., & Amiot, R. M. (2013). Why and how are you attached to your Social Group? Investigating different forms of social identification. *British Journal of Social Psychology*, 52, 563-586. doi:10.1111/bjso.12004
- Ang, C., Mansor, A.T., & Tan, K. (2014). Pangs of loneliness breed material lifestyle but don't power up life satisfaction of young people: The moderating effect of gender. *Social Indicators Research*, 117, 353-365, Retrieved from <https://link.springer.com/journal/11205>
- Bangee, M., Harris, R. A., Bridges, N., Rotneberg, K. J., & Qualter, P. Z.. (2014). Loneliness and attention to social threat in young adults: Findings from an eye tracker study. *Personality and Individual Differences*, 63(2014), 16-23. doi:10.1016/j.paid.2014.01.039

- Beart, S., Hardy, G., & Buchan, L. (2005). How People with intellectual disabilities view their social identity: A Review of the literature. *Journal of Applied Research in Intellectual Disabilities*, 18(1), 47-56. doi:10.1111/j.1468-3148.2004.00218.x
- Becker, L. A. (2000). *Effect size (ES)*. Colorado Springs, CO: University of Colorado.
- Bizumic, B., Reynolds, K. J., Turner, J. C., Bromhead, D., & Subasic, E. (2009). The role of the group in individual functioning: Social identification and the psychological well-being of staff and students. *Applied Psychology: An International Review*, 58(1), 171-192, doi:10.1111/j.1464-0597.2008.00387.x
- Brooks, L. M. (1933). The relation of spatial isolation to psychosis. *The Journal of Abnormal and Social Psychology*, 27(4), 375-379. doi:10.1037/h0072806
- Burford, B. (2012). Group processes in medical education: Learning from social identity theory. *Medical Education*, 56, 143-152. Retrieved from <http://www.mededuc.com>
- Buchner, A., Erdfelder, E., Faul, F., & Lang, A. (2007). G\*Power: Statistical power analyses for Windows and Mac. Retrieved from <http://www.gpower.hhu.de/en.html>
- Caccioppo, J. T. & Gardner, W. L. (1999). Emotion. *Annual Review of Psychology*, 50, 191-214, doi:10.1146/annurev.psych.50.1.191
- Cacioppo, J. T., Cacioppo, S., & Cole, S. W. (2013). Social neuroscience and social genomics: The emergence of multi-level integrative analyses. *International Journal of Psychological Research*, 61(6), doi:10.21500/20112084.711

- Cacioppo, J. T., & Patrick, W. (2008). *Loneliness: Human Nature and the need for social connection*. New York, NY: W.T. Horton & Company.
- Cacioppo, J. T., Christakis, N. A., & Fowler, J. H. (2009). Alone in the crowd the structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97(6), 977-991, doi:10.1037/a0016076
- Cacioppo, J. T., Hawkey, L. C., & Thisted, R. A. (2009). Loneliness predicts reduced physical activity: Cross-sectional & longitudinal analyses. *Health Psychology*, 28(3), 354-363. Retrieved from <http://journals.sagepub.com/home/hpq>
- Cacioppo, J. T., Hawkey, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago health, aging, and social relations study. *Psychology and Aging*, 25(2), 453-463, doi:10.1037/a0017216
- Cacioppo, S., Cacioppo, J. T., & Capitano, J. P. (2014). Toward a neurology of loneliness. *Psychological Bulletin*, 140(6), 1464-1504. doi:10.1037/a0037618
- Carter, M. J. (2013). Advancing identity theory: Examining the relationship between activated identities and behavior in different social contexts. *Social Psychology Quarterly*, 76(3), 203-223. doi:10.1177/0190272513493095
- Change, C., Chang, C., Biegel, D. E., Pernice-Duca, F., Min, M. O., & D'Angelo, L. (2014). Predictors of loneliness of clubhouse members. *Psychiatric Rehabilitation Journal*, 37(1), 51-54, doi:10.1037/prj0000052

- Conoley, C. W., & Garber, R. A. (1985). Effects of reframing and self-control directives on loneliness, depression, and controllability. *Journal of Counseling Psychology*, 32(1), 139-142. doi:10.1037/0022-0167.32.1.139
- Cooke, N. J. (2015). Team cognition as interaction. *Current Directions in Psychological Science*, 25(6), 415-419. doi:10.1177/0963721415602474
- Costabile, K. A. (2016). Narrative construction, social perceptions, and situational model. *Personality and Social Psychology Bulletin*, 42(5), 589-602. Retrieved from <http://journals.sagepub.com/home/psp>
- Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, 6(1), 65-74. doi:10.1177/1948550614543309
- Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, 18(3), 215-238. doi:10.1177/1088868314523839
- de Jong Gierveld, J., & van Tilburg, T. (2006). A 6-Item Scale for Overall, Emotional, and Social Loneliness: Confirmatory Tests on Survey Data. *Research on Aging*, 28(5), 582-598. doi:10.1177/0164027506289723
- de Jong Gierveld, J., & van Tilburg, T. G. (1999/2011). *Manual of the loneliness scale*. VU University Amsterdam, Department of Social Research Methodology (ISBN 90-9012523-X). A hard copy is to obtain from the authors.



- de Jong Gierveld, J., van Tilburg, T. G., & Dykstra (2006). Loneliness and social isolation. In: Cambridge handbook of personal relationships (A.Vangelisti and D.Perlman, eds). Cambridge: Cambridge University Press, 485-500.
- de Minzi, M. R. (2006). Loneliness and Depression in Middle and Late Childhood: The Relationship to Attachment and Parental Styles. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 167(2), 189-210. doi:10.3200/GNTP.167.2.189-210
- Derks, B., Stedehouder, J., & Ito, T. A. (2015). Social identity modifies face perception: An ERP study of social categorization. *Social Cognitive and Affective Neuroscience*, 10(5), 672-679. doi:10.1093/scan/nsu107
- Devellis, R. F. (2012). *Scale Development: Theory and Application*. Washington DC: SAGE Publications.
- DeWall, C. N., & Pond, R. J. (2011). Loneliness and smoking: The costs of the desire to reconnect. *Self and Identity*, 10(3), 375-385. doi:10.1080/15298868.2010.524404
- Durak, M., & Senol-Durak, E. (2010). Psychometric qualities of the UCLA Loneliness Scale – Version 3 as applied in a Turkish culture. *Educational Gerontology*, 36, 988-1007. doi:10.1080/03601271003756628
- Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T (2008). Creating social connection through inferential reproduction: Loneliness and perceived agency in gadgets, gods, and greyhounds. *Psychological Science*, 19(2), 114-120. doi: 10.1111/j.1467-9280.2008.02056.x

- Feeney, B. C., & Collins, N. L. (2015). A new look at social support: Theoretical perspective on thriving through relationships. *Personality and Social Psychology Review, 19*(2), 112-147. doi:10.1177/1088868314544222
- Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4<sup>th</sup> ed). Washington, DC: SAGE
- Fiske, S. T. (2013). *Social beings: Core motives in social psychology* (3rd ed). Hoboken, NJ: John Wiley & Sons, Inc.
- Fokkema, T., Gierveld, J. D., & Dykstra, P. A. (2012). Cross-national differences in older adult loneliness. *The Journal of Psychology, 146*(1-2), 201-228. Retrieved from <https://www.tandfonline.com/toc/vjrl20/current>
- Ford, J., O'Hare, D., & Henderson, R. (2013). Putting the 'we' into teamwork: Effects of priming personal or social identity on flight attendants' perceptions of teamwork and communication. *Human Factors, 55*(3), 499-508.  
doi:10.1177/0018720812465311
- Ganley, R. M. (1989). Emotion and eating in obesity: A review of the literature. *International Journal of Eating Disorders, 8*(3), 343-361. doi:10.1002/1098-108X(198905)8:3<343::AID-EAT2260080310>3.0.CO;2-C
- Gentina, E. (2014). Understanding the effects of adolescent girls' social position within peer groups on exchange practices. *Journal of Consumer Behavior, 13*, 73-80. Retrieved from <https://onlinelibrary.wiley.com/journal/14791838>

- Givertz<sup>1</sup>, M., Wosidlo, A., Segrin, C., & Knutson, K. (2013). Direct and indirect effects of attachment orientation on relationship quality and loneliness in married couples. *Journal of Social and Personal Relationships* 30(8) 1096–1120.  
doi:10.1177/0265407513482445
- Goldenberg, A., Halprin, E., van Xomeren, M., & Gross, J. J. (2016). The process model of group-based emotion: integrating intergroup emotion and emotion regulation perspectives. *Personality and Social Psychology Review*, 20(2), 118-141. doi: 10.177/1088868315581263
- Grageset, J., Eide, G. E., Kirkevold, M., & Ramhoff, A. H. (2012). Emotional loneliness is associated with mortality among mentally intact nursing home residents with and without cancer: A five-year follow-up study. *Journal of Clinical Nursing*, 22, 106-114, Retrieved from <https://onlinelibrary.wiley.com/journal/13652702>
- Hansson, R. O., & Jones, W. H. (1981). Loneliness, cooperation, and conformity among American undergraduates. *The Journal of Social Psychology*, 115, 103-108.  
Retrieved from <https://www.tandfonline.com/loi/vsoc20>
- Haslam, S. A. (2014). Making good theory practical: Five lessons for an applied social identity approach to challenges of organizational, health, and clinical psychology. *British Journal of Social Psychology*, 53, 1-20.  
Doi:10.1080/00224545.1981.9711993
- Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. (2016). GROUPS 4 HEALTH: Evidence that a social-identity intervention that builds and strengthens

social group membership improves mental health. *Journal of Affective Disorders*, 188-195. doi:10.1016/j.jad.2016.01.010

Hawkey, L. C., Cacioppo, J. T., & Preacher, (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annual Behavioral Medicine*, 40, 218-227. doi:10.1007/s12160-010-9210-8

Hertz, S. G., & Krettenauer, T. (2016). Does moral identity effectively predict moral behavior?: A meta-analysis. *Review of General Psychology*, 20(2), 129-140. doi:10.1037/gpr0000062

Hogg, M. A., & Turner, J. C. (1987). Intergroup behavior, self-stereotyping, and the salience of social categories. *British Journal of Social Psychology*, 26, 325-340. doi:10.1111/j.2044-8309.1987.tb00795.x

Holt-Lunstad, J. (2015). Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. *Perspectives on Psychological Science*, 10: 227-237. doi: 10.1177/1745691614568352

Howe, L. C., & Dweck, C. S. (2016). Changes in self-definition impede recovery from rejection. *Personality and Social Psychology Bulletin*, 42(1), 54-71. doi:10.1177/0146167215612743

Hsu, L. M. (2005). Some properties of  $r_{\text{equivalent}}$ : A simple effect size indicator. *Psychological Methods*, 10(4), 420-427. doi: 10.1037/1082-989X.10.4.420

- Jackson, J. W. (2011). Intragroup cooperation as a function of group performance and group identity. *Group Dynamics: Theory, Research, and Practice*, 15(4), 343-356. doi:10.1037/a0024575
- James, W. (1890). *Psychology: American Science Series*, Vol. I and II. New York, NY: Henry Holt & Co.
- Jaremka, L. M., Andridge, R. R., Alfano, C. M., Povoscki, S. P., Lipari, A. M., Agnese, D. M., Arnold, M. W., Faffarm W. B., Yee, L. D., Carson, III, W. E., Bekaii-Sabb, T., Martin, Jr., E. W., Schmidt, C. R., & Kiecolt-Glaser, J. K. (2014). Pain, depression, and fatigue: Loneliness as a longitudinal risk factor. *Health Psychology*, 33(9), 948-957. Retrieved from <http://journals.sagepub.com/home/hpq>
- Jones, A. C., Schinka, K. C., van Dulman, H. M., Bossarte, R. M., Swahn, M. H. (2011). Changes in loneliness during middle childhood predicts risk for adolescent suicidality indirectly through mental health problems. *Journal of Clinical and Adolescent Psychology*, 40(6), 818-824. doi:10.1080/15374416.2011.614585
- Jones, W. H., Hobbs, S. A., & Hockenbury, D. (1982). Loneliness and social skills. *Journal of Personality and Social Psychology*, 42(4), 682-689. Retrieved from <http://journals.sagepub.com/home/psp>
- Jong, J., Whitehouse, H., Kavanagh, C., & Lane, J. (2015). Shared negative experiences lead to identity fusion via personal reflection. *Plos ONE*, 10(12). doi:10.1371/journal.pone.0145611

- Kawamoto, T. (2015). The association between emerging adult identity and multiple social relationships: Differences among attachment styles with parents, friends, and romantic partners. *Japanese Journal of Developmental Psychology, 26*(3), 210-224. Retrieved from <https://www.jstage.jst.go.jp/browse/jjdp>
- Ketturat, C., Frisch, J. U., Ullrich, J., Hausser, J. A., Dick, R., & Mojzisch, A. (2016). Disaggregating within- and between-person effects of social identification on subjective and endocrinology stress reaction in a real-life situation. *Personality and Social Psychology Bulletin, 42*(2), 147-160. Retrieved from <http://journals.sagepub.com/home/psp>
- Kumar, R., Seay, N., & Karabenick, S. (2011). Shades of White: Identity status, stereotypes, prejudice, and xenophobia. *Educational Studies: Journal of The American Educational Studies Association, 47*(4), 347-378.  
doi:10.1080/00131946.2011.587922
- Kuppens, T., Yzerbyt, V. Y., Dandache, S., Fischer, A. H., & Schalk, J. (2013). Social identity salience shapes group-based emotions through group-based appraisals. *Cognition and Emotions, 27*(8), 1359-1377, doi: 10.1080/02699931.2013.785387
- Kuyper, L., & Fokkema, T. (2010). Loneliness among older lesbian, gay, and bisexual adults: The role of minority stress. *Arch Sexual Behavior, 39*, 1171-1180.  
doi:10.1007/s10508-009-9513-7
- Lammers, J., Stoker, J. I., Rink, F., & Galinsky, A. D. (2016). Top have control over or to be free from others? The desire for power reflects a need for autonomy.

*Personality and Social Psychology Bulletin*, 42(4), 498-512. Retrieved from

<http://journals.sagepub.com/home/psp>

- Lasgaard, M., Goossens, L., & Alklit, A. (2011). Loneliness, depressive symptomatology, and suicide ideation in adolescence: Cross-national and longitudinal analyses. *Journal of Abnormal Child Psychology*, 29, 137-150. doi:10.1007/s10802-010-9442-x
- Layden, E. A., Cacioppo, J. T., Cacioppo, S., Cappa, S. F., Dodich, A., Falini, A., & Canessa, N. (2017). Perceived social isolation is associated with altered functional connectivity in neural networks associated with tonic alertness and executive control. *Neuroimage*, 145(Part A), 58-73. doi:10.1016/j.neuroimage.2016.09.050
- Leonardelli, G. J., & Toh, S. M. (2015). Social categorization in intergroup contexts: Three kinds of self-categorization. *Social and Personality Psychology Compass*, 9(2), 69-87. doi:10.1111/spc3.12150
- Leonardelli, G. J., & Loyd, D. L. (2016). Optimal distinctiveness signals membership trust. *Personality and Social Psychology Bulletin*. 42(7), 843-854. doi: 10.1177/0146167216643934
- Lieberman, M. D. (2013). *Social: Why our brains are wired to connect*. New York, NY: Broadway Books.
- Lodder, G. M. A., Scholte, R. H. J., Clemens, I.A.H., Engels, R. S. M. E., Goosens, L., & Verhagen (2015). Loneliness and hypervigilance to social cues in females: An eye-tracking study. *PLOS ONE*. doi:10.1371/journal.pone.0125141

- Mackia, D. M., & Smith, E. R. (2015). Intergroup emotions. In Milkulincer, M., & Shaver, P. R. (Eds). *APA Handbook of Personality and Social Psychology: Vol.2 Group Process*. Washington, DC: American Psychological Association.
- Mange, J., Lepastourel, N., & Georget, P. (2009). Is your language a social clue? Lexical markers and social identity. *Journal of Language and Social Psychology*, 28(4), 364-380. doi:10.1177/0261927X09341956
- Martina, C. M. S., & Stevens, N.L. (2006). Breaking the cycle of loneliness? Psychological effects of a friendship enrichment program for older women. *Aging & Mental Health*; 10(5): 467–475. doi: 10.1080/13607860600637893
- Mehrabian, A., & Stefl, C. A. (1995). Basic temperament components of loneliness, shyness, and conformity. *Social Behavior and Personality*, 23(3), 253-264
- Most, T., Ingber, S., & Heled-Ariam, E. (2012). Social competence, sense of loneliness, and speech intelligibility of young children with hearing loss in individual inclusion and group inclusion. *Journal of Deaf Studies and Deaf Education*, 17(2), 259-272. doi:10.1093/deafed/enr049
- National Center for Education Statistics (2017). *Undergraduate enrollment (2017)*. Retrieved from [https://nces.ed.gov/programs/coe/indicator\\_cha.asp](https://nces.ed.gov/programs/coe/indicator_cha.asp)
- National Public Radio (2018). *U.K. Now has a Minister for Loneliness*. Retrieved from <https://www.npr.org/sections/thetwo-way/2018/01/17/578645954/u-k-now-has-a-minister-for-loneliness>



- Newall, N. E. G., Chipperfield, J. G., & Stewart, T. L. (2013). Consequences of loneliness on physical activity and mortality in older adults and the power of positive emotions. *Health Psychology, 32*(8), 921-924. doi: 10.1037/a0029413
- Nurmi, J., Toivonen, S., Salmela-Aro, K., & Eronen, S. (1997). *Social strategies and loneliness. The Journal of Social Psychology, 137*(6), 764-777.  
doi:10.1080/00224549709595497
- Orehek, E. & Forest, A. L. (2016). When people serve as a means to goals: Implications of motivational account of close relationships. *Current Directions in Psychological Science, 25*(2), 79-84. doi:10.1177/0963721415623536
- Orr, J. M., Sackett, P. R., & Dubois, C. L. (1991). Outlier detection and treatment in I/O psychology: A survey of researcher beliefs and an empirical illustration. *Personnel Psychology, 44*(3), 473-486. doi:10.1111/j.1744-6570.1991.tb02401.x
- Otten, S., & Stapel, D. A. (2007). Who is this Donald? How social categorization affects aggression-priming effects. *European Journal of Social Psychology, 37*(5), 1000-1015. doi:10.1002/ejsp.413
- Perry, R., & Sibley, C. G. (2011). Social dominance orientation: Mapping a baseline individual difference component across self-categorization. *Journal of Individual Differences, 32*(2), 110-116. doi:10.1027/1614-0001/a000042
- Peterson, C. N. (2017). *Non-cognitive contributors to student success among first generation students*. Helena, MT: Helena College University of Montana.  
doi:10.13140/RG.2.1.2789.0641

- Rokach, A. (2000). Perceived causes of loneliness in adulthood. *Journal of Social Behavior and Personality, 15*(1), 67-84. Retrieved from <https://www.sbp-journal.com/index.php/sbp>
- Rokach, A. (2001). Strategies of coping with loneliness throughout the lifespan. *Current Psychology: Developmental, Learning, Personality, and Social, 20*(1), 3-18. doi:10.1007/s12144-001-1000-9
- Rokach, A. (2007). Coping with loneliness among the terminally ill. *Social Indicators Research, 82*, 487-503. doi:10.1007/s11205-006-9047-5
- Rokach, A. (2012). Loneliness updated: An introduction. *The Journal of Psychology: Interdisciplinary and Applied, 146*(1-2), 1-6. doi:10.1080/00223980.2012.629501
- Rokach, A., & Brock, H. (1997). Loneliness and the effects of life changes. *The Journal of Psychology, 131*(3), 284-298. doi:10.1080/00223989709603515
- Ross, S., Spinks, N., & Canhoto, A.I. (2015). *Management research: Applying the Principles*. London, England: Routledge.
- Ruscio, J. (2008). A probability-based measure of effect size: Robustness to base rates and other factors. *Psychological Methods, 13*(1), 19-30. doi:10.1037/1082-989X.13.1.19
- Russell, D. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*, 20-40. doi:10.1207/s15327752jpa6601\_2

- Russell, D. W., Cutrona, C. E., McRae, C., & Gomez, M. (2012). Is loneliness the same as being alone?. *The Journal of Psychology: Interdisciplinary and Applied*, *146*(1-2), 7-22. doi:10.1080/00223980.2011.589414
- Sachdev, I., & Bourhis, R. Y. (1985). Social categorization and power differentials in group relations. *European Journal of Social Psychology*, *15*(4), 415-434. doi:10.1002/ejsp.2420150405
- Seedall, R. B., Butler, M. H., Zamora, J. P., & Yang, C. (2016). Attachment change in the beginning stages of therapy: Examining change trajectories for avoidance and anxiety. *Journal of Marital and Family Therapy*, *42*(2), 217-230. doi:10.1111/jmft.12146
- Segrin, C. & Passalacqua, S.A. (2010). Functions of loneliness, social support, health behaviors, and stress association with poor health. *Health Communications*, *25*, 312-322. doi:10.1080/10410231003773334
- Segrin, C., & Domschke, T. (2011). Social support, loneliness, recuperative processes, and their direct and indirect effects on health. *Health Communications*, *26*, 221-232. doi:10.1080/10410236.2010.546771
- Segrin, C., Powell, H. L., Givertz, M., & Brackin, A. (2003). Symptoms of depression, relational quality, and loneliness in dating relationships. *Personal Relationships*, *10*(1), 25-36. doi:10.1111/1475-6811.00034

- Shankar, A., McMunn, A., Banks, J., & Steptoe, A. (2011). Loneliness, social isolation, and behavioral and biological health indicators in older adults. *Health Psychology*, *30*(4) 377-385. doi:10.1037/a0022826
- Simon, B., & Hastedt, C. (1999). Self-aspects as social categories: The role of personal importance and valence. *European Journal of Social Psychology*, *29*(4), 479-487. doi:10.1002/(SICI)1099-0992(199906)29:4<479::AID-EJSP939>3.0.CO;2-M
- Smith, J. M. (2012). Towards a better understanding of loneliness in community-dwelling older adults. *The Journal of Psychology*, *146*(3), 293-311. doi:10.1080/00223980.2011.602132
- Steffens, N. K., Haslam, S.A., Schuh, S.C., Jetten, J., & van Disk, R. (2016). A meta-analytic review of social identification and health in organizational context. *Personality and Social Psychology Review*, 1-33. doi:10.1177/1088868316656701
- Stokes, J. & Levin, I. (1986). Gender differences in predicting loneliness from social network characteristics. *Journal of Personality and Social Psychology*, *51*(5), 1069-1074. doi:10.1037/0022-3514.51.5.1069
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York, NY: Norton.
- Tajfel, H. (1969). Cognitive aspects of prejudice. *Journal of Social Issues*, *25*, 79-97. doi:10.1111/j.1540-4560.1969.tb00620.x
- Tajfel, H. (1982). *Social Identity and Intergroup Relations*. New York, NY: Cambridge University Press

- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (The Nelson-Hall series in psychology) (pp. 7–24). Chicago, IL: Burnham.
- Turner, J. C. (1975). Social comparison and social identity: Some prospects for intergroup behavior. *European Journal of Social Psychology*, 5, 5-34.  
doi:10.1002/ejsp.2420050102
- Turner, J. C. (1982). Towards a cognitive redefinition of the social group. In Tajfel, H. (Eds.) *Social Identity and Intergroup Relations*. New York, NY: Cambridge University Press.
- Turner, J. C., & Reynolds, K.J. (2003). The social identity perspective in intergroup relations: Theories, themes, and controversies. In Brown, R., & Gaertner (Eds) *Blackwell Handbook of Social Psychology: Intergroup processes*. Malden, MA: Blackwell Publishers, Ltd.
- Vanhalst, J., Luyckx, K., Raes, F., & Goossens, L. (2012). Loneliness and depressive symptoms: The mediating and moderating role of uncontrollable ruminative thoughts. *The Journal of Psychology: Interdisciplinary and Applied*, 146(1-2), 259-276. doi:10.1080/00223980.2011.555433
- Veelen, R., Eisenbeiss, K. K., & Otten, S. (2016). Newcomers to social categories: Longitudinal predictors and consequences of in-group identification. *Personality and Social Psychology Bulletin*, 42(6), 811-825. doi:10.1177/0146167216643937

- Victor, S. R., & Bowling, A. (2012). A longitudinal analysis of loneliness among older people in Great Britain. *The Journal of Psychology, 146*(2), 313-332.  
doi:10.1080/00223980.2011.609572
- Watson-Jones, R. E., & Legare, C. H., (2016). The social function of group rituals. *Current Directions in Psychological Science, 25*(1), 42-46.  
doi:10.1177/0963721415618486
- Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*.  
Baskerville, MA: The Massachusetts Institute of Technology
- Wheeler, L., Reis, H., & Nezleck, J. (1983). Loneliness, social interaction, and sex roles. *Journal of Personality and Social Psychology, 45*(4), 943-953. doi:0.1037/0022-3514.45.4.943
- Willets, G., & Clarke, D. (2014). Constructing nurses' professional identity through social identity theory. *International Journal of Nursing Practice, 20*, 164-169.  
Retrieved from <https://onlinelibrary.wiley.com/journal/1440172x>
- Winningham, R. G., & Pike, N. L. (2007). A cognitive intervention to enhance institutionalized older adults' social support network and decrease loneliness. *Aging and Mental Health, 11*(6), 716-721. Retrieved from <https://www.tandfonline.com/loi/camh20>
- Wundt, W. (1902). *Outlines of Psychology* (2<sup>nd</sup> ed). New York, NY: Wilhelm Engalman Publishing

Zimmer-Gembeck, M. J., Trevaskis, S., Nesdale, D., & Downey, G. A. (2014). Relational victimization, loneliness and depressive symptoms: Indirect associations via self and peer reports of rejection sensitivity. *Journal of Youth Adolescents*. 43, 568-582. doi:10.1007/s10964-013-9993-6

## Appendix A: Independent Variable Scripts

### **Social Identity Saliency**

College students tend have similar qualities that make them successful in their personal life and in industry, that are separate from individual qualities. For two minutes stop and think about what are some shared qualities that successful college students have. After two minutes, list the top five shared qualities.

- 1.
- 2.
- 3.
- 4.
- 5.

### **Personal Identity Saliency**

Individuals tend have qualities that make them successful in their personal life and in industry, that are separate from group qualities. For two minutes stop and think about what are some your individual qualities that make you successful After two minutes list the top five individual qualities.

- 1.
- 2.
- 3.
- 4.
- 5.

### **Control condition with activity**

Read the following paragraph after which list 5 things you understand about the article.

#### 1. Introduction

Whether it be the crashing ocean waves upon a sandy beach, the probability fluctuations of a wave function specifying the most probable location of a quantum particle at any instant, or the tone of a beloved friend's voice, we are surrounded in a world of wave-like phenomena. Why is it that things tend to oscillate so darn much? The answer to this question is somewhat broad, as things 'wave' for a number of reasons depending on what type of object that we are describing is doing the 'waving'. Because of this, I will first go into detail as to why more familiar things, such as strings and water waves, tend to 'wave' - from now on, I am going to replace the word 'wave' with a more formal verb, 'oscillate'. I will then explore a world that may be somewhat more exotic to you by providing a heuristic description of quantum mechanical waves.



## 2. Classical Waves

The key behind understanding waves from the point of view of everyday phenomena is to recognize that nature, fundamentally, does not like change. If a system is disturbed minutely from its equilibrium state (meaning that it is either at rest or traveling at a constant velocity), often times it will attempt to restore its configuration back to some form of its original equilibrium arrangement. Why is this? Energy conservation. There are two types of energies that physicists deal with - kinetic and potential energy. The kinetic energy is a universal energy for every situation that depends upon, but is unaffected by, the coordinate system used to describe the motion of the physical system. The potential energy, however, is dependent upon the specific scenario in question. The potential energy of a bob on a spring, for example, would be

$$V(x) = \frac{1}{2} kx^2 \quad (1)$$

where  $k$  is a constant and  $x$  is the distance from the equilibrium position. The potential energy of an electron interacting with a proton in a Hydrogen atom is, however

$$V(r) = \frac{-q^2}{4\pi\epsilon r} \quad (2)$$

where  $q$  is a fundamental quantity called 'charge',  $\epsilon$  is a physical constant that turns out to be linked to the speed of light, and  $r$  is the distance between the electron and proton. When I say that energy is conserved, what I really mean is that the total energy, which is the sum of the kinetic and potential energies, is always the same for any isolated system. If the potential then increases, I must see a corresponding decrease in kinetic energy and if the kinetic energy increases, I must see a corresponding decrease in potential energy. Because of this, if a particle or system of particles is perturbed ever so slightly from its state of equilibrium, it will continually convert all of its kinetic energy into potential energy and, in turn, all of its potential energy will then be converted back into kinetic energy and the process will keep going so long as we neglect any frictional forces that will turn the energy into heat (which also has to do with the oscillation of atoms). This behavior practically explains a vast majority of common wave phenomena, such as strings bobbing back and forth and springs oscillating up and down. So long as there is a potential energy specifying the type of interaction occurring and the particle or system of particles is at a stable point according to that potential, the system will be allowed to oscillate back and forth with the kinetic and potential energies sloshing around energy to keep their sum constant.

Another fascinating instance where one is bound to see this energy conservation in action is in the propagation of water waves. These are 'traveling disturbances' of energy that is allowed to propagate through the fluid medium. When the individual molecules are displaced, they tend to want to restore themselves to their original, stable past. The result is the beautiful circular pattern you see when you prick the surface of calm water with your finger. Waves, however, do not just come just in the form we have mentioned. They also play a central role in quantum mechanics.

## 3. Quantum Mechanical Waves

Waves appear in quantum mechanics because energy is conserved; however, it is for a much different reason than in the classical picture. Fundamentally, quantum mechanics puts restrictions on what we can and cannot measure at the same time, which is an unfortunate, but well tested, postulate of quantum mechanics. As a result, we describe configurations of many quantum particles using what are called 'states'. These states have associated probabilities of being related to other states and describe the probabilities of particles having particular properties in space and their movement throughout space. As it turns out, these probability distributions fundamentally tend to oscillate throughout space, meaning that particles can have a high probability of occupying a particular point at one instant and a near zero probability of occupying that same point at a another time. A well-studied example of these wave fluctuations are the orbital shells of the hydrogen atom, where each value of  $n$  (called the principal quantum number) describes the energy level and the type of oscillatory probability distribution that the electron will have around the single proton nucleus. I highly encourage the reader to look these up on their own time, as it may come to a shock that the probability distributions are not circles. For a matter of fact, the wave nature of electrons means that they cannot be point particles with elliptical or circular orbits around the nucleus like you are taught since you were a young child.

Whether it be the standard waves that we see every day or quantum particles subject to some interaction potential energy, we live in a world of waves. It is my hope that, after having read this article, you have come to a better intuitive understanding of what a wave is, what various types of waves there are, and the many areas where wave-like phenomena may occur.

Describe 5 things you learned from paragraph

- 1.
- 2.
- 3.
- 4.
- 5.

## Appendix B: Demographic Information

What is your age group?

- 18-30
- 31-40
- 41-50
- 51-60
- 60+

What is your gender?

- Male
- Female
- Other

How important is being a college student to your current life situation?

- 1 – not important at all
- 2
- 3
- 4
- 5
- 6 – Neutral neither important nor unimportant
- 7
- 8
- 9
- 10 – very important

How long have you attended college in months? \_\_\_\_\_

During the completion of this research did you become distracted or had to leave at any time and come back? Yes/No

## Appendix C. Permission to use

Permission to use the de Jong Gierveld, J., and van Tilburg, T. (2006) social and emotional loneliness scale:

You are allowed to use the loneliness scale if you obey the guidelines as laid down in the scale manual (attached). for your convenience I also attach a publication informing you about our conceptual ideas behind the loneliness concept as well as an article about the micro and macro level factors behind loneliness.

If you need other information don't hesitate to contact me.

Best wishes,

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