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Title: Words of Well-Being: The Relation of an Individual's Word Choice to their Social Well-Being.

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The present research sought to investigate the relationship between an individual's word choice and their social well-being. In the present investigation, social well-being is a person's social health in relation to their social environment, social network, and ability to interact with others in a social context. This thesis was based on previous research conducted from 2006-2010 (Brown, 2011), where participants ranging in ages from 18 to 54 took part in a ten week long "Psychological Assessment" research practicum. During this time period, participants were administered a battery of measures including those related to social well-being. These were the Rosenberg's Self-Esteem Scale (Rosenberg, 1965), The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), the Stress Assessment Profile (Nowack, 1990), and the NEO-Personality Inventory-Revised (Costa & McCrae, 1980). The participants in this project also wrote an essay in response to the prompt, "Explain or describe events and experiences in your life that make you feel you are socially skilled or not." Using the Linguistic Inquiry and

Word Count software program (Tauszcik & Pennebaker, 2010), word counts and word group usage was assessed within these essays. This LIWC analysis was then correlated both with measures of social well-being and with a measure of personality. Results indicated that higher social well-being was related to fewer self-references, fewer negative emotions words, and fewer anxiety words. Implications of these linguistic findings in relation to social well-being and personality traits are discussed.

Keywords: social well-being, LIWC, word choice, personality

Words of Well-Being: The Relation of an Individual's Word Choice to their Social Well-Being

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Chapter 1- Introduction

Our world is moving into a time of heavy social media use when the number of Facebook

friends, Instagram likes, and Tinder swipes received determine a lot about a person's social

capital (Christakis, 2010; Goldbeck, 2013). Communication, business, and dating are all done

online and the social environment of the internet is growing (Christakis, 2010; Goldbeck, 2013).

This has revived the old mantra of, "it's not what you know, but who you know." Social

connections act as currency in today's world and acquire people jobs, power, and wealth. With

so much at stake for people when it comes to their social lives, it is important to focus on

individuals that do or do not thrive in their social environment. Specifically, individual

differences in attributes and personality that contribute to an individual being successful in their

social world should be identified. For example, the way individuals talk to people or interact

with them. The present research investigated this idea with an emphasis on the *social well-being*

of an individual.

This thesis investigated the construct of social well-being by using word choice(s) made

by individuals when they wrote about themselves and their social skills. Specifically, using the

Linguistic Inquiry and Word Count (LIWC) software program as a methodological approach, the

present study looked closely at word choice and how this relates to their social well-being.

Similar to the Thematic Apperception Task or the Rorschach Inkblot Test, unconscious word use

might provide clues to the psychological undercurrents related to social well-being.

Social well-being, in this thesis, is a person's well-being in relation to their social

environment, social connections, and ability to interact with others in a social context (for an

adaptation of this definition, see Ryff, 1989). An individual's self-esteem, stress, and satisfaction

with life are all elements of this social world and being successful (or not) in it. These are the elements this investigation will hone in on.

This thesis will first discuss the construct of social well-being. Then, a justification will be made for the use of Pennebaker's LIWC program as a methodological approach to the current research question. The thesis will then extensively cover the research literature related to LIWC in order to establish the reliability and validity of the methodology and its use in the present study. Finally, the thesis will cover the details of the investigation which includes the methodology, results, and conclusions drawn from the findings.

Chapter 2- Social Well-Being

Over the course of this chapter, the construct of social well-being will be defined and its components explained. Although well-being can have numerous operational definitions in psychological research, the current investigation is concerned with the idea of *social* well-being. This aspect of well-being emphasizes connectedness, relationships, self-esteem, and life satisfaction (Ryff, 1989) as compared to the construct of social well-being proposed by Keyes (1998). Keyes created a measure of social well-being through item and confirmatory factor analyses. The analysis suggested five facets of the construct of social well-being; social integration, social contribution, social coherence, social actualization, and social acceptance (1998). Keyes believed these facets reflected the social well-being an individual experiences in life but on a more global scale. However, an extensive review of the well-being literature (Ryff, 1989), suggested that multiple scales drawn from previous research and backed by a theoretical framework would be best for measuring the construct on a more local perspective. This local aspect means that the social world of a person revolves around them being at the center point, In comparison, a global perspective means that the individual is one of many parts in the social world that revolve around each other but there is no set center point. The local perspective is important because it addresses the role of the individual in the social world they belong to and how they might impact various moving parts around them. For example, measures related to relationships with others, life satisfaction, psychological functioning, and positive and negative affect. Ryff (1989) suggested a broadening and dimensionality-building approach to the study of well-being; this is what the current investigation sought to do.

This thesis analyzes and reports the data from measures of social well-being that were administered to these participants but not explicitly for the purpose of this thesis. From the previously mentioned research project, this thesis extracted from the data archive measures that tap into aspects of the construct of social well-being that were (a) previously administered in psychological research related to well-being, (b) already administered to the study's sample, and (c) evaluative of the construct of social well-being from multiple facets as compared to a singular facet.

Due to this fact, the construct for this investigation, is broken down into self-esteem, satisfaction with life, and stress. These elements are discussed in relation to social well-being as well as to language.

Self-Esteem

Cooley, in 1902, suggested that self-esteem was like a looking glass where our self-esteem was a reflection of our self-worth from others' perspectives. Self-esteem has been linked to well-being such that those with higher self-esteem are healthier and higher in well-being related measures (Fiske, Gilbert, & Lindzey, 2010). Those with high self-esteem have also been found to have more friends, interact with others more frequently, approach strangers, and be more outgoing in social situations (Neff, 2011).

William James, in 1890, purported on the idea that self-esteem was most definitely linked to mental health and positive or negative life outcomes. Recently, Baumeister (1998) identified at least 15,000 articles on the subject of self-esteem and well-being and how self-esteem might positively and negatively impact well-being. There have also been numerous positive adaptive

life outcomes related to higher self-esteem (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). In a recent study on self-esteem, social bonds were assessed from self-reported numbers of friends and objective measures of interpersonal distress (Stinson, Logel, Zanna, Holmes, Cameron, Wood, & Spencer, 2008). Over a six month period, this study also tracked individual's health behavior like missing doctor's appointments and illness (Stinson et al., 2008). This study found that those higher in self-esteem reported higher quality of social ties, less personal distress, and fewer negative health behaviors (Stinson et al., 2008). These studies imply that social lives are impacted by self-esteem and that well-being is impacted by both self-esteem and social interactions.

In another study, high social self-esteem, which is how people feel about themselves in socially related areas of their lives, was found to be strongly related to a person's well-being (Valkenburg, Peter, & Schouten, 2006). In this study, social self-esteem was determined through a multitude of questions about an individual's use of the CU2 social networking website that allows people to connect through the internet and become friends/romantic partners (Valkenburg, Peter, & Schouten, 2006). Harter's scale of social self-esteem was also administered to the participants (Valkenburg, Peter, & Schouten, 2006). Additionally, this study found that more positive feedback on a person's profile was positively correlated with social self-esteem, more networking on the website and more frequent use were positively correlated with social self-esteem, and more negative feedback on a person's profile was negatively correlated with social self-esteem (Valkenburg, Peter, & Schouten, 2006). Therefore, more social interactions and more positive interactions are related to higher self-esteem.

Overall, higher self-esteem has been related to higher well-being and more advantageous health outcomes. This suggests that higher self-esteem will also be related to higher social well-being.

Satisfaction with Life

Life satisfaction is a cognitive-judgmental process that assesses subjective well-being in comparison to an appropriate standard and measures how globally satisfied people are with their lives (Diener, Emmons, Larsen , & Griffin, 1985). In a meta-analysis on subjective well-being, higher life satisfaction was related to higher social integration (Pinquart & Sorenson, 2000). In this same study, quality of social support was more indicative and influential on satisfaction with life than quantity of social support members (Pinquart & Sorenson, 2000). This study also found that older people were higher in subjective well-being and that increased contact with friends was positively correlated with subjective well-being (Pinquart & Sorenson, 2000). Thus, more social support and more social contact are related to a more satisfied life.

In a more recent study looking at social media to assess a person's social world, researchers looked at Facebook use and college undergraduate well-being (Kalpidou, Costin, & Morris, 2011). Researchers found that increased time on Facebook was negatively correlated with self-esteem (Kalpidou, Costin, & Morris, 2011). This study also found that more friends on Facebook was positively correlated with social adjustment in college but negatively correlated with academic adjustment (Kalpidou, Costin, & Morris, 2011). Social adjustment, in this study, was indicative of satisfaction with life for college students. Even in a digital world, individual's satisfaction with life is being influenced by their social support system.

The evidence from previous research suggests that there is a link between higher satisfaction with life and higher well-being and more advantageous life outcomes. This provides evidence that greater satisfaction with life will also be related to higher social well-being.

Stress

Many college stress indices that assess chronic stressors in life include social items such as getting along with friends, making new friends, confronting people, and difficulties with roommates (Fiske, Gilbert, & Lindzey, 2010; Schacter, Gilbert, Wegner, & Nock, 2014). This shows the large scale impact that stress and particularly social stress have on everyday life, especially in college. In a more applied study about general practitioners and gender differences in stress, both self-reports and psychological were used to measure Type A behaviors, health outcomes, stress, and well-being (Rout, 1999). It was found that high stress female practitioners sought social support and friend networks as compared to high stress male practitioners who turned to social isolation for coping (Rout, 1999). Additionally, lower stress has also been linked empirically to a happier, healthier, and higher level of well-being within an individual (Fiske, Gilbert, Lindzey, 2010).

Previous research suggests that lower stress is related to greater well-being; this suggests provides evidence that lower stress and fewer life stressors will also be related to higher social well-being.

Personality

The Five Factor Model of personality traits has been found to be linked to well-being and happiness in life (Costa & McCrae, 1980). Specifically, studies using only the NEO-PI-R to

measure the Five Factor Model have found that the personality factors of Neuroticism and Extraversion are two of the most important correlates to subjective well-being (Gutierrez, Jimenez, Hernandez, & Penacoba Puente, 2005). Extraversion and its facets have been found to be related to positive affect and higher subjective well-being (Costa & McCrae, 1980). In comparison, Neuroticism has been found to be related to negative affect and lower subjective well-being (Costa & McCrae, 1980). This means that there is a particular personality pattern indicative of well-being. Studies have identified this "well-being style" for counselors and psychiatrists to use for their clients (Costa & McCrae, 1992). Those high in Neuroticism and low in Extraversion are deemed to have a gloomy pessimist well-being style, those high in Neuroticism and high in Extraversion are categorized as an overly emotional well-being style, those low in Neuroticism and low in Extraversion are determined to have a low-keyed well-being style, and those low in Neuroticism and high in Extraversion are categorized as upbeat optimists in their well-being style (Costa & McCrae, 1992).

More recently, Conscientiousness has been shown to be associated with higher well-being (Siegler & Brummett, 2000). A recent meta-analysis provides ample evidence of the occurrence of this relationship (Kern & Friedman, 2008). Individuals higher in Conscientiousness have also shown higher levels of physical health and exhibited healthier life habits (Hampson, Goldberg, Vogt, & Dubanoski, 2006).

The previous research suggests that personality traits of Neuroticism, Extraversion, and Conscientiousness are related to well-being and that these same traits should also be related to social well-being.

Social Well-Being

All of these studies suggest that, as Ryff (1989) predicted, there are multiple areas that contribute to a person's social life and success in it. From the literature reviewed above, self-esteem appears to contribute to the approaches and interactions that individuals use in their social environment. Similarly, satisfaction with life provides a general understanding of an individual's social world and happiness about their lives. Finally, stress appears to impact many areas of the social environment such as coping, satisfaction with life, and happiness. Social well-being, then, should be inclusive of measures of self-esteem, life satisfaction, and stress.

All of these elements identify an individual's feelings and interactions with their social world. However, they do not look at how people perceive and interact with their social world on a personal level. One way that this can be done is through the use of language and word choice (Tausczik & Pennebaker, 2010). This kind of research allows for a more in-depth and intimate approach to understanding social well-being from more than just the use of psychological tests and inventories. This is because language use can be seen as an unconscious process indicative of underlying psychological processes (Pennebaker, 2011).

Using Words to Understand Well-Being

The research mentioned focuses on the general process of writing and disclosing emotional stories and how they are related to positive health benefits for individuals (Pennebaker & Chung, 2007). For example, when undergraduate students were assigned to either a trivial writing condition or a traumatic/stressful writing condition, the traumatic/stressful condition was less likely to visit the student health center for the following 6-month period after the intervention (Pennebaker & Beall, 1986). Additionally, research has shown that participants discussing traumatic events demonstrated physical symptoms of stress such as lower skin

conductance rates, lower heart rates, and lower blood pressure (Pennebaker, Hughes, &

O'Heeron, 1987). This suggests a link between writing, words, and health.

In terms of *word choice*, depressed individuals have been shown to use more self-

reference words, more negative emotion words, and more death-related words (Pennebaker,

2011). Analyzing suicidal poets' works has also yielded similar results such that the closer to the

suicide attempt, the higher the rates of self-references, negative emotion words, and death words

the poets used (Tauszcik & Pennebaker, 2011). In aging research, when writing about a variety

of experiences, older individuals tended to use more positive emotion words; this fits into

previous research on the positivity bias that older individuals tend to experience over time

(Pennebaker, 2011). Other LIWC research has demonstrated that people in relationships also

have particular word choice (Lin, Chen, & Li, 2015). They use more we-words which indicates

greater engagement and connection to their partners (Lin, Chen, & Li, 2015). Finally, sex

differences in language show that females use more self and other references, more positive

emotion words, and more social words; these suggest a greater connection to social groups as

compared to males (Tauszcik & Pennebaker, 2009).

Health, well-being and social connection all appear to be linked with word choice

through the research of depression, aging, sex differences, and relationships. The present

investigation expanded on this literature by looking at and identified how word choice was

related to social well-being.

Chapter 3- Studying Language and its Uses

The Linguistics Approach

The complexity of language lends itself to numerous approaches. The linguistics approach uses personal history and experience as well as anecdotal evidence to understand language use by people (Radford & Britain, 2009). The development of the language system and the inherent nature of it tell linguists a lot about how individuals learn and use language (Radford & Britain, 2009). Linguists look at the elements that create more complex structural units and then identify ways that variations occur (e.g. sociolinguistics that looks at socioeconomic differences, access to learning language, and cultural influences) (Radford & Britain, 2009). Linguistics is informative to the current investigation because it expands on how elements of a person's life impacts the words they use; this is relevant to understanding how outside variables like social well-being might impact word choice. Linguistics, as an approach, also develops the idea behind this thesis that words reflect the person using them.

The Psychology Approach

Psychology identifies the ways in which language creates and molds cultures, how categories of word usage reflect attention, and how language shapes errors made in thinking (Schacter, Gilbert, Wegner, & Nock, 2014). Psychology also looks at how language creates differences in people's decision-making, problem-solving, and reasoning (Schacter, Gilbert, Wegner, & Nock, 2014). The organization and understanding of a person's world also stems from how they write about and verbally express their experiences and stories (Ludden, 2015).

To look at specifics, the lexicon of a society can be indicative of what thoughts people have or are able to have. For example, the lexicon of the Viking tribes indicated their focus on the sea, raiding, their gods, and rural life. Language also has the potential to shape thought or show where people's thinking is attending. For example, previous research has shown that various languages can(not) identify a vast number of blue color tones based on what the number of blue color label words their lexicon includes (Ludden, 2015; Roberson, Davidoff, Davies, & Shapiro, 2004; Winawer, Witthoft, Frank, Wu, Wade, & Boroditsky, 2007). Older children, as compared to younger children, identified more of the color categories because of their expanded knowledge and repertoire of language and because the language overall had more blue tone labels to use for identification (Roberson, Davidoff, Davies, & Shapiro, 2004). We see from this research that language use directly influences how people think about color and in turn, the language they use reflects information about who they are (culturally) and what they are focusing their attention on (Ludden, 2015; Roberson et al., 2004; Winawer et al., 2007). This approach, similar to linguistics, also suggests a link between the words and the person that writes or speaks them.

The English Approach

The English approach to language analysis can be understood from two perspectives; the scholar or the discipline of English perspective and the literary artist perspective. The scholarly perspective takes the understanding that outside factors impact word choice (the linguistics approach) and expands upon it to include historical aspects and literary theories (Leitch & Cain, 2010). For example, looking at the political climate of the time in which a work was written and understanding how the work fits into this context informs scholars more about the work. This

perspective also assesses the work and the characters within the work and how they are related to author's own experiences (Leitch & Cain, 2010). Authorial word choices are considered not just in relation to the author, but also to audience reading the work. Scholars might assess how particular word choice would elicit a certain kind of affect or mood in the reader or audience.

The second perspective involves the literary authors that scholars analyze. This is most noticeable as modern English develops around the 17th century and marks a time of vast writing and publication (Crystal, 2004). The Cavalier poets, for example, were keen to pen words that expressed their desire for women, about the great men they fought for in battle, and for the brevity of life. Milton and Marvell were writing about the religious and political changes of their time. Shakespeare was creating plays about the royal families and upheaval in England. All of these poets, to take just a few, allowed both 17th century and modern audiences to learn about the "pop culture" of the time. They also began to establish a rhetoric and dialogue that would continue into today's conversation about the role of the author in the work being produced and what that role does or does not entail. For example, should an author incorporate their own histories and background into a character, or, should they drawn on outside sources of information.

The history of the English language also shows that writers and speakers shaped the way the lexicon of English was developed. English and Psychology textbooks alike discuss how the lexicon of a society or group reflects the important elements of that language (Crystal, 2004; Schacter, Gilbert, Wegner & Knock, 2014). For example, a tribe close to the ocean would have words related to water, fishing, and sailing. Another language might be concerned with the law and religion and thus has the lexemes and vocabulary related to these ideas (Schacter, Gilbert,

Wegner & Knock, 2014). French and Latin influenced the beginnings of English by providing

words related to religion, law, politics, and art (Crystal, 2004).

Ben Jonson, for example, was a playwright of the period paramount to Shakespeare, had

a lot of pull and popularity with the public as well as the royal court and was considered by many

to have tapped into the happenings of the times with his works. Jonson made many forms of

writing popular such as satirical plays and rhetoric and was classically educated and received

royal patronage. He had a large impact on the English language and writing as an art form. In

many of his works he discusses at length the expression of the self in an author's written work

and how writing can capture a person's identity (Jonson, 1892). Jonson's *Timber* was considered

highly important when discussing the topic of how to form, shape, and use language to show

your personality and inner-self (Jonson, 1892). From the quote below, it can be seen that Jonson

champions word choice as the best way to express individual identity[1]. Jonson also expresses the

creation of individuality using words and that each word carries with it connotations and

denotations:

> He must first think and excogitate his matter, then choose his words,
>
> and examine the weight of either. Then take care, in placing and ranking
>
> both matter and words, that the composition be comely; and to do this with diligence and
>
> often…For as in an instrument, so in style, there must be a harmony and consent of parts.
>
> (Jonson, 1892)

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[1] These quotes were selected from Jonson's Timber because they are audience focused (aimed at the reader) and involve rhetoric about authorship, writing, language use, and the man/woman doing the writing.

Jonson also discusses how style comes about merely from the selection of words that writers use no matter what they are penning. The use of words appears to represent an individual's personality and thoughts. Jonson is suggesting the intentionality of word choice and the use of words to communicate ideas from the author. Jonson, in these final quotes, also makes a direct link between the style of a person's writing and their inner being. Taking both the early history and development of how language is used and merging it with directors of words, we can establish the idea that words and writing represent the person or persons behind it.

Language most shows a man: Speak, that I may see thee. It springs out of the most retired and inmost parts of us, and is the image of the parent of it, the mind. No glass renders a man's form or likeness so true as his speech. Nay, it is likened to a man; and as we consider feature and composition in a man, so words in language; in the greatness, aptness, sound structure, and harmony of it. (Jonson, 1892)

This is an example of how language can represent the individual that uses it. As Jonson mentioned, language can also reflect more than the original meaning of each word. This is seen in Jonson's mention of words being like mirrors reflecting the inner process of a person. Jonson even mentions this connect when he uses the phrase, "retired and inmost parts of us." Here Jonson is suggesting a psychology behind word choice.

The English approach suggests that language and words are a way to express identity and personality. Dialects form because of this reason, and groups take on jargon terms in order to show exclusivity and belonging (Crystal, 2004). Language can also represent a society's fads, fashions, and style in a way that clothes do (Lerer, 2007). Moving forward to more modern English texts, platforms such as Twitter, Facebook, and Instagram all give people an arena to

express themselves through the written word. It also means people have found a new language-related way to show their identity and personality through these new media platforms. Netspeak and technology-specific languages have been created and are booming in order to keep up with how people want to communicate to others (Crystal, 2004). This also means that new words are being added to our lexicon through new technology and new areas of academia, research, and interest. These new words and their meanings are becoming more and more representative of their authors because of the specificity and variety they incorporate.

The English approach is also suggestive of the connection between the person and their word choice or word use. This is apparent in both the historical contexts of words as well as the audience effects that words might have. In addition, the English approach from the artists' perspective has incorporated rhetoric about how writing expresses a person not only by the words they choose, but, how their personality, appearance, and inner thoughts shape the words they use. The English approach is most needed for the current thesis because it brings to light the discussion about word choice and unintentional word use. These differences are important when interpreting any data about word use in this thesis such that context and intentionality should be considered.

In summary, these approaches all provide insight and value into the understanding of language as a whole. These primarily expand on the relationship between the person and the word use as well as the larger impact that outside factors have on language. However, there is a newer approach to language analysis that is being used heavily in psychological research. This approach offers a distinct quantitative analysis and categorization method as compared to other approaches. This thesis utilizes this approach for these specific reasons.

The Pennebaker Approach

James Pennebaker created a software program called the Linguistic Inquiry and Word Count or LIWC (Pennebaker, Francis, & Booth, 2001). This program looks at word counts and word categorizations and how they represent or are related to psychological processes that people experience like anxiety (Pennebaker, Francis, & Booth, 2001). Basic word elements like function words (e.g. personal and impersonal pronouns) and content words (social words or body related words) can tell a lot about a person (Pennebaker, Francis, & Booth, 2001). This is similar to the English approach in that the work (words) and the author (participant) are considered to be closely related. This approach is similar to the psychological approach in that language may indicate where attention and thinking within a person might be focused.

However, Pennebaker's research was developed to see how diagnostic his program could be to understand a person's health and well-being (Pennebaker, 2001). Pennebaker and colleagues use the LIWC program as a methodological tool to understand the psychological aspects of people. Similar to the projective tests like the Thematic Apperception Test or the Rorschach inkblot test, the LIWC program is used to look at how word choice might reflect the psychology of people based on the language that leaks out when they write or speak. Pennebaker's approach is a way to capture these leaked words and look at the unintended word use in comparison to selected word choice. Like nonverbal behavior, Pennebaker and colleagues believe there are indicators of inner thoughts and feelings evident through word use that people aren't aware of using.

Conclusion

Both linguistics and psychology use approaches to language analysis that identify, to some degree, the relationship between the person and the words they use. In the study of English literature and criticism, there is a long-standing tradition by which word choices are perceived as expressions of personality, style, and thoughts. All of these approaches provide evidence for the person-word relationship. Social psychological research has further embraced this idea and shown that personality, affect, emotions, and health can all be shown or analyzed through a person's written work. By breaking down the writing into elemental parts, we can begin to see pieces of evidence that identify various psychological processes of an individual. Pennebaker's approach is thus the most useful because of the (a) unintended word use being captured as compared to intentional word choices, (b) the previously established research using LIWC and the relation of the findings to psychological functions, (c) the quantitative and categorization abilities of the program, and (d) the methodological utility.

Due to these points, in the present investigation, we sought to use Pennebaker's approach in order to better understand the social well-being of our participants. We looked at word use by people in this study and drew inferences about the relationship between these words and social well-being (self-esteem, stress, and life satisfaction) and personality traits related to social well-being. Most of the previous LIWC research (explained in-depth in a subsequent chapter) covers various negative health outcomes such as depression and suicide. In comparison, the present investigation looked at social well-being to identify successful life outcomes in a person's social environment.

Chapter 4- LIWC Related Research

LIWC Program Design and Purpose

The software program called LIWC (pronounced "Luke"), is a commonly used textual-analysis package for studying word counts, word choice, and language styles (Pennebaker, 2011; Pennebaker & Graybeal, 2001; Pennebaker, Mehl, & Neiderhoffer, 2003; Rude, Gortner, & Pennebaker, 2010; Slatcher, Chung, Pennebaker, & Stone, 2007; Stirman & Pennebaker, 2001). The LIWC software program was developed around the idea that words are a window into what people may be thinking and how they understand or process the world around them. Word use may even be related to individual differences such as personality (Pennebaker, 2001; Pennebaker, Boyd, Jordan, & Blackburn, 2015).

The primary goal of LIWC is to break down written communication into its most elemental and basic units; word counts and then categorizes them within the pre-set dictionary (Pennebaker, Chung, Ireland, Gonzalez, & Booth, 2007; Pennebaker, Francis, & Booth, 2001) [2]. For a full list of LIWC categories and example words, see Table 1.

Table 1. A Revised Version of the 2015 LIWC Dictionary with Examples.

Word Count	Perceptual processes (heard, feeling)
Analytical thinking	See (view, saw)
Clout	Hear (listen, hearing)
Authenticity	Feel (feels, touch)
Emotional tone	Biological processes (eat, blood)
Words/sentence	Body (hands, spit
Words > 6 letters	Health (flu, pill)
Dictionary words	Sexual (love, horny)
Total function words (it, very)	Ingestion (eat, pizza)
Total pronouns (I, them)	Drives
Personal pronouns (I, her)	Affiliation (ally, social)
1st person singular (me, mine)	Achievement (win, success)
	Power (superior, bully)
	Reward (prize, benefit)

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[2] LIWC was intended to be used only on written text, however, the program has adapted the transcription guide to analyze spoken communication.

1st person plural (we, us)	Risk (danger, doubt)
2nd person (you, your)	Time orientations
3rd person singular (she, him)	Past focus (ago, did)
3rd person plural (they, those)	Present focus (today, now)
Impersonal pronouns (it, those)	Future focus (may, will)
Articles (a, an, the)	Relativity (area, bend)
Prepositions (with, above)	Motion (arrive, car)
Auxiliary verbs (will, have)	Space (down, thin)
Common adverbs (very, really)	Time (end, until)
Conjunctions (but, whereas)	Personal concerns
Negations (not, never)	Work (majors, job)
Common verbs (eat, carry)	Leisure (chat, movie)
Common adjectives (happy, free)	Home (kitchen, landlord)
Comparisons (best, after)	Money (cash, owe)
Interrogatives (when, what)	Religion (altar, church)
Numbers (second, thousand)	Death (kill, coffin)
Quantifiers (many, much)	Informal language
Affective Processes (happy, cried)	Swear words (damn, fuck)
Positive emotion (love, sweet)	Netspeak (lol, btw)
Negative emotion (ugly, nasty)	Assent (agree, OK)
Anxiety (worried, fearful)	Nonfluencies (hmm, umm)
Anger (kill, annoyed)	Fillers (Imean, youknow)
Sadness (grief, sad)	Total punctuation
Social Processes (mate, talk)	Periods
Family (dad, aunt)	Commas
Friends (buddy, neighbor)	Colons
Female references (girl, mom)	Semicolons
Male references (boy, his)	Question Marks
Cognitive Processes (cause, know)	Exclamation Marks
Insight (think, know)	Dashes
Causation (because, effect)	Quotation Marks
Discrepancy (should, would)	Apostrophes
Tentative (maybe, perhaps)	Parentheses
Certainty (always, never)	Other Punctuation
Differentiation (but, else)	

Note. Adapted from a published table on http://liwc.wpengine.com/how-it-works/ (Pennebaker,

2015). The word category appears and the example word(s) follow in the parentheses. The word

categories are displayed hierarchically as they would appear in the 2015 LIWC dictionary.

The program itself is in no way a holistic or gestalt analysis the way that using coders or

impression ratings of a written piece of work would provide. The output produced by LIWC

describes what words a person uses or does not use. The output also indicates what percentage a

particular category accounts for in relation to overall word count. For example, from a LIWC

output, we could understand that 10% of a person's words are pronouns, 5% of their words are

verbs, and 2% of their words are adjectives. Although word *use* is contextual, researchers have

found that word *choice* is linked to various psychological measures. This stems from the idea that the LIWC program was originally used to look at expressive writing, word use, and depression in college students (Rude, Gortner, & Pennebaker, 2004).

The extent to which language categories are used time and time again by an individual is much lower than a person would expect. One reason is because individuals typically do not repeat what they write or say which leads to low base rates (Pennebaker, Boyd, Jordan, & Blackburn, 2015). Therefore, to create the LIWC dictionary, an analysis was done on over 80,000 writers/speakers (as compared to a single person) and included writing samples from blogs, expressive writings from experimental and natural language studies, novels, natural speech, the New York Times, and Twitter in order to get a wide variety of written and speech situations (Pennebaker, Boyd, Jordan, & Blackburn, 2015). The number of words per category included in the LIWC dicitonary are displayed in Table 2.

Table 2. LIWC 2015 Output Variable Information (adapted from Pennebaker, Boyd, Jordan, & Blackburn, 2015)

LIWC Category	Words in Category
Total function words	491
Total pronouns	153
Personal pronouns	93
1st person singular	24
1st person plural	12
2nd person	30
3rd person singular	17
3rd person plural	11
Impersonal pronouns	59
Articles	**3**
Prepositions	74
Auxiliary verbs	141
Common adverbs	140

Conjunctions	43
Negations	62
Common verbs	1000
Common adjectives	764
Comparisons	317
Interrogatives	48
Numbers	36
Quantifiers	77
Affective processes	1393
Positive emotion	620
Negative emotion	744
Anxiety	116
Anger	230
Sadness	136
Social processes	756
Family	118
Friends	95
Female references	124
Male references	116
Cognitive processes	797
Insight	259
Causation	135
Discrepancy	83
Tentative	178
Certainty	113
Differentiation	81
Perceptual processes	436
See	126
Hear	93
Feel	128
Biological processes	748
Body	215
Health	294
Sexual	131
Ingestion	184
Drives	1103
Affiliation	248
Achievement	213
Power	518
Reward	120
Risk	103
Past focus	341
Present focus	424
Future focus	97

Relativity	974
Motion	325
Space	360
Time	310
Work	444
Leisure	296
Home	100
Money	226
Religion	174
Death	74
Informal language	380
Swear words	131
Netspeak	209
Assent	36
Nonfluencies	19
Fillers	14

Note. The "words in category" column refers to the number of different dictionary words and stems that make up each category. For example, the category "articles" only includes three words that the program identifies and categorizes (e.g. the, a, an).

As mentioned earlier, LIWC was originally used on a college sample to look at expressive writing and depression (Rude, Gortner, & Pennebaker, 2004). In this study, 72 college students met over the course of multiple weeks and wrote about a given topic. The experimental condition (n = 35) was instructed to write about their feelings and thoughts regarding attending college and the control condition (n = 37) was instructed to write about an object or event in their environment in an unemotional way. Judges rated these writings for word use and category utilization. The study also used a LIWC output to assess the student's work in these same areas. The researchers proposed that if the LIWC output and the judges agreed, then the LIWC was a valid measure of word/word category counting.

Subsequent research has confirmed that LIWC does in fact count and categorize the words the way human judges do (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). In

terms of content validity, Pearson correlations between LIWC counting and human counting

indicated that LIWC was successful in measuring many aspects of language use based on the

content categories included in the program[3]. The objective word counts within the LIWC

categories (e.g. social words, pronouns, time orientation) and their agreement with the judge's

ratings of the same categories also indicated a level of validity (Pennebaker, Boyd, Jordan, &

Blackburn, 2015). This means that the LIWC is a valid measure in terms of being used to

understand psychological aspects of individuals similar to how a personality test accurately

assesses the personality of people.

LIWC Shortcomings

The LIWC program, although advanced in categorizing and counting words, is not

context savvy. Sarcasm and humor are of no concern to the program and the use of one word in a

sarcastic tone or context will be treated the same way as if it appeared in a serious or relevant

context[4]. For example, the sarcastic sentence, "I absolutely love that new car you bought," would

only be categorized by LIWC in terms of the words used and not the intention behind the words.

In addition, within the dictionary, one word could appear in many categories and a hierarchical

structuring is used[5]. This lends the LIWC analysis to both a large scale and a finite level of

analysis. For example, the word "cry" would be categorized under affective words, negative

emotions, and sadness. Finally, the LIWC does not differentiate between proper nouns; this

means that a proper noun is categorized only if it relates to another category and not as a name,

place, etc. (e.g. "Frank" would be counted as an adjective). This presents a challenge in

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[3] This is in comparison to the function word categories or basic elements of speech (e.g. nouns).

[4] This fact distinguishes the Pennebaker approach from the previously described approaches to language analysis.

[5] Again, the use of the hierarchical model differentiates the Pennebaker approach for analyzing language from the other approaches.

understanding the relation that words have with each other and how they represent the person

using them. It should also be noted that the research using LIWC is limited in that it is focused

primarily on function words like verbs and pronouns over more complex categories like social

processes (Tausczik & Pennebaker, 2010). It is much harder to use the LIWC program to obtain

content word information even when using a prompt that elicits particular word usages such as

asking participants to discuss affective processes and looking at negative and positive word use.

LIWC Research

Analyses from the LIWC program have been used in a litany of psychological studies

(Chung & Pennebaker, 2007; Chung & Pennebaker, 2012; Ireland & Pennebaker, 2010;

McMillan, Clifton, McGrath, & Gale, 1971; Pennebaker, 2013; Pennebaker, Chung, Frazee,

Lavergne, & Beaver, 2014; Rude, Gortner, & Penebaker, 2004; Tausczick & Pennebaker, 2010).

The remainder of this chapter briefly outlines the major findings related to social well-being.

Social and affiliation words. Individuals higher in happiness, well-being, and

satisfaction with life use more social words (Chung & Pennebaker, 2007; Chung & Pennebaker,

2012; Pennebaker, 2013; Pennebaker et al., 2014; Rude, Gortner & Penebaker, 2004; Tausczick

& Pennebaker, 2010). Increased social word use has also been linked to aging; as people age

they use some social words more (e.g. family), but, also use certain social or affiliation words

less (e.g. friends) (Pennebaker & Stone, 2003). The use of more social words has even been

shown to predict longer life longevity (Pressman & Cohen, 2007). Finally, gender differences in

language also indicate that females (thought to be the more social of the sexes) use more social

words overall which suggests that socialization and social experiences come out in the words

males and females use (Pfeil, Arjan, & Zaphiris, 2009).

Based on these findings, we expected to see social well-being positively correlated to more social and affiliation word use.

Pronouns. Previous research has shown that those who use more other references (3rd person pronouns) are happier and more satisfied with life (Chung & Pennebaker, 2007; Chung & Pennebaker, 2012; Pennebaker, 2013; Pennebaker et al., 2014; Rude, Gortner, & Penebaker, 2004; Tausczick & Pennebaker, 2010). Research has also shown that those currently and formerly depressed use more first-person pronouns or self-references and less other references (Ireland & Pennebaker, 2010; McMillan, Clifton, McGrath, & Gale, 1971; Pennebaker, 2013; Rude, Gortner, & Penebaker, 2004; Tausczick & Pennebaker, 2010). These differences were so marked that researchers developed a pattern of word category use indicative of depression and suicidal attempts; this included the use of self and other references as a way to understand a person's feelings of social inclusion and social isolation (Rude et al., 2004; Stirman & Pennebaker, 2001). Research also shows that as people age, they use less self and other references overall because they are not as involved with their social environment as compared to younger people (Pennebaker & Stone, 2003).

Pronoun use has also been linked to word use in couples (Lin, Chen, & Li, 2015; Robbins, Mehl, Smith, & Weihs, 2013; Slatcher, Vazire, & Pennebaker, 2008). In both written and spoken transcripts of counseling sessions, when coping with various types of addiction, successful couples used more we-based words as compared to unsuccessful couples who used more "I" words (Lin, Chen, & Li, 2015; Robbins, Mehl, Smith, & Weihs, 2013; Slatcher, Vazire,

& Pennebaker, 2008) [6]. Finally, in relation to personality, more self-focused words were used by those higher in neuroticism (Pennebaker & Graybeal, 2001; Pennebaker, Mehl, & Niederhoffer, 2003; Yarkoni, 2010).

Similar to these findings, this thesis expected that individuals higher in social well-being would use fewer self-references (1st person singular pronouns) and more other references (1st person plural, 3rd person singular, 3rd person plural pronouns).

Positive and negative emotion words. Previous research has looked at happiness and life satisfaction in relation to word use and linguistic patterns (Chung & Pennebaker, 2007; Chung & Pennebaker, 2012; Pennebaker, 2013; Pennebaker et al., 2014; Rude, Gortner & Penebaker, 2004; Tausczick & Pennebaker, 2010). Findings indicate that those who use more positive emotion words and more emotion words in general are happier and more satisfied with life (Chung & Pennebaker, 2007; Chung & Pennebaker, 2012; Pennebaker, 2013; Pennebaker et al., 2014; Rude, Gortner & Penebaker, 2004; Tausczick & Pennebaker, 2010). Looking at essays written about traumatic experiences such as rape, researchers found that people who use more positive emotion words over time tended to improve in their physical health (Pennebaker & Seagal, 1999). In these same participants, negative emotion words were also used by those whose physical health improved, but they were much lower in comparison to the positive emotion word use (Pennebaker & Seagal, 1999). In depression research, currently and formerly depressed people used more negative emotion words (Ireland & Pennebaker, 2010; McMillan, Clifton, McGrath & Gale, 1971; Pennebaker, 2013; Rude, Gortner & Penebaker, 2004;

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[6] Successful couples were those that lasted throughout the program and did not drop out, completed the program to the satisfaction of the group leader or counselor in charge, and had lower relapse rates.

Tausczick & Pennebaker, 2010). The affective state of a person appears to leak out in their positive and negative emotion word use.

When looking at natural language use and journal writing samples over time, as people aged they use more positive emotion words (Pennebaker & Stone, 2003). Older adults also showed a lower use of negative emotion words (Pennebaker & Stone, 2003). In the coping literature, research has shown that successful couples use more positive emotion words and more emotion words overall (Lin, Chen, & Lee, 2015; Robbins, Mehl, Smith, & Weihs, 2013; Slatcher, Vazire, & Pennebaker, 2008). In terms of personality, extraverts use more positive emotion words compared to those lower in extraversion (Pennebaker & King, 1999). Those high in neuroticism used more negative emotion words and more affective words overall (Pennebaker & Graybeal, 2001; Pennebaker, Mehl, & Niederhoffer, 2003; Yarkoni, 2010).

Experimental research shows that when placed in an emotional manipulation situation, such that some groups received a positive mood inducement whilst others received a negative one, participants used varying levels of emotion words based on the group they were in (Chung & Pennebaker, 2007, Chung & Pennebaker, 2012; Tausczick & Pennebaker, 2010). Those in the positive mood condition used more positive emotion words than those in the negative condition. Individuals placed in a social rejection manipulation during a face-to-face interaction task used more anger and more anxiety words than those who were socially accepted by their conversation partner during the same task (Sommer & Bernieri, 2014). Overall, emotions and moods leaked out in the words that people used because their feelings influenced their thoughts and therefore word use.

Based on these findings, we assumed that social well-being would be positively correlated with the use of positive emotion words and negatively correlated with the use of negative emotion words, as well as anger, anxiety, and sad words.

Time orientation words. In previous research, those with PTSD showed various levels of verb tense switching when writing about their experiences; sometimes they used present focused words and other times they used past focused words (Pennebaker & Beall, 1986). This indicated a tendency to reflect on the past versus staying in the present moment. In this same study, those whose health improved used more present focused words and reduced the number of past focused words in their writing (Pennebaker & Beall, 1986). Research also suggest that as individuals age, they shift away from the use of past-tense verbs (Pennebaker & Stone, 2003). This is possibly because they are more focused on the present and not dwelling on the past.

These findings all indicate that higher social well-being should be positively correlated with present focused words and negatively correlated with future and past focused words.

Conclusion

All of the literature presented suggests that aspects of well-being (e.g. psychosocial well-being or aging) can be seen leaked in the writing and words that individuals unintentionally produce. If physical health and psychological health can be seen leaking through language, then it should follow that the defined construct of social well-being should also be related to word choice.

Derivation of Hypotheses

Based on the literature review above, we expected to find a positive relationship between social well-being and the use of social or people focused words. If an individual is connected and interactive with their social world, this should be evident in their word use about other people and social groups because they should reference them more frequently than those that feel isolated or not socially connected (Chung & Pennebaker, 2007; Tausczik & Pennebaker, 2010). This explanation also provides an understanding behind the hypothesis that higher social well-being would be associated with fewer self-references (1st person singular pronouns), and more other references (3rd person singular and plural pronouns). We also predicted that individuals higher in social well-being would use more positive emotion words and fewer negative emotion words (Chung & Pennebaker, 2007; Chung & Pennebaker, 2012; Rude, Gortner, & Pennebaker, 2004; Sommer & Bernieri, 2014; Tausczik & Pennebaker, 2010). This is because those thriving and succeeding in their social environments should be happier and use words that reflect this positive state of being and those not doing well in their social worlds and feel anxious, angry, or sad will use more of these words to reflect their negative affect (Chung & Pennebaker, 2007; Pennebaker, 2011; Sommer & Bernieri, 2014; Tausczik & Pennebaker, 2010). We also expected that individuals high in social well-being would be more focused on the present compared to the future and the past; if an individual is focused on the present, they are able to see the social environment around them as compared to seeking out social connections from the past that may not exist anymore or planning on future social interactions at the expense of their current social health (Pennebaker & Beall, 1986; Pennebaker & Graybeal, 2011; Pennebaker & Seagal, 1999).

We also sought to show that these *same* word groups are found to be related to the personality traits that are related to social well-being (Neuroticism, Extraversion, and Conscientiousness). It was predicted that individuals higher in Extraversion would use more

social/affiliation words, more other references, fewer self-references, more present focused words, fewer past/future focused words, more positive emotion words, and fewer negative emotion words. It was also predicted that those higher in Neuroticism would use fewer social/affiliation words, more self-references, fewer other references, more negative emotion words (including more anger, anxiety, and sadness words), fewer present focused words, and more past/future focused words. It was also predicted that those higher in Conscientiousness would use more social/affiliation words, more positive and fewer negative emotion words, more other references and fewer self-references, more present focused words, fewer past focused words, and more future focused words. This will provide a replication of the first analysis that relates social well-being and word choice.

Chapter 5- Present Investigation

In the previous study (Brown, 2011) that this thesis was based on; a written personal

essay was assigned to an undergraduate student sample at a large, public, northwest university.

These essays were a reflective process on each participant's social skills in which they

introspected about their own social lives and then wrote about them. There was no assigned word

limit, which provided the present investigation with more robust word use and higher word count

totals than previously studied in the LIWC literature. In addition to the essay task, this same

sample completed numerous psychological tests assessing social well-being throughout the

course of an academic term.

Based on previous LIWC research, a correlational exploration of the social well-being

measures and the specific LIWC categories was completed (Chung & Pennebaker, 2007,

Pennebaker, Chung, Frazee, Lavergne, & Beaver, 2014; Pennebaker & Lee, 2002). Based on this

process, it was expected that higher social well-being would be associated with word categories

related to people's social connections and social lives. Specifically, it was predicted that higher

social well-being would be associated with fewer 1st person singular pronouns, more 1st person

plural pronouns, more 3rd person singular pronouns, more 3rd person plural pronouns, more social

and affiliation words, more positive emotion words and fewer negative emotion words, fewer

anger words, anxiety words, and sad words, fewer future and past focused words, and more

present focused words. For specific examples of these word categories, see Table 1.

The present investigation also explored correlations between these same LIWC variables

and personality traits. The measure of personality analyzed will be the NEO-PI-R that taps into

the Five Factor Model. It is expected that there will be some crossover between the LIWC/social

well-being correlations and the LIWC/NEO-PI-R correlations as some of the personality traits

are presumably related to social well-being (neuroticism, extraversion, and conscientiousness)

(Costa & McCrae, 1980; Costa & McCrae, 1992; Gutierrez, Jimenez, Hernandez & Penacoba

Puente, 2005).

Chapter 6- Method

The data for this thesis came from a project, called The Beaver Interpersonal Sensitivity Project, and it was run as a research practicum in social psychological research from 2006 to 2010 (Brown, 2011). The purpose of this research project was to bring together unacquainted individuals and place them in a situation where they would, over the ten weeks, become acquainted to one another. The goal was to see how people develop social relationships similar to people attending college for the first time and making friends. This project aimed to see how first impressions were formed and later changed throughout this process. Only the information and measures relevant to social well-being and the text analysis are mentioned in the current thesis. All other unrelated project information, measures, and assessments were omitted[7].

Upon the first meeting, participants were randomly assigned into groups of 5-7 members each and were given a group leader that was an experimenter that oversaw the group's activity. The research practicum met four times per week with each meeting lasting 50 minutes; this weekly routine occurred for all ten weeks of the course. The meetings consisted of participants completing measures and activities all related to interpersonal behavior and skills. Participants were also required to meet once per week outside of the classroom at a location of their choosing. These meetings were not supervised by a group leader, but the participants were given various instructions to follow each week. The activities required were representative of typical group work like playing a game, taking a road trip, cleaning and eating a meal together. The outside activities were also designed around the idea that participants would become better acquainted with each other. The entire practicum was aimed at participants spending time with their group members in order to receive trait-relevant information from their peers. As a result,

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[7] For more information on some of these excluded measures, see Brown, 2011 and Sim, Saperia, & Bernieri, 2014.

our participants were more acquainted with one another after completing the practicum than when they began (Brown, 2011). Although participants received course credit for their participation in the research practicum, their grade in the course did not depend on their performance on any of the tasks or measures.

Participants

Participants were limited to university students. Enrollment in the course was unrestricted related to class standing and major. Approximately 15 to 21 students enrolled per term. Data were collected in nine different academic terms from 189 participants. Of these, only 128 (77 women, 51 men) generated usable data to appear in this thesis. Sixty-one participants were excluded from this thesis due to missing data; this essay task was added to the study after many participants had already completed it. The majority of the participants identified themselves as Caucasian/White and reported English as their primary language (76.6% and 90.5%, respectively). Ages ranged from 18 to 54 with a mean of 22.15 years old. Approximately 73.5% of our sample consisted of upperclassmen. All participants were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2002).

Materials

Self-Esteem. The Rosenberg's Self-Esteem Scale captures the extent of people's good feelings about themselves and their agreeance with self-affirming statements (Rosenberg, 1989). Those who score higher in self-esteem have fewer sleepless nights, give into conforming pressures less easily, are more persistent with difficult tasks, are less shy, less lonely, and are happier (Rosenberg, 1989). Those lower in self-esteem don't often say good things about

themselves, often despair more, and are unhappier in life (Rosenberg, 1989). See Appendix A for

the Rosenberg's Self-Esteem scale.

Satisfaction with Life. The Satisfaction with Life scale is a measure of subjective well-

being consisting of three major domains; positive emotional appraisal, negative emotional

appraisal, and life satisfaction (Diener, Emmons, Larsen & Griffin; 1985). It is more of a

cognitive approach to life and addresses work, leisure, home, friends, family, and personal

development. High scorers love their life and they derive meaning from challenges in life and

low scorers often report major life disruptions in one or more domains (Diener, Emmons, Larsen,

& Griffin, 1985). See Appendix B for the Satisfaction with Life Scale.

Stress Assessment Profile. The Stress Assessment Profile or SAP measure was created

to assess an individual's stress and health risk factors in their everyday lives (Nowack, 1990).

The measure itself is adapted from psychological tests, health psychology journals, and

behavioral medicine journals that tap into various aspects of stress. The included items were

selected from 1,000 items overall and each scale was constructed by using items that appeared to

have content validity with *a priori* scale definitions used by other researchers. See Appendix C

for the full descriptions and scaling information on the measure. See Table 3 for the included

scales and a sample item for each scale for the Stress Assessment Profile.

Table 3. Stress Assessment Profile Scale Information

Scale	Sample question
Stress	Social Hassles (e.g., trouble with neighbors, social obligations and expectations, problems

	with friends, meeting others, loneliness, inability to express one's self, gossip, jealousy, too many social relationships, unexpected company, little time to relax, not enough time to do social things, interpersonal conflicts, etc.
Global health habits	Spent some of your free time participating in physical activities, sports, or hobbies such as gardening, home repair, cleaning, dancing, etc.
Exercise	Spent at least 15-20 minutes, at least 2-3 times a week, enhancing muscle tone, strength, or flexibility
Sleep/relaxation	Pushed yourself while working or playing even though you were aware of being weary, tired, or exhausted
Preventative health practices	Failed to maintain regular health prevention habits
Social support	How often does your spouse, lover, or significant other go out of their way to directly support you in a positive manner
Type A behavior	I tend to be achievement-striving, hard driving, and competitive at both work and play
Cognitive hardiness	In general, I tend to be a bit critical,

	pessimistic, and cynical about most things in work and life
Intrusive positive thoughts	Say and think positive things to myself to make me feel better about the stressful event or situation
Intrusive negative thoughts	While waiting in lines, I often find myself wondering why others are so ineffective
Avoidance	Dwell on what I should have done or not done in a particular situation
Problem-focused change	Develop an action plan and implement it to cope more effectively with the situation in the future
Psychological well-being	Waking up anticipating an exciting and interesting day ahead

NEO-PI-R. The NEO-PI-R measures the Five Factor Model of personality traits (Costa & McCrae, 1992). The five traits are: (1) neuroticism; which is psychological adjustment and emotional stability, (2) extraversion; which is related to sociability, (3) openness; which is curiosity and an open mind to inner and outer worlds, (4) agreeableness; which is related to altruism, sympathy, and eagerness to please others, and (5) conscientiousness; which is related to punctuality, reliability, and used to be called character (Costa & McCrae, 1992). NEO-PI-R scores are normally distributed (Costa & McCrae, 1992). For social well-being; neuroticism,

extraversion, and conscientiousness are of particular interest to this thesis (Costa & McCrae,

1992; Gutierrez, Jimenez, Hernandez, & Penacoba Puente, 2005). See Appendix D for the NEO-

PI-R measure.

Procedures

In the second week of the practicum, participants were assigned the writing prompt,

"Explain or describe events and experiences in your life that make you feel you are socially

skilled or not," as homework to complete within 7 days. Participants were told only that this

assignment could <u>not</u> exceed 20 pages in length for processing purposes. No other instructions

or elaborations were given. The participants were informed they would be receiving no feedback

at all on the essays and that they would not be processed until after the data collection for the

project occurred. The submission format was done in hard copy for the earlier terms of the study

and in digital (Word or PDF) copy for the later terms of the study. For those terms and

participants that submitted a hard copy of their writing, a transcribing process done by research

assistants in the lab was completed for the document. This meant taking the digital scanned copy

and typing it up into a workable Word/PDF copy. These transcripts were proofed for accuracy by

a different team of researchers including the author of this thesis. See Figure 1 for a sample essay

that was collected.

Figure 1. Sample Essay

There are many different experiences that show that i am socially skilled. One instance i can think of clearly is when I was at a barbeque with friends. Two of these guys were about to get into a fight, and I went to talk to both of them, and stopped the fight. Also, I can talk to almost anyone about any subject, even if I do not know the subject very well. I am able to get along with people very well, and there are very few people that intimidate me. I figure people are all the same, no matter how much power they all have. they all can be talked to in the same way. when i talk to people, i listen to what they say, and respond well. I think that is what social skills are all about.

Linguistic Inquiry and Word Count Software. The version of the Linguistic Inquiry and Word Count software used for this research is the 2015 edition (Pennebaker, 2015). In the most recent revision of the program, there are over 90 output variables or word categories (Pennebaker, Boyd, Jordan, & Blackburn, 2015). All of these word categories are transparent in that each word count represents the number of words used in a text. However, the results are presented in a proportion or percentage (word count per category/total word count). Of the 90 output variables there are; 4 summary variables, 3 general language descriptors, 21 standard linguistic dimensions, 41 psychological word construct categories, 5 informal language variables, and 12 punctuation categories (Pennebaker, Boyd, Jordan, & Blackburn, 2015).

Chapter 7- Results

Social Well-Being

Scores for the self-esteem and satisfaction with life scales were calculated prior to this thesis. Means and standard deviations are reported. For the Rosenberg's Self-Esteem Scale ($M =$ 32.38 $SD =$ 4.80). This is considered average compared to a robust sample from the United States ($M = 32.21$, $SD = 5.01$; Schmitt & Allik, 2005). For Diener's Satisfaction with Life scale ($M = 25.78$, $SD = 4.89$). This is considered average and similar to previous findings in a college sample ($M = 23.5$, $SD = 6.43$; Diener, Emmons, Larsen & Griffin, 1985). For Nowack's Stress Assessment Profile, see Table 4 for the sample's means and standard deviations and their comparison to previous research.

Table 4. Means and Standard Deviations of the Stress Assessment Profile

Scale	Mean	SD	Mean (Nowack, 1990)	SD (Nowack, 1990)
Stress	16.57	3.93	17.01	3.83
Global Health Habits	83.54	8.57	90.21	10.01
Exercise	10.02	2.75	8.63	3.21
Sleep/Relaxation	15.93	3.11	16.59	3.53
Eating/Nutrition	23.31	3.96	28.24	5.29
Preventative Health	21.65	3.22	22.95	4.04
Social Support	60.17	11.40	45.91	9.89
Type A	31.41	5.02	30.69	5.98
Cognitive Hardiness	108.48	11.28	97.32	11.45
Intrusive Positive	16.89	2.89	16.19	2.78

Intrusive Negative	13.19	4.10	14.42	3.12
Avoidance	14.72	2.85	14.81	2.79
Problem-Focused	15.29	2.98	16.60	2.84
Well-Being	43.54	6.34	43.01	8.93

Note. The means and standard deviations are presented for the current thesis' sample and the norms for the measure using the means and standard deviations from Nowack, 1990.

To assess the relationship between the measures of social well-being (Rosenberg's Self-esteem Scale, Diener's Satisfaction with Life Scale, and Nowack's Stress Assessment Profile) intercorrelations were calculated. See Table 5 for the relationship between the social well-being scales. The extent of the relationship between these measures shows that they are related to one another. Specifically, Table 5 indicates that Stress (SAP scale) was moderately correlated with measures of well-being (SAP scale), self-esteem, and satisfaction with life. Table 5 also indicates that Cognitive Hardiness (SAP scale) was strongly correlated with measures of self-esteem, well-being (SAP scale), and satisfaction with life. Similarly, the SAP scales of Intrusive Positive Thoughts and Problem-Focused Change were moderately correlated to measures of well-being (SAP), self-esteem, and satisfaction with life. Intrusive Negative Thoughts (SAP scale) was moderately negatively correlated with the measures of well-being, self-esteem, and satisfaction with life. Finally, Avoidance (SAP scale) was moderately correlated with measures of well-being (SAP scale), self-esteem, and satisfaction with life.

These findings suggest that the most important aspects of the SAP, in relation to social well-being, are Stress, Cognitive Hardiness, Intrusive Positive Thoughts, Intrusive Negative

Thoughts, Avoidance, and Problem-Focused Change[8]. Therefore, the remainder of this thesis is only concerned with these scales on the SAP measure and the other scales have been excluded[9]. In addition, the measures of well-being (SAP scale), self-esteem, and satisfaction with life were all strongly positively correlated with each other; showing that they are all theoretically related to each other and possibly tapping into the larger proposed construct of social well-being. It appears from these strong, positive intecorrelations, that the measures are showing a degree of convergent validity. In comparison, the lack of correlation between the social well-being measures and the physical measures included on the SAP demonstrate divergent validity. This means that the social well-being measures are not related to those about physical health.

Table 5. Social Well-Being Measure Intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Global Health	1														
2. Exercise	.58**	1													
3. Sleep	.50**	-.01	1												
4. Preventative Health	.70**	.37**	.15	1											
5. Eating	.74**	.29**	.18	.35**	1										
6. Social Support	.16	.23*	.15	.09	-.00	1									
7. Type A	-.25*	.02	-.32**	-.22*	-.13	-.12	1								
8. Cognitive Hardy	.34**	.35**	.08	.18	.31**	.23*	-.25*	1							
9. Intrusive Pos	.04	.08	-.06	.04	.19	.04	-.04	.30**	1						
10. Intrusive Neg	-.30*	-.10	-.20	-.22*	-.24*	-.03	.27**	.63**	-.12	1					
11. Avoidance	.00	.05	.11	-.07	.02	.01	-.02	.27**	.27**	-.33*	1				
12. Problem-Focused	.06	.20*	-.01	-.01	.07	-.05	.25*	.31**	.50**	-.06	.32**	1			
13. WellBeing	.38**	.27	.27**	.19	.32**	.19	-.16	.73**	.45*	-.51**	.40**	.47**	1		

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[8] This interpretation is consistent with the factor analysis conducted by Nowack (1990). Factors 1 and 2 include positive life factors (Social Support, Stress, Psychological Well-Being, Global Health) and positive coping strategies (Intrusive Positive Thoughts, Intrusive Negative Thoughts, Avoidance, Problem-Focused Change).
[9] These excluded scales are primarily related to physical health.

14. SelfEsteem	.21*	.17	.14	.11	.16	-.23*	-.02	.60**	.34**	-.50**	.18	.25*	.65**	1
15. SWL	.40**	.27*	.24*	.23*	.32**	.20	-.06	.45**	.28*	-.37**	.32**	.29**	.72**	.58**	1

Note. All of the following scales belong to the larger Stress Assessment Profile scale: Intrusive Pos= intrusive positive thoughts, Intrusive Neg= intrusive negative thoughts. The Satisfaction with Life Scale (SWL= satisfaction with life). For all SAP/SAP correlations (N= 96), SAP/Self-Esteem (N= 96), SAP/Satisfaction with Life (N= 76), and Self-Esteem/Satisfaction with Life (N= 76). The most important intercorrelations are related to items 13, 14, and 15.

$*p < 0.05.$ $**p < 0.01.$

Personality

In this sample, for the NEO-PI-R, the factors of openness and extraversion were average in relation to previous research (Lord, 2007). However, our sample was slightly higher in neuroticism than previous research samples (Lord, 2007). Our sample was also slightly lower than the typical sample for the factors of agreeableness and conscientiousness (Lord, 2007). See Table 6 for the means and standard deviations of the NEO-PI-R.

Table 6. NEO-PI-R Means and Standard Deviations (N= 128)

Factor	*Mean*	*St Dev*	
Openness	125.66	19.45	
Conscientiousness	114.81	23.36	
Extraversion	125.53	20.30	
Agreeableness	115.86	21.91	
Neuroticism	86.02	24.38	

LIWC

A standard LIWC analysis was done on the written texts in this study. It should be noted that word count for this sample was positively skewed and non-standard in terms of a normal distribution. The median total word count for these essays was 596.50, the mean was 865.74, and the range was 9,508[10]. For a frequency distribution of total word count, see Figure 2.

Figure 2. Histogram of Total Word Count

Histogram

Mean = 865.74
Std. Dev. = 1105.339
N = 128

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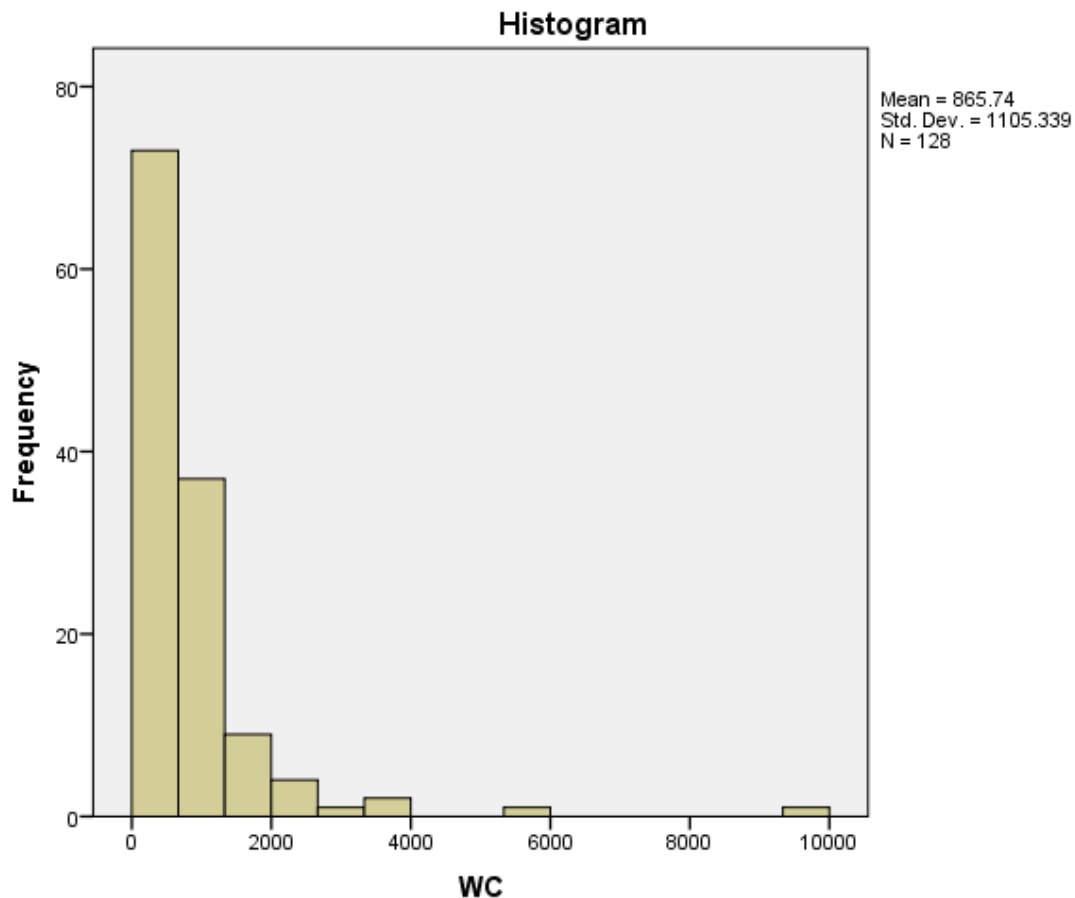
[10] Minimum word count = 52, maximum word count = 9,560. Range= maximum word count – minimum word count.

Note. WC stands for total word count. Frequency represents the raw counts of participants per group of total word count use.

All of the LIWC means and standard deviations are percentages of an individual's overall word count in their written essay. These are reported as percentages or proportions of the total word count. For this sample, an average of 94% (*SD* = 2.29) of words used by participants were categorized using the LIWC analysis[11]. For a list of means and standard deviations of the relevant LIWC categories assessed for this thesis, see Table 7. For a complete list of means and standard deviations for all of the LIWC categories, see Appendix E.

Table 7. Means and Standard Deviations for LIWC Categories (N=128)

LIWC category	Mean Proportion	Standard Deviation
1st person singular pronouns	10%	2
1st person plural pronouns	0.5%	1
3rd person singular pronouns	1%	1
3rd person plural pronouns	1%	1
Positive emotions	3%	1
Negative emotions	2%	1
Anxiety	1%	0.5
Anger	0.5%	0.5
Sadness	0%	0.5
Social processes	11%	3
Affiliation	5%	2

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[11] The 2015 version of LIWC typically captures 86% of overall word use in a sample (Pennebaker, Boyd, Jordan, & Blackburn, 2015).

Past focus	6%	3
Present focus	10%	4
Future focus	1%	0.5

Note. All word categories are presented as **percentages** of the total word use. Percentages may not add up to 100 because of rounding error.

In this sample, pronouns accounted for an average of 18% ($SD = 2.59$) of all function words. About 10% of participant's words were self-references ($SD = 2.15$). About 5% of participant words were emotional processes ($SD = 1.65$). In addition, social words accounted for 11% ($SD = 2.66$) of overall word use. In terms of attentional focus and time orientations, the use of past focused words was 6% ($SD = 2.50$) and the use of present focused words was 10% ($SD = 3.46$).

Social Well-Being, Personality, and LIWC Correlations

For all social well-being measures (Self-Esteem, Satisfaction with Life, and the Stress Assessment Profile) and LIWC correlations, see Tables 8, 9, and 10. For NEO-PI-R and LIWC correlations, see Table 11. Using these tables, inferences about the predicted relationship between social well-being and each LIWC category are discussed.

Table 8. Correlations between LIWC Categories and Social Well-Being Measures (Self-Esteem and Satisfaction with Life)

	Self-Esteem	Satisfaction with Life
	(N=128)	(N=76)
1st person singular pronouns	-.08	.06
1st person plural pronouns	-.11	**-.39****
3rd person singular pronouns	-.10	**-.23***

3rd person plural pronouns	.02	-.01
Positive emotions	.13	.09
Negative emotions	-.11	-.16
Anxiety	**-.18***	**-.26***
Anger	-.04	-.10
Sadness	-.06	.18
Social processes	.10	-.09
Affiliation	.08	-.01
Past focus	**-.21***	-.06
Present focus	.07	-.04
Future focus	-.00	**-.26***

*$p < 0.05$. **$p < 0.01$.

Table 9. Correlations between LIWC Categories and the Stress Assessment Profile (N=128)

	Stress	Type A	Intrusive Negative	Avoidance	Cognitive Hardiness	Intrusive Positive
1st person singular pronouns	**.29***	.06	**.25***	-.01	**-.26***	.06
1st person plural pronouns	.05	-.16	-.03	.01	.09	.08
3rd person singular pronouns	-.03	-.16	-.05	-.08	.04	**.23***
3rd person plural pronouns	-.09	-.02	.00	-.01	.03	.11
Positive emotions	-.11	.11	-.01	-.06	.18	.08
Negative emotions	.10	-.03	**.31***	-.15	-.20	.01
Anxiety	.16	.03	**.32***	-.08	**-.25***	.04
Anger	.00	-.09	.09	-.09	-.06	-.07
Sadness	.08	-.07	.08	**.25***	.15	**.28***
Social processes	-.08	-.09	-.04	-.08	.00	.15

Affiliation	-.14	-.08	-.10	-.08	.17	-.07
Past focus	.00	-.14	.19	.01	-.08	.13
Present focus	**.23***	**.24***	.08	-.01	-.19	-.03
Future focus	.11	.03	.06	-.18	-.03	-.03

Note. Intrusive Negative is a simplified version of a coping style called Intrusive Negative Thoughts and Intrusive Positive is a simplified version of a coping style called Intrusive Positive Thoughts.

*p < 0.05. **p < 0.01.

Table 10. Correlations between LIWC Categories and the Stress Assessment Profile (N=128)

	Social Support	Problem-Focused	Well-Being
1st person singular pronouns	.00	-.16	-.08
1st person plural pronouns	.00	-.06	-.17
3rd person singular pronouns	-.02	.05	-.10
3rd person plural pronouns	-.08	**.21***	.09
Positive emotions	-.07	.16	.06
Negative emotions	.09	.09	-.09
Anxiety	-.00	-.06	-.15
Anger	-.03	.09	-.00
Sadness	.11	**.32***	.20
Social processes	-.14	-.03	-.04
Affiliation	-.01	**-.24***	.01
Past focus	.08	-.07	-.09
Present focus	-.10	.04	-.07
Future focus	.01	-.03	**-.23***

*p < 0.05. **p < 0.01.

Table 11. Correlations between LIWC Categories and the NEO-PI-R (N=128)

	Neuroticism	Openness	Conscientiousness	Agreeableness	Extraversion
1st person sing pron	**.19***	**-.23****	-.00	-.07	**-.18***
1st person pl pron	-.02	.17	-.02	**.19***	.06
3rd person sing pron	.06	**.21***	-.07	.05	-.00
3rd person pl pron	-.05	**.18***	.09	.00	.08
Positive emos	-.05	.16	.13	-.04	.11
Negative emos	**.20***	.06	-.02	-.07	**-.19***
Anxiety	**.23****	-.16	-.02	.03	**-.23***
Anger	.07	**.19***	-.09	-.08	-.03
Sadness	.10	.17	.16	.04	.05
Social process	-.00	.06	-.02	.14	.08
Affiliation	-.08	-.12	-.02	**.25****	.10
Past focus	**.19***	.05	-.08	.06	-.10
Present focus	.05	-.06	.01	-.10	.10
Future focus	.05	-.01	.07	.06	.10

*$p < 0.05$. **$p < 0.01$.

LIWC Thesis Variables

For this thesis, it was originally predicted that higher social well-being would be positively correlated with social and affiliation words, 1st person plural/3rd person singular/3rd person plural pronouns, positive emotion words, and present focused words. It was also predicted that social well-being would be negatively correlated with 1st person singular pronouns, negative emotion words, anxiety/anger/sadness words, and past/future focused words. Each category is discussed in its relation to social well-being and the personality traits indicative of social well-being.

Social and Affiliation Words. In the Stress Assessment Profile, those higher in Problem-Focused Change used fewer affiliation words ($r(128) = -.24, p < .05$). No other correlations were found for social or affiliation words. It appears from the data that only one kind of coping style identified by the SAP measure was related to social or affiliation words. This provides mixed results for our hypothesis that those higher in social well-being would use more social and affiliation words.

Pronouns. *Self-References:* Individuals higher in stress used more 1st person singular pronouns ($r(128) = .29, p < .01$). Individuals higher in the coping strategy of Intrusive Negative Thoughts used more 1st person singular pronouns ($r(128) = .25, p < .05$). Those higher in Cognitive Hardiness used fewer 1st person singular pronouns ($r(128) = -.26, p < .01$). For the NEO-PI-R, those higher in Extraversion used fewer 1st person singular pronouns ($r(128) = -.18$, $p < .05$). Those higher in Neuroticism used more 1st person singular pronouns ($r(128) = .19, p < .05$)

These findings support the hypothesis that those higher in social well-being would use fewer self-references (1st person singular pronouns). The personality trait findings also support the hypothesis that those high in extraversion and low in neuroticism would use fewer self-references (1st person singular pronouns).

Other References: Those more satisfied with their lives used fewer 1st person plural pronouns ($r(76) = -.39, p < .01$) and fewer 3rd person singular pronouns ($r(76) = -.23, p < .05$). Those higher in the coping style of Intrusive Positive Thoughts used more 3rd person singular pronouns ($r(128) = .23, p < .05$). Those higher in Problem-Focused Change used more 3rd person plural pronouns ($r(128) = .21, p < .05$).

Satisfaction with Life was negatively correlated with other references and the coping strategies of Intrusive Negative Thoughts and Problem-Focused Change were positively correlated with other references. These findings provided mixed support for the hypothesis that those higher in social well-being would use more other references (1st person plural, 3rd person singular, and 3rd person plural pronouns).

Emotion Words. *Positive Emotions:* There were no correlations between the LIWC category of positive emotions and the measures of social well-being and personality. The lack of evidence does not support the hypothesis that higher social well-being would be positively correlated to positive emotion word use.

Negative Emotions: Those higher in self-esteem used fewer anxiety words ($r(128) = -.18$, $p < .05$). Similarly, those higher in life satisfaction used fewer anxiety words ($r(76) = -.26$, $p < .05$). Dissimilarly, cognitively hardy individuals used more anxiety words ($r(128) = .25$, $p < .05$). Those higher in Intrusive Negative Thoughts also used more negative emotion words ($r(128) = .31$, $p < .01$) with an emphasis on increased anxiety word use ($r(128) = .32$, $p < .01$). Those higher in Intrusive Positive Thoughts used more sad words ($r(128) = .28$, $p < .01$). Those higher in Avoidance also used more sad words ($r(128) = .25$, $p < .05$). Those higher in Problem-Focused Change also used more sad words ($r(128) = .32$, $p < .01$). For personality, those higher in Extraversion used fewer negative emotions words ($r(128) = -.19$, $p < .05$) and used fewer anxiety words($r(128) = -.23$, $p < .05$). Those higher in Neuroticism used more negative emotions words ($r(128) = .20$, $p < .05$) and more anxiety words ($r(128) = .23$, $p < .01$).

Overall, these findings support our hypotheses that higher social well-being would be negatively related to negative emotion word use and negatively related to anxiety, anger, and

sadness word use. Both self-esteem and life satisfaction were negatively correlated with negative

emotion word use. The findings related to personality also support our initial hypothesis that

those higher in Extraversion and lower in Neuroticism (higher in social well-being related traits)

would use fewer negative emotion words and fewer anxiety, anger, and sadness words.

However, it does appear that certain types of coping related to higher social well-being are

positively related to sad words. This does not support our hypothesis that individuals higher in

social well-being would use fewer sadness related words.

Time Orientation Words. *Present:* Those high in Stress used more present focused

words ($r(128) = .23$, $p < .05$). Similarly, individual's high in Type A behavior used more present

focused words ($r(128) = .24$, $p < .05$).

These findings somewhat support our hypothesis that higher social well-being would be

positively related to present focused word use because low stress and low Type A behavior are

related to higher social well-being. Those high in both of these factors indicate that they might

not be high in social well-being and that their use of present focused words is related to this.

These findings indicate that perhaps lower social well-being is related to more present focused

word use.

Past and Future: Those high in self-esteem used fewer past focused words ($r(128) = -$

$.17$, $p < .05$). Those more satisfied with their lives used fewer future focused words ($r(76) = -$

$.26$, $p < .05$). Those higher in Psychological Well-Being used fewer future focused words ($r(128)$

$= -.23$, $p < .05$). For personality, those higher in Neuroticism used more past focused words

($r(128) = .19$, $p < .05$).

These findings support our hypothesis that higher social well-being would be related to fewer past and future focused word use because self-esteem was negatively correlated with past focused words and because life satisfaction and psychological well-being were negatively correlated with future focused word use. The personality trait data also supports this hypothesis such that those higher in Neuroticism (and presumably lower in social well-being) would use more past focused words.

Conclusion

From the data presented between the social well-being measures and the selected LIWC categories, it can be seen that higher social well-being was related somewhat to more affiliation word use. However, no relationships were found between social well-being and social word use. This data also suggests that higher social well-being is related to fewer self-references or 1st person singular pronouns. Higher social well-being also appears to be related to fewer negative emotion words and fewer anxiety words. No relationships were found between social well-being and positive emotion word use. Those higher in social well-being were also using fewer past, present, and future focused words. Those higher in social well-being were using a mixed pattern of sadness words and other reference words (1st person plural pronouns, 3rd person singular pronouns and 3rd plural pronouns).

For the personality trait of extraversion, individuals higher in this trait were referencing themselves less and using fewer negative emotion and anxiety words. For individuals high in neuroticism, more self-references, more references to the past, and more negative emotion and anxiety words were used. Both of these personality trait-based LIWC patterns are similar to previous studies (Chung & Pennebaker, 2007). However, no correlations were found between

conscientiousness and the selected LIWC categories. The word use for extraversion and

neuroticism also provides evidence that higher social well-being is related to fewer self-

references and fewer negative emotion and anxiety words.

Chapter 8- Discussion

Consistent with the hypotheses, higher social well-being was associated with fewer references to the self, fewer negative emotions and fewer anxiety words. However, there was inconsistent support for the hypotheses that higher social well-being would be related to more other references, more affiliation words, more present focused words, fewer past and future focused words, and fewer sadness words. In addition, there were no results that supported the hypothesis that higher social well-being was related to more social processes word use and more positive emotion word use. This same pattern was reflected in people's personality traits where higher Neuroticism and Extraversion were related to fewer self-references and fewer negative emotion and anxiety words. Overall, social well-being does seem to be reflected in how people write about themselves and others, their perspective of time, and their affect.

This pattern appears to capture what words individuals high in social well-being do *not* use. This could suggest that the pattern found was more associated with those unsuccessful or low in social well-being. Therefore, more self-references, more negative emotion words, and more anxiety words may be indicative of low social well-being. This means that individuals using these words at a high frequency may have lower self-esteem, more stress, and are less satisfied with their lives. These findings then map onto previous research using LIWC to identify low mental, emotional, and physical health (Chung & Pennebaker, 2007; Rude, Gortner, & Pennebaker, 2004).

It also appears that from these findings that social well-being word use may be similar to overall well-being word use (for an example, see Chung & Pennebaker, 2007). This pattern replicates previous research in depression and anxiety and demonstrates a strong link between

those low in social well-being and those who are depressed, rejected, and anxious (Chung &

Pennebaker, 2007; Sommer & Bernieri, 2014; Tausczik & Pennebaker, 2010). Therefore, it may

be prudent to use an already established summary variable assessing depression[12] to better

understand low/high social well-being as compared to the minimal categories selected for this

thesis.

The relationship found between social well-being and fewer self-references suggests that

social well-being might be based on a model established in the relationship and coping literature

(Hallgren & McCrady, 2015; Lin, Chen, & Li, 2015; Robbins, Mehl, Smith, & Weihs, 2013;

Sweeny, Andrews, Nelson, & Robbins, 2015). This model shows that having independence and

autonomy while still maintaining the relationship as a unit is important to relationship success

and satisfaction (Hallgren & McCrady, 2015; Lin, Chen, & Li, 2015; Robbins, Mehl, Smith, &

Weihs, 2013; Sweeny, Andrews, Nelson, & Robbins, 2015). These findings are also reflected in

LIWC research about couples coping with addiction and loss; those who are more successful in

each situation often use lower rates of self-references but use a "normal" rate of other or "we"-

based language (Hallgren & McCrady, 2015; Lin, Chen, & Li, 2015; Robbins, Mehl, Smith, &

Weihs, 2013; Sweeny, Andrews, Nelson, & Robbins, 2015). Therefore, successful social

relationships, similar to successful romantic relationships, need both independence and a sense of

connection in order to thrive.

The relationship found between social well-being and fewer negative emotion words,

fewer anxiety words, and fewer anger words suggests that social isolation, rejection, and

exclusion is most noticeable in the affective writing of a person (Frost, 2014; Herringer, 2014;

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[12] This summary variable is established in previous literature as being inclusive of the Emotional Tone summary
variable and self and other references (Pennebaker, 1997; Pennebaker & King, 1999).

Sommer & Bernieri, 2014). Although negative emotion word use is not necessarily a bad thing

or unwanted in an individual's writing, an overuse of negative emotion words is indicative of

depression, anxiety, loneliness, and distancing behavior (Chung & Pennebaker, 2007; Frost,

2014; Herringer, 2014; Sommer & Bernieri, 2014). These results could also indicate that in terms

of social skills and social situations, individuals may remember the negative events in their social

environments at a higher rate than positive events (Gardner, Pickett, & Brewer, 2000).

Participants may have explained ways they felt they were not skilled or inadequate in their social

skills because they often remembered instances of social isolation and rejection as compared to

remembering instances of social acceptance and inclusion. Individuals in this study may also

have written about situations where their social skills were high, but the event itself was

negative, anxiety-based, or sad. For example, participants could have focused on how they

interacted with loners in school, made friends with the new kid in school, or faced a bullying

situation. As mentioned, the lack of context identification is ever present with the use of the

LIWC program and should be kept in mind when interpreting any results.

The mixed relationship between social well-being and the use of past, present, and future

focused words can possibly be explained through three avenues. The first is that, based on the

given prompt, individuals felt it wise to include past and present examples of their social skill.

This would account for the use of both time orientations. To address this issue, the text samples

could be broken up into sections to see if the participants progressed from past/previous word

use at the beginning of the essay to present focused words toward the end of the writing

sample[13]. This would suggest a healthy shift in language from reflection to a more present and

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[13] This process would be difficult to do with the current writing sample as there was no set word count to cut the essays at. This means that a specified proportion of the essay would need to be chosen in order to split the essays.

aware focus (Cohn, Mehl, & Pennebaker, 2004; Graybeal, Sexton, & Pennebaker, 2002). The

second is that future focused words were used infrequently by those higher in social well-being

because the prompt does not allow for an assessment of future social skill or future social

interactions. This would lead to low rates of use by those higher in social well-being and perhaps

indicate a rumination or fear of the future in terms of social skill by those that did use more

future focused words. The third explanation for the mixed results points to individuals high in

stress, neuroticism, and Type A behavior being more focused on the present overall because of

their need to control their current environment. The use of present focused words may be

indicative of a person's awareness of the current situation and how/what/when they will need to

interact within it.

Finally, the understanding of these findings should be considered in relation to the

previously mentioned dilemma about context and intentionality when it comes to word use. The

essay task for the participants suggests that words were chosen or selected, edited, and revised

before turning the final product into the group leader. This is in comparison to previously used

prompts where natural language use is seen through emails, blog posts, social media posts, and

personal journals where editing and word choice are not evident. The process of intentional word

choice is potentially different from unintentional word use because it involves cognitive

processing and consideration by the individual. Aspects such as conscientiousness, self-

monitoring, and self-presentation would logically play a role in the selection of words for an

essay. The context in which the words were used is equally important to discuss. Participants

were writing about their own social skills from an introspective state in the form of an essay for a

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This specified portion could be determined using a certain word count, paragraph sectioning, or by using human
coders to determine parts of the essay.

course. This is different than writing about a number of topics previously administered in the LIWC literature such as political opinions, deceptive stories about past experiences, and everyday happenings in life. It is also different from spoken word use. The role of introspection in writing could suggest that the words included in the essay were personal and representative of the individual as compared to a more removed process of word selection. An essay format suggests a more linear and organized approach to writing; this might provide evidence for individuals' conscientiousness and ability to work with an essay format to communicate their stories and words. The overall task (in context) provides some support for the idea that the participants had an intended audience and point to communicate to this audience as compared to a free writing process where there is no audience.

Limitations and Future Directions

The pattern of word use for those high in social well-being may have been diluted due to the inclusion of the Stress Assessment Profile instead of another measure of stress. The use of the Stress and Psychological Well-Being scales appears to be useful and informative to the current thesis. However, the coping styles contradict each other in terms of LIWC category use (e.g. Intrusive Positive Thoughts was related to more sad word use and Problem-Focused Change was positively related to affiliation word use). The SAP is not a measure that is used often in research and this lack of background research proves limiting to understanding the findings presented in this thesis.

Also, social well-being should include more measures in the future to get a more robust understanding of the construct similar to the model that Ryff (1989) proposed. A person's social environment is not only inclusive of the person's feelings about their social world, but also the

real social skill of the person and their social network. For example, including measures of social skill and assessing an individual's social connections in the outside world would be more indicative of social well-being in an applied setting.

Additionally, the sample for this thesis was less diverse than would be ideal. Most of the participants were upperclassmen, Psychology majors, college-aged, and Caucasian. In the future, incorporating more participants from around the United States (and globally if possible) to understand the fullest extent of the word use pattern in relation to social well-being. Therefore, the use of "big data" to establish word use frequencies and social well-being would be the most convincing in order to understand the construct through inadvertent word choice. This is because word use, similar to personality, has individual differences and should be accounted for in terms of getting a more representative sample. Colloquialisms, language access, education and reading level, and background knowledge in areas like English literature all impact word choice and a sample should reflect this diversity. The current sample indicates a well-educated, median level SES with a fairly extensive background in literature, reading, and comprehension (Brown, 2011; Sim, Saperia, Brown, & Bernieri, 2014). This means that the findings may not be applicable to a larger sample pulled from the US. Overall, it is better to have a more representative sample for LIWC based research.

Finally, the prompt and measures given to the sample were done after the study was previously run. In future research, creating a study looking solely at social well-being and using a different prompt would be beneficial to the field. Future research could also include creating a social situation for people to write about (a video of an interaction) and then assess their word use based on their understanding of the social interaction.

Overall Conclusion

      This thesis provides some evidence that word use is impacted by larger aspects of individual's lives such as social well-being because of the relationships found between the social well-being and personality measures and the LIWC word categories. Leaked language can be seen in relation to many aspects of health, aging, depression, and well-being (Chung & Pennebaker, 2007, Pennebaker & King, 1999; Pennebaker & Graybeal, 2001; Pennebaker, Mehl, & Neiderhoffer, 2003; Pennabaker & Stone, 2003; Rude, Gortner, & Pennebaker, 2004). This study demonstrates that social well-being can also be seen through unintentional word use due to the strong pattern that was found between self-esteem, stress, and satisfaction with life and the word categories of self-references and negative emotion words.

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Appendices

Appendix A
The Rosenberg's Self-Esteem Scale (Rosenberg, 1965)

Please mark down the degree to which you disagree or agree with the following statements.

1. I feel that I'm a person of worth, at least on an equal plane with others.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

2. I feel that I have a number of good qualities.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3. All in all, I am inclined to feel that I am a failure.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

4. I am able to do things as well as most other people.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

5. I feel I do not have much to be proud of.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

6. I take a positive attitude toward myself.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

7. On the whole, I am satisfied with myself.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

8. I wish I could have more respect for myself.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

9. I certainly feel useless at times.

1	2	3	4
Strongly	Disagree	Agree	Strongly

disagree   agree

10. At times I think I am no good at all.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

Appendix B

The Satisfaction with Life Scale (Deiner, Emmons, Larsen, & Griffin, 1985)

SWL SCALE

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

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neither agree nor disagree
5 = slightly agree
6 = agree
7 = strongly agree

Write in the number that best fits your view:

_____   1. In most ways my life is close to my ideal.

_____   2. The conditions of my life are excellent.

_____   3. I am satisfied with my life.

_____   4. So far I have gotten the important things I want in life.

_____   5. If I could live my life over, I would change almost nothing.

Appendix C

The Stress Assessment Profile (Nowack, 1990)

Stress Assessment Profile

Developed by Kenneth M. Nowack, Ph.D.

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Organizational Performance Dimensions

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I.

Listed below are six major categories of stressors or hassles that people experience in their work and personal life. Hassles are experiences and conditions of daily living that are perceived to be both important and irritating, annoying, harmful, or threatful to one's well-being.

Determine how often you have experienced these hassles over the last three months corresponding to the scale below where: 1= Never, 2= Rarely, 3= Sometimes, 4= Often, and 5=Always.

In the last three months:	Never	Rarely	Sometimes	Often	Always
1. HEALTH HASSLES (e.g., concerns about one's own health, medical treatment, side effects of medication, smoking or drinking too much, physical limitations, physical appearance, physical symptoms, change in existing medical condition, etc.)	1	2	3	4	5
2. WORK HASSLES (e.g., job dissatisfaction, trouble with boss, lack of recognition, boring work, concerns about getting ahead, being exploited, concerns with job security, relationships at work, workload, time pressure, salary, schedule, commuting, etc.)	1	2	3	4	5
3. FINANCIAL HASSLES (e.g., taxes, investments, mortgage payments, debt, financial insecurity, loans, money for travel, bills, financing children's education, lack of legal problems, home and auto repairs, retirement, planning, etc.)	1	2	3	4	5

In the last three months:	Never	Rarely	Sometimes	Often	Always
4. FAMILY HASSLES (e.g., health of family members, problems with aging parents, concern with relatives, family relationships, problems with children, balancing work and family, care for pets, etc.)	1	2	3	4	5
5. SOCIAL HASSLES (e.g., trouble with neighbors, social obligations and expectations, problems with friends, meeting others, loneliness, inability to express one's self, gossip, jealousy, too many social responsibilities, unexpected company, little time to relax, not enough time to do social things, interpersonal conflicts, etc.)	1	2	3	4	5
6. ENVIRONMENTAL HASSLES (e.g., crime, weather, noise, pollution, news/current events, prejudice, politics, environmental safety, etc.)	1	2	3	4	5

II.

How often do the following statements describe you over the last three months?

	Never	Rarely	Sometimes	Often	Always
7. Spent some of your free time participating in physical activities, sports, or hobbies such as gardening, home repair, cleaning, dancing, etc.	1	2	3	4	5
8. Exercised for 15-20 minutes, at least 2-3 times a week, to enhance muscle tone, strength, or flexibility (e.g., stretching, weight lifting, calisthenics, isometrics, etc.).	1	2	3	4	5
9. Spent at least 15-20 minutes 2-3 times a week, performing vigorous physical exercise to enhance the cardiovascular system (e.g., aerobics, jogging, swimming, riding a bicycle, walking briskly, etc.).	1	2	3	4	5
10. Pushed yourself while working or playing even though you were aware of being weary tired or exhausted.	1	2	3	4	5
11. Missed a large proportion of, or an entire night of sleep because of work projects, travel schedule, social activities, shift work, family problems, etc.	1	2	3	4	5
12. Unable to make time for, or missed activities you find particularly refreshing, calming, and relaxing on a regular basis (e.g., hobbies, reading, watching TV, listening to the radio, community work, etc.)	1	2	3	4	5

	Never	Rarely	Sometimes	Often	Always
13. Maintained close, physical, or intimate contact with someone that was infected, sick, or ill (e.g., kissed, shared food, occupied the same car or office together, used another individual's eating drinking glass, etc.).	1	2	3	4	5
14. Continued on with work or home activities even when you felt a symptom of an illness developing (e.g., fever, runny nose, sneezing, chills, muscular pain, etc.)	1	2	3	4	5
15. Failed to maintain body-weight at an appropriate level for your age, gender, and height (i.e., unable to control your weight).	1	2	3	4	5
16. Practiced safe sex (e.g., took necessary precautions such as limited the number of your sexual partners or used condoms to minimize the risk of catching or spreading sexually transmitted diseases).	1	2	3	4	5
17. Failed to take either prescription medications prescribed by your physician or non-prescription supplements (e.g., vitamins, minerals) which you normally take.	1	2	3	4	5
18. Received less sleep than you normally need due to your work or play schedule (e.g., stayed up later than usual in the evening or had to get up earlier in the morning)	1	2	3	4	5
19. Experienced poor quality sleep at night because you had difficulty either falling or staying asleep (e g woke up often at night, restless sleep, awoke early & unable to fall back to sleep, nightmares, nervousness, etc.).	1	2	3	4	5

	Never	Rarely	Sometimes	Often	Always
20. Failed to maintain regular health prevention habits (e.g., avoided physical checkups, avoided wearing seat belts in cars, neglected oral hygiene, skipped monthly breast self-examinations, ignored monitoring high blood pressure, blood sugar, or cholesterol levels, etc.).	1	2	3	4	5
21. Took 1-2 aspirin tablets, not aspirin substitutes such as acetaminophen (e.g., Tylenol) or ibuprofen (e.g., Advil, Nuprin, Mediprin), 3-4 times a week.	1	2	3	4	5
22. Missed eating an adequate and nutritious breakfast at the start of each day.	1	2	3	4	5
23. Ate a well-balanced and nutritious variety of foods from the major food groups for each of your main meals on a daily basis (e.g., fruits, vegetables, fish, poultry, meats, grains, rice, and dairy products).	1	2	3	4	5
24. Monitored or restricted your daily intake of dietary saturated fats, cholesterol, sodium, sugar, and total calories.	1	2	3	4	5
25. Ate unhealthy fast food or junk food (e.g., pastries, candy, potato chips) instead of a regular meal.	1	2	3	4	5
26. Skipped an important meal that you normally would eat during the day (e.g., breakfast, lunch, dinner).	1	2	3	4	5

	Never	Rarely	Sometimes	Often	Always
27. Took medications or ate foods that you are highly sensitive or allergic to causing physical complaints or other side effects (e.g., dizziness, constipation, nausea, vomiting, itching, heartburn, headaches, etc.).	1	2	3	4	5
28. Drank two or more cups of caffeinated beverages in 24 hours (e.g., coffee, tea, soft drinks) or ate foods high in caffeine on a daily basis (e.g., chocolate, cocoa, etc.).	1	2	3	4	5
29. Used prescription or non-prescription drugs (e.g., cocaine, marijuana, stimulants, depressants, over-the-counter medicines, etc.) for social, recreational, or non-health related reasons.	1	2	3	4	5
30. Cigarette smoking: (Circle number of cigarettes smoked per day): 1=Non-Smoker; 2=1/2 pack; 3=3/4 pack; 4=1 pack; and 5=more than one pack.	1	2	3	4	5
31. Alcoholic beverage (e.g., wine, whiskey, beer, etc.) consumption: 1= Non-drinker; 2=Consumed less than three alcoholic beverages only occasionally (e.g., weddings, birthdays, etc.); 3=Consumed 1-3 alcoholic beverages in 24 hours several times/week; 4=Consumed more than 3 alcoholic beverages in 24 hours several times/week; 5=Consumed more than 3 alcoholic beverages every day.	1	2	3	4	5

III.

How often do the following people go out of their way to directly support you in a positive manner (e.g., listen to you, provide information, feedback, and advice, give encouragement, provide empathy, love, and acceptance, provide assistance and support, etc.) to make your work and personal life less stressful, easier, and more satisfying? (l=Never, 2=Rarely, 3=Sometimes, 4=Often. 5=Always, 6=Not Applicable).

	Never	Rarely	Sometimes	Often	Always	N/A
32. Immediate boss or supervisor.	1	2	3	4	5	6
33. Other people at work.	1	2	3	4	5	6
34. Spouse, lover, or significant other.	1	2	3	4	5	6
35. Family members/Relatives.	1	2	3	4	5	6
36. Friends/Neighbors/Community Members.	1	2	3	4	5	6

How often do you utilize these people in order to make your work and personal life less stressful, easier, and more satisfying (e.g., to express your feelings, to solve problems, to make decisions, to seek advice, to gather information, to solicit feedback, to support your efforts, to provide recognition, to allow for social participation, relaxation, companionship, and intellectual stimulation, etc.)?

	Never	Rarely	Sometimes	Often	Always	N/A
37. Immediate boss or supervisor.	1	2	3	4	5	6
38. Other people at work.	1	2	3	4	5	6
39. Spouse, lover, or significant other.	1	2	3	4	5	6
40. Family members/Relatives.	1	2	3	4	5	6
41. Friends/Neighbors/Community Members.	1	2	3	4	5	6

Overall, how satisfied are you with the following people in providing you with the social support you want and need both at work and at home? (l=Not at all Satisfied, 2=Slightly Satisfied, 3=Moderately Satisfied, 4=Very Satisfied, 5=Extremely Satisfied, 6= Not Applicable).

	Not at all Satisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied	N/A
42. Immediate boss or supervisor.	1	2	3	4	5	6
43. Other people at work.	1	2	3	4	5	6
44. Spouse, lover, or significant other.	1	2	3	4	5	6
45. Family members/Relatives.	1	2	3	4	5	6
46. Friends/Neighbors/Community Members.	1	2	3	4	5	6

IV.

How often do the following statements generally describe how you act or feel? (l=None of the Time, 2=A Little of the Time, 3=Some of the Time, 4=Most of the Time, 5=All of the Time).

	Never	Rarely	Sometimes	Often	Always
47. I feel hurried and pressured for time (i.e., not having enough time to get everything done at work or home).	1	2	3	4	5
48. My activities and schedule push me to be as busy and active as possible, both at work and away from work.	1	2	3	4	5
49. When I experience annoyance, displeasure, or anger in the face of work and life stress, I tend to express how I feel and what I am thinking to others.	1	2	3	4	5
50. I tend to be achievement-striving, hard driving, and competitive at both work and play.	1	2	3	4	5
51. While waiting in lines, I often find myself wondering why others are so ineffective (e.g. clerks, bank tellers, those ahead in Line, etc.).	1	2	3	4	5
52. I have a strong need to achieve, excel, and be the best in the things I get involved with.	1	2	3	4	5
53. I am quick to experience and express impatience and irritability over events, situations, and people at work and at home.	1	2	3	4	5
54. I tend to eat, walk, talk, and do most things as rapidly and quickly as possible.	1	2	3	4	5

	Never	Rarely	Sometimes	Often	Always
55. I tend to find it easy to let others know when I am feeling frustrated, irritated, or angry with them at work and at home.	1	2	3	4	5
56. At work and home, I tend to check up on coworkers or family members to insure that things are being done properly.	1	2	3	4	5

Appendix D

The Neuroticism-Extaversion-Openness Personality Inventory- Revised (Costa & McCrae, 1992)

Sex: M   F   Age:_____   Nationality:_____   OSU ID#_____

This questionnaire contains 240 statements. Please read each item carefully and circle the number that best corresponds to your agreement or disagreement. There are no right or wrong answers, and you need not be an "expert" to complete this questionnaire. Describe yourself honestly and state your opinions as accurately as possible.

Strongly disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

1. I am not a worrier.
   1   2   3   4   5
2. I really like most people I meet.
   1   2   3   4   5
3. I have a very active imagination.
   1   2   3   4   5
4. I tend to be cynical and skeptical of others' intentions.
   1   2   3   4   5
5. I'm known for my prudence and common sense.
   1   2   3   4   5
6. I often get angry at the way people treat me.
   1   2   3   4   5
7. I shy away from crowds of people.
   1   2   3   4   5
8. Aesthetic and artistic concerns aren't very important to me.
   1   2   3   4   5
9. I'm not crafty or sly.
   1   2   3   4   5
10. I would rather keep my options open than plan everything in advance.
    1   2   3   4   5
11. I rarely feel lonely or blue.
    1   2   3   4   5
12. I am dominant, forceful, and assertive.
    1   2   3   4   5
13. Without strong emotions, life would be uninteresting to me.
    1   2   3   4   5
14. Some people think I am selfish and egotistical
    1   2   3   4   5
15. I try to perform all the tasks assigned to me conscientiously.
    1   2   3   4   5
16. In dealing with other people, I always dread making a social blunder.
    1   2   3   4   5
17. I have a leisurely style in work and play.
    1   2   3   4   5
18. I'm pretty set in my ways
    1   2   3   4   5
19. I would rather cooperate with others than compete with them.
    1   2   3   4   5

20. I am easy-going and lackadaisical
    1   2   3   4   5
21. I rarely overindulge in anything.
    1   2   3   4   5
22. I often crave excitement.
    1   2   3   4   5
23. I often enjoy playing with theories or abstract ideas.
    1   2   3   4   5
24. I don't mind bragging about my talents and accomplishments.
    1   2   3   4   5
25. I'm pretty good about pacing myself so as to get things done on time.
    1   2   3   4   5
26. I often feel helpless and want someone else to solve my problems.
    1   2   3   4   5
27. I have never literally jumped for joy.
    1   2   3   4   5
28. I believe letting students hear controversial speakers can only confuse and mislead them.
    1   2   3   4   5
29. Political leaders need to be more aware of the human side of their policies.
    1   2   3   4   5
30. Over the years I've done some pretty stupid things.
    1   2   3   4   5
31. I am easily frightened.
    1   2   3   4   5
32. I don't get much pleasure from chatting with people.
    1   2   3   4   5
33. I try to keep all my thoughts directed along realistic lines and avoid flights of fancy.
    1   2   3   4   5
34. I believe that most people are basically well-intentioned.
    1   2   3   4   5
35. I don't take civic duties like voting very seriously.
    1   2   3   4   5
36. I am an even-tempered person.
    1   2   3   4   5

Strongly Disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

37. I like to have a lot of people around me.
    1   2   3   4   5

38. I am sometimes completely absorbed in music I am listening to.
    1   2   3   4   5

39. If necessary, I am willing to manipulate people to get what I want.
    1   2   3   4   5

40. I keep my belongings neat and clean.
    1   2   3   4   5

41. Sometimes I feel completely worthless.
    1   2   3   4   5

42. I sometimes fail to assert myself as much as I should.
    1   2   3   4   5

43. I rarely experience strong emotions.
    1   2   3   4   5

44. I try to be courteous to everyone I meet.
    1   2   3   4   5

45. Sometimes I'm not as dependable or reliable as I should be.
    1   2   3   4   5

46. I seldom feel self-conscious when I'm around people.
    1   2   3   4   5

47. When I do things, I do them vigorously.
    1   2   3   4   5

48. I think it's interesting to learn and develop new hobbies.
    1   2   3   4   5

49. I can be sarcastic and cutting when I need to be.
    1   2   3   4   5

50. I have a clear set of goals and work toward them in an orderly fashion.
    1   2   3   4   5

51. I have trouble resisting my cravings.
    1   2   3   4   5

52. I wouldn't enjoy vacationing in Las Vegas.
    1   2   3   4   5

53. I find philosophical arguments boring.
    1   2   3   4   5

54. I'd rather not talk about myself and my achievements.
    1   2   3   4   5

55. I waste a lot of time before settling down to work.
    1   2   3   4   5

56. I feel I am capable of coping with most of my problems.
    1   2   3   4   5

57. I have sometimes experienced intense joy or ecstasy.
    1   2   3   4   5

58. I believe that laws and social policies should change to reflect the needs of a changing world.
    1   2   3   4   5

59. I'm hard-headed and tough-minded in my attitudes.
    1   2   3   4   5

60. I think things through before coming to a decision.
    1   2   3   4   5

61. I rarely feel fearful or anxious.
    1   2   3   4   5

62. I'm known as a warm and friendly person.
    1   2   3   4   5

63. I have an active fantasy life.
    1   2   3   4   5

64. I believe that most people will take advantage of you if you let them.
    1   2   3   4   5

65. I keep myself informed and usually make intelligent decisions.
    1   2   3   4   5

66. I am known as hot-blooded and quick-tempered.
    1   2   3   4   5

67. I usually prefer to do things alone.
    1   2   3   4   5

68. Watching ballet or modern dance bores me.
    1   2   3   4   5

69. I couldn't deceive anyone even if I wanted to.
    1   2   3   4   5

70. I am not a very methodical person.
    1   2   3   4   5

71. I am seldom sad or depressed.
    1   2   3   4   5

72. I have often been the leader of groups I have belonged to.
    1   2   3   4   5

73. How I feel about things is important to me.
    1   2   3   4   5

74. Some people think of me as cold and calculating.
    1   2   3   4   5

75. I pay my debts promptly and in full.
    1   2   3   4   5

76. At times I have been so ashamed I just wanted to hide.
    1   2   3   4   5

77. My work is likely to be slow but steady.
    1   2   3   4   5

78. Once I find the right way to do something, I stick to it.
    1   2   3   4   5

Strongly Disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

79. I hesitate to express my anger even when it's justified.
   1   2   3   4   5

80. When I start a self-improvement program, I usually let it slide after a few days.
   1   2   3   4   5

81. I have little difficulty resisting temptation.
   1   2   3   4   5

82. I have sometimes done things just for "kicks" or "thrills."
   1   2   3   4   5

83. I enjoy solving problems or puzzles.
   1   2   3   4   5

84. I'm better than most people, and I know it.
   1   2   3   4   5

85. I am a productive person who always gets the job done.
   1   2   3   4   5

86. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
   1   2   3   4   5

87. I am not a cheerful optimist.
   1   2   3   4   5

88. I believe we should look to our religious authorities for decisions on moral issues.
   1   2   3   4   5

89. We can never do too much for the poor and elderly.
   1   2   3   4   5

90. Occasionally I act first and think later.
   1   2   3   4   5

91. I often feel tense and jittery.
   1   2   3   4   5

92. Many people think of me as somewhat cold and distant.
   1   2   3   4   5

93. I don't like to waste my time daydreaming.
   1   2   3   4   5

94. I think most of the people I deal with are honest and trustworthy.
   1   2   3   4   5

95. I often come into situations without being fully prepared.
   1   2   3   4   5

96. I am not considered a touchy or temperamental person.
   1   2   3   4   5

97. I really feel the need for other people if I am by myself for long.
   1   2   3   4   5

98. I am intrigued by the patterns I find in art and nature.
   1   2   3   4   5

99. Being perfectly honest is a bad way to do business.
   1   2   3   4   5

100. I like to keep everything in its place so I know just where it is.
   1   2   3   4   5

101. I have sometimes experienced a deep sense of guilt or sinfulness.
   1   2   3   4   5

102. In meetings, I usually let others do the talking.
   1   2   3   4   5

103. I seldom pay much attention to my feelings of the moment.
   1   2   3   4   5

104. I generally try to be thoughtful and considerate.
   1   2   3   4   5

105. Sometimes I cheat when I play solitaire.
   1   2   3   4   5

106. It doesn't embarrass me too much if people ridicule and tease me.
   1   2   3   4   5

107. I often feel as if I'm bursting with energy.
   1   2   3   4   5

108. I often try new and foreign foods.
   1   2   3   4   5

109. If I don't like people, I let them know it.
   1   2   3   4   5

110. I work hard to accomplish my goals.
   1   2   3   4   5

111. When I am having my favorite foods, I tend to eat too much.
   1   2   3   4   5

112. I tend to avoid movies that are shocking or scary.
   1   2   3   4   5

113. I sometimes lose interest when people talk about very abstract, theoretical matters.
   1   2   3   4   5

114. I try to be humble.
   1   2   3   4   5

115. I have trouble making myself do what I should.
   1   2   3   4   5

116. I keep a cool head in emergencies.
   1   2   3   4   5

117. Sometimes I bubble with happiness.
   1   2   3   4   5

118. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.
   1   2   3   4   5

119. I have no sympathy for panhandlers.
   1   2   3   4   5

Strongly Disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

120. I always consider the consequences before I take action.
1 2 3 4 5

121. I'm seldom apprehensive about the future.
1 2 3 4 5

122. I really enjoy talking to people.
1 2 3 4 5

123. I enjoy concentrating on a fantasy or daydream and exploring all its possibilities, letting it grow and develop.
1 2 3 4 5

124. I'm suspicious when someone does something nice for me.
1 2 3 4 5

125. I pride myself on my sound judgment.
1 2 3 4 5

126. I often get disgusted with people I have to deal with.
1 2 3 4 5

127. I prefer jobs that let me work alone without being bothered by other people.
1 2 3 4 5

128. Poetry has little or no effect on me.
1 2 3 4 5

129. I would hate to be thought of as a hypocrite.
1 2 3 4 5

130. I never seem to be able to get organized.
1 2 3 4 5

131. I tend to blame myself when anything goes wrong.
1 2 3 4 5

132. Other people often look to me to make decisions.
1 2 3 4 5

133. I experience a wide range of emotions or feelings.
1 2 3 4 5

134. I'm not known for my generosity.
1 2 3 4 5

135. When I make a commitment, I can always be counted on to follow through.
1 2 3 4 5

136. I often feel inferior to others.
1 2 3 4 5

137. I'm not as quick and lively as other people.
1 2 3 4 5

138. I prefer to spend my time in familiar surroundings.
1 2 3 4 5

139. When I've been insulted, I just try to forgive and forget.
1 2 3 4 5

140. I don't feel like I'm driven to get ahead.
1 2 3 4 5

141. I seldom give in to my impulses.
1 2 3 4 5

142. I like to be where the action is.
1 2 3 4 5

143. I enjoy working on "mind-twister"-type puzzles.
1 2 3 4 5

144. I have a very high opinion of myself.
1 2 3 4 5

145. Once I start a project, I almost always finish it.
1 2 3 4 5

146. It's often hard for me to make up my mind.
1 2 3 4 5

147. I don't consider myself especially "light-hearted."
1 2 3 4 5

148. I believe that loyalty to one's ideals and principles is more important than "open-mindedness."
1 2 3 4 5

149. Human need should always take priority over economic considerations.
1 2 3 4 5

150. I often do things on the spur of the moment.
1 2 3 4 5

151. I often worry about things that might go wrong.
1 2 3 4 5

152. I find it easy to smile and be outgoing with strangers.
1 2 3 4 5

153. If I feel my mind starting to drift off into daydreams I usually get busy and start concentrating on some work or activity instead.
1 2 3 4 5

154. My first reaction is to trust people.
1 2 3 4 5

155. I don't seem to be completely successful at anything.
1 2 3 4 5

156. It takes a lot to get mad at me.
1 2 3 4 5

157. I'd rather vacation at a popular beach than an isolated cabin in the woods.
1 2 3 4 5

158. Certain kinds of music have an endless fascination for me.
1 2 3 4 5

159. Sometimes I trick people into doing what I want.
1 2 3 4 5

Strongly Disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

160. I tend to be somewhat fastidious or exacting.
    1   2   3   4   5

161. I have a low opinion of myself.
    1   2   3   4   5

162. I would rather go my own way than be a leader of others.
    1   2   3   4   5

163. I seldom notice the moods or feelings that different environments produce.
    1   2   3   4   5

164. Most people I know like me.
    1   2   3   4   5

165. I adhere strictly to my ethical principles.
    1   2   3   4   5

166. I feel comfortable in the presence of my bosses or other authorities.
    1   2   3   4   5

167. I usually seem to be in a hurry.
    1   2   3   4   5

168. Sometimes I make changes around the house just to try something different.
    1   2   3   4   5

169. If someone starts a fight, I'm ready to fight back.
    1   2   3   4   5

170. I strive to achieve all I can.
    1   2   3   4   5

171. I sometimes eat myself sick.
    1   2   3   4   5

172. I love the excitement of roller coasters.
    1   2   3   4   5

173. I have little interest in speculating on the nature of the universe or the human condition.
    1   2   3   4   5

174. I feel that I am no better than others, no matter what their condition.
    1   2   3   4   5

175. When a project gets too difficult, I'm inclined to start a new one.
    1   2   3   4   5

176. I can handle myself pretty well in a crisis.
    1   2   3   4   5

177. I am a cheerful, high-spirited person.
    1   2   3   4   5

178. I consider myself broad-minded and tolerant of other people's lifestyles.
    1   2   3   4   5

179. I believe all human beings are worthy of respect.
    1   2   3   4   5

180. I rarely make hasty decisions.
    1   2   3   4   5

181. I have fewer fears than most people.
    1   2   3   4   5

182. I have strong emotional attachments to my friends.
    1   2   3   4   5

183. As a child I rarely enjoyed games of make believe.
    1   2   3   4   5

184. I tend to assume the best about people.
    1   2   3   4   5

185. I'm a very competent person.
    1   2   3   4   5

186. At times I have felt bitter and resentful.
    1   2   3   4   5

187. Social gatherings are usually boring to me.
    1   2   3   4   5

188. Sometimes when I'm reading poetry or looking at a work of art, I feel a chill or wave of excitement.
    1   2   3   4   5

189. At times I bully or flatter people into doing what I want them to do.
    1   2   3   4   5

190. I'm not compulsive about cleaning.
    1   2   3   4   5

191. Sometimes things look pretty bleak and hopeless to me.
    1   2   3   4   5

192. In conversations, I tend to do most of the talking.
    1   2   3   4   5

193. I find it easy to empathize-to feel myself what others are feeling.
    1   2   3   4   5

194. I think of myself as a charitable person.
    1   2   3   4   5

195. I try to do jobs carefully, so they won't have to be done again.
    1   2   3   4   5

196. If I have said or done the wrong thing to someone, I can hardly bear to face them again.
    1   2   3   4   5

197. My life is fast-paced.
    1   2   3   4   5

198. On a vacation, I prefer going back to a tried and true spot.
    1   2   3   4   5

199. I'm hard-headed and stubborn.
    1   2   3   4   5

200. I strive for excellence in everything I do.
    1   2   3   4   5

201. Sometimes I do things on impulse that I later regret.
    1   2   3   4   5

Strongly Disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

202. I'm attracted to bright colors and flashy styles.
1   2   3   4   5

203. I have a lot of intellectual curiosity.
1   2   3   4   5

204. I would rather praise others than be praised myself.
1   2   3   4   5

205. There are so many jobs that need to be done that I sometimes just ignore them all.
1   2   3   4   5

206. When everything seems to be going wrong, I can still make good decisions.
1   2   3   4   5

207. I rarely use words like "fantastic!" or "sensational!" to describe my experiences.
1   2   3   4   5

208. I think that if people don't know what they believe in by the time they're 25, there's something wrong with them.
1   2   3   4   5

209. I have sympathy for others less fortunate than me.
1   2   3   4   5

210. I plan ahead carefully when I go on a trip.
1   2   3   4   5

211. Frightening thoughts sometimes come into my head.
1   2   3   4   5

212. I take a personal interest in the people I work with.
1   2   3   4   5

213. I would have difficulty just letting my mind wander without control or guidance.
1   2   3   4   5

214. I have a good deal of faith in human nature.
1   2   3   4   5

215. I am efficient and effective at my work.
1   2   3   4   5

216. Even minor annoyances can be frustrating to me.
1   2   3   4   5

217. I enjoy parties with lots of people.
1   2   3   4   5

218. I enjoy reading poetry that emphasizes feelings and images more than story lines.
1   2   3   4   5

219. I pride myself on my shrewdness in handling people.
1   2   3   4   5

220. I spend a lot of time looking for things I've misplaced.
1   2   3   4   5

221. Too often, when things go wrong, I get discouraged and feel like giving up.
1   2   3   4   5

222. I don't find it easy to take charge of a situation.
1   2   3   4   5

223. Odd things--like certain scents or the names of distant places--can evoke strong moods in me.
1   2   3   4   5

224. I go out of my way to help others if I can.
1   2   3   4   5

225. I'd really have to be sick before I'd miss a day of work.
1   2   3   4   5

226. When people I know do foolish things, I get embarrassed for them.
1   2   3   4   5

227. I am a very active person.
1   2   3   4   5

228. I follow the same route when I go someplace.
1   2   3   4   5

229. I often get into arguments with my family and co-workers.
1   2   3   4   5

230. I'm something of a "workaholic."
1   2   3   4   5

231. I am always able to keep my feelings under control.
1   2   3   4   5

232. I like being part of the crowd at sporting events.
1   2   3   4   5

233. I have a wide range of intellectual interests.
1   2   3   4   5

234. I'm a superior person.
1   2   3   4   5

235. I have a lot of self-discipline.
1   2   3   4   5

236. I'm pretty stable emotionally.
1   2   3   4   5

237. I laugh easily.
1   2   3   4   5

238. I believe that the "new morality" of permissiveness is no morality at all.
1   2   3   4   5

239. I would rather be known as "merciful" than as "just."
1   2   3   4   5

240. I think twice before I answer a question.
1   2   3   4   5

Appendix E

Full LIWC Correlational Tables

Means and Standard Deviations for LIWC Categories (N=128)

LIWC category	Mean Proportion	Standard Deviation
6+ letter words	17%	3
Dictionary words	94%	2
Total function words	58%	3
Total pronouns	18%	3
Personal pronouns	12%	2
1st person singular pronouns	10%	2
1st person plural pronouns	0.5%	1
2nd person pronouns	0.5%	0.5
3rd person singular pronouns	1%	2
3rd person plural pronouns	1%	2
Impersonal pronouns	5%	2
Articles	5%	1
Prepositions	15%	2
Auxiliary verbs	9%	2
Adverbs	6%	2
Conjunctions	7%	2
Negations	2%	1
Common verbs	17%	2
Common adjectives	5%	1
Comparisons	3%	1

Interrogatives	2%	1
Numbers	1%	1
Quantifiers	3%	1
Affective processes	5%	2
Positive emotions	3%	1
Negative emotions	2%	1
Anxiety	0.5%	1
Anger	0.5%	0.5
Sadness	0%	0
Social processes	11%	3
Family	1%	1
Friends	1%	1
Female references	1%	1
Male references	1%	1
Cognitive processes	14%	3
Insight	3%	1
Causation	2%	1
Discrepancy	1%	1
Tentativeness	3%	2
Certainty	2%	1
Differentiation	4%	2
Perceptual processes	2%	1
See	0.5%	0
Hear	1%	0.5

Feel	1%	1
Biological processes	1%	1
Body	0%	0
Health	1%	0.5
Sexual	0%	0
Ingestion	0%	0
Drives	10%	3
Affiliation	5%	2
Achievement	3%	1
Power	3%	1
Reward	1%	1
Risk	0.5%	1
Past focus	6%	3
Present focus	10%	3
Future focus	1%	0
Relativity	14%	3
Motion	2%	1
Space	7%	2
Time	5%	2
Work	4%	2
Leisure	1%	1
Home	0.5%	0.5
Money	0%	0.5
Religion	0%	1

Death	0%	0
Informal language	0%	0
Swear words	0%	0
Netspeak	0%	0
Assent	0%	0
Nonfluencies	0%	0
Fillers	0%	0
All punctuation	11%	3
Periods	5%	1
Commas	4%	2
Colons	0%	0
Semicolons	0%	0
Question marks	0%	0
Exclamation marks	0%	0
Dashes	0%	0
Quotations	0.5%	1
Apostrophes	1%	1
Parentheses	0%	0.5
Other punctuation	0%	0

Note. All word categories are presented as **percentages** of the total word use. Percentages may not total up to 100 because of rounding error.

Correlations between LIWC Categories and Social Well-Being Measures (Self-Esteem and Satisfaction with Life)

	Self-Esteem	Satisfaction with Life
	(N=128)	(N=76)
Word Count	-.05	-.13
Analytical thinking	.05	.18
Clout	.14	-.02
Authenticity	-.11	.08
Emotional Tone	**.19***	.21
Words/sentence	.13	.12
Words> 6 letters	.16	**.23***
Total function words	-.15	-.11
Total pronouns	-.06	-.02
Personal pronouns	-.14	-.16
1st person singular pronouns	-.08	.06
1st person plural pronouns	-.11	**-.39****
2nd person pronouns	.05	-.05
3rd person singular pronouns	-.10	**-.23***
3rd person plural pronouns	.02	-.01
Impersonal pronouns	.09	.15
Articles	.06	.03
Prepositions	-.08	.19
Auxiliary verbs	-.06	-.15
Adverbs	-.09	-.08
Conjunctions	.08	-.10

Negations	-.16	**-.33****
Common verbs	-.13	-.22
Common adjectives	.10	.05
Comparisons	.03	.01
Interrogatives	.02	.10
Numbers	-.07	.05
Quantifiers	.10	-.01
Affective processes	.03	-.03
Positive emotions	.13	.09
Negative emotions	-.11	-.16
Anxiety	**-.18***	**-.26***
Anger	-.04	-.10
Sadness	-.06	.18
Social processes	.10	-.09
Family	-.07	-.10
Friends	.07	-.06
Female references	-.13	-.14
Male references	-.08	-.20
Cognitive processes	-.02	-.05
Insight	.10	.14
Causation	-.03	-.01
Discrepancy	-.01	-.15
Tentativeness	.07	-.00
Certainty	.04	-.07

Differentiation	-.08	-.15
Perceptual processes	.09	.05
See	-.07	-.13
Hear	.05	-.05
Feel	.09	.09
Biological processes	-.09	-.09
Body	-.00	-.13
Health	-.11	-.02
Sexual	.02	**-.26***
Ingestion	-.09	-.08
Drives	.06	.04
Affiliation	.08	-.01
Achievement	.03	.17
Power	.04	.14
Reward	.05	-.08
Risk	-.04	-.09
Past focus	**-.21***	-.06
Present focus	.07	-.04
Future focus	-.00	**-.26***
Relativity	**-.17***	-.01
Motion	-.13	-.14
Space	-.09	.02
Time	-.16	.01
Work	.12	.19

Leisure	.00	.00
Home	-.07	-.05
Money	.07	.06
Religion	.05	.18
Death	.02	-.01
Informal language	-.02	-.14
Swear words	.00	**-.25***
Netspeak	-.17	-.22
Assent	-.02	-.16
Nonfluencies	.01	.01
Fillers	-.08	-.14
Total punctuation	-.08	-.17
Periods	**-.22***	-.17
Commas	-.03	-.11
Colons	-.05	-.11
Semicolons	-.09	**-.32****
Question marks	.00	.09
Exclamation marks	**.19***	-.15
Dashes	.00	-.09
Quotation marks	.08	-.03
Apostrophes	-.05	-.06
Parentheses	-.02	-.10
Other punctuation	-.05	-.07

*$p < 0.05$. **$p < 0.01$.

Correlations between LIWC Categories and the Stress Assessment Profile (N=128)

	Stress	Type A	Intrusive Negative	Avoidance	Cognitive Hardiness	Intrusive Positive
Word Count	.02	-.18	.03	.12	.04	**.31****
Analytical thinking	**-.31****	-.14	**-.22***	.05	**.31****	-.02
Clout	**-.26****	-.19	**-.20***	.00	**.23****	.11
Authenticity	**.21***	.17	**.26***	.04	-.16	-.01
Emotional Tone	-.15	.11	-.20	.05	**.26****	.10
Words/sentence	-.06	.01	.00	.08	.10	-.01
Words> 6 letters	**-.24***	-.11	**-.21***	-.06	.18	-.10
Total function words	**.30****	.07	.20	.03	-.17	.08
Total pronouns	**.20***	-.09	.19	.06	-.14	.10
Personal pronouns	**.29****	-.04	**.26***	-.06	**-.23***	**.23***
1st person singular pronouns	**.29****	.06	**.25***	-.01	**-.26****	.06
1st person plural pronouns	.05	-.16	-.03	.01	.09	.08
2nd person pronouns	.11	.10	.13	-.06	-.03	.01
3rd person singular pronouns	-.03	-.16	-.05	-.08	.04	**.23***
3rd person plural pronouns	-.09	-.02	.00	-.01	.03	.11
Impersonal pronouns	-.03	-.09	-.01	.16	.06	-.13
Articles	-.19	-.17	**-.22***	.17	**.33****	-.02
Prepositions	-.10	.01	-.04	-.09	.13	.03
Auxiliary verbs	**.29****	.18	.17	-.08	**-.23***	.00
Adverbs	.17	.13	.13	-.03	**-.26***	-.02
Conjunctions	.12	**.22***	.07	-.11	-.14	.02
Negations	**.37****	.14	.13	-.03	**-.25***	-.07
Common verbs	**.31****	.11	**.27****	-.05	**-.27****	.09
Common adjectives	-.19	.12	-.01	-.20	.11	-.05
Comparisons	-.13	.04	.09	**-.25***	.01	-.02

Interrogatives	.07	-.01	.09	.10	**-.20***	-.05
Numbers	.03	.04	-.13	.03	.02	.13
Quantifiers	-.14	.07	-.16	-.10	.09	-.11
Affective processes	-.03	.09	.17	-.12	.04	.07
Positive emotions	-.11	.11	-.01	-.06	.18	.08
Negative emotions	.10	-.03	**.31****	-.15	-.20	.01
Anxiety	.16	.03	**.32****	-.08	**-.25***	.04
Anger	.00	-.09	.09	-.09	-.06	-.07
Sadness	.08	-.07	.08	**.25***	.15	**.28****
Social processes	-.08	-.09	-.04	-.08	.00	.15
Family	.19	-.05	.05	.03	-.11	.10
Friends	-.02	.03	-.06	-.17	-.02	.03
Female references	-.00	-.11	-.02	-.03	-.04	.19
Male references	.07	-.03	-.05	-.15	-.01	.16
Cognitive processes	.11	.12	.14	-.08	-.15	-.12
Insight	.01	-.16	-.01	.01	.05	.03
Causation	.06	.06	.13	-.11	-.12	-.10
Discrepancy	.06	.08	.12	-.11	-.11	-.09
Tentativeness	-.03	.05	-.02	-.07	-.05	-.03
Certainty	.05	.15	.07	.13	-.09	-.09
Differentiation	**.20***	**.26****	.13	-.08	-.18	-.14
Perceptual processes	-.05	**-.26***	.02	.06	-.05	.12
See	.02	-.07	-.05	.03	.02	.16
Hear	.08	.01	.08	.04	**-.24***	.05
Feel	-.08	-.19	.09	.02	-.02	.04
Biological processes	.04	-.17	.08	.14	.06	**.21***
Body	**-.27****	-.17	.00	.09	.14	.14

Health	.19	-.14	.10	.08	.05	.14
Sexual	-.16	-.07	-.11	-.06	.14	.13
Ingestion	.09	.03	.15	.05	-.16	.10
Drives	-.17	.02	-.05	-.13	.18	-.12
Affiliation	-.14	-.08	-.10	-.08	.17	-.07
Achievement	-.09	.07	-.07	-.03	.12	**-.21***
Power	-.09	.06	-.04	.03	.15	.11
Reward	-.19	.04	.06	-.14	.12	-.03
Risk	.05	.11	.19	-.13	-.18	-.10
Past focus	.00	-.14	.19	.01	-.08	.13
Present focus	**.23***	**.24***	.08	-.01	-.19	-.03
Future focus	.11	.03	.06	-.18	-.03	-.03
Relativity	.08	.09	.11	.13	-.08	.01
Motion	.13	.03	.05	.11	-.01	.00
Space	-.01	.08	.07	.07	.04	.07
Time	.11	.07	.10	.10	-.18	-.05
Work	-.15	.09	-.09	.00	.11	-.13
Leisure	-.02	.02	.07	-.03	.03	-.14
Home	.06	.01	.09	.19	-.07	.06
Money	.14	.18	.01	.07	-.07	.00
Religion	-.13	-.11	-.13	.08	.14	-.03
Death	**.21***	.11	.13	-.06	-.16	-.04
Informal language	.07	.02	.00	-.05	-.11	-.14
Swear words	.04	-.00	.11	.07	-.04	.01
Netspeak	.06	-.15	.13	**-.20***	-.10	-.17
Assent	.07	-.09	-.02	.06	-.09	-.08
Nonfluencies	.07	.12	-.04	-.07	-.08	-.11

Fillers	-.12	-.08	-.06	.06	.08	-.03
Total punctuation	.04	-.10	-.12	-.12	-.04	-.15
Periods	.04	-.01	.00	-.04	-.12	.02
Commas	.01	-.15	-.13	-.07	.03	**-.20***
Colons	.08	-.09	-.05	-.03	-.04	.11
Semicolons	.16	-.02	.20	-.06	-.18	-.15
Question marks	-.09	-.04	-.02	-.10	-.06	-.08
Exclamation marks	.07	**-.23***	.03	.01	.05	.09
Dashes	-.16	-.15	-.18	-.08	.13	-.01
Quotation marks	.03	-.04	-.13	-.01	.05	-.06
Apostrophes	.13	.15	.03	-.05	-.11	-.01
Parentheses	-.13	-.19	-.08	-.19	.09	-.11
Other punctuation	.09	-.01	-.06	-.11	-.04	-.09

Note. Intrusive Negative is a simplified version of a coping style called Intrusive Negative Thoughts, Avoidance is a simplified version of a coping style called Avoidance, and Intrusive Positive is a simplified version of a coping style called Intrusive Positive Thoughts.

*$p < 0.05$. **$p < 0.01$.

Correlations between LIWC Categories and the Stress Assessment Profile (N=128)

	GHH	Exercise	Sleep/Relax	PHP	Nutrition	Social Support	Problem-Focused	Well-Being
Word Count	-.06	-.00	.01	-.12	.00	.19	.13	-.04
Analytical Thinking	**.22***	**.26***	-.01	.16	.15	.03	-.03	.18
Clout	.08	.05	-.05	.19	.04	-.03	.07	.04
Authenticity	.00	-.06	.02	-.10	.09	-.06	-.04	-.03
Emotional Tone	.13	.15	-.10	.08	**.25***	-.11	.11	.12
Words/sentence	.08	.10	.04	.01	.04	**.26***	.08	.13
Words> 6 letters	**.31****	.12	.08	**.22***	**.31****	.01	-.01	**.20***
Total function words	**-.21***	**-.22***	-.08	-.12	-.07	.02	.02	-.06
Total pronouns	**-.20***	-.19	.07	-.18	-.15	-.03	.01	-.06
Personal pronouns	**-.26***	**-.30****	-.03	**-.22***	-.08	-.04	-.06	-.15
1st person singular pronouns	-.14	**-.22***	.05	**-.21***	.04	.00	-.16	-.08
1st person plural pronouns	-.11	-.03	-.11	-.00	-.18	.00	-.06	-.17
2nd person pronouns	**-.23***	-.08	-.16	-.16	-.13	-.01	.13	-.07
3rd person singular pronouns	-.14	-.06	-.04	-.03	-.15	-.02	.05	-.10
3rd person plural pronouns	.04	-.08	-.02	.19	.04	-.08	**.21***	.09
Impersonal pronouns	-.00	.07	.14	-.02	-.13	-.01	.08	.09
Articles	.08	**.26***	-.02	.04	-.02	.03	.02	.13
Prepositions	.17	.05	-.03	.17	**.20***	-.06	.03	.18
Auxiliary verbs	-.18	**-.23***	-.05	-.11	-.08	.08	-.06	-.17
Adverbs	-.12	-.14	.02	.00	-.12	-.10	.15	-.10
Conjunctions	-.02	-.12	-.02	-.02	.09	.02	.10	-.01
Negations	**-.22***	-.18	-.09	-.19	-.18	-.03	-.10	-.17
Common verbs	-.16	-.13	-.07	-.10	-.11	.02	-.04	-.15
Common adjectives	.18	**.23***	.02	.06	.12	.09	.12	.07
Comparisons	.12	.13	.08	.05	.06	.05	.06	.01
Interrogatives	.04	-.03	.13	.04	.00	-.08	.16	.05
Numbers	-.06	.05	-.09	.02	-.10	-.03	.05	-.08
Quantifiers	**.20***	.16	.14	.14	.03	-.04	-.09	.04

Affective processes	-.07	.06	-.03	-.15	-.01	-.01	.19	-.00
Positive emotions	.05	.14	-.07	-.03	.14	-.07	.16	.06
Negative emotions	-.18	-.09	.09	-.20	**-.24***	.09	.09	-.09
Anxiety	-.08	-.12	-.06	-.07	-.03	-.00	-.06	-.15
Anger	-.11	-.04	.10	-.13	-.18	-.03	.09	-.00
Sadness	-.04	.16	.11	-.15	.08	.11	**.32****	.20
Social processes	.02	-.14	-.02	.14	.08	-.14	-.03	-.04
Family	-.17	-.14	-.09	-.08	-.06	-.08	.05	-.15
Friends	-.01	-.11	.10	.00	-.05	-.06	-.10	.00
Female references	-.12	-.05	-.07	-.04	-.07	-.02	.04	-.16
Male references	**-.21***	-.12	-.04	-.07	**-.23***	-.03	.09	-.05
Cognitive processes	.07	.06	.03	.01	.02	-.10	.04	.02
Insight	**.21***	.11	.03	.13	.23*	.04	.03	.16
Causation	-.08	-.12	-.06	-.10	.09	-.16	-.10	.01
Discrepancy	-.09	.04	-.11	-.08	-.09	.06	-.07	-.13
Tentativeness	.11	.04	.15	.03	.02	-.03	.02	.12
Certainty	-.10	.14	-.06	-.06	**-.22***	-.00	.02	-.11
Differentiation	.02	-.06	.02	.03	-.04	-.16	-.01	-.07
Perceptual processes	.02	-.09	**.21***	.00	-.08	.14	.01	.06
See	-.17	-.05	.00	-.13	-.20	**.23***	.09	-.09
Hear	-.09	-.03	.03	-.05	-.14	-.07	-.09	-.10
Feel	.14	-.02	**.25***	.06	.00	.12	.04	.14
Biological processes	-.05	-.06	.04	-.08	.01	.01	.08	-.02
Body	.12	.13	.20	-.09	.06	-.02	.10	.09
Health	-.07	-.08	-.02	-.06	.02	.04	.04	-.04
Sexual	.03	.10	.04	.11	-.09	.07	.09	.00
Ingestion	-.19	**-.21***	-.09	-.03	-.12	.00	-.01	-.12
Drives	.11	-.02	-.08	.08	**.21***	.09	-.15	.01
Affiliation	.20	-.01	.02	.13	**.28****	-.01	**-.24***	.01
Achievement	.12	.04	-.02	.11	.14	.15	-.09	.06
Power	.01	.04	-.11	-.03	.14	.04	.11	.14

Reward	-.01	.13	-.06	-.04	-.08	.04	.10	-.06
Risk	-.14	-.11	.06	-.04	**-.26***	-.07	-.03	-.20
Past focus	-.02	.10	-.04	-.02	-.04	.08	-.07	-.09
Present focus	-.15	**-.25***	-.00	-.07	-.11	-.10	.04	-.07
Future focus	-.06	-.06	-.11	-.04	.01	.01	-.03	**-.23***
Relativity	-.06	.01	-.10	-.03	-.04	-.05	.01	-.12
Motion	-.09	-.03	.01	-.12	-.09	.11	-.04	-.07
Space	-.03	.02	-.08	-.01	.05	-.06	.09	-.02
Time	-.04	.01	-.11	-.00	-.09	-.07	-.04	-.16
Work	.11	.05	-.03	.05	.13	-.00	-.01	.11
Leisure	.12	.17	-.01	.02	.10	.06	-.09	-.09
Home	-.15	-.00	-.10	-.12	-.15	-.02	.06	-.07
Money	**-.21***	-.13	-.09	-.09	-.20	-.08	-.03	-.04
Religion	.07	.03	.06	.16	-.03	.13	.04	.16
Death	-.17	-.09	-.04	-.20	-.19	-.01	.11	-.07
Informal language	-.12	-.01	-.10	-.12	-.09	-.07	.04	-.11
Swear words	**-.21***	-.06	.06	**-.25***	**-.20***	-.04	-.03	-.07
Netspeak	-.01	-.01	.11	-.08	-.09	-.02	-.08	**-.22***
Assent	-.08	.02	-.03	-.09	-.09	.06	.01	-.08
Nonfluencies	-.07	-.02	-.17	-.02	.00	-.09	.08	-.05
Fillers	-.04	-.00	.08	.02	-.16	.07	-.15	-.09
Total punctuation	.03	.03	.06	.04	-.14	-.08	.00	-.13
Periods	-.08	-.07	-.04	.00	-.08	**-.28****	-.02	-.18
Commas	.14	.06	.08	.10	.01	.09	-.04	-.20
Colons	.00	-.05	.09	.03	-.09	.08	-.05	.01
Semicolons	**-.23***	-.14	-.10	-.17	-.19	-.12	-.05	-.16
Question marks	.16	.11	.14	.14	.06	.09	-.18	-.06
Exclamation marks	-.16	-.15	-.03	-.11	-.15	.05	-.05	.02
Dashes	**.22***	.11	.14	.11	.14	.05	.09	.09
Quotation marks	-.09	.07	-.08	-.02	-.20	.01	.04	.05
Apostrophes	-.12	-.06	.05	-.07	**-.25***	**-.22***	.15	-.09

Parentheses	.08	.07	.07	-.02	.01	.12	-.04	-.04
Other punctuation	.13	.05	.10	.11	.02	-.03	-.12	-.00

Note. GHH is an acronym for global health habits, PHP is an acronym for preventative health practices, Nutrition is a simplified version of Health Habits- Nutrition, Exercise is a simplified version of Health Habits- Exercise, Sleep/Relax is a simplified version of Health Habits- Sleep/Relax, and Problem-Focused refers to a coping style called Problem-Focus Change.

*p < 0.05. **p < 0.01.

Correlations between LIWC Categories and the NEO-PI-R (N=128)

	Neuroticism	Openness	Conscientiousness	Agreeableness	Extraversion
Word Count	.11	**.25****	.01	.10	-.04
Analytical think	-.14	.08	.03	.12	.12
Clout	-.10	**.20***	-.05	.14	**.23****
Authenticity	.12	**-.27****	.09	-.02	-.10
Emotional Tone	-.16	.08	.12	.00	**.22***
Words/sentence	-.14	-.08	.04	.06	-.01
Words> 6 letters	-.14	.07	-.00	.12	.02
Total function wds	**.19***	.05	-.00	.05	-.01
Total pronouns	.06	.02	.00	-.04	-.07
Personal pronouns	**.21***	-.03	-.00	-.00	-.13
1st person sing pron	**.19***	**-.23****	-.00	-.07	**-.18***
1st person pl pron	-.02	.17	-.02	**.19***	.06
2nd person pronouns	.02	.06	.03	-.01	.06
3rd person sing pron	.06	**.21***	-.07	.05	-.00
3rd person pl pron	-.05	**.18***	.09	.00	.08
Impersonal pron	-.16	.06	.00	-.06	.04
Articles	-.10	**.18***	-.04	.07	.12
Prepositions	-.01	.03	.06	.13	.11
Auxiliary verbs	**.18***	-.05	-.04	.00	.00
Adverbs	**.17***	.01	-.11	-.12	-.06
Conjunctions	.00	-.10	.02	-.06	-.02
Negations	.14	-.12	.03	-.06	**-.30****
Common verbs	**.20***	-.01	-.06	-.02	.01
Common adject	-.14	-.03	.07	.02	-.06
Comparisons	-.10	.01	.01	.11	-.03
Interrogatives	.03	-.05	-.00	-.06	.01
Numbers	-.08	-.17	.02	**-.19***	-.09
Quantifiers	-.16	-.14	.01	-.00	.07

Affective process	.09	.17	.08	-.08	-.01
Positive emos	-.05	.16	.13	-.04	.11
Negative emos	**.20***	.06	-.02	-.07	**-.19***
Anxiety	**.23****	-.16	-.02	.03	**-.23***
Anger	.07	**.19***	-.09	-.08	-.03
Sadness	.10	.17	.16	.04	.05
Social process	-.00	.06	-.02	.14	.08
Family	.10	.03	-.03	.05	.05
Friends	.06	-.14	-.11	.06	-.11
Female refs	.14	.05	-.10	.07	-.07
Male refs	.06	**.19***	-.07	.01	.08
Cognitive proc	-.04	-.03	.08	.00	-.08
Insight	-.09	.15	-.05	**.19***	.13
Causation	.04	-.09	-.03	-.11	.03
Discrepancy	.07	.04	**.18***	-.05	-.08
Tentativeness	-.12	-.05	.11	.01	-.08
Certainty	.04	.11	-.13	-.12	.08
Differentiation	-.02	-.09	**.18***	-.02	**-.18***
Perceptual proc	-.04	.12	**-.19***	.10	-.09
See	.03	.14	-.07	.01	-.12
Hear	.02	-.05	.02	-.13	-.16
Feel	-.01	.10	**-.18***	.06	.01
Biological proc	.13	.16	-.01	**.19***	.05
Body	-.04	.16	.01	.01	-.06
Health	.15	.08	-.04	**.21***	.10
Sexual	-.04	**.28****	-.01	.04	.16
Ingestion	.17	.01	-.04	.00	-.10
Drives	-.05	-.05	.03	**.22***	.15
Affiliation	-.08	-.12	-.02	**.25****	.10
Achievement	-.08	-.00	.03	.11	.12
Power	.00	.07	.06	.09	.17

Reward	-.00	.15	.03	-.05	.13
Risk	.09	-.11	.01	**-.19***	-.16
Past focus	**.19***	.05	-.08	.06	-.10
Present focus	.05	-.06	.01	-.10	.10
Future focus	.05	-.01	.07	.06	.10
Relativity	.17	-.14	.05	-.04	-.05
Motion	.12	-.13	.02	.05	-.06
Space	.13	.01	.02	.07	.12
Time	.12	-.17	.06	-.16	-.16
Work	-.04	-.09	-.03	-.01	.07
Leisure	-.04	-.13	-.01	-.13	.02
Home	.07	-.04	-.12	-.04	.03
Money	.12	.04	-.12	-.13	-.08
Religion	**-.20***	.09	-.02	.10	.12
Death	.09	.05	.09	-.07	-.00
Informal lang	.04	.06	.03	-.04	-.13
Swear words	-.01	.03	-.03	-.05	-.10
Netspeak	.05	.00	-.11	.05	-.12
Assent	.05	.01	.04	-.09	-.17
Nonfluencies	.05	.06	.05	-.00	-.05
Fillers	.02	.06	-.15	-.04	.07
Total punct	-.02	.02	-.01	-.11	**-.19***
Periods	.15	.05	-.09	-.11	-.07
Commas	-.07	.04	.04	.03	**-.19***
Colons	.01	-.10	-.01	.02	-.06
Semicolons	.06	.02	.02	-.13	-.06
Question	.08	.01	.06	.03	.00
Exclamation	-.08	.09	.04	.01	.06
Dashes	-.07	-.12	-.05	.05	-.14
Quotation	-.03	.15	.01	-.08	.10
Apostrophes	-.03	-.09	-.06	**-.25****	-.14

Parentheses	-.08	-.10	.03	.01	-.13
Other punct	-.06	-.13	.00	-.03	**-.21***

*$p < 0.05$. **$p < 0.01$.