2009

Evolutionary Psychology, Social Emotions and Social Networking Sites: an Integrative Model

Sandra L. Suran
Cleveland State University

EVOLUTIONARY PSYCHOLOGY, SOCIAL EMOTIONS AND SOCIAL NETWORKING SITES—AN INTEGRATIVE MODEL

SANDRA L. SURAN

Bachelor of Arts in Communication

Cleveland State University

December, 2005

submitted in partial fulfillment of the requirements for the degree

MASTER OF APPLIED COMMUNICATION THEORY AND METHODOLOGY

at the

Cleveland State University

December, 2009

THESIS APPROVAL

SCHOOL OF COMMUNICATION

This thesis has been approved for the

School of Communication

And the College of Graduate Studies by:

_____

Gary Pettey, Thesis Committee Chairman
School of Communication

_____

(Date)

_____

Cheryl Bracken, Committee Member
School of Communication

_____

(Date)

_____

Robert Whitbred, Committee Member

_____

(Date)

DEDICATION

To my sister Cindy, you are courageous and brave, and my hero.

To Mom and Dad. Thank you for everything.

To Scott, my soft place to fall.

To the children in my life: Cassie, Darian, Derek,

Marisa and Regan. Dream and think big.

ACKNOWLEDGEMENT

I would like to thank my thesis committee for their commitment to this paper. They went out of their way to work with me, to help and guide me to challenge myself to do well and achieve my goal. Their insights and suggestions gave me invaluable feedback and direction. From my undergraduate years through graduate school, Dr. Bracken has always been kind and supportive of me as I pursued my academic endeavors; and Dr. Whitbred was very positive and extremely accommodating with me during this project.

This paper would have never been possible without the acumen, guidance, support and encouragement from my thesis advisor, Dr. Pettey. He was able to sort through and make sense of all the stuff in my head. I have learned so much from him during graduate school. What Dr. Pettey has taught me has changed the way I look at the world. And for that, I am truly grateful.

Lastly, I would like to thank Scott, my amazing boyfriend. His love, support and unwavering faith in me meant so much to me each and every day. He was my go-to-guy for so many things, from formatting tables to being my biggest fan, always there for me throughout graduate school. Thank you so very much.

EVOLUTIONARY PSYCHOLOGY, SOCIAL EMOTIONS AND SOCIAL NETWORKING SITES—AN INTEGRATIVE MODEL

SANDRA L.SURAN

ABSTRACT

Humans engage their environment through the combined effort of the mind, body proper and corresponding instinctual emotive devices (Damasio, 1994). These structures are a part of the same phenomena: human biology. Our emotive devices along with the brain and body act as an interwoven organism appraising the environment and making necessary adjustments for it survival and efficient functioning. Moreover, these structures actively engage socially complex signals like those that we experience daily in our social world. Plausibly, when these devices are not utilized the interwoven organism will be in a state of atrophy. Much like an antigen would trigger a reaction from the body to promote homeostasis, this same idea can be applied to a social agent of *alienation* viewed through four dimensions of negative social valence: envy, embarrassment, guilt, and shame.

This exploratory research employed an *Evolutionary Psychology* perspective whereby the human mind is viewed through the lens of the physiological and psychological mechanisms that created the developmental programs we use today (Cosmides & Tooby, 1992). This theoretical framework was used to study the relationship between human behavior, the state of *alienation,* and SNS. Based on survey data from college students, there seemed to be a relationship between alienation and Social Networking Sites. Alienation dimensions were highest among those who had the

lowest amount of contacts on SNS. The findings from this study will add to the body of knowledge on Computer Mediated Communication as well as afford an opportunity for further research in understanding human behavior engaged in SNS through the viewpoint of *Evolutionary Psychology*.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION AND RATIONALE

The worldwide development and evolution of Social Networking Sites (SNS) could be demonstrating a great and fundamental need or aspect of human behavior for it possesses cross-national characteristics which implies universalities in human nature. Human nature suggests human biology (Buss, 1995). Our bodies are composed of biochemical structures called emotions. Emotive devices along with the brain and body proper (also known as an interwoven organism) constantly respond to environmental stimulus. They are designed in a way that is appropriate to the needs of the organism. Emotions drive and guide behavior. These innate mechanisms also are especially attuned for responding to social triggers and cues (Cosmides & Tooby, 1997; Damasio, 2003; Damasio, 1994; Damasio, Tranel & Damasio, 1991).

We are social creatures composed from a system of subsystems all governed by complex biochemical emotive devices working in tandem with the brain and body to respond to environmental cues. Emotive structures actively engage socially complex signals like those that we experience daily in our social world (Damasio, 2003). Plausibly, when these devices are not utilized as designed the interwoven organism will

be in a state of atrophy. For example, an antigen —like those found in the common cold— enters the body causing a state of atrophy in its host (Damasio, 1994). The organism responds with an antibody — white blood cells for the common cold — causing a change in bodily conditions promoting homeostasis. The same idea might be applied to a social agent.

Emotions - The Fundamental Units of Our Survival

From the simple to the complex, all living organisms are designed to emotionally react to their environment (Cosmides & Tooby, 2000). But what does it mean to emotionally react to an environment? Organisms are designed with the devices necessary for solving problems. It is these emotive devices which are built upon simpler reactions which promote survival of an organism. In complex organisms such as humans, they are the accumulated changes in the body state produced within the nerve cell terminals of the body guided by the brain in response to an event (Damasio, 1994).

Humans engage a stimulus through a combined effort of the mind, body proper and corresponding instinctual (emotional) devices. These characteristics—the complex interconnection between these structures—are a part of the same phenomena: human biology. "The human brain and the rest of the body constitute an indissociable organism, integrated by means of mutually interactive biochemical and neural regulatory circuits. The organism interacts with the environment as an ensemble: the interaction is neither of the body alone nor of the brain alone" (Damasio, 1994, p.21). Emotive reactions—emotions—are aligned with the body and brain to appraise a circumstance and act in a way that is appropriate to the interests of the organism's survival.

Emotions are the fundamental units of our survival, and they are aligned with the body. They express themselves via physiological and chemical mechanisms and circuitry which are reacted upon by the interconnection of the mind and body—an interwoven organism. Ultimately, all processes are directed towards the organism's homeostatic endeavors: self-preservation and efficient functioning.

Social Emotions—Cooperation and Decision Making

Some social emotions are innate while some others require a minimum amount of stimulus to be triggered (Damasio, 2003). Emotions are not learned responses, but rather are a part of the "unconscious apparatus" of our biological makeup. Individuals create social identities, roles and groups because of biological needs. Another aspect of social emotions is that they guide us to reciprocity and altruistic behavior. Trivers (1971) discussed this idea when characterizing reciprocal altruism. Essentially, being social creatures lends itself to typical group behavior – hierarchical, cooperative, and obligatory with mutual dependency and commitments. From an evolutionary perspective this makes intuitive sense. Early humans needed each other for survival, their life and the life of their offspring, depended on the mutual cooperation and sharing within the hunter-gatherer society.

Emotions act as our balancing tool to navigate through our complex social environment. For instance, if you are to base decisions from a completely rational point of view, chances are you will have a hard time assimilating and be unable to participate in any social situation. Damasio (1994) explained why this happens when he discussed the social lives of several brain damaged patients. These patients could function on a

superficial level—speak, eat— but they were socially incapacitated. They are rendered human-less and emotionally flat because they lack the necessary acumen for decision-making and understanding future outcomes which are part and parcel to social emotions. Indeed, emotions are not only instinctual; they help humans make sense of the social world around them.

Other social animals –such as primates and dogs—show the same type of cooperative behavior. "Substances like oxytocin, epinephrine, serotonin and testosterone—all of which are thought to affect human action and feelings— are found in animals as well" (Moussaief-Masson & McCarthy, 1995, p.15). Emotive structures are not just a human phenomena. They guide all organisms to appraise a stimulus acting in a way that is appropriate to their individual needs. Social animals work under this same premise. With a more complex and larger brain, they can navigate more challenging stimuli like those found in social environments. Much like humans, dogs and primates live in intricate social structures with elaborate hierarchies, and thus, must possess the innate ability for memory and acute sensitivity to the emotive needs of others. It also requires them to possess norm-related characteristics, reciprocity and accommodation (de Waal, 1996). If dogs and primates did not have these biochemical structures in place, they would not be able to survive in their complex surroundings. Cognitive or reasoning skills are not the fundamental units for being socially competent, instead, it is the emotive mechanisms that give rise to the nesting of social emotions and the feelings that follow which are required for the survival of an interwoven organism.

At the aggregate form, humans belong to social groups for the same reason they do so on a personal (self) level: to serve as a mechanism in achieving homeostasis.

Homeostasis is a term used to define a psychological or physiological state of the body. It describes a condition of equilibrium and balance within the internal organism. This state must be maintained in order for the organism to be at optimal efficiency and general well being. A disruption or tension in this state causes disequilibrium. Environmental changes cause the organism to fall out of homeostatic functioning. It is the organism's ultimate goal in self-preservation to do what is necessary to offset the changes, to regain its equilibrium. If the system does not come back into balance then it becomes atrophied. If an antigen is not stimulated and balance achieved, it could eventually lead to death of the organism.

Social homeostasis is an adjunct to this concept, for it is a fundamental need of all social animals—embracing primal mechanisms within the organism— to be in a state of balance regarding belonging and connectedness to others. Moussaieff and McCarthy (1995) and deWaal (1996) discussed this aspect in social animals: to be groupish, cooperative and show reciprocity. Innate cues to fear of banishment, estrangement and aloneness are primary motivations of all social animals to seek out relationships with others. That could be the reason why people who are seen as "loners" are considered abnormal and anti-social, because it somehow seems odd for an individual to want to be distant from others on a continual basis. Those individuals who are socially inept (e.g., autistics) might have a biochemical dysfunction that could cause them to prefer isolation than close relational connections. Although these alternate views on social pathologies will not be explored in this study, it offers new critical understanding of human behavior. We have a unique capacity and need to belong and connect with others carried out by a "chemical stew" of biochemical devices such as vasopressin and epinephrine. This

complex system respond to social triggers and cues aligned to suit homeostatic endeavors (Damasio, 2003).

Therefore, social homeostasis is defined as the state whereby an individual feels socially satiated, in a relational balance between themselves and others, meaningfully engaged with their social environment. These individuals feel harmonious, well – balanced, psychologically adjusted, joyful along with a strong sense of connection to others. Further, those who are in a state of social homeostasis are not isolated, unattached, lonely or alienated from their social identity. Social homeostasis can vary from person to person much like it would for general conditions of stasis. Additionally, some people will reach it in different ways too. Those who feel the greatest sense of belonging and connection are considered in the highest a state of social equilibrium. Conversely, those who experience feelings of loss, isolation, disconnection to others and themselves would be in a state of tension (Damasio, 2003). It is in this state of disharmony that the organism requires a response — an antigen triggered by a hormonal reaction—to alter the tension in order to regain a favorable condition.

Moreover, there will be qualitative differences in types of social homeostasis due to the hierarchy of needs provided by various categories of social contacts. Friends provide different degrees of social satisfaction than intimate partners, and acquaintances provide another unique amount and degree of social intimacy than those of ones familial. Social distance will most likely reflect the degree of strength in the social relationship. Any type of social contact or interaction should not be considered as a means of maintaining homeostasis. Some contacts we encounter in our daily lives (e.g., boss at work, teller at the bank) do not provide meaningful engagements, and as such can not be

classified as apart of the object of social satiation. Those who are perceived as irreplaceable or fulfill a "niche"(Cosmides &Tooby, 1992), share similar ideas and values (Buss, 2008; Cole & Teboul, 2004) and are beneficial in some capacity (Bleske & Buss, 2001) will provide the necessary antigen-criteria required to reach social homeostasis, thus becoming an object of social satiation.

Differences will not only vary from person to person they will also vary between the sexes. Men and women are biologically built differently due to our evolutionary history (Fisher, 2004; Fisher 1982). The sexes respond uniquely to social cues based on hormonal influences as well as brain anatomy (Fisher,1992; Buss, 1995; Ellis, 1992). Women would have a tendency to possess higher degrees of satiation and connection than men. This would also coincide with men requiring less contacts for social homeostasis than women. Essentially, both sexes do require some degree of social homeostasis. It is in this process—which triggers hormonal reactions inside the body—causing the interwoven organism to search for a means of maintaining an emotive state of joy, harmony, well-being and balance, ensuring optimal functioning and efficiency of the organism.

Social Networks

SNS could be an example of an individual's search for social homeostasis. Research on CMC has shown it possesses social characteristics (Haythornthwaite, 2005; Katz et al, 2004; Reeves & Nass, 2002; Silverman & Eals, 1992; Spitzberg, 2006; Walther, 1996). There seems to be a natural relationship between humans' need for expression of social emotions and the social connections they imply related to the use of

SNS. Conceivably, if individuals are not satisfied with their local relationships, they will be in a state of atrophy. They will search elsewhere for a catharsis in expressing their social emotions. SNS, by the very nature of its structure, provides individuals the social outlet required to fulfill the biological need of the interwoven organism—to achieve and maintain homeostasis.

Dunbar (1996) suggested that not only do humans need to be a part of a group, humans also have a maximum group size with whom they can maintain social contacts. Dunbar studied historical data as well as conducted regression analysis of the actual brain size of modern humans to show there are cognitive restrictions within the brain.

> The neocortical constraint seems to be on the number of relationships that an animal can keep track of in a complex, continuously changing social world: the function subserved by the level of grouping will depend on the individual species' ecological and social context (Dunbar, 1993, p.2).

Evans (2005) discussed the benefits of a social life (e.g., reciprocal altruism— tit for tat) require humans to have direct interactions with others on a regular basis. Consequently, humans only have the brain capacity to cognitively process a finite amount of individuals. After that point, the prospects of interacting and cooperating with others fades and dwindles significantly. According to Dunbar, our minds are only built to process up to a threshold of 150 people about the size of the traditional hunter/gatherer group. Again, the quality of the social relationship will lessen after it hits the capacity mark. Humans cannot maintain more than this amount if the social interactions are to be meaningful.

The Modern Social Network

Our social world is composed of relationships built within our every day living, those based on proximity and those based through distance via mediated communication. The significant growth of Computer-Mediated Communication, specifically, Social Networking Sites (SNS) suggest not only do people visit these sites regularly engaging in online interaction, but the volume of activity could reflect an individuals capacity to intrinsically respond to it more so than their proximal channels. SNS serves as a conduit or as a means for humans to express their innate social needs not being met locally (Haythornthwaite, 2005).

Social networking sites are based on profiles, a text description of an individual on their homepage. It also contains "comments from other members, and a public list of the people that one identifies as *Friends* within their network" (Boyd, 2007, p.6). From its inception, SNS has been a unique way for humans to express their social nature. In 1997, SixDegrees.com was the first SNS to appear on the internet. It allowed individuals to create profiles of themselves and list their friends, although these lists initially were not publicly shown. Subsequently, as this new medium evolved, SNS creators found better ways to suit the demands of their users. Sites, such as LiveJournal, Facebook, LinkedIn, MySpace and MSN Spaces, fashioned a format around community tools, supporting profiles as well as the list of the user's friends for public viewing. Users treated this technology as an outlet for engaging their social emotions much like they treat any public space. "They allow people to make sense of the social norms that

regulate society, they let people learn to express themselves and learn from the reactions of others" (Boyd, 2007, p.10).

By 2003, SNS sites like MySpace allowed its users to personalize their spaces from profiles, backgrounds and layouts to organizing their site around their personal contacts. From April 2005 to April 2006, growth on SNS sites like MySpace increased 367% and MSN Spaces increased 286% (Nielson, 2006). In 2007, MySpace "attracted more than 114 million global visitors age 15 and older" (comScore, 2007). And by 2008 more people were using the internet for SNS searches than they were pornography (Hitwise, 2008). SNS main features—profiles, Friends list and comments—perpetuate further online engagements. By utilizing the community tools within this medium SNS users are able to share cultural artifacts and communicate ideas.

Social Networking Sites support the primary mechanisms humans need to maintain social homeostasis. Triggered by a social agent of disconnection from their immediate environment, individuals respond in a manner that will initiate stasis. The Spartan soldiers are an example of this premise. Young boys were taken away from their families to live and train in isolation with other males (the social agent). This was a way of life in Spartan society. Males were groomed from a very young age till they reached adulthood to be warriors of the state. During their years of intense training, males created and maintained strong bonds between them. Their social surroundings drastically changed, and yet the Spartan males made the necessary adjustment to support their social needs. From this example we can see how deeply embedded our emotions are within us, and how quickly they adapt to social cues. Human emotive devices respond in such a manner that will support social homeostasis.

Statement of Problem

While most research describes the characteristics of the behavior found on SNS (e.g., impression management, self-presentation) they fail to identify what function the behavior could serve individuals from an evolutionary or adaptive point of view, and why this mediated tool is used so widely cross-culturally. Through the lens of Evolutionary Psychology (EP), the purpose of this research is the investigation of a possible correlation between social emotions and social networking sites, helping to provide a new perspective on how we investigate phenomena in human behavior relative to Computer-Mediated Communication (CMC). No research to date has used EP, or biological criterion, as a model in investigating CMC except for studies conducted by Reeves and Nass (2002) where they found people treat newer media as real. The growth of SNS could be evidence of a new direction taken by humans to support the social emotions within our instinctual architecture. We may actively seek out meaningful interactions on SNS because we are biologically designed to do so since our local relationships are not proving to satisfy this need.

Additionally, there has been no research exploring Dunbar's findings on neocortical constraints relative to the group size of those found on SNS. If individuals are using SNS to fulfill their biological need for expressing social emotions there could also be a threshold for users cognitively processing their online network. Theoretically, once this threshold it met, there should be no need to pursue further engagement for more social contacts. In essence, social emotions commanded by biological mechanisms should create the impetus for seeking contacts on SNS comparative to the total group

amount that can be sustained due to cognitive restrictions. This study will attempt to answer the question: Does Social Networking Sites satisfy people's social needs?

CHAPTER II

LITERATURE REVIEW AND CONCEPTUALIZATION

Social emotions are emotive responses relative to others. They are based on simpler reactions in human behavior. Human behavior is fundamentally based on basic emotions that have universal themes and ties to them. They are not bound by any cultural or environmental cues, instead these cues can trigger our devices to emote. Fear, surprise, sadness, happiness, anger, and disgust are easy to notice in any human regardless of the cultural context. These universals are even noticeable in non-human animals. A further extension of basic emotions are social emotions: sympathy, embarrassment, pride, jealousy, admiration, indignation, contempt, shame, guilt, envy and gratitude. Damasio (2003) suggested that our emotions are grounded in what he calls the nesting principle — much like a Russian doll can open revealing another doll inside and opening that one shows another inside of it — emotions proper are at the core of all our behavior. Each subsequent layer—like social emotions —are incorporated by the "multiplicity and complexity" from basic emotive related reactions. For example, shame has similar facial expressions borrowed from fear, a primary emotion, indignation comes

from disgust. Every reaction is based around simpler reactions using different combinations, rearranging them slightly.

Earlier Studies on Social Emotions

Universal emotions, like social emotions, have been observed in previous literature. When the Industrial Revolution was beginning to take root in society, this human phenomena was described as *anomie* by Durkheim (Schellenburg, 1978). Karl Marx (McLellan, 1977; Rio, 1999) argued human suffering, this overwhelming sense of loss, was inherently due to the economic and political exploits caused by capitalism—called *alienation*. Tonnies (2002), Durkheim and Marx found how damaging it was to an individual's character if there was a disconnect between an individual and their group, where the severing of ties allows individuals to possess no social identity.

Observations like these regarding the social aspects of human behavior relative to the group they belong are not unique to research. Durkheim and Marx alluded to patterns of behavior we see currently taking place in society. People feel lonely and disengaged with others. Wherever you go people express similar ideas: they are unfulfilled and isolated with their lives and in their communities. This research offers these same concepts and ideas with a new perspective—a biological focus. Human behavior is a function of the brain and body as well as emotive devices creating an interwoven organism interacting with its environment.

Evolutionary Psychology Model

Believing that the brain and the body function together is a premise that runs counter to the traditional dualism of the social sciences paradigm. This study follows this perspective: the Evolutionary Psychology (EP) integrative model whereby concepts have fluidity, hard and soft sciences do not compete, instead, they are integrated together for a more comprehensive understanding of human behavior. Cosmides and Tooby (1992) stated this same view. "Human minds, human behavior, human artifacts and human culture are all biological phenomena—aspects of the phenotype of humans and their relationships with one another" (pp. 21, 22). The human mind needs to be viewed through the lens of the physiological and psychological mechanisms that created the developmental programs we use today.

Evolutionary Psychology has changed the way we look at ourselves than from the Standard Social Science Model (SSSM; see Cosmides & Tooby, 1992) where the human mind is seen as either a *tabula rasa* (a blank slate) or a general-purpose computer. Many basic instances like, sex differences, mating rituals and pair bondings are not cultural or learned phenomena, rather they are innate biochemical reactions brought about from the psychological mechanisms evolved through our human history. Fisher (1992, 1982) suggested human courting, mating and relationships all have fundamental commonalities. She explained that sex differences are correlated to hormones and brain circuitry as well as chemical reactions which bring about emotive triggers and subsequently, the related feelings of love. Silverman and Eals (1992) showed how spatial specialization and dimorphism in men and women were due to unique psychological adaptations from our

evolution. We are a system made of smaller systems which are inlaid with complex neural and biochemical reactions that affect our behavior.

This approach utilizes an adaptive context to offer explanations for our current behavior based on what function the behavior could best be served during our human development. EP considers human universalities as elements of function in human nature. "All humans have a nature—a human nature—that requires particular forms of environmental input for it's development" (Buss, 1995, p.5). Using a biological perspective when looking at human behavior takes into account our history--that we have spent over 99% of our evolution in a hunter-gatherer context. Cosmides and Tooby (1997) suggested that "our species lived as a hunter –gatherer a 1,000 times longer than anything else. The world that seems so familiar to you and me, a world with roads, schools, grocery stores, factories, farms and nation-states, has lasted for only a eyeblink of the time when compared to our entire evolutionary history" (p.15). In essence, we are not psychologically designed to engage in the modern society we created. This way of understanding how and why we engage a stimulus provides new dimension into the study of human behavior. According to Williams (1992), EP uses "historicity" as one of its critical foundations for it provides a point of reference—a metatheory—in explaining the function of specific behavior because human nature "is not an empty vessel waiting to be filled by social processes" (Cosmides & Tooby, 1992, p.29). EP suggests evolutionary history provides a unique opportunity to see human behavior from a new perspective, that human reality works from the internal dimension outward.

Classic Theory of Human Behavior

Some scholars recognized the social characteristics of modern man and sought to explain this construct by creating social theory. They theorized on the description of social structures, their breakdowns, and how we need to connect and feel like we belong seeking identification and roles. Social scientists like Tonnies and Durkheim concentrated emphasis on such ideas as *gemeinschaft/gesellschaft* and *anomie* in understanding human social behavior in relation to society. Ferdinand Tonnies (2002) suggested relationships are built upon whether a person views others as an end or a means to an end. Community (gemeinschaft) is based upon what enables and sustains the whole group. Money has no importance because there is no competition of resources. A butcher can not easily hoard meat, or a baker bread. Interpersonal relationships are the primary focus and foundation for the entire group. Everyone has a role and everyone needs to cooperate. In modern society (gesellschaft) individuals cannot look to anyone to find meaning in their lives. This transition from community to our new society gives rise to no sense of belonging, dependency and cooperation. Durkheim continued along the same premise. He called living in modern society an anomie—no sense of self, unattachment to people and oneself. Both Durkheim and Tonnies described features of man that suggested some innate social capacity.

Karl Marx continued to further explain not only the essential nature of man but described the state of entropy man has realized due to modern life. Tonnies stated that man is in greatest harmony when he is feels as though he is needed by others in his social group. Consequently, Durkheim mentioned without this sense of belonging man falls into a pathology, develops anomie—disconnected from self and others. Marx called this same

idea alienation. He expanded this concept to include a thorough characterization of its pathology. Additionally, Marx wrote at great length about the nature of man. His descriptions have similar references and constructs used by the EP model, meaning, reflexive of humanity's innate capacities.

Marx describes man as:

> Man is a directly natural being. As a living natural being he is on the one hand equipped with natural vital powers and is an active, natural being. These powers of his are dispositions, capacities, instincts. On the other hand, man as a natural, corporeal, sensuous, objective being is a passive dependent, and limited being, like animals and plants, that is the objects of his instincts are exterior to him and independent of him and yet they are objects of his need, essential objects that are indispensable for the exercise and confirmation of his faculties. The fact that man is an embodied, living, real sentient objective being means that he has real, sensuous objects as the objects of his life-expression. In other words, he can only express his being in real, sensuous objects (Marx: The Early Writings, McLellan, 1977, p.104).

Ultimately, man is a social, creative being. He "knows" the world through his senses, through his perceptions. When a man creates some thing he self-actualizes himself in that object: He has made an object, it is a part of the world and it is real. Much like how an artist imbues a canvas with paint and brushstrokes—creating, forming, shaping, making some thing from nothing, using his creative energy to make something real, a part of himself, an extension of who he is—man renders his true essence and spirit when he

can freely express himself through objects. Also, man can share in reality when he creates objects with others.

> The human significance of nature is only available to social man; for only to social man is nature available as a bond with other men, as the basis of his own existence for others and theirs for him, and as the vital element in human reality only to social man is nature the foundation of his own human existence (Marx: The Early Writings 1837-1844, McLellan, 1972, p. 90).

When a man works with others they can share in the labor. This also lets them understand themselves and relationships. Therefore, there is a social relationship to production. It is a process that requires other people. Man realizes himself through the objects he creates and the social interaction; others can know, understand and realize who is as well by seeing what he does. In the Materialistic History (McLellan, 1997), written by Karl Marx, it is through man's act of creating with others—sharing in production—that is the basis for social bonds. Lavine (1984) elaborated on Marx's premise of man in relationship to history. "The true meaning of history is that it is the developmental process in which generic man, laborer, producer, creator of material and nonmaterial objects repossesses his own essence and achieves self-actualization" (p.279). People can self-actualize and grow (e.g., knowledge and culture) when they is in control of the creative means.

The Industrial Revolution changed this process. People moved from the land to urban life, selling their time to make an object (a product) for someone else. Essentially, people were producing items but not receiving the full benefits of them, thus, taking a part of their reality away from them. Under this new hegemony—capitalism—people

are in a state of pathology called *alienation.* Lavine (1984) concluded, from Marx's 1844 Manuscripts, people were no longer in charge of the fruits of their labor, the creative process of producing; they are disconnected from their social nature and everyone else. Their products are not their own and exist outside of themselves. The more they produce the less they and their product are valued.

> Labour is exterior to the worker, that is, it does not belong to his essence. Therefore he does not confirm himself in his work, he denies himself, feels miserable instead of happy, deploys no free physical and intellectual energy, but mortifies his body and ruins his mind (Marx: The Early Writings 1837-1844, McLellan, 1972, p.80).

Consequently, people have no control over the means of production thwarting their social and creative spirit. Each person is now in competition with the other for work. And, most important, people are alienated from themselves because they can not realizing their true innate capacities. " Humans produce as universal being for universal ends" (Lavine, 1984, p.281). It is in this state of pathology where people are degraded and depersonalized. The "boss" has complete control over the entire means of production, people are a "mere appendage of flesh on a machine of iron" (Rio, 1999). And thus, people are treated as a thing, a means to an end.

Alienation Describes A State of Atrophy

A biological approach offers new insights of observations in the social aspect of human behavior. Previous literature regarding social anomalies can be seen a description for a state of atrophy in human behavior, a dysfunction of the interwoven organism.

What could cause this atrophy? The state of alienation cannot be attributed to culture, and the reasons for this are twofold: 1.) Cross-cultural characteristics describe the phenotype and not the environment, or in other words, culture describes phenomena but does not explain it, and 2.) Culture is not an entity unto itself (Cosmides & Tooby, 1992), culture does not create man, because if that were the case then what would be the artificer of culture? For example, Profet (1991) found morning sickness to have cross-cultural dimensions, and Ellis (1992) discovered mate selection in females and males have commonalities cross-nationally. These instances, as well as numerous others, show a behavior that exists to solve a specific biological or evolutionary problem. They are behaviors which are a part of distinctive evolved psychological mechanisms suited to unique functions, and thus, cannot be satisfactorily explained through culture and socialization. Life is different throughout the world, yet people enmeshed in very different cultures express feelings of disconnection and loneliness.

The SSSM (Standard Social Science Model) categorizes most human behavior as culture-related when there could be a biological basis for origin and design. Socialization and learning are key components to their tradition. When you only describe the components of behavior other key variables are obscured (Cosmides & Tooby, 1997). There may be different cross-cultural meanings to certain behavior but recognizing these characteristics could be a part of universally evolved design requires a new way of understanding what it is that is being observed. Socialization and learning skills takes for granted that some sort of processes will be engaged to create culture. Moreover, there is a certain amount of vagueness when viewing human behavior and culture and how they are connected through the lens of SSSM (Buss, 1995; Sperber, 1986).

Critical View of Social Science

It is crucial to understand emotions because it affords a closer understand of who we are and what it means to be human (Damasio, 2003). Using Evolutionary Psychology (EP) as our model allows a better way to understand human phenomena. The Standard Social Science Model (SSSM) recognized the social characteristics of modern man and sought to explain this construct by creating social theory. They theorized on the description of social structures, their breakdowns, and how we need to connect and feel like we belong, seeking identification and roles.

For example, Social Exchange Theory tried to show causative reasons for human behavior. Cost/rewards is the cornerstone to this theory. It surmised that an individual ways through the rational, cognitive process of the pro's and con's to social events and relationships. Damasio's studies with brain damaged patients showed otherwise (Damasio, 1994). "Damasio's research raises the question of the role that affect plays in the registering the rewards and costs that are the foundation of social exchange theory" (Planalp & Fitness, 1999, p.738). Emotions and the nesting of social emotions require specialized areas of the brain triggering sites to not only recognize the social stimulus but to also help with the reasoning process by categorizing and associating the history and the future outcome of events.

From social theory's explanation for modern human behavior came socio-psychological theory. Buss (2008, 1995) suggested a psychological approach to understanding social relationships are "phenomena" driven. As stated earlier, SSSM scholars tended to describe aspects of human behavior but failed to address explanations

for the origins of the phenomena. For instance, Cognitive Dissonance theory bases its premise on the assumptions that humans, when faced with two conflicting ideas, will become uncomfortable, creating dissonance. The only way to reconcile this dilemma of tension is to change behavior. By the very nature of its theoretical foundations, Cognitive Dissonance theory implies the psychological mechanisms must be in place in order for the dissonance to be created. If there are psychological mechanisms that are taking place then what are the characteristics of these mechanisms? What function do they serve? Buss (1995) argued that human behavior has fundamental commonalities—a human nature—which implies human biology, something the SSSM fails to consider.

Lastly, other theorists explain human phenomena through behavioral characteristics. Skinner's theory of operant conditioning (Buss, 2008; Schellenburg, 1978) tries to lump all human behavior as being domain-general, meaning human behavior can be conditioned to the same response across all situations and contexts. That would mean that the same behavior can be applied to eating, mating, etc. On the contrary, humans possess the psychological mechanisms and circuitry which trigger domain-specific behavior.

Since culture does not offer a complete explanation, then what does? If so many people say they are feeling lost and lonely what could explain this phenomenon's origin? A different perspective based in EP offers more "appropriate analytical tools and frames of reference" (Cosmides & Tooby, 1992, p.49). According to Damasio (1994), "body and brain are usually conceptualized as separate, in structure and function…yet when we see, or hear, or touch or taste or smell, body proper and brain participate in the interaction with the environment" (p.224). Contrary to Cartesian philosophy, which is the basis for

much of the social sciences, EP suggests human behavior is based on adapted structures within the brain and body as it works as an interwoven organism appraising the environment making necessary adjustments whether unconscious or conscious to support and maintain its well being. Once we understand the function of behavior which is best suited to the survival of early humans, it can be modeled as a guide in understanding our modern day interactions, thus, forming a baseline for learning and experience, the ontogenic cycle and ethologic pattern of humans.

Social Networking As an Effort To Social Homeostasis

With these key ideas in mind, it seems plausible that our adapted emotive mechanisms respond to a state of atrophy like alienation by engaging in SNS. In essence, we search for social connection and contact on SNS via CMC due to our evolutionary devices not being utilized as human history intended. There should be a correlation between our social emotions and the search for a more social means of contact on SNS.

Computer Mediated Communication (CMC) has been shown to create and maintain relationships (Haythornthwaite, 2005; Katz et al., 2004). The question is "why"? What function does it serve in our nature? Perhaps there are characteristics within this medium which help serve a biological function. Some sites are networked via one person or where one merges to join a group, while other sites show networks created by others requested the individual instead of that person doing it themselves. On a continuum scale, there are those who create online accounts and seem to request everyone out of some sense of desperation, and then there are those who never request others join their network but are requested by others. Each network has different

meanings to those who use them. Those desperate for social contact use SNS as an alternative attempt to satisfy their social emotions and to decrease disquilibrium. For them alienation could be a state of entropy caused by our evolutionary adaptations being under-utilized within modern society. Thus, total number of contacts on Social Networking Sites may not be a true indicator of intimate connections as suggested by Dunbar. Perhaps some users have a broader network of affiliations and acquaintances, while other use SNS as a cathartic mean to feel connected with others.

Individuals create social groups because of biological needs. Feeling alone and disengaged could be part of our instinctual need for social contact. Our lives are not experienced in a vacuum, creatures like ourselves directly respond and engage with our social environment. If these mechanisms do not have a means of being expressed through normal everyday interactions, we may seek out other ways to cope with our natural need to belong and connect. Perhaps these networks are an effort to satisfy social needs.

Putnam (2000) discussed a similar concept of belonging called social capital. He suggested social capital was "connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them" (p.19). They foster relations among weak ties, those at a distance who are apart of different social circles then oneself. What Putnam described as social capitol was much like SNS: they serve the same function, a means of managing and developing meaningful connection with others.

The above discussion thus helped to come up with the research question:

RQ1: Is there a relationship between social networks/contacts and alienation?

Alienation will be considered along four dimensions for this study: shame, guilt, envy and embarrassment. Additionally, alienation should be considered the social agent for engaging and triggering bodily emotive structures to respond because social emotions, grounded in our biochemical architecture, require social homeostasis. Since the social agent of alienation encourages dysfunction, in this state of atrophy the organism seeks a catharsis to satiate its need for homeostasis. Certainly, there are degrees in emotions that have been noted. They can fluctuate from person to person where some can express higher levels of emotions that others do not express. There is a continuum of emotional ranges. While there may be those who fall to the periphery, this study is interested in the amount proposed in Dunbar‘s research. He determined human neocortical constraints are related to the maximum number of 150 social contacts a human can meaningful maintain.

RQ2: Do people with more contacts feel less alienated?

If individuals feel more alienated, then they will be in some state of disequilibrium and disconnection. Therefore, those who consider SNS as a viable source to fulfill their social drives of belonging will be those individuals who are the highest state of alienation. It would seem plausible to pose the third research question:

RQ3: Will those who rate SNS as important to them be in a higher state of alienation than those who do not consider SNS as important to them?

CHAPTER III

METHODOLOGY

There has been little research conducted in areas that combine measuring social emotions and the use of Social Networking Sites. Most researchers who have studied computer-mediated communications used methods in order to achieve descriptive designs for behavioral phenomena. For instance, Walther (1996) demonstrated a hyperpersonal model of communication action in CMC, whereby individuals exhibit self-presentation characteristics when engaging in online communities. Walther's design is much like the SSSM in describing human behavior because it does not explain the reasons why or what function this type of behavior might be attributed to. Instead, this study is focused on explanatory and exploratory research involving illustrations of why behavior has happened, the underlying causes for it.

Many investigations that measure emotive triggers in response to a stimuli have been done so by utilizing neural and physiological instruments (Damasio, Tranel & Damasio, 1991; Adolphs et al., 2002; Oya et al., 2002). An exploratory survey method will be used in gathering the data for this study. According to Singleton and Straits (1998) surveys afford, "the most effective means of social description; they can provide

extraordinary detailed and precise information about large heterogeneous populations " (p.245). A set of classification standards recommended by Schuman and Kalton (1985) involving developing survey topics and questions were used as an overall guide for this study by focusing on social background information, behavior intentions and reports of past behavior.

Procedures and Participants

Glenn (1977) suggests that cohort studies offer a way at measuring an experience by a group within a specific period of time. A cohort survey would serve to identify the trends among different age groups as they engage in SNS, a way to quantitatively gauge how distinctive sections of the population respond to online communities. Since there is no empirical research regarding the relationship between SNS users, alienation and social emotions it was proposed to look at a convenient population of college students for the cohort study. Thus, the population for this research comprised of college students age group 18 – 59 at a Midwestern urban university in the United States of America.

A survey questionnaire was distributed to multiple undergraduate communication classes. The instructor of these classes agreed to provide extra credit for those students who participated in this research. Once the survey instrument was created and finalized the research protocol application for Cleveland State University's Institutional Review Board (IRB) for their approval. The completed application was given to the IRB and approval was received via mail (see Appendix B).

A total of 263 students participated in the survey questionnaire. The gender split was 150 (57%) females and 113 (43%) males. From this total amount, 77.9% of the participants were in the age range of 18 to 24; 13.6% were in the age group of 25-30; 4.6% were between 31 and 40; and 4% were age 41 or more. One respondent who completed the survey did not provide an answer. The median age of the sample was 23.

About 7.2 % of the respondents had their Bachelor's degree, 7.6 % had their Associate's degree and 83% had some college. Six respondents who completed the survey did not provide an answer. Table 1 shows the demographic profile from the sample.

The respondents from the sample belonged to (or at some point in time belonged to) an average of two SNS. Networking sites MySpace and Facebook were most cited as the online communities frequented by the participants in this study. These sites are widely used within the United States (Hitwise, 2008), so our sample confirms the popularity these sites possess.

Survey Instrument

The survey instrument was a questionnaire that was administered in person. There were different sections in the survey which looked at SNS users' amount of contacts, typology, emotional measures and SNS users' characteristics (see Appendix A).

Table 1

Demographic Characteristics

	Variable	%
Sex	Male	43.0
	Female	57.0
Age	18-24	77.9
	25-30	13.6
	31-40	4.6
	41 +	4.0
Education	Bachelor's Degree	7.2
	Associate's Degree	7.6
	Some College	83.0
	Other	2.3

Research Question 1 (RQ1) and Research Question 2 (RQ2)

RQ1: Is there a relationship between social networks/contacts and alienation?

RQ2 : Do people with more contacts feel less alienated?

Social Contacts/Networks

This variable was measured with question 7 (see Appendix A) that asked respondents to estimate the number of contacts they maintain on online sites.

> *Give an estimate of how many contacts you would say you have on these online sites?*
>
> ➔*estimated amount* - _____

Alienation Dimensions

Negative emotional valences were used as the basis for measuring alienation. Many scholars have discussed this premise of positive and negative valence or polarities (Britton et al., 2006; Damasio, 2003; Izard, 1977; Izard, 1971; Arnold, 1968). Social emotions are inherent characteristics of all humans. If individuals are not able to engage the social aspect of their nature through the environment their social emotions still exist, but in a negative state. Meaningful interactions and engagements with others will lead to positive social emotions. Connectedness leads to balance and positive valence. If enriching connections are not fulfilled there will be a sense of disequilibrium and negative valence. Those who are in the greatest state of negative valence should be those who have low amounts of online contacts and those who feel the least sense of belonging and connectedness.

Rydell, Berlin and Bohlin (2003) suggested themes of social competence would likely indicate pro-social behavior, and thus, be a good indicator of socially oriented individuals, engaged in meaningful connections with others. Theoretically, those who are in a greater negative valence would have a tendency to feel disengaged and less socially competent than individuals will have more contacts on SNS. Additionally, Wallbott and Scherer (1989) suggested participants are more likely to answer truthfully to questions regarding their emotive states if anonymity measures are utilized in the research protocol. Asking respondents to report their emotional experiences and social behavior in a questionnaire format affords a greater opportunity to study emotional states because it increases the likelihood of truthful rumination from the participants. Several researchers (Nezlek et al., 2008; Tangney, 1996; Gruen & Medelsohn, 1986; Rivera & Grinkis, 1986) have used some form of self-report in accessing the mood, psychological space and emotive relational themes of their respondents. Rydell, Berlin and Bohlin (2003) used Likert–type scaling with end points of disagree and agree when measuring emotionality, behavior and social competence. Whissell (1989) recommended utilizing a scale in some capacity because it does not limit or restrict participants' choices in measuring their emotive states as would using questions with answers that only provide terms like "yes" or "no."

This form of scaling was used for negative social emotions along four dimensions: shame, guilt, embarrassment and envy. If you recall, those individuals who feel joyful, happy and satisfied are in a greater state of being in homeostasis. Conversely, those who feel agitated, frustrated and sad—the essence of sorrow—will be in a state of negative valence and social emotion

Shame. According to Tangey (1996) shame is "an emotion stemming from public exposure of some transgression or shortcoming" (p.742). These concepts are generally related to self and seem to imply a lack of ability (Dost & Yagmurlu, 2008). Questions 20 and 25 of the survey instrument (see Appendix A) regarding the participants' sense of feeling shame. The response scale was from 1, which was coded as disagree, to 10, which was coded as agree.

I am ashamed that I have very few friends.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Other people seem to be good at meeting people, I feel left out.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Envy. Envy is another negative social emotion of interest. Maijala et al. (2000) cited Parrott's (1991) concept of envy as "admiration by another, a feeling of inferiority and an experience of injustice" (p.1345). They defined it as, " a painful and contradictory emotion based on experience of lacking and comparison….and may include feelings of disappointment, shame , guilt, grief as well as admiration and hopes for identification" (p.1346). Key ideas regarding the experience of envy is this notion of lacking or being without some thing, concepts closely associated with jealousy (Bush et al., 1988). Maijala et al. (2000) classification describing manifestations of envy was used as a basis for envy dimensions. Questions 18 and 21 of the survey instrument (see Appendix A) regarding the participants' sense of feeling envy. The response scale was from 1, which was coded as disagree, to 10, which was coded as agree.

I often feel envious of those who have a lot of friends.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

I feel jealous of those who have a lot of people they know.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Guilt. Guilt draws attention on behavior as the focus of an evaluation as opposed to shame which focuses on self; a private experience verses shame which is considered to have a public aspect to it (Ausubel, 1955; Benedict,1967). Tangey (1996) used the global adjective checklist to measure items of guilt. This checklist was modified to use in the survey instrument. Questions 16 and 17 of the survey instrument (see Appendix A) regarding the participants' sense of feeling guilt. The response scale was from 1, which was coded as disagree, to 10, which was coded as agree.

I worry about being alone, and want to find people like me online.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

If I could have more relationships with others, I would like myself more.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Embarrassment. Embarrassment is the last social emotion that will be measured. Keltner and Anderson (2000) defined this emotion to be any act that reveals someone's inability to adhere to standards of public behavior. Miller (1987) cited Goffman (1956) in describing embarrassment as " that uncomfortable state of mortification, awkwardness and chagrin that can result whenever undesired events publicly threaten one's identity" (p.1061). Keltner and Anderson's functional analysis on embarrassment (2000) was used as a guide for creating question in the survey instrument. Questions 19 and 23 of the survey instrument (see Appendix A) regarding the participants' sense of feeling

embarrassment. The response scale was from 1, which was coded as disagree, to 10, which was coded as agree.

It is embarrassing to try to talk to people because I am afraid I might say or do something wrong.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

It feels awkward often times because I have no one to talk to.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Analysis

In order to determine whether the four dimensions of alienation should be treated separately, a principal component analysis was run in SPSS looking for the four dimensions of alienation: shame, guilt, embarrassment and envy. A subsequent multiple regression equation was run in SPSS for the independent variables sex, age and alienation. The total amount of contacts was used as the dependent variable.

Research Question 3(RQ3)

RQ3 : Will those who rate SNS as important to them be in a higher state of alienation than those who do not consider SNS as important to them?

Importance

Since social emotions create an inherent need to maintain homeostasis, those who are frequently engaged in online networking should consider these sites crucial to their everyday lives, therefore, they should be spending a large portion of their time on networking sites than those who do not treat this medium as important in their life. In

essence, the individuals who have higher contacts would be more engaged in looking for the objects of satiation on SNS to fulfill biochemical needs for homeostasis.

A closed-ended questions was used because it provided a necessary tool in taking into account the implicit value the respondents have of being well-versed in computer mediated communication and as such bring to the survey built in knowledge about the medium. According to Kahn and Cannell (1957), informed and engaged respondents on the subject of interest can do well at answering closed-ended questions. These participants are informed on the topic of interest. There is no set baseline measure of SNS use, this study will create its own. We are interested in the importance respondents attach to Social Networking Sites. Question 3 (see Appendix A) asked participants to rate how important SNS is to them.

How important is it to you to visit these online sites?

____ *Very Important*
____ *Important*
____ *Neither important nor unimportant*
____ *Unimportant*
____ *Very Unimportant*

Analysis

A multiple regression equation was run on SPSS with the independent variables being sex, age and alienation. Importance was used as the dependent variable.

CHAPTER IV

RESULTS

If you recall, SNS has been a unique way for humans to express their social nature. Its format is structured around community tools supporting user's profile as well as a list of their friends. Users of SNS treat it like they would any public space, as a means to understand and make sense of social norms, and learn from interactions (Boyd, 2007). SNS perpetuates relationships, and allows individuals to share in cultural artifacts and communicate ideas. Moreover, it might serve mechanisms to maintain social homeostasis. We may actively seek out meaningful interactions on SNS because we are biologically designed to do so since our local relationships are not satisfying our social needs. Investigating the dynamics of SNS will allow us a deeper understanding of what SNS means to individuals, if it fulfills our social needs or not. By asking respondents the reasons why they visit these online sites, to categorize their online relationships and other phenomena related to SNS behavior will let us see if SNS engages aspects of our social nature.

The reasons why the respondents visit these sites were gathered by using an open ended question format. The reasons for participating in online networking were identified by the coder in a simple content analysis. Most cited reasons were to connect, to share information and to keep in touch. Such examples:

- "To keep in touch with friends and easily share things with them such as pictures"
- "To talk to people who share my interests"
- "Communicate and connect with friends, share pictures with friends"
- "To stay connected with friends, updates on what's going on"

The nature of SNS perpetuates social dimensions in our behavior. Katz et al (2004) reiterated this premise when describing how Computer Mediated Communication is tied to intimacy, feelings of companionships and frequency of communication. Spitzberg (2006) cited several findings related to CMC's social qualities such as: 37% of those Spitzberg surveyed have used the internet to meet someone new; 40% said their goal in meeting people on the internet is friendship; and 42% of those surveyed use the internet primarily to communicate socially.

When respondents were asked how important Social Networking Sites were to them the results were favorable to the overall principle guiding this study—people view SNS as a key tool when using the internet for relationship building: 47.1% rated SNS sites as very important or important to them, 43.3 % answered that they were neutral about SNS ("neither important or unimportant"). Those who found SNS to be either unimportant or very unimportant were 8.7%.

Typology of Contacts

We want to establish a baseline for how many SNS individuals belong to as well as the classifications of relationships they hold there. The classifications for relationships scale used in this study was based on Hill and Dunbar's (2003) model of the information category section in their questionnaire.

The mean of total contacts for participants was 389, with the standard deviation of 532 and the mode of 200. This is clearly a higher amount than Dunbar's research suggests. The average amount of contacts found in this study exceeds the expectations of Dunbar's mean at 150 for the reason that SNS contacts are not the same as described and outlined by Dunbar. This issue will be addressed further in the discussion section of the paper.

The categories maintained on social networking sites are found in Table 2. The mean values were skewed for contact typology because of the extreme ranges in the respondents' answers. Participants for this study maintained a SNS classification composed of: 212 school friends, 22 work or business relationships, 22 familial relationships, 88 common interest/affiliations and 6 romance contacts.

Respondents were asked to quantify and then describe other relationships they may engage in on SNS. The category "other" only generated data from 93 respondents, of those who did complete this section reported a mean score of 43. Additionally, this category asked the participants to describe their relationship with those individuals that they considered as "other." Responses varied to include: military, church, online gaming and friends of friends. Taking into account the average age of the respondents (23),

school friends placing highest in their online social relationships seems appropriate to the age range. Lastly, this section of the survey drew the least amount of data to code. The valid and missing data as seen in Table 3 indicates potential issues with this particular area of the survey instrument. This discrepancy will be explored more fully in the discussion section of this paper.

Preferred Communication Strategies

The participants from this study rated the forms of communication channels they most to least preferred (Most Preferred = 10; Least Preferred = 0) when they are communicating with their online contacts. The most preferred forms of communication were Face-to face at 41.1%; Texting at 28.9% and Phoning at 21.3%. The least favorite forms of communication among the respondent were IM at 16% and Email at 9.9%. When the participants were asked if there were contacts on SNS that they don't regularly talk to, phone, IM or see Face to face, 88.6% of them answered "yes." Subsequently, the participants were asked to describe in an open-ended question format the relationship they have with these kinds of contacts. Key words such as "acquaintances," "associates" and "friends of friends" were used most often to characterize these relationships. Moreover, participants described these contacts as: people that they used to talk to at some previous point in time, people they are not close to, people they met only a few times or just random contacts who added them as a "friend." Table 3 summarizes the preferred communication of the respondents.

Table 2

Classification of Relationships on Social Networking Sites

	Mean	SD	N
Family/Relative	22.79	56.63	186
School Friends	212.52	313.21	193
Work/Business	22.55	54.17	164
Affiliation	88.14	260.93	159
Romance	6.14	29.57	154
Other	43.67	126.74	93

Negative Social Emotions

As mentioned previously, social emotions are inherent to all humans. People who do not engage this aspect in their nature will fall into atrophy, a state of negative valence. Those who share in meaningful interactions will be in a state of positive valence, called social homeostasis. Since connectedness and belonging leads to positive valence, those who do not possess enough meaningful relationship to satiate their social nature will feel disengaged, lonely and lost, much like the classic concept of alienation. This study concentrated in looking at four negative social emotions to measure aspects of this negative state of disequilibrium. Section two of the survey measured the negative social valence in the participants along four dimensions: envy, embarrassment, shame and guilt. Those who are in the greatest state of negative valence should have the least amount of contacts as well as feel the least sense of belonging as well as feel some aspect of the negative social emotions shame, guilt, envy and embarrassment. The four negative social emotions — which had pairs of measures for each of them, two for envy (questions 18 and 21), shame (questions 20 and 23), embarrassment (questions 19 and 23) and guilt (questions 16 and 17) — were checked for correlations individually within each set of questions to make sure they were measuring the same aspect of the negative emotion.

Each measure was highly correlated within each pair. In order to see which negative emotion contributed to dimensions of negative valence subsequent analysis showed that not only were the paired measures correlated to each negative social emotion partner it was selected to measure, they were all highly correlated among each other as an entire group. Results for this correlation analysis can be seen in Table 4.

Table 3

Respondents ranking for Preferred forms of Communication

	Mean	SD	N
Text	7.29	2.90	262
Instant Messaging	4.18	3.19	262
Phone	6.47	2.94	262
Email	5.08	3.06	263
Face to Face	7.97	2.54	262

Note. Respondents were asked to rate their preferred communication method with contacts on social networking sites, rating from 0 as Not Preferred to 10 as Most Preferred.

Table 4

Correlation Analysis for Four Negative Social Emotions: Envy, Embarrassment, Guilt and Shame

Variable	guilt1	guilt2	envy1	envy2	shame1	shame2	emb1	emb2
guilt1	-	.48	.46	.34	.36	.34	.42	.46
guilt2	-	-	.62	.53	.52	.49	.42	.52
envy1	-	-	-	.82	.48	.61	.46	.57
envy2	-	-	-	-	.49	.71	.49	.61
shame1	-	-	-	-	-	.52	.41	.61
shame2	-	-	-	-	-	-	.45	.61
emb1	-	-	-	-	-	-	-	.62

Note. All correlations are significant at the 0.01 level (2-tailed). Guilt1 = I worry about being alone and want to find people like me online; guilt2 = If I could have more relationships with others, I would like myself more; envy1 = I often feel envious of those who have a lot of friends; envy2 = I feel jealous of those who have a lot of people they know; shame1 = It is embarrassing to try to talk to people because I am afraid I might say or do something wrong; shame2 = I am ashamed that I have few friends; emb1 = It feels awkward often times because I have no one to talk to; emb2 = Other people seem to be good at meeting people, I feel left out.

A principle component analysis was run on SPSS to confirm the correlational dimensions of these eight variables. The results as seen in Table 5 showed that indeed these eight factors combined were highly intercorrelated to one another and accounted for 58.4% of the variance, and which reached a Cronbach's alpha of .89. We did not find four factors, but rather one single dimension. This new single dimension created from the analysis was called "alienation."

Table 5

Principal Component Analysis of eight variables for envy, shame, guilt and embarrassment

Variable	Alienation	Communalities
1	0.62	0.38
2	0.76	0.57
3	0.84	0.71
4	0.72	0.52
5	0.79	0.62
6	0.84	0.70
7	0.70	0.49
8	0.83	0.69
Eigen Value	4.67	
Percent of variance	58.41	

Note. Principal Component Analysis, Cronbach's alpha = .89

Answer to Research Questions 1 and 2 (RQ 1 and RQ2)

RQ1: Is there a relationship between social networks/contacts and alienation?

RQ 2: Do people with more contacts feel less alienated?

In order to answer the research questions one and two, a multiple regression was run on SPSS using total contacts as the dependent variable. The newly created variable "alienation" was used as the independent variable along with sex and age. Predicting total contacts scores from sex and age were statistically significant F (2,255) = 5.265, $p < .01$. The R^2 for the model was .040 which meant that 4% of the variance of the dependent variables was accounted for by the independent variables sex and age. When the independent variable "alienation" was added as the predictor variable along with sex and age to total contacts, the scores were significant as well F (3, 254) = 6.044, $p < .01$ with the adjusted R^2 at .067 for the model, which indicates 6.7% of the variance in the dependent variable, total contacts, could be explained by the independent variables age, sex and "alienation." Age predicted total number of contacts with a beta at -.20, $p < .01$ as well as with "alienation" with total contacts with a beta at -.165 $p < .01$. The older the respondent was, the fewer contacts they were most likely to have; and the fewer contacts a participant had the more likely they were to be in a state of "alienation." Refer to Table 6 for results.

Answer to Research Questions 3 (RQ3)

Last research question posed was:

RQ3 : Will those who rate SNS as important to them be in a higher state of alienation than those who do not consider SNS as important to them?

To answer this research question a multiple regression equation was run on SPSS using the rating score the respondents gave in how important they felt SNS was to them (5 = Very Important; 1 = Very Unimportant) as the dependent variable. Age, sex, and "alienation" were used as the independent variables. The results can be seen in Table 7.

There was no statistically significant relationship between predictor variables alienation, age, sex and the dependent variable of importance. Perhaps SNS does not fulfill the social needs and drives of all its users. Some users may create and maintain contacts online in an attempt to try to satiate their need to belong and connect while others find it as a superficial means of maintaining a network centered less on intimate ties and meaningful engagements.

Table 6

Regression of Social Networking Sites' Total Contacts on Age, Sex and Alienation

		Model 1	Model 2
Variable	*r*	β	β
Age	-.07	-.19*	-.20*
Sex	-.01	-.04	-.04
Alienation	-.15		-.16*
F	-	5.265	6.044
df		2, 255	3, 254
R^2		.040*	.067*

Note. *$p < .01$

Table 7

Regression of Importance Rating for Social Networking Sites on Age, Sex and Alienation

		Model 1	Model 2
Variable	*r*	β	β
Age	-.07	.04	.05
Sex	-.01	.12	.12
Alienation	.13		.14
F		2.245	3.343
df		2, 256	3, 255
R^2		.017	.038

Summary

Research question 1 explored whether there was a relationship between SNS and alienation, while research question 2 examined if individuals who had more contacts felt less alienated than those who did not. The answers appear to be "yes" for both research questions 1 and 2 based on the relationship found between negative social emotions (which were grouped together since they were all highly intercorrelated and renamed to a new variable called "alienation") along with the total network respondents reported. Alienation seems to be correlated to a person's total amount of Social Networking Sites contacts. When the variable "alienation" was used together with total number of contacts, the significance increased then it did with only using sex and age. Also, there was a negative relationship between alienation and the total number of contacts reported. Those who had a smaller list of social contacts were more likely to feel a higher state of alienation. Intuitively, this would mean those who have a larger social group on SNS are less likely to feel the state of alienation. The answer to research question three appears to be "no." There seems to be no statistically significant relationship between alienation and the importance individuals place on SNS.

CHAPTER V

DISCUSSION

This study set out to find if Social Networking Sites (SNS) satisfy people's social needs based on an Evolutionary Psychology (EP) model, whereby cross-cultural characteristics imply a human nature brought about from our evolutionary history. This paper looked at behavior in relation to what purpose and function it would serve people from an adaptive point of view in order to provide a better understanding of human phenomena. If we know that human's respond and engage their environment through the body and brain combined into an interwoven organism, it then creates a new opportunity in comprehending human behavior, that we are not acted upon, but rather act in such a way based on what outcome would best suit survival and promote well being.

Additionally, this paper examined classic social science concepts like loss of community, disconnection and no social identity first proposed by Tonnies (2002), Durkheim (Schellenburg, 1978) and Marx (McLellan, 1977; Rio, 1999). Emotive responses attuned to complex social environmental cues were never considered as a means of explaining the causes for social phenomena like *gesellschaft, anomie* and *alienation*. Classic theorists viewed alienation as a socio-psychological state. Using EP

as our model lets us examine these concepts from a new perspective where we ask questions like, what function could alienation serve from an adaptive point of view? And what is the nature of these socio-psychological mechanisms?

Previous scholarship proposed Computer Mediated Communication create and maintain relationships. Through the lens of EP, this study explored the reasons why SNS perpetuate online interactions. Moreover, this research suggested SNS allows us to fulfill social drives built upon our emotive needs. An EP integrative model changes how we view SNS, that is, we look beyond behavioral phenomena as being culturally based or generated. Worldwide popularity of SNS implies characteristics of the phenotype. These universalities could be elements of function in human nature. With these ideas in mind, this paper distinguished cross-cultural characteristics in SNS as manifestations of our nature and asked: what function does it serve in our nature?

Alienation and Social Networking Sites

Three research questions posed in this study tried to answer this core issue: Does SNS engage our social needs? Research question one (RQ1), "Is there a relationship between social networks/contacts and alienation?" was asked because we wanted to know if there was some kind of relationship between alienation and SNS. In order to answer RQ1 we needed to answer research question two (RQ2), "Do people with more contacts feel less alienated?" The findings suggest there is a relationship between "alienation" and the total number of contacts a person possesses on SNS. If you recall, to answer research question one and two a principal component analysis was run on the eight measures for four dimensions of negative social emotions: shame, envy, embarrassment,

and guilt. These variables were found to be highly intercorrelated with one another and thus, were combined to form a new variable named "alienation." This new variable was run along with the variables sex and age as independent variables in a multiple regression. The total number of contacts was used as the dependent variable. There were statistically significant findings that would seem to answer "yes" to the first and second research question, that there is a negative relationship between SNS and the disequilibrium state called alienation. Those who had the least amount of contacts were in the highest state of alienation. Age also had an inverse relationship with total contact. Those who were older had less contacts than those who were younger.

The results of this study imply a social agent of disconnection and loss will drive individuals to seek out relationships, and the means of doing so are crucial for those in disequilibrium. Individuals who seem to feel a heightened sense of alienation are more likely to possess the least amount of contacts on SNS. If individuals feel socially satiated they would have a greater number of contacts, a social circle that has the breadth and depth to meet meaningful niches required as an object of satiation. Moreover, those who were older in age had the least amount of contacts compared to those who were their junior. As mentioned earlier, the average age of the respondents from this study was 23, and they had a large pool of online contacts. For example, the mean score for school contacts was 213. It would seem plausible that those who are older would tend to have fewer SNS school contacts than those of college age students.

The Importance of Social Networking Sites

If those who have less online contacts feel greater alienation, then it seems conceivable to ask research question three (RQ3), "Will those who rate SNS as important to them be in a higher state of alienation than those who do not consider SNS as important to them?" A multiple regression model was constructed with sex, age and alienation as the independent variables. The rating score the respondents gave in how important they felt SNS was to them (5 = Very Important; 1 = Very Unimportant) was used as the dependent variable. There was no statistically significant relationship between importance and alienation. As mentioned earlier, people have unique uses for SNS. Some are used for cathartic measures to satisfy their social needs, while others use it for networking and less for intimate and meaningful interactions.

Putnam (2000) suggested the strength of weak ties provide an invaluable resource to individuals to help share information, information that people normally would not have access to if they only had a social circle comprised of only close ties. Close ties (e.g., relatives and family) consist of people who are a part of our regular network that exist in the same social circles as ourselves. These individuals provide personal resources and support, but on a social level are less useful than weaker ties. The strength of weak ties comes from their ability to span in and out of different networks than one's own, and thus obtain a larger pool of knowledge and networks from these different contacts. Those who have larger groups of contacts on SNS seem to fall under this category for they have less intimate connections and more affiliations, the strength of weak ties.

This study is one of the first to investigate SNS from an Evolutionary Psychology (EP) perspective. In summary, this research studied SNS and social emotions revealing a new conceptual definition for alienation as well as finding a relationship between alienation and SNS. Although there are several aspects to this research that need to be further studied, the findings from the study offer many possibilities for further research.

Damasio (1994) suggested, "the mind exists in and for an integrated organism; our minds would not be the way they are if it were not for the interplay of the body and brain during evolution, during individual development, and at the current moment" (p.20). Findings from this research suggest there is a connection between our emotive devices, body and brain as it engages complex social events like we experience in our everyday living. We know the mind and body are intertwined. Emotive triggers within the brain and body shape the way we look at the world. Thus, our emotive state via the brain and body makes sense of our environment. The mind and body work in tandem to create a constant mapping, reading and maintaining of what it needs for survival. The brain interprets biological changes as opposed to being the source of the change. All animals—including humans— respond this way. Emotions occur when the brain and the body are presented with a stimulus. These kinds of emotive phenomena are drives and motivations, and the basis of the very nature of our existence.

Alienation Redefined

From research question one and two we are offered new insights on what alienation could mean from an EP model. Classic theory never equated alienation with negative social emotions. Again, Durkheim, Tonnies, and Marx proposed concepts associated with disconnection and feelings of unattachment. The results from this study suggest negative social emotions are alienation, and as such, compel individuals to seek out a more social means of contact. There seems to be an underlying physiology to alienation because negative social emotions are highly intercorrelated to this state of entropy.

Dunbar's Number of 150

The findings from this study found a mean of total contacts for participants was 389, with the standard deviation of 532 and the mode of 200.The mean score of total contacts was clearly different than Dunbar's average of 150. As stated earlier, people can have alternate uses for SNS than just for intimate connections. Some use it as a broader network, like for business purposes. Others seem to use SNS in an artificial attempt to satisfy their social emotions. There seems to be range—a continuum scale—where some individuals have a group of contacts that may not contain a true listing of their intimates. Instead it may contain a list of all affiliations, organizational and business contacts. On other side of the scale, there are those who use SNS to connect with anyone to satiate this need to belong. Perhaps for these individuals every ten artificial contacts equals one

intimate in their own niche model. Essentially, there seem to be alternate uses for people to use SNS.

We need to differentiate these opposite sides of the spectrum in order to understand that truly dynamic intimate relationships have special characteristics and properties which satiate people's need to connect, and are the reasons why people belong to social groups. Evans (2005) discussed these unique characteristics of meaningful interaction suggesting the idea of reciprocal altruism (i.e., tit for tat). It requires humans to have direct interactions with others on a regular basis. Consequently, if humans only have the brain capacity to cognitively process a finite amount of individuals and the interactions are confined only to SNS, the prospects of interacting and cooperating with others fades and dwindles significantly because the quality of the social relationship will lessen. This premise has been repeatedly demonstrated using the Prisoner's Dilemma (Buss, 2008; Cosmides & Tooby, 1992; Damasio, 1994; Axelrod, 1984). The Prisoner's Dilemma model is based on game theory.

Two prisoners have to choose between several options: both cooperate, one defects while the other cooperates, or both defect. This simulation shows that it is better to defect unless the game is continuously played by the same two individuals, then cooperation seems to prevail. According to Trivers (1971) reciprocity can only work if people can recognize each other. Therefore, the longer the pair interacts with each other the greater the chance of remembering the other which thus leads to greater cooperation and reciprocity decreasing the likelihood for the chance of defecting/cheating. The only requirements seem to be stable, repetitive relationships. Cooperation will be greater if the parties involved meet on a regular basis, can recognize each other and remember the

history shared between them based on the neocortical threshold. If tit-for-tat principles do not apply, if people do not satiate their drive to connect with individuals on SNS then these relationships can not be considered a true object of satiation and do not fall under Dunbar's criteria.

Importance as a Key Variable

Looking more closely at the findings from research question three, which explored alienation dimensions and the importance rating individuals gave for SNS, bears further consideration. We need to understand that there is a "nexus" between emotive responses within the body—the complex interplay of biochemical systems and hormonal reactions working throughout the body as it engages a social cue—with what we feel and perceive. Not only is there a complex interplay of biological processes taking place in response to a social cue, there could also be a disconnect from what we are emoting and what we feel or how we perceive events. If we are spending large amounts of time engaging in SNS as technology integrates it so smoothly and seamlessly into our daily lives, perhaps we do not appreciate how crucial it is to our sense of well-being.

This explanation can be elaborated more fully using a biological approach in looking at human phenomena which reveals aspects of our phenotype not explored through the Standard Science Model (SSSM). Using Evolutionary Psychology as our model, the human mind is about the brain and the body, how it processes information and creates behavior. We need to understand that all organisms create behavior that is appropriate to the environment. Different organisms carry with it different needs which brings about different behavior. The behavior must fulfill the appropriate needs of the

organism. The environment in and of itself does not dictate the behavior. Instead, the design of our psychological structures was built to solve adaptive problems, through the evolutionary process and by natural selection. Solving adaptive problems meant that certain issues kept happening again and again during the evolutionary cycle of the species. The solution to these problems also affected the reproductive capacity of the organism. The abilities we have now are the by-products of psychological and physiological circuitry that was designed to solve adaptive issues. (Buss, 2008; Cole & Teboul, 2004; Cosmides & Tooby, 1997; Fisher, 1982). For example, writing is a side effect or by-product of language and vision (Evans, 1999, p. 137).

Any behavior we perform, such as writing or social networking, can trick us into thinking that we are consciously aware of what we are doing. Consciousness is misleading. In fact, nothing can be further from the truth. We are only aware of a small portion of what processes the brain, body and emotive related devices are performing. According to Cosmides and Tooby (1997) to truly comprehend the concepts of conscious and unconscious one needs to think of an iceberg: What is above the water, what we see, is the conscious experience, but the majority of the iceberg is not seen and is deep below the water, that is the part of unconscious where thousands and thousands of specialized neurochemical activities are taking place. Many things that we take for granted, like social networking, require complex physiological and chemical responses throughout our circuitry. William James (1890) mentioned that we are in some way blind when it comes to understanding our instincts and the processes that seem natural which require a set of complex supporting systems and regulating activities. We all suffer from "instinct blindness".

If the brain and the body along with the emotive instinctual structures called emotions are part of a physical system then cognitive thoughts—conscious and unconscious— are the mentalizations and expressions of this system. It's this system which collects the moment-by-moment portrait of the body's landscape (the body states), and elicits emotions and related reactions along with the accompanying feelings we understand as thoughts—the interaction of mind and body. Damasio (2003) defined emotions "as the complex collection of chemical and neural responses forming distinct pattern…[they] provide a natural means for the brain and mind to evaluate the environment within and around the organism, and respond accordingly and adaptively" (p.53, 54). If emotions are instinctual, complex biochemical devices, then what are feelings? Simply put, they are perceptions, the way we perceive the body at a given point in time. Feelings are the thoughtful expressions of our body states.

According to Damasio (2003), feelings are "the idea of the body being a certain way…they translate the ongoing life state in the language of the mind"(p.85). Feelings are the end result of emotions, the "nexus" between the emotional devices responding to a stimulus and the stimulus itself. Feelings are perceptions of the body being a certain way, and as perceptions are thoughtful cognitions about an event. As perceptions, they can disguise the true meaning of behavior. Newer media and technology— such as SNS, which can be used so effortlessly —can leave us blinded to its true importance in our lives. "All people automatically and unconsciously respond socially and naturally to media " (Reeves & Nass, 1996, p.7). People respond to media this way because of the physiological mechanisms and circuitry of the brain. Individuals are unaware of the

immensely complex biological processing the body is performing when we use newer media.

Limitations

Some scholars recommend that questionnaires should only take a few minutes to complete and not be too complex in design otherwise there is a low level of completion (Dunbar & Spoors, 1995). This concept was used in making sure the survey's format simplified to guarantee greater levels of completion by the participants. With this idea in mind, there were several limitations to this survey questionnaire. A pilot test could have made a difference in refining the survey instrument yielding a higher completion rate for section one where participants were asked to classify the relationships they maintain on SNS. A lower completion rate in this section as compared to other parts of the survey suggest this area needed to be further defined and restructured to make sure the respondents successfully understood the question posed to provide the codeable answers. The missing data was predominantly from individuals who used a check mark in the blank space instead of actually writing a numeric value where the question asked. A clear and easy to use survey instrument would have been better able to yield more useable data.

Researchers have highlighted the disadvantages of using surveys as part of a methodology. Singleton & Straits (1998) explained some of these issues: not able to show a clear cause-effect between the variables of interest more so than in an experimental design; and more standardized and less adaptable than experimental research. Although there are limitations in this approach used for gathering data, surveys allow this study to

explore a broader range of concepts and research questions than would be possible from another research method.

From a methodological point of view, measures for social emotions were hard to find except for general concepts of emotions. Most measures were simple and broad in structure or were used for descriptive phenomena. For instance, Structural Theory (Rivera and Grinkis, 1986) and the Circumplex Model (Russell, 1989) were examples of basic emotive measures on a continuum scale, showing where each emotion sat on a scale proximal to other emotions, yet there was no information about the emotions themselves.

Damasio (2003) was correct when he said that the study of emotions is in its infancy stages. There is so much more than needs to researched and understood on emotions and their adjunct called social emotions. Better measures need to be created for not only social emotions but SNS as well. There were no measurement scales for SNS, no set baseline measures have been created for this phenomena.

Future Research

This study proposes that people use SNS for different reasons. It serves unique functions for its user. SNS can offer people a means to express their social drives, it is also seen as an avenue to network, to share information, to facilitate business relationships as well as numerous others specialized applications. Looking at variables of typology and categories more fully along with total online contacts would offer a richer description of online networking from a functional aspect.

Investigating the characteristics among different age groups as they engage in SNS as well as traditional forms of communication would give deeper insights into how

certain segments of the population respond and relate to one another in order to engage their need for social satiation. Older individuals reported less online contacts from this study. How does this demographic fulfill their social needs compared to younger age groups? What would an older population's group of intimates look like compared to those who are younger? This study suggested that age is a factor in online group size. Clearly, the social needs of a college age student are different than of individuals who are in their thirties, forties and beyond. Comparing the social network of a college age student to those of the elderly might show significant characteristics of how different generations communicate as well as provide an opportunity to measure their amounts of "alienation" using the variable created from this study. How are their social groups different? What does an senior's social group consist of compared to those in their twenties, thirties and beyond? Additionally, does a college age population have more online-based friendships than local? If so, is it serving their interpersonal needs more so than their proximal connections? Comparing online verses local communication strategies would be another avenue to explore.

We need to explore different conceptual differences for the way SNS are being used. Some individuals seem to go online to artificially fulfill social needs. They will engage as many contacts as possible to become social satiated. On the other hand, there are those who use SNS in a strictly casual way, who are not compelled by a desire for connection and belonging to others. Some people use SNS to supplement their feelings of social disconnection and interpersonal contact while others do not.

This paper is not only important to the field of Communications, it is also significant for all of the social sciences. Using EP challenges traditional views of human

nature and behavior. It acknowledges a key and critical piece of the puzzle— our human history. In order to understand human behavior you have to understand our evolutionary past— how we became human. We engage in the same kind of social roles that was experienced by our ancestors when we became human. We gossip, gather with friends, and use tit-for-tat just like our ancestors. Evolutionary Psychology uses this premise as a guiding force in the study and research of the human mind and behavior. EP describes human nature and how the mind operates through the lens of our evolutionary history: What is the function of the psychological mechanism? What adaptive problem would be accomplished in a hunter-gatherer context?

Cosmides and Tooby (1992) make an argument that the traditional role of the social sciences has kept the field isolated from the process of "scientific integration." Other scholars have made similar comments. For instance, Babbie (1986) asserted that "science is committed to open-mindedness—to the constant challenge of old ideas and their replacement with new, presumably better ones. That's the ideal, but scientists sometimes fall short" (p.155). Roloff and Anastasiou (2001) suggested that the future direction of communication should be an integrative field with a "multidisciplinary flavor" utilizing neurobiology, psychology and sociology. One can see that the future of social sciences will need to be viewed from a more comprehensive approach of scientific knowledge—an integrative model— utilizing many different fields as a part of a larger system of knowledge.

In general, the social sciences regard the body and the mind as separate. This Cartesian logic (i.e., I think therefore I am) casts doubt on man's ability to understand the world through his senses. Man is disconnected from his body and therefore, must rely on

observation, empiricism and a sense of idealism to understand himself and the world around him.

Descartes and other philosophers like him believed the mind and the body were dualistic. Their ideology was based on a materialistic concept of nature—based on reasoning, finding regularities in the world and applying that same principle to studying people. This sense of separateness has carried over through the centuries between nature and man. Evolutionary Psychology sees this view as a false dichotomy. The hard and soft sciences do not compete with each other. The integration of biology into a new social science model is a key piece to a more comprehensive system of knowledge.

The mechanisms we use today exist because of natural selection and the evolutionary process of the species and not from a separate causal process. Ridley (2003) discusses the nature verses nurture debate at great length. He views human behavior in terms of both: genes take their cues from nurture, genes are active in life and genes can switch on and off in response to the environment. Ridley continues, "an instinct is designed to be triggered by an external object or event…nature plus nurture" (p.48).

Jared Diamond (1987) mentions the importance of looking at the soft sciences (i.e., the social sciences) like the hard sciences. He suggests,

> "knowledge is something more general, which isn't defined by decimal places and controlled experiments. It means the enterprise of explaining and predicting—gaining knowledge of —natural phenomena, by continually testing one's theories against empirical evidence. The world is full of phenomena that are intellectually challenging and important to understand, but they can't be measured to several decimal places in labs" (p.35).

One would tend to think that Evolutionary Psychologists agree with Diamond. Gaining knowledge is built upon the premise of the recursive nature of science, meaning concepts are explored, which creates new answers, which will alter our knowledge and subsequently expand to new theory. The EP integrative model is built from this same principle: We cannot create, sustain and nurture our scientific endeavors if we use theory in isolation. The fundamental concept of knowledge requires that we use resources from the larger pool of information to gain more insight into the mysteries of human phenomena. Social scientists have the opportunity to embrace a new "way of thinking."

New theory is always met with opposition. Creating changes in the status quo are always a slow and tedious process. New thoughts and theory should never be restricted. You have to think of the improbable sometimes in order to extend the mind. Moreover, science comes through trial and error. It is non-linear and requires a collaborative effort. Scientists don't have all the answers, so they are always seeking knowledge from other fields of science. Information builds and adds, and is a constant state of flux.

"Conceptual integration generates this powerful growth in knowledge because it allows investigators to use knowledge developed in other disciplines to solve problems in their own" (Cosmides & Tooby, 1992, p.12). The Evolutionary Psychology integrative model believes human behavior is not a causal process. In fact, the source of human behavior must be seen though the lens of how the mind works via the psychological mechanisms created from our evolutionary history and natural selection. Nature and nurture work together to sustain human existence. Natural history is an integral part to understanding human behavior.

Consilience

Edward O. Wilson's view of science and knowledge is a brilliant and elegant model. Wilson believes that not only the hard and soft sciences share a common coherence, the humanities do so as well. All of these fields fall under the large umbrella of greater knowledge. There is an underlying unity to all of them. This author takes the same view. "The greatest enterprise of the mind has always been and always will be the attempted linkage of the sciences and humanities. The ongoing fragmentation of knowledge and resulting chaos in philosophy are not reflections of the real world but artifacts of scholarship"(Wilson, 1999, p.8).

REFERENCES

Adolphs, R. et al. (2002). Impaired recognition of social emotions following amygala damage. *Journal of Cognitive Neuroscience*, 14(8), pp. 1-11.

Arnold, M. (1968). *Nature of Emotion.* Middlesex, England: Penguin Books.

Axelrod, R. (1984). *The Evolution of Cooperation.* Basic Books: New York, New York.

Babbie, E. (1986) *Observing Ourselves: Essay in social research* (pp.13-186). Prospect Heights, IL: Waveland Press, Inc.

Benedict, R. (1967). *The Crysanthemum and the sword: Patterns of Japanese culture*. Cleveland, Ohio: Meridian Books.

Bleske, A.L. & Buss, D.M. (2001). Opposite sex friendships: Sex differences and similarities in initiation, selection and dissolution. *Personality and Social Psychology Bulletin*, 27, pp. 1310-1323.

Boyd, R. & Richerson, P. (1990). Culture and Cooperation. In Mansbridge, J.J.(Ed.) *Beyond Self Interest*. Chicago, Illinois: Chicago University Press.

Bracken, C.C. & Pettey, G. (2007). It is really a smaller (and smaller) world: Presence and small screen. Retrieved on June 29, 2008 from http://www.temple.edu/ispr/prev_conferences/proceedings/2007/Bracken%20and%20Pettey.pdf

Britton et al. (2006). Differential subjective and psychophysiological r4esponses to socially generated emotional stimuli. *Emotion*, 6 (1), 150-155.

Bush et al. (1988). Effects of jealousy threats on relationship perceptions and emotions. *Journal of Social and Personal Relationships*, 5, pp. 285-303.

Buss, D. (2008). *Evolutionary Psychology : The New Science of the Mind (3rd Ed.).* Boston, MA: Pearson Education.

Buss, D. (1995). *Evolutionary Psychology: A new paradigm for psychological science*. Psychological Inquiry, 6 (1), pp.1-30.

Cole, T. & Teboul, J. (2004). Non-zero-sum collaboration reciprocity and the preference for similarity: Developing an adaptive model of close relational functioning. *Personal Relationships*, 11, pp. 135-160.

Comscore (2007). Social networking goes global. Retrieved November 18, 2008 from http://www.comscore.com/press/release.asp?press=1555

Cosmides,L. & Tooby, J. (2000). Evolutionary Psychology and the emotions. In M. Lewis & J. Haviland-Jones (Eds.), *Handbook of Emotions*, (pp.91-115). New York: The Guilford Press.

Cosmides, L. & Tooby, J. (1997) *Evolutionary Psychology: A primer.* Retrieved November 5, 2007 from http://www.psycho.uscb.edu/research/cep/primer.html.

Cosmides, L. & Tooby, J. (1992). The Psychological foundations of culture. In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp.19-136). New York: Oxford University Press.

Damasio, A. (2003). *Looking for Spinoza: Joy, Sorrow and the Feeling Brain*.

Orlando, Florida: Harcourt Books.

Damasio, A. (1994). *Descartes Error : Emotion, Reason, and the Human Brain.* New York: Penguin Group.

Damasio, A., Tranel, D. & Damasio, H. (1991). Somatic markers and the guidance of behavior: Theory and preliminary testing. In H.S. Levin, H.M. Eisenberg, and A.L. Benton (Eds.), *Frontal Lobe Function and Dysfunction* (pp. 217-229). New York: Oxford Press.

de Waal, F. (1996). *Good natured: The origins of right and wrong in humans and other animals*. Cambridge, Massachusetts: Harvard University Press.

Diamond, J. (1987). Soft Sciences are often harder than the hard sciences. *Discover Magazine*, August issue, pp.34-39.

Diamond, M. (1965). A critical evaluation of the ontogeny of human sexual behavior. *Quarterly Review of Biology*, 40, p.147-175.

Dost, A. & Yagmurla, B. (2008). Are constructiveness and destructiveness essential features of guilt and shame feelings respectively? *Journal for the Theory of Social Behavior* (38), 2, pp.109-129.

Dunbar, R. (1996). *Grooming, Gossip and the Evolution of Language*. London, UK: Faber & Faber.

Dunbar, R. (1993). Co-evolution of the neocortex size, group size and language in humans. *Behaviorial and Brain Sciences*, 16 (4), pp.681-735.

Dunbar, R. & Spoors, M. (1995). Social networks, support cliques, and kinship. *Human Nature* (6), pp.273-290.

Ellis, B. (1992) The evolution of sexual attraction: Evaluative mechanisms in

women. . In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp.267-287). New York: Oxford University Press.

Evans, D. (2005). Introducing Evolutionary Psychology. Cambridge, UK: Totem Books.

Fisher, Helen. (2004). *Why We Love? : The Nature and Chemistry of Romantic Love*. New York: Henry Holt & Company.

Fisher, Helen. (1992). *Anatomy of Love : The Natural History of Monogamy, Adultery and Divorce.* New York: W.W. Norton & Company.

Fisher, H. (1982). *The Sex Contract: The evolution of human behavior.* New York: Quill.

Freud, S. (1965). *The Interpretation of Dreams* New York.: Avon Books .

Glenn, N. (1977). *Cohort Analysis*. Beverly Hills, California: Sage Publishers:

Goffman, E. (1956). Embarrassment and social organization. *American Journal of Sociology*, 62, pp.264-274.

Gruen, R. & Mendelsohn, G. (1986). Emotional responses to affective displays in others: The Distinction between empathy and sympathy. *Journal of Personality and Social Psychology,* 11 (3), pp. 609-614.

Hall, C. (1954). *A Primer of Freudian Psychology : Freud's Great Discoveries on Human Behavior.* New York: The World Publishing Co.

Harlow, H. (1958). *The nature of love*. Retrieved July 1, 2008 from http://psychclassics.yorku.ca/Harlow/love.htm

Haythornthwaite, C. (2005) Social networks and internet connectivity effects. *Information Communication & Society* 8 (2), pp.125-147.

Hill, R. & Dunbar, R. (2003). Social network size in humans. *Human Nature*, 14(1). pp.53-72.

Hitwise (2008). Porn passed over as web users become social. Retrieved on October 31, 2008 from http://www.reuters.com.

Izard, C. (1977). *Human Emotions*. New York: Plenum Press.

Izard, C. (1971). *The Face of Emotion*. New York: Appleton-Century-Crofts.

James, W. 1890. *Principles of Psychology*. New York: Henry Holt.

Kahn, R. & Cannell, C. (1957). *The Dynamics of Interviewing Theory, Technique, and Cases*. New York: Wiley.

Keltner, D. & Anderson, C. (2000). Saving face for Darwin: The Function and uses of embarrassment. *Psychological Science*, 9 (6), pp.187-192.

Katz et al. (2004). Personal mediated communication and the concept of community in theory and practice. *Communication Yearbook*, 28 (1), pps. 315-371.

Maijala, H. et al. (2000). Feeling of lacking as the core of envy: a conceptual analysis of envy. *Journal of Advanced Nursing*, 31 (6), pp.1342-1350.

Miller, R. (1987). Empathetic embarrassment: Situational and personal determinants of reactions to the embarrassment of another. *Journal of Personality and Social Psychology*, 33 (6), pp.1061-1069.

McLellan, D. (1977). *Karl Marx: Selected Writings*. Oxford University Press: Oxford, London.

Moussaieff-Masson, J.M. & McCarthy, S. (1995). *When Elephants Weep: The emotional lives of animals.* New York: Dell Publishing.

Nezlek et al. (2008). Appraisal-emotion relationships in daily life. *Emotion*, 8 (1), pp.145-150.

Nielson (2006). Successful sites drive high visitor retention rates. Retrieved on November 4, 2008 from http://www.nielsen-netratings.com.

Oya, H. et al. (2002). Electrophysiological responses in the human amygdala activity without explicit knowledge. *Journal of Neuroscience*, 22, pp.9502-9512.

Parrott, W. (1991). The emotional experience of envy and jealousy. In P. Salovey (Ed.) *The Psychology of Jealousy and Envy* (pp.3-30). New York: The Guilford Press.

Planalp, S. & Fitness, J. (1999). Thinking/feeling about social and personal relationships. *Journal of Social and Personal Relationships*, 16 (6), pp. 731-750.

Profet, M. (1990). Pregnancy sickness as adaption: A Deterrant to maternal ingestion of teratogens. . In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp.327-363). New York: Oxford University Press.

Putnam (2000). *Bowling Alone: The Collapse and revival of American community*. New York: Simon & Schuster.

Reeves, B. & Nass, C. 2002. *The Media Equation: How people treat computers, television and the new media like real people and places*. CSLI

Publications:Stanford, CA.

Ridley, M. (2003). *Nature via Nurture.* HarperCollins Publishers Inc.: New York, New York.

Ridley, M. (1996). *The Origins of Virtue : Human Instincts and the Evolution of Cooperation*. Penguin Group : New York, New York.

Rio, E. (1999). *Introducing Marx*. Icon books: Duxford, Cambridge.

Rivera, J. & Grnkis, C. (1986). Emotions as social relationships. *Motivation and Emotion*, 10 (4), pp. 351-369.

Roloff, M. & Anastasiou, L. (2001) Interpersonal Communication Research: An overview, *Communication Yearbook*, pp. 51-71.

Rydell, A., Berlin, L., & Bohlin, G. (2003). Emotionality regulation and adaptation among 5-to-8-year-old children. *Emotion*, 3 (1), pp. 30-47.

Schellenburg, J. 1978. *Masters of Social Psychology*. New York: Oxford University Press, Inc

Schuman, H. & Kalton, G. (1985). Survey methods. In G. Lindzey and E. Aronson (Eds.), *Handbook on Social Psychology* (pp.369-396). New York: Random House.

Silverman, I. & Eals, M. (1992). Sex differences in spatial abilities: Evolutionary Theory and Data. In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp.533-549). New York: Oxford University Press.

Singleton, R. & Straits, B. (1999). *Approaches to Social Research*. New York: Oxford University Press.

Sperber, D. (1986). Issues in the ontology of culture. In R. Marcus, G. Dorn & P. Weingartner (Eds.), *Logic, methodology and philosophy of science VII. Proceedings of the Seventh International Congress of Logic, Methodology and Philosophy of Science, Salzburg 1983.* Amsterdam: North Holland, pp. 557-571.

Spitzberg, B. (2006). Preliminary Development of a model and measure of computer-mediated communication (CMC) competence. *Journal of Computer-Mediated Communication*, 11(2), pp. 1-41.

Tangney, J. (1996). Conceptual and methodological issues in the assessment of shame and guilt. *Behavior Research Theory*, 34(9), pp.741-754.

Tonnies, F. (2002). *Community and society.* Translated and edited by Charles Loomis, Dover Publications: Mineola, New York.

Trivers, R. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, 46, pp. 35-57.

Wallbott, H. & Scherer, K. (1989). Assessing emotion by questionnaire. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, Research and Experience*, Volume 4 (pp. 55- 79). Academic Press, Inc.: San Diego, CA.

Walther, J. (1996). Computer-mediated communication: Impersonal, interpersonal and hyperpersonal interactions. *Communication Research*, 23(1), pp. 3-43.

Whissell, C. (1989). The Dictionary of affect and language. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, Research and Experience*, Volume 4

(pp.113-131). Academic Press, Inc.: San Diego, CA.

Williams, G.C. (1992). *Natural Selection: Domains, levels and challenges*. Oxford University Press: New York, N.Y.

Wilson, E.O. 1998. *Consilience: The unity of knowledge*. Vintage Books, New York, N.Y.

APPENDIX

APPENDIX A: SURVEY INSTRUMENT

Survey Questionnaire Student id # _____

This survey is to study the relationships individuals maintain online through Social Networking Sites (Facebook, MySpace, LinkedIn, MSN Spaces, etc). There are no right or wrong answers. Do not worry about punctuation, grammar or spelling. Please answer truthfully and as honestly as you can.

Which applies to you:

→IF YOU HAVE NEVER BELONGED TO A SOCIAL NETWORKING SITE THEN YOU ARE UNABLE TO PARTICIPATE IN THIS SURVEY.

→IF YOU CURRENTLY OR HAVE IN THE PAST BELONGED TO A SOCIAL NETWORKING SITE, PLEASE PROCEED TO THE NEXT PAGE AND BEGIN THE SURVEY

PLEASE NOTE--When we use the term "contact" in this survey we mean all the social relationships you share with others on Social Networking Sites. For example, Facebook and Windows Live identifies these relationships as "friends," on LinkedIn they are called

"contacts". Although they may be called different names depending on the site you visit, for the sake of simplification in this survey we call these relationships "contacts".

Section 1—

Answer the questions listed below.

1.) What Social Networking Sites do you belong to?

_____

_____

_____

_____

_____

2.) Why do you go to Social Networking Sites?

_____

_____

_____

_____

_____

3.) How important is it to you to visit these online sites?

____ Very Important
____ Important
____ Neither important nor unimportant
____ Unimportant
____ Very Unimportant

4.) In a typical day, how many times do you visit Social Networking Sites?_____

5.) In a typical week, how many times do you visit Social Networking Sites?_____

6.) In a typical month, how many times do you visit Social Networking Sites?_____

7.) Give an estimate of how many contacts you would say you have on these online sites?

➔estimated amount - _____

8.) Please read the following types of relationships you may have with others on Social Networking Sites. Estimate the number of each you have on these sites.

____ Family/Relatives
____ School friends
____ Work/Business related
____ Common interests/Affiliations
____ Romance/Dating
____ Other ➔ Please list below the other types of contacts you have and how many of them you have.

_____

_____

The following items provide different channels you may use to communicate with contacts of Social Networking Sites. First, think about all the contacts you have on Social Networking Sites, and consider what is your preferred way to communicate with them. Then indicate your preference for each channel by circling the appropriate number, where 0 means not preferred at all, and 10 means most preferred.

9.) Text message?

Not preferred 0 1 2 3 4 5 6 7 8 9 10 Most preferred

10.) IM (instant message)?

Not preferred 0 1 2 3 4 5 6 7 8 9 10 Most preferred

11.) Phone?

Not preferred 0 1 2 3 4 5 6 7 8 9 10 Most preferred

12.) Email?

Not preferred 0 1 2 3 4 5 6 7 8 9 10 Most preferred

13.) Face-to-face?

Not preferred 0 1 2 3 4 5 6 7 8 9 10 Most preferred

14.) Are there contacts on Social Networking Sites that you don't regularly talk, phone, text, IM or see face-to face? Yes_____ No_____

15.) If you answered "Yes" to the question above (question # 14) how would you describe their relationship to you?

_____

_____

Section 2 –

For the following items, please indicate how much you agree or disagree with the following statements, where 1 means you do not agree at all, and 10 means you agree very much.

16.) I worry about being alone, and want to find people like me online.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

17.) If I could have more relationships with others, I would like myself more.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

18.) I often feel envious of those who have a lot of friends.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

19.) It is embarrassing to try to talk to people because I am afraid I might say or do something wrong.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

20.) I am ashamed that I have very few friends.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

21.) I feel jealous of those who have a lot of people they know.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

22.) If I did not have this outlet for networking with my online contacts I would feel depressed.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

23.) It feels awkward often times because I have no one to talk to.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

24.) No one understands me.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

25.) Other people seem to be good at meeting people, I feel left out.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

26.) I feel close to the contacts I have online.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

27.) I often get happy, excited and in an exuberant mood.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

28.) I am able to find solutions or compromises when involved in a conflict.

Disagree 1 2 3 4 5 6 7 8 9 10 Agree

Section 3—

29.) **For the following items, please rate <u>each</u> *adjective* from 1 to 10 in how it best describes you most days, where 0 means it never applies to you, and 10 means it applies to you. (For instance, I rate adjective "X" a 10 because I feel it really describes me and how I feel most days.)**

Not Accepting *Accepting*
0 1 2 3 4 5 6 7 8 9 10

Not Friendly *Friendly*
0 1 2 3 4 5 6 7 8 9 10

Not Ashamed *Ashamed*
0 1 2 3 4 5 6 7 8 9 10

Not Suspicious *Suspicious*
0 1 2 3 4 5 6 7 8 9 10

Not Resentful *Resentful*
0 1 2 3 4 5 6 7 8 9 10

Not Lonely *Lonely*
0 1 2 3 4 5 6 7 8 9 10

Bashful *Not Bashful*
0 1 2 3 4 5 6 7 8 9 10

Inferior *Not Inferior*
0 1 2 3 4 5 6 7 8 9 10

Alienated *Not Alienated*
0 1 2 3 4 5 6 7 8 9 10

Sympathetic *Not Sympathetic*
0 1 2 3 4 5 6 7 8 9 10

Confident *Not Confident*
0 1 2 3 4 5 6 7 8 9 10

Outgoing *Not Outgoing*
0 1 2 3 4 5 6 7 8 9 10

Sociable *Not Sociable*
0 1 2 3 4 5 6 7 8 9 10

Trusting *Not Trusting*

0 1 2 3 4 5 6 7 8 9 10

Section 4—

Please fill out the following demographic questions.

You are a: Man _____ Woman_____

How old are you? _____

What organizations or groups are you a member of? (Example: civic, sports, etc.)

_____

_____

_____

_____

What is your highest level of education?

_____

_____

_____

_____

Thank you! You are done!!!

APPENDIX B: IRB APPROVAL

Cleveland State University

Office of Sponsored Programs and Research
Institutional Review Board (IRB)

Memorandum

To: Gary Pettey
Communication

From: Rich Piiparinen, GA
Office of Sponsored Programs & Research

Date: November 12, 2009

Re: Results of IRB Review of your project number: 38450-PET-HS
Co-Investigator: Sandra Suran
Entitled: Evolutionary Psychology, Social Emotion, and Social Networking Sites—And Integrative Model

The IRB has reviewed and approved your application for the above named project, under the category noted below. Approval for use of human subjects in this research is for one year from today. If your study extends beyond this approval period, you must again contact this office to initiate an annual review of this research. ***This approval expires at 11:59 pm on 4/16/2010.***

By accepting this decision, you agree to notify the IRB of: (1) any additions to or changes in procedures for your study that modify the subjects' risk in any way; and (2) any events that affect that safety or well-being of subjects.

Thank you for your efforts to maintain compliance with the federal regulations for the protection of human subjects.

Approval Category: **Date: 04/17/2009**

___ Exempt Status: Project is exempt from further review under CFR 46.101

___ Expedited Review:

_X_ Approved with revisions

cc: Project file

Mailing Address: 2121 Euclid Avenue, PH-3rd Floor • Cleveland, Ohio 44115-2214
Campus Location: Parker Hannifin Hall • 2258 Euclid Avenue • Cleveland, Ohio
(216) 687-3630 • Fax (216) 687-9382

APPENDIX C: TABLES

Table C1

How Many Social Networking Sites Do you Belong To?

		Frequency	%	Valid %	Cumulative %
Mean=2.12	1	81	30.8	31	31
SD = 1.14	2	110	41.8	42.1	73.2
	3	44	16.7	16.9	90
	4	17	6.5	6.5	96.6
	5	3	1.1	1.1	97.7
	6	4	1.5	1.5	99.2
	7	1	0.4	0.4	99.6
	8	1	0.4	0.4	100
	Total	261	99.2	100	
Missing		2	0.8		
Total		263	100		

Table C2

How important is it to you to visit online sites?

		Frequency	%	Valid %	Cumulative %
Mean = 3.46	1 = Very Unimportant	4	1.5	1.5	1.5
SD = 0.815	2	19	7.2	7.3	8.8
	3	114	43.3	43.7	52.5
	4	101	38.4	38.7	91.2
	5 = Very Important	23	8.7	8.8	100
	Total	261	99.2	100	
		2	0.8		
Total		263	100		

Table C3

How many times per week do you visit Social Networking Sites?

		Frequency	%	Valid %	Cumulative %
Mean = 4.07	0	18	6.8	7	7
SD = 5.19	1	67	25.5	26	32.9
	2	49	18.6	19	51.9
	3	39	14.8	15.1	67.1
	4	13	4.9	5	72.1
	5	32	12.2	12.4	84.5
	6	1	0.4	0.4	84.9
	7	1	0.4	0.4	85.3
	8	5	1.9	1.9	87.2
	10	15	5.7	5.8	93
	12	4	1.5	1.6	94.6
	14	1	0.4	0.4	95
	15	2	0.8	0.8	95.7
	16	1	0.4	0.4	96.1
	20	3	1.1	1.2	97.3
	25	4	1.5	1.6	98.8
	27	1	0.4	0.4	99.2
	30	2	0.8	0.8	100
	Total	258	98.1	100	
Missing		5	1.9		
Total		263	100		

Table C4

How many times per week do you visit Social Networking Sites?

		Frequency	%	Valid %	Cumulative %
Mean = 23.7	0	7	2.7	2.7	2.7
SD = 31.7	1	9	3.4	3.5	6.3
	2	10	3.8	3.9	10.2
	3	17	6.5	6.6	16.8
	4	10	3.8	3.9	20.7
	5	20	7.6	7.8	28.5
	6	4	1.5	1.6	30.1
	7	20	7.6	7.8	37.9
	8	2	0.8	0.8	38.7
	9	2	0.8	0.8	39.5
	10	14	5.3	5.5	44.9
	11	2	0.8	0.8	45.7
	12	5	1.9	2	47.7
	13	1	0.4	0.4	48
	14	11	4.2	4.3	52.3
	15	7	2.7	2.7	55.1
	16	1	0.4	0.4	55.5
	17	4	1.5	1.6	57
	19	1	0.4	0.4	57.4
	20	17	6.5	6.6	64.1
	21	12	4.6	4.7	68.8
	22	4	1.5	1.6	70.3
	24	3	1.1	1.2	71.5
	25	7	2.7	2.7	74.2
	27	1	0.4	0.4	74.6
	28	2	0.8	0.8	75.4
	30	5	1.9	2	77.3
	33	1	0.4	0.4	77.7
	35	10	3.8	3.9	81.6
	37	2	0.8	0.8	82.4
	38	1	0.4	0.4	82.8
	40	5	1.9	2	84.8
	45	1	0.4	0.4	85.2
	50	8	3	3.1	88.3

Table C4 Contd.

	55	1	0.4	0.4	88.7
	56	1	0.4	0.4	89.1
	58	1	0.4	0.4	89.5
	60	4	1.5	1.6	91
	70	7	2.7	2.7	93.8
	75	3	1.1	1.2	94.9
	77	1	0.4	0.4	95.3
	80	1	0.4	0.4	95.7
	90	1	0.4	0.4	96.1
	100	5	1.9	2	98
	125	1	0.4	0.4	98.4
	150	1	0.4	0.4	98.8
	175	1	0.4	0.4	99.2
	200	1	0.4	0.4	99.6
	250	1	0.4	0.4	100
	Total	256	97.3	100	
Missing		7	2.7		
Total		263	100		

Table C5

How many times per month do you visit Social Networking Sites?

		Frequency	%	Valid %	Cumulative %
Mean = 121	0	1	0.4	0.4	0.4
SD = 313	1	7	2.7	2.9	3.3
	2	2	0.8	0.8	4.1
	3	8	3	3.3	7.3
	4	1	0.4	0.4	7.8
	5	1	0.4	0.4	8.2
	6	4	1.5	1.6	9.8
	7	2	0.8	0.8	10.6
	8	3	1.1	1.2	11.8
	9	2	0.8	0.8	12.7
	10	6	2.3	2.4	15.1
	11	1	0.4	0.4	15.5

Table C5 Contd.

12	8	3	3.3	18.8
13	1	0.4	0.4	19.2
14	1	0.4	0.4	19.6
15	4	1.5	1.6	21.2
16	1	0.4	0.4	21.6
17	1	0.4	0.4	22
18	1	0.4	0.4	22.4
19	1	0.4	0.4	22.9
20	17	6.5	6.9	29.8
22	1	0.4	0.4	30.2
25	6	2.3	2.4	32.7
26	1	0.4	0.4	33.1
27	2	0.8	0.8	33.9
30	21	8	8.6	42.4
31	2	0.8	0.8	43.3
32	1	0.4	0.4	43.7
34	1	0.4	0.4	44.1
35	2	0.8	0.8	44.9
40	9	3.4	3.7	48.6
42	1	0.4	0.4	49
43	1	0.4	0.4	49.4
45	3	1.1	1.2	50.6
48	2	0.8	0.8	51.4
50	5	1.9	2	53.5
55	1	0.4	0.4	53.9
56	2	0.8	0.8	54.7
60	10	3.8	4.1	58.8
62	1	0.4	0.4	59.2
66	1	0.4	0.4	59.6
70	4	1.5	1.6	61.2
75	1	0.4	0.4	61.6
80	6	2.3	2.4	64.1
84	4	1.5	1.6	65.7
85	1	0.4	0.4	66.1
88	1	0.4	0.4	66.5
90	7	2.7	2.9	69.4
96	1	0.4	0.4	69.8
100	20	7.6	8.2	78
112	1	0.4	0.4	78.4

Table C5 Contd.

	115	1	0.4	0.4	78.8
	120	5	1.9	2	80.8
	128	1	0.4	0.4	81.2
	130	2	0.8	0.8	82
	140	3	1.1	1.2	83.3
	150	6	2.3	2.4	85.7
	160	1	0.4	0.4	86.1
	170	1	0.4	0.4	86.5
	175	1	0.4	0.4	86.9
	200	4	1.5	1.6	88.6
	225	1	0.4	0.4	89
	240	1	0.4	0.4	89.4
	250	1	0.4	0.4	89.8
	275	1	0.4	0.4	90.2
	280	1	0.4	0.4	90.6
	300	9	3.4	3.7	94.3
	350	1	0.4	0.4	94.7
	450	2	0.8	0.8	95.5
	500	2	0.8	0.8	96.3
	550	1	0.4	0.4	96.7
	600	1	0.4	0.4	97.1
	650	1	0.4	0.4	97.6
	700	1	0.4	0.4	98
	1000	2	0.8	0.8	98.8
	1200	1	0.4	0.4	99.2
	3000	1	0.4	0.4	99.6
	3200	1	0.4	0.4	100
	Total	245	93.2	100	
Missing		18	6.8		
Total		263	100		

Table C6

Give an estimate of how many contacts you would say you have on these online sites?

		Frequency	%	Valid %	Cumulative %
Mean=389 SD=532	2	1	0.4	0.4	0.4
	3	3	1.1	1.2	1.5
	5	1	0.4	0.4	1.9
	6	1	0.4	0.4	2.3
	7	1	0.4	0.4	2.7
	10	4	1.5	1.5	4.2
	12	1	0.4	0.4	4.6
	17	1	0.4	0.4	5
	20	5	1.9	1.9	6.9
	25	2	0.8	0.8	7.7
	27	1	0.4	0.4	8.1
	30	5	1.9	1.9	10
	40	4	1.5	1.5	11.5
	42	1	0.4	0.4	11.9
	43	1	0.4	0.4	12.3
	45	3	1.1	1.2	13.5
	50	6	2.3	2.3	15.8
	55	1	0.4	0.4	16.2
	60	3	1.1	1.2	17.3
	62	1	0.4	0.4	17.7
	65	2	0.8	0.8	18.5
	67	1	0.4	0.4	18.8
	70	2	0.8	0.8	19.6
	72	1	0.4	0.4	20
	73	1	0.4	0.4	20.4
	75	2	0.8	0.8	21.2
	78	1	0.4	0.4	21.5
	80	3	1.1	1.2	22.7
	95	2	0.8	0.8	23.5

100	13	4.9	5	28.5
110	3	1.1	1.2	29.6
120	4	1.5	1.5	31.2
125	2	0.8	0.8	31.9
128	1	0.4	0.4	32.3
130	2	0.8	0.8	33.1
140	1	0.4	0.4	33.5
149	1	0.4	0.4	33.8
150	9	3.4	3.5	37.3
160	1	0.4	0.4	37.7
170	2	0.8	0.8	38.5
172	1	0.4	0.4	38.8
180	1	0.4	0.4	39.2
190	1	0.4	0.4	39.6
200	27	10.3	10.4	50
216	1	0.4	0.4	50.4
220	2	0.8	0.8	51.2
225	3	1.1	1.2	52.3
230	2	0.8	0.8	53.1
240	1	0.4	0.4	53.5
250	14	5.3	5.4	58.8
275	1	0.4	0.4	59.2
300	18	6.8	6.9	66.2
315	1	0.4	0.4	66.5
331	1	0.4	0.4	66.9
350	3	1.1	1.2	68.1
400	13	4.9	5	73.1
450	2	0.8	0.8	73.8
500	15	5.7	5.8	79.6
534	1	0.4	0.4	80
567	1	0.4	0.4	80.4
595	1	0.4	0.4	80.8
600	9	3.4	3.5	84.2
700	5	1.9	1.9	86.2
750	2	0.8	0.8	86.9
800	5	1.9	1.9	88.8
804	1	0.4	0.4	89.2

Table C6 Contd.

	900	2	0.8	0.8	90
	942	1	0.4	0.4	90.4
	950	1	0.4	0.4	90.8
	1000	10	3.8	3.8	94.6
	1200	1	0.4	0.4	95
	1300	1	0.4	0.4	95.4
	1500	2	0.8	0.8	96.2
	1700	1	0.4	0.4	96.5
	1817	1	0.4	0.4	96.9
	2000	3	1.1	1.2	98.1
	2700	1	0.4	0.4	98.5
	3000	3	1.1	1.2	99.6
	4000	1	0.4	0.4	100
	Total	260	98.9	100	
Missing		3	1.1		
Total		263	100		

Table C7

Number of Family/Relative relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 22.7	0	8	3	4.3	4.3
SD = 56.6	1	6	2.3	3.2	7.5
	2	13	4.9	7	14.5
	3	7	2.7	3.8	18.3
	4	6	2.3	3.2	21.5
	5	21	8	11.3	32.8
	6	5	1.9	2.7	35.5
	7	1	0.4	0.5	36
	8	4	1.5	2.2	38.2

	10	34	12.9	18.3	56.5
	11	2	0.8	1.1	57.5
	12	3	1.1	1.6	59.1
	15	14	5.3	7.5	66.7
	16	1	0.4	0.5	67.2
	17	1	0.4	0.5	67.7
	20	23	8.7	12.4	80.1
	24	1	0.4	0.5	80.6
	25	7	2.7	3.8	84.4
	27	1	0.4	0.5	84.9
	28	1	0.4	0.5	85.5
	30	6	2.3	3.2	88.7
	35	1	0.4	0.5	89.2
	40	2	0.8	1.1	90.3
	49	1	0.4	0.5	90.9
	50	7	2.7	3.8	94.6
	90	1	0.4	0.5	95.2
	100	4	1.5	2.2	97.3
	150	1	0.4	0.5	97.8
	200	2	0.8	1.1	98.9
	250	1	0.4	0.5	99.5
	650	1	0.4	0.5	100
	Total	186	70.7	100	
Missing		77	29.3		
Total		263	100		

Table C8

Number of School friend relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 212	0	3	1.1	1.6	1.6
SD = 313	1	2	0.8	1	2.6
	3	2	0.8	1	3.6
	4	1	0.4	0.5	4.1
	5	5	1.9	2.6	6.7

Table C8 Contd.

7	1	0.4	0.5	7.3
8	1	0.4	0.5	7.8
9	1	0.4	0.5	8.3
10	3	1.1	1.6	9.8
13	1	0.4	0.5	10.4
15	3	1.1	1.6	11.9
20	9	3.4	4.7	16.6
24	1	0.4	0.5	17.1
25	3	1.1	1.6	18.7
26	1	0.4	0.5	19.2
27	1	0.4	0.5	19.7
30	3	1.1	1.6	21.2
35	1	0.4	0.5	21.8
40	7	2.7	3.6	25.4
45	1	0.4	0.5	25.9
50	18	6.8	9.3	35.2
55	1	0.4	0.5	35.8
60	6	2.3	3.1	38.9
61	1	0.4	0.5	39.4
70	1	0.4	0.5	39.9
74	1	0.4	0.5	40.4
75	1	0.4	0.5	40.9
76	1	0.4	0.5	41.5
77	1	0.4	0.5	42
80	3	1.1	1.6	43.5
90	2	0.8	1	44.6
96	1	0.4	0.5	45.1
100	12	4.6	6.2	51.3
104	1	0.4	0.5	51.8
105	1	0.4	0.5	52.3
110	1	0.4	0.5	52.8
115	1	0.4	0.5	53.4
120	1	0.4	0.5	53.9
130	1	0.4	0.5	54.4
149	1	0.4	0.5	54.9
150	8	3	4.1	59.1
175	1	0.4	0.5	59.6
176	1	0.4	0.5	60.1

Table C8 Contd.

	180	1	0.4	0.5	60.6
	188	1	0.4	0.5	61.1
	190	3	1.1	1.6	62.7
	200	13	4.9	6.7	69.4
	210	1	0.4	0.5	69.9
	220	1	0.4	0.5	70.5
	250	4	1.5	2.1	72.5
	275	1	0.4	0.5	73.1
	290	1	0.4	0.5	73.6
	300	15	5.7	7.8	81.3
	350	5	1.9	2.6	83.9
	370	1	0.4	0.5	84.5
	375	1	0.4	0.5	85
	400	7	2.7	3.6	88.6
	490	2	0.8	1	89.6
	500	6	2.3	3.1	92.7
	650	1	0.4	0.5	93.3
	680	1	0.4	0.5	93.8
	700	2	0.8	1	94.8
	750	2	0.8	1	95.9
	800	2	0.8	1	96.9
	900	2	0.8	1	97.9
	1000	1	0.4	0.5	98.4
	1800	1	0.4	0.5	99
	2000	1	0.4	0.5	99.5
	2500	1	0.4	0.5	100
	Total	193	73.4	100	
Missing		70	26.6		
Total		263	100		

Table C9

Number of Work/Business relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 22.5	0	37	14.1	22.6	22.6
SD = 54.1	1	2	0.8	1.2	23.8
	2	11	4.2	6.7	30.5
	3	8	3	4.9	35.4
	4	1	0.4	0.6	36
	5	19	7.2	11.6	47.6
	6	2	0.8	1.2	48.8
	7	1	0.4	0.6	49.4
	8	1	0.4	0.6	50
	9	1	0.4	0.6	50.6
	10	26	9.9	15.9	66.5
	15	6	2.3	3.7	70.1
	20	16	6.1	9.8	79.9
	24	1	0.4	0.6	80.5
	25	5	1.9	3	83.5
	30	2	0.8	1.2	84.8
	35	1	0.4	0.6	85.4
	40	2	0.8	1.2	86.6
	50	9	3.4	5.5	92.1
	55	1	0.4	0.6	92.7
	65	1	0.4	0.6	93.3
	70	1	0.4	0.6	93.9
	100	5	1.9	3	97
	150	1	0.4	0.6	97.6
	200	1	0.4	0.6	98.2
	231	1	0.4	0.6	98.8
	300	1	0.4	0.6	99.4
	500	1	0.4	0.6	100
	Total	164	62.4	100	
Missing		99	37.6		
Total		263	100		

Table C10

Number of Affiliation Relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 88.1	0	28	10.6	17.6	17.6
SD = 260	2	3	1.1	1.9	19.5
	3	4	1.5	2.5	22
	4	2	0.8	1.3	23.3
	5	15	5.7	9.4	32.7
	9	1	0.4	0.6	33.3
	10	20	7.6	12.6	45.9
	13	2	0.8	1.3	47.2
	15	8	3	5	52.2
	20	14	5.3	8.8	61
	24	1	0.4	0.6	61.6
	25	2	0.8	1.3	62.9
	30	6	2.3	3.8	66.7
	35	1	0.4	0.6	67.3
	40	3	1.1	1.9	69.2
	50	4	1.5	2.5	71.7
	55	1	0.4	0.6	72.3
	60	5	1.9	3.1	75.5
	70	1	0.4	0.6	76.1
	80	3	1.1	1.9	78
	85	2	0.8	1.3	79.2
	90	1	0.4	0.6	79.9
	95	1	0.4	0.6	80.5
	99	1	0.4	0.6	81.1
	100	8	3	5	86.2
	110	1	0.4	0.6	86.8
	140	2	0.8	1.3	88.1
	150	3	1.1	1.9	89.9
	200	6	2.3	3.8	93.7
	210	1	0.4	0.6	94.3
	400	2	0.8	1.3	95.6

Table C10 Contd.

	500	2	0.8	1.3	96.9
	700	1	0.4	0.6	97.5
	800	1	0.4	0.6	98.1
	1200	1	0.4	0.6	98.7
	2000	2	0.8	1.3	100
	Total	159	60.5	100	
Missing		104	39.5		
Total		263	100		

Table C11

Number of Romance Relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 7.29	0	53	20.2	34.4	34.4
SD = 2.90	1	45	17.1	29.2	63.6
	2	13	4.9	8.4	72.1
	3	6	2.3	3.9	76
	4	1	0.4	0.6	76.6
	5	11	4.2	7.1	83.8
	6	2	0.8	1.3	85.1
	10	8	3	5.2	90.3
	12	1	0.4	0.6	90.9
	15	6	2.3	3.9	94.8
	20	3	1.1	1.9	96.8
	24	1	0.4	0.6	97.4
	30	1	0.4	0.6	98.1
	40	1	0.4	0.6	98.7
	100	1	0.4	0.6	99.4
	350	1	0.4	0.6	100
	Total	154	58.6	100	
Missing		109	41.4		
Total		263	100		

Table C12

Number of Other Relationships on Social Networking Sites

		Frequency	%	Valid %	Cumulative %
Mean = 43.6	0	55	20.9	59.1	59.1
SD = 126	1	1	0.4	1.1	60.2
	4	1	0.4	1.1	61.3
	5	1	0.4	1.1	62.4
	6	2	0.8	2.2	64.5
	7	1	0.4	1.1	65.6
	9	1	0.4	1.1	66.7
	10	5	1.9	5.4	72
	12	1	0.4	1.1	73.1
	15	1	0.4	1.1	74.2
	20	3	1.1	3.2	77.4
	23	2	0.8	2.2	79.6
	30	1	0.4	1.1	80.6
	35	2	0.8	2.2	82.8
	50	2	0.8	2.2	84.9
	85	1	0.4	1.1	86
	90	2	0.8	2.2	88.2
	100	3	1.1	3.2	91.4
	160	1	0.4	1.1	92.5
	195	1	0.4	1.1	93.5
	200	1	0.4	1.1	94.6
	300	1	0.4	1.1	95.7
	400	1	0.4	1.1	96.8
	420	1	0.4	1.1	97.8
	500	1	0.4	1.1	98.9
	900	1	0.4	1.1	100
	Total	93	35.4	100	
Missing		170	64.6		
Total		263	100		

Table C13

Preferred way to communicate- Text

		Frequency	%	Valid %	Cumulative %
Mean = 7.29	0 = Least Preferred	13	4.9	5	5
SD = 2.90	1	3	1.1	1.1	6.1
	2	10	3.8	3.8	9.9
	3	10	3.8	3.8	13.7
	4	10	3.8	3.8	17.6
	5	17	6.5	6.5	24
	6	14	5.3	5.3	29.4
	7	24	9.1	9.2	38.5
	8	44	16.7	16.8	55.3
	9	41	15.6	15.6	71
	10 = Most Preferred	76	28.9	29	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C14

Preferred way to communicate - Instant Messaging

		Frequency	%	Valid %	Cumulative %
Mean = 4.17	0 = Least Preferred	56	21.3	21.4	21.4
SD = 3.18	1	14	5.3	5.3	26.7
	2	21	8	8	34.7
	3	25	9.5	9.5	44.3
	4	23	8.7	8.8	53.1
	5	33	12.5	12.6	65.6
	6	19	7.2	7.3	72.9
	7	21	8	8	80.9

Table C14 Contd.

	8	17	6.5	6.5	87.4
	9	21	8	8	95.4
	10 = Most Preferred	12	4.6	4.6	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C15

Preferred way to communicate - Phone

		Frequency	%	Valid %	Cumulative %
Mean 6.47	0 = Least Preferred	13	4.9	5	5
SD = 2.94	1	5	1.9	1.9	6.9
	2	16	6.1	6.1	13
	3	18	6.8	6.9	19.8
	4	12	4.6	4.6	24.4
	5	32	12.2	12.2	36.6
	6	13	4.9	5	41.6
	7	28	10.6	10.7	52.3
	8	44	16.7	16.8	69.1
	9	39	14.8	14.9	84
	10 = Most Preferred	42	16	16	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C16

Preferred way to communicate - Email

		Frequency	%	Valid %	Cumulative %
Mean = 5.07	0 = Least Preferred	26	9.9	9.9	9.9
SD = 3.05	1	13	4.9	4.9	14.8
	2	26	9.9	9.9	24.7
	3	24	9.1	9.1	33.8
	4	15	5.7	5.7	39.5
	5	42	16	16	55.5
	6	26	9.9	9.9	65.4
	7	21	8	8	73.4
	8	27	10.3	10.3	83.7
	9	20	7.6	7.6	91.3
	10 = Most Preferred	23	8.7	8.7	100
Total		263	100	100	

Table C17

Preferred way to communicate - Face-to-Face

		Frequency	%	Valid %	Cumulative %
Mean = 7.97	0 = Least Preferred	3	1.1	1.1	1.1
SD = 2.53	1	5	1.9	1.9	3.1
	2	10	3.8	3.8	6.9
	3	2	0.8	0.8	7.6
	4	5	1.9	1.9	9.5
	5	23	8.7	8.8	18.3
	6	13	4.9	5	23.3
	7	20	7.6	7.6	30.9

Table C17 Contd.

	8	32	12.2	12.2	43.1
	9	41	15.6	15.6	58.8
	10 = Most Preferred	108	41.1	41.2	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C18

Are there contacts on Social Networking Sites that you don't regularly talk, phone, text, IM or see face-to-face?

		Frequency	%	Valid %	Cumulative %
Mean = .114	0 = Yes	233	88.6	88.6	88.6
SD = .318	1 = No	30	11.4	11.4	100
	Total	263	100	100	

Table C19

I worry about being alone and want to find people like me online.

		Frequency	%	Valid %	Cumulative %
Mean = 2.46	1 = Not Guilty	141	53.6	54	54
SD = 2.15	2	28	10.6	10.7	64.8
	3	35	13.3	13.4	78.2
	4	10	3.8	3.8	82
	5	19	7.2	7.3	89.3

Table C19 Contd.

	6	12	4.6	4.6	93.9
	7	5	1.9	1.9	95.8
	8	4	1.5	1.5	97.3
	9	2	0.8	0.8	98.1
	10 = Guilty	5	1.9	1.9	100
	Total	261	99.2	100	
Missing		2	0.8		
Total		263	100		

Table C20

If I could have more relationships with others, I would like myself more.

		Frequency	%	Valid %	Cumulative %
Mean = 2.82	1 = Not Guilty	122	46.4	46.6	46.6
SD = 2.32	2	31	11.8	11.8	58.4
	3	29	11	11.1	69.5
	4	23	8.7	8.8	78.2
	5	18	6.8	6.9	85.1
.					
	6	16	6.1	6.1	91.2
	7	7	2.7	2.7	93.9
	8	7	2.7	2.7	96.6
	9	5	1.9	1.9	98.5
	10 = Guilty	4	1.5	1.5	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C21

I often feel envious of those who have a lot of friends.

		Frequency	%	Valid %	Cumulative %
Mean = 2.62	1 = Not Envious	142	54	54.2	54.2
SD = 2.36	2	27	10.3	10.3	64.5
	3	25	9.5	9.5	74
	4	17	6.5	6.5	80.5
	5	16	6.1	6.1	86.6
	6	8	3	3.1	89.7
	7	9	3.4	3.4	93.1
	8	10	3.8	3.8	96.9
	9	3	1.1	1.1	98.1
	10 = Envious	5	1.9	1.9	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C22

It is embarrassing to try to talk to people because I am afraid I might say or do something wrong.

		Frequency	%	Valid %	Cumulative %
Mean = 2.82	1 = Not Embarrassed	126	47.9	48.1	48.1
SD = 2.44	2	43	16.3	16.4	64.5
	3	14	5.3	5.3	69.8
	4	19	7.2	7.3	77.1
	5	9	3.4	3.4	80.5
	6	22	8.4	8.4	88.9
	7	10	3.8	3.8	92.7
	8	11	4.2	4.2	96.9
	9	5	1.9	1.9	98.9

Table C22 Contd.

	10 = Embarrassed	3	1.1	1.1	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C23

I am ashamed that I have very few friends.

		Frequency	%	Valid %	Cumulative %
Mean = 1.69	1 = Not Ashamed	191	72.6	72.9	72.9
SD = 1.53	2	33	12.5	12.6	85.5
	3	12	4.6	4.6	90.1
	4	7	2.7	2.7	92.7
	5	7	2.7	2.7	95.4
	6	3	1.1	1.1	96.6
	7	5	1.9	1.9	98.5
	8	2	0.8	0.8	99.2
	9	2	0.8	0.8	100
	10 = Ashamed	0	0	0	0
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C24

I feel jealous of those who have a lot of people they know.

		Frequency	%	Valid %	Cumulative %
Mean= 2.15	1 = Not Jealous	163	62	62.2	62.2
SD = 2.04	2	36	13.7	13.7	76
	3	18	6.8	6.9	82.8
	4	10	3.8	3.8	86.6
	5	11	4.2	4.2	90.8
	6	7	2.7	2.7	93.5
	7	7	2.7	2.7	96.2
	8	3	1.1	1.1	97.3
	9	4	1.5	1.5	98.9
	10 = Jealous	3	1.1	1.1	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C25

It feels awkward often times because I have no one to talk to.

		Frequency	%	Valid %	Cumulative %
Mean =1.98	1 = Not Embarrassed	171	65	65.3	65.3
SD = 1.78	2	31	11.8	11.8	77.1
	3	19	7.2	7.3	84.4
	4	13	4.9	5	89.3
	5	10	3.8	3.8	93.1
	6	7	2.7	2.7	95.8
	7	7	2.7	2.7	98.5
	8	1	0.4	0.4	98.9

Table C25 Contd.

	9	1	0.4	0.4	99.2
	10 = Embarrassed	2	0.8	0.8	100
	Total	262	99.6	100	
Missing	System	1	0.4		
Total		263	100		

Table C26

Other people seem to be good at meeting people, I feel left out.

		Frequency	%	Valid %	Cumulative %
Mean = 2.22	1 = Not Ashamed	163	62	62.2	62.2
SD = 2.03	2	31	11.8	11.8	74
	3	14	5.3	5.3	79.4
	4	14	5.3	5.3	84.7
	5	10	3.8	3.8	88.5
	6	13	4.9	5	93.5
	7	8	3	3.1	96.6
	8	7	2.7	2.7	99.2
	9	1	0.4	0.4	99.6
	10 = Ashamed	1	0.4	0.4	100
	Total	262	99.6	100	
Missing		1	0.4		
Total		263	100		

Table C27

Accepting

		Frequency	%	Valid %	Cumulative %
Mean = 7.87	Not Accepting =0	3	1.1	1.1	1.1
SD = 2.13	1	4	1.5	1.5	2.7
	2	4	1.5	1.5	4.2
	3	5	1.9	1.9	6.1
	4	4	1.5	1.5	7.6
	5	11	4.2	4.2	11.8
	6	9	3.4	3.4	15.3
	7	39	14.8	14.9	30.2
	8	73	27.8	27.9	58.0
	9	47	17.9	17.9	76.0
	Accepting =10	63	24.0	24.0	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Table C28

Friendly

		Frequency	%	Valid %	Cumulative %
Mean = 7.84	0 = Not Friendly	5	1.9	1.9	1.9
SD = 2.35	1	4	1.5	1.5	3.4
	2	7	2.7	2.7	6.1
	3	5	1.9	1.9	8.0
	4	5	1.9	1.9	9.9
	5	9	3.4	3.4	13.3
	6	9	3.4	3.4	16.7
	7	35	13.3	13.3	30.0
	8	55	20.9	20.9	51.0
	9	63	24.0	24.0	74.9
	10 = Friendly	66	25.1	25.1	100.0
	Total	263	100.0	100.0	

Table C29

Ashamed

		Frequency	%	Valid %	Cumulative %
Mean =7.54	0 = Ashamed	3	1.1	1.1	1.1
SD = 2.35	1	4	1.5	1.5	2.7
	2	5	1.9	1.9	4.6
	3	7	2.7	2.7	7.3
	4	12	4.6	4.6	11.8
	5	15	5.7	5.7	17.6
	6	23	8.7	8.8	26.3
	7	37	14.1	14.1	40.5
	8	46	17.5	17.6	58.0
	9	47	17.9	17.9	76.0
	10 = Not Ashamed	63	24.0	24.0	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C30

Suspicious

		Frequency	%	Valid %	Cumulative %
Mean =6.33	0 = Suspicious	5	1.9	1.9	1.9
SD = 2.53	1	3	1.1	1.1	3.1
	2	11	4.2	4.2	7.3
	3	12	4.6	4.6	11.8
	4	24	9.1	9.2	21.0
	5	60	22.8	22.9	43.9
	6	22	8.4	8.4	52.3

Table C30 Contd.

	7	34	12.9	13.0	65.3
	8	27	10.3	10.3	75.6
	9	24	9.1	9.2	84.7
	10 = Not Suspicious	40	15.2	15.3	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C31

Resentful

		Frequency	%	Valid %	Cumulative %
Mean = 7.07	0 = Resentful	3	1.1	1.1	1.1
SD = 2.34	1	2	0.8	0.8	1.9
	2	6	2.3	2.3	4.2
	3	9	3.4	3.4	7.7
	4	14	5.3	5.4	13.0
	5	40	15.2	15.3	28.4
	6	19	7.2	7.3	35.6
	7	35	13.3	13.4	49.0
	8	56	21.3	21.5	70.5
	9	28	10.6	10.7	81.2
	10 = Not Resentful	49	18.6	18.8	100.0
	Total	261	99.2	100.0	
Missing		2	0.8		
Total		263	100.0		

Note. Reverse coded items

Table C32

Lonely

		Frequency	%	Valid %	Cumulative %
Mean = 7.13	0 = Lonely	2	0.8	0.8	0.8
SD = 2.61	1	4	1.5	1.5	2.3
	2	15	5.7	5.7	8.0
	3	13	4.9	5.0	13.0
	4	12	4.6	4.6	17.6
	5	21	8.0	8.0	25.7
	6	21	8.0	8.0	33.7
	7	35	13.3	13.4	47.1
	8	41	15.6	15.7	62.8
	9	34	12.9	13.0	75.9
	10 = Not Lonely	63	24.0	24.1	100.0
	Total	261	99.2	100.0	
Missing		2	0.8		
Total		263	100.0		

Note. Reverse coded items

Table C33

Not Bashful

		Frequency	%	Valid %	Cumulative %
Mean = 5.54	0 = Bashful	21	8.0	8.1	8.1
SD = 3.02	1	8	3.0	3.1	11.2
	2	13	4.9	5.0	16.2
	3	24	9.1	9.2	25.4
	4	31	11.8	11.9	37.3
	5	43	16.3	16.5	53.8
	6	17	6.5	6.5	60.4
	7	19	7.2	7.3	67.7

Table C33 Contd.

	8	31	11.8	11.9	79.6
	9	18	6.8	6.9	86.5
	10 = Not Bashful	35	13.3	13.5	100.0
	Total	260	98.9	100.0	
Missing		3	1.1		
Total		263	100.0		

Table C34

Not Inferior

		Frequency	%	Valid %	Cumulative %
Mean = 6.28	0 = Inferior	28	10.6	10.7	10.7
SD = 3.34	1	6	2.3	2.3	13.0
	2	13	4.9	5.0	18.0
	3	10	3.8	3.8	21.8
	4	15	5.7	5.7	27.6
	5	35	13.3	13.4	41.0
	6	12	4.6	4.6	45.6
	7	12	4.6	4.6	50.2
	8	40	15.2	15.3	65.5
	9	35	13.3	13.4	78.9
	10 = Not Inferior	55	20.9	21.1	100.0
	Total	261	99.2	100.0	
Missing		2	0.8		
Total		263	100.0		

Table C35

Not Alienated

		Frequency	%	Valid %	Cumulative %
Mean = 6.24	0 = Alienated	30	11.4	11.5	11.5
SD = 3.41	1	10	3.8	3.8	15.4
	2	11	4.2	4.2	19.6
	3	9	3.4	3.5	23.1
	4	16	6.1	6.2	29.2
	5	23	8.7	8.8	38.1
	6	13	4.9	5.0	43.1
	7	19	7.2	7.3	50.4
	8	42	16.0	16.2	66.5
	9	33	12.5	12.7	79.2
	10 = Not Alienated	54	20.5	20.8	100.0
	Total	260	98.9	100.0	
Missing		3	1.1		
Total		263	100.0		

Table C36

Sympathetic

		Frequency	%	Valid %	Cumulative %
Mean = 6.59	0 = Not Sympathetic	6	2.3	2.3	2.3
SD = 2.59	1	7	2.7	2.7	5.0
	2	10	3.8	3.8	8.8
	3	16	6.1	6.1	14.9
	4	13	4.9	5.0	19.9
	5	31	11.8	11.9	31.8
	6	23	8.7	8.8	40.6

Table C36 Contd.

	7	42	16.0	16.1	56.7
	8	40	15.2	15.3	72.0
	9	44	16.7	16.9	88.9
	10 = Sympathetic	29	11.0	11.1	100.0
	Total	261	99.2	100.0	
Missing		2	0.8		
Total		263	100.0		

Note. Reverse coded items

Table C37

Confident

		Frequency	%	Valid %	Cumulative %
Mean = 6.60	0 =Not Confident	12	4.6	4.6	4.6
SD =2.87	1	8	3.0	3.1	7.6
	2	14	5.3	5.3	13.0
	3	7	2.7	2.7	15.6
	4	11	4.2	4.2	19.8
	5	31	11.8	11.8	31.7
	6	30	11.4	11.5	43.1
	7	27	10.3	10.3	53.4
	8	36	13.7	13.7	67.2
	9	43	16.3	16.4	83.6
	10 = Confident	43	16.3	16.4	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C38

Outgoing

		Frequency	%	Valid %	Cumulative %
Mean = 6.68	0 = Not Outgoing	12	4.6	4.6	4.6
SD = 2.89	1	5	1.9	1.9	6.5
	2	9	3.4	3.4	9.9
	3	17	6.5	6.5	16.4
	4	14	5.3	5.3	21.8
	5	33	12.5	12.6	34.4
	6	20	7.6	7.6	42.0
	7	24	9.1	9.2	51.1
	8	35	13.3	13.4	64.5
	9	43	16.3	16.4	80.9
	10 = Outgoing	50	19.0	19.1	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C39

Sociable

		Frequency	%	Valid %	Cumulative %
Mean = 6.81	0 = Not Sociable	9	3.4	3.4	3.4
SD = 2.78	1	7	2.7	2.7	6.1
	2	8	3.0	3.1	9.2
	3	12	4.6	4.6	13.7
	4	14	5.3	5.3	19.1
	5	32	12.2	12.2	31.3
	6	23	8.7	8.8	40.1
	7	34	12.9	13.0	53.1

Table C39 Contd.

	8	26	9.9	9.9	63.0
	9	46	17.5	17.6	80.5
	10 = Sociable	51	19.4	19.5	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C40

Trusting

		Frequency	%	Valid %	Cumulative %
Mean = 6.73	0 = Not Trusting	10	3.8	3.8	3.8
SD = 2.73	1	6	2.3	2.3	6.1
	2	7	2.7	2.7	8.8
	3	13	4.9	5.0	13.7
	4	12	4.6	4.6	18.3
	5	38	14.4	14.5	32.8
	6	22	8.4	8.4	41.2
	7	30	11.4	11.5	52.7
	8	33	12.5	12.6	65.3
	9	51	19.4	19.5	84.7
	10 =Trusting	40	15.2	15.3	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Note. Reverse coded items

Table C41

Sex

		Frequency	%	Valid %	Cumulative %
Mean .570	0 =Male	113	43	43	43
SD = .495	1 =Female	150	57	57	100
	Total	263	100	100	

Table C42

Age

		Frequency	%	Valid %	Cumulative %
Mean = 22.6	18	51	19.4	19.5	19.5
SD = 6.18	19	41	15.6	15.6	35.1
	20	28	10.6	10.7	45.8
	21	33	12.5	12.6	58.4
	22	31	11.8	11.8	70.2
	23	13	4.9	5.0	75.2
	24	7	2.7	2.7	77.9
	25	8	3.0	3.1	80.9
	26	8	3.0	3.1	84.0
	27	11	4.2	4.2	88.2
	28	2	0.8	0.8	88.9
	29	4	1.5	1.5	90.5
	30	3	1.1	1.1	91.6
	31	3	1.1	1.1	92.7
	32	3	1.1	1.1	93.9
	34	2	0.8	0.8	94.7
	35	2	0.8	0.8	95.4
	36	1	0.4	0.4	95.8
	40	1	0.4	0.4	96.2
	42	2	0.8	0.8	96.9

Table C42 Contd.

	43	1	0.4	0.4	97.3
	44	2	0.8	0.8	98.1
	45	1	0.4	0.4	98.5
	47	1	0.4	0.4	98.9
	48	2	0.8	0.8	99.6
	59	1	0.4	0.4	100.0
	Total	262	99.6	100.0	
Missing		1	0.4		
Total		263	100.0		

Table C43

Education

		Frequency	%	Valid %	Cumulative %
Mean = 1.22	Some College =1	218	82.9	84.8	84.8
SD = .569	Associates Degree =2	20	7.6	7.8	92.6
	Bachelor's Degree =3	19	7.2	7.4	100.0
	Total	257	97.7	100.0	
Missing		6	2.3		
Total		263	100.0		