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ABSTRACT

PERCEPTIONS OF PSYCHOLOGY AMONG SEMINARY AND
BIOLOGY STUDENTS AT ANDREWS UNIVERSITY

by

Sandro Moraes

Chair: Elvin Gabriel

ABSTRACT OF GRADUATE STUDENT RESEARCH

Thesis

Andrews University

School of Education

Title: PERCEPTIONS OF PSYCHOLOGY AMONG SEMINARY AND
BIOLOGY STUDENTS AT ANDREWS UNIVERSITY

Name of researcher: Sandro Moraes

Name and degree of faculty chair: Elvin Gabriel, Ed.D.

Date completed: July 2013

Problem

Both pastors and biologists frequently interact with individuals. These contacts often involve conversations that deal with an individual's feelings, behaviors, and the relationship between mind and body. Thus, how seminarians and biologists perceive psychology will greatly affect such interactions. Therefore it is important to know how both professionals perceive psychology.

This is not all that different from the research biologists perform as they learn about the brain. Because of the interrelatedness between these two professions, what are the perceptions of psychology among seminary and biology students at Andrews University?

Method

The data gathered from the responses of biology and seminary students at Andrews University to the Perceptions of Psychology Questionnaire were analyzed through the SPSS statistical procedures. Descriptive statistics tables are provided to show measures of central tendency and variability of perceptions of psychology.

Results

The results showed that the participants' educational background and demographics played a role in their perceptions of psychology. Seminary students were older, and had a much higher exposure to the writings of Ellen G. White and church teachings on psychology. Biology students, as a group, were much younger, and lacked the background in these areas. Answers given reflected these differences.

Conclusions

The results showed that there are significant differences among those two groups in their: positive beliefs about psychology, positive affect about psychology, exposure to the writings of Ellen G. White on psychology, knowledge about the writings of Ellen G. White on psychology, knowledge about the writings of Adventist writers on psychology, and in how comfortable they felt seeking psychological services.

Respondents in both groups also tended to have similar answers to the questions relating to: understanding the mind using psychology, using psychology to help understand mankind, and explaining human behavior using theories of psychology.

Andrews University

School of Education

PERCEPTIONS OF PSYCHOLOGY AMONG SEMINARY AND
BIOLOGY STUDENTS AT ANDREWS UNIVERSITY

A Thesis

Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by

Sandro Moraes

July 2013

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CHAPTER I

INTRODUCTION

Over the last decade, research from several authors has supported the argument that religion and psychology should be integrated (McNamara, 2006; Peterson, 2003; Spilka, Hood, Hunsberger, & Gorsuch, 2003). Both seminarians and biologists interact and study human beings in their professions and in their research. Being able to integrate the two fields of religion and psychology is crucial to effectively comprehending the mind and how it affects a body's physiology status. In the past, it was typically thought that "human biology belongs to medical doctors, psychology belongs to psychologists, and spirit is the province of pastors and theologians" (Peterson, 2003, p. 94). Peterson (2003) argues that even though such a presumption would indicate these different areas are separate from each other, they are not. He observed that spiritual experiences are not only a religious transformation, but include the psychological and biological realms as well. McNamara (2006) similarly believes that, ultimately, the psychology of religion will be as closely tied to biological sciences as they are to the social or clinical sciences.

When considering the fields of biology and the cognitive sciences, in order to fully understand human nature, the theological side must be taken into account (Peterson, 2003). Faith and the belief in God are shown to be mutually beneficial with the physiological and psychological side of human nature (Spilka et al., 2003). Cognitive science must broaden its scope to include theological concepts. At the same time,

theological studies must consider the cognitive sciences to better understand the state of consciousness, which relates to beliefs in a person's soul (Peterson, 2003). Relating to beliefs, prayer has been used as an alternative remedy to handle physical illness. It has been indicated that prayer correlates with reduced muscle tension, improved neuroimmunologic parameters, and psychological and spiritual peace (McNamara, 2006). The cognitive sciences and their corresponding relationship to cognitive psychology give us a clearer picture of how learning is affected by the biological nature of the mind.

Cognitive psychology was officially introduced by Ulric Neisser (1980) when he published his book *Cognitive Psychology*. Cognitive psychology helps explain how humans process intelligent thought within the brain and with sense organs (McLeod, 2007). Earlier in the 1960s Lassen and Ingvar introduced the study of regional cerebral function. Baars and Gage (2007, p. 29) believed that "cognitive neuroscience combines psychology, neuroscience, and biology." The brain works by developing information about the ecosystem, which is considered past, present, and future. Neural signs that will become proper behavior transmit this information (Frackowiak & Herold, 1986). Sadness, depression, schizophrenia, dramatic change mood or other psychiatric disorders, which are considered a cognitive process, may be counseling-related issues that pastors face in their daily interactions with people. The question though is, what are the perceptions that pastors hold in regard to psychology and their implications in their job?

The brain also has the ability to take events and the constant input of information that humans garner daily and use them to alter its structure. This alteration in mental processing happens without us being consciously aware of it, but even so, humans are able to effectively process only limited amounts of input at any given time. As the mind receives information for processing, it is doing the following: (a) sensing and perceiving;

(b) learning and remembering; and (c) processing, predicting, and responding. These functions can occur in multiple situations. For example, thoughts and memories of things that occurred in the past, or external stimuli from the environment, all form to trigger these processes (Bailey, 2011).

Integration, write Johnson and Jones (2000, p. 138), is a process by which elements of psychology and a Christian system meld and adapt, forming new thoughts and practices. Bulkley (2010) mentions that Denver Seminary, Talbot Seminary, Trinity Evangelical Divinity School, Liberty University, Moody Bible Institute, Fuller Theological Seminary, and a multitude of other Christian schools practice this integration and believe psychology and the Bible can work together. Not only are theology and psychology integrated by students at tertiary-level institutions, but biology and psychology are as well. Mackie (2011) writes that the University of California, Santa Barbara, has a degree program in psychology under the Department of Psychological and Brain Science. One of the classes included in this program is PSY3 The Biological Basis of Psychology. This course teaches students the basics of “anatomy and functioning of the nervous system, and the neural basis of development, perception, learning, memory, cognition, affect, motivation, social behavior, personality and psychopathology” (p. 1), which demonstrates the interrelatedness of how biology and psychology work together.

As shown above, the close relationship among theology, biology, and psychology demonstrates the importance of understanding how seminarians and biologists perceive psychology. Andrews University is a theological seminary for the Seventh-day Adventist Church. It provides advanced training to pastors throughout the world. By gathering data from those students in the Master of Divinity (seminary) program, their views or perceptions of psychology could be analyzed. Also data were gathered from a similar

group of students at Andrews University, those seeking a biology degree. It is important to this study to note that these seminary and biology students may have prior knowledge of the writings of Ellen G. White (EGW) that could affect their perceptions on psychology.

Ellen G. White (1827–1915) lived during the 19th century, which is thought to be the beginning of psychology and biology (Harding, 1987). Writing about Ellen G. White, Burt (2008) mentioned that she was opposed to any kind of psychological technique where the person gave control of their mind to another. In the book compiled after her death, *Mind, Character, and Personality* (E. White, 1977), Ellen G. White wrote on the dangers of placing one's mind under another's control, and that this kind of technique should not be taught or used at any institution. Could Ellen G. White's writings, and writings about her, modify the perceptions about psychology among seminary and biology students at Andrews University?

The purpose of this study was to examine perceptions of psychology among seminary and biology students at Andrews University.

Research on Seminarians' Perceptions of Psychology

A review of literature done over recent years examines the different viewpoints pastors exhibit when presented with situations requiring an understanding of psychology (Blunt, 2007; Hung, 2010; Peters, 1999). Several of the topics examined include pastors and their perceptions of counseling and psychology (Peters, 1999), the views of pastors in California relating to counseling and psychology (Blunt, 2007), and a pastor's attitude regarding referral to mental health professionals (Hung, 2010).

The survey conducted by Hung (2010) was of Hong Kong Chinese Protestant

pastors. Its purpose was to discover their attitudes toward psychology practitioners, and whether they were comfortable referring church members to a professional. The participants included 119 pastors, of which 44.9% were male and 55.1% were female. They were full-time and part-time pastors with a mean age of 45.3. In this group, the level of education was high: 72.8% had postgraduate degrees in the areas of evangelism, theology, and marriage and family counseling. Another demographic point was the length of time the pastors had served in the church, which ranged from 1 to 31 years with an average of 10.4 years. The Protestant churches in this study included the Baptist Church, Christian and Missionary Alliance Church, and Evangelical Free Church of China. Three main viewpoints were found in Hung's research: First, the pastors were open to referring church members to psychologists, especially when they felt inept in assisting those with serious mental illness. Second, clergy who were "moderates" made more referrals than did conservative clergy. Third, the clergy expressed a preference for Christian psychotherapists. Two other significant aspects were competence of the counselors and trust.

Hung (2010) indicated that psychotherapy, or the method of integrating therapy into counseling sessions, was a major function of the pastors surveyed. They spent approximately 1-5 hours per week conducting therapy sessions. The pastors referred their parishioners to psychologists for cases like psychotic problems, marital problems, and suicide. Out of this study, two things stood out as important, however. First, if the pastor was not able to, or didn't feel comfortable treating their parishioner, they referred them to a psychologist. Second, if they did recommend a psychologist, the pastor was demonstrating a "belief" in the profession of psychology. They also typically referred their parishioner to a Christian psychologist rather than to a non-Christian.

In another study, Blunt (2007) surveyed 130 conservative evangelical Foursquare Church pastors to discover their views on psychology. The questions covered areas relating to non-Christian counseling, collaboration, and referral. The mean age of the participants was 51.7 years; 118 were male (90.8%) and 12 were female (9.2%), while 75.4% had served for more than 15 years. The most prevalent ethnicity was Caucasian, at 70.8%. Those with conservative theological views made up 73.1%, moderate 25.4%, and liberal 1.5%. For educational status, 19.2% were at the master's level and 6.9% had received a doctoral degree; 63.8% had little or no formal counseling training, and 60.8% reported having only six college courses in counseling. Among their theological positions, 99.33% accepted the inerrancy of the Bible and "78.5% reported demonic influences were a contributory factor in mental health illness" (p. 90). Blunt indicated three main points when analyzing the feedback: first, many pastors had considered taking additional psychology classes; second, they felt counseling training was important to improving pastoral counseling; and third, they strongly agreed that they would not refer their members to non-Christian counselors.

The third study was from Peters (1999), who surveyed pastors in the context of whether they would refer their members to a secular psychologist. This study included Baptist (56%), United Methodist (37%), and Lutheran (7%) clergy in the state of Virginia. The participants included 75 pastors with a mean age of 47, all male and married. The average number of years in ministry was 15–20, and most were senior pastors. These pastors had on average 6-12 credits of counseling classes during college. Theologically, they considered themselves moderate. They usually expended 20–25 hours in counseling during the week, with 80% strongly agreeing on the importance of counseling; 92% felt they were prepared to do counseling. When considering whether to

refer a church member to seek outside counseling, 64% had a favorable view and 12% disagreed. Peters concluded that clergy with an average of 15 years in ministry and with moderate theological views were more liable to suggest to their church members that they seek outside counseling. It is interesting to note that, throughout the literature, those who associate themselves as holding a clergy or pastoral role have a fairly consistent view of psychology and its role in both the church and society. They recognize psychology's impact on how it affects interactions between individuals. Students going through the seminary are in a critical position of learning these skills and how to apply them once they are out in the field. Specifically, how do the seminary students at Andrews University gain this knowledge and how it can be integrated throughout their studies?

Research on Biologists' Perceptions of Psychology

Professionals in the field of biology must also have a practiced understanding of psychology and how it can help interpret functions of the body and mind. Do biologists truly accept the tenets of psychology? As the research shows below, this field often shows skepticism when considering the psychological aspect of what they consider the fundamentals of life.

There are many functions of the brain that can be categorized as both biological and psychological. Biologists' ability to see the correlation between these two areas is often a point of conflict. Researchers in the discipline of biology must be cognizant of how brain functions affect mood disorders, but also of how moods and behaviors can have a definite impact on how the brain provides feedback. Understanding the link between biological brain functions and how the brain reacts to psychological interventions can give biologists a more comprehensive appreciation of psychology.

Regarding biology, there are studies that examine how biology directly relates to psychology, psychology as a biology science (Kimble, 1977), and relationships between psychology and other sciences (Piaget, 1979).

Mental health, an area that typically has been developed using extensive research in psychology and behavioral therapy, is slowly being reduced to mere biobehavioral functions. The focus of the National Institute of Mental Health is more on how biological malfunctions in the brain cause mood disorders than on how underlying psychological issues affect individuals. The mental health field has essentially been reduced to biology and the effect brain disorders have on behavior. This is a result of mental health researchers coming to the profession with a focus on biology rather than a knowledge of psychology and how it integrates with biology.

In order for biologists to truly be successful in the study of the brain and how it both affects and is affected by behavior and psychosocial occurrences, they must train themselves to consider the role of psychology in every situation. Biologists must realize that though the two areas can be viewed as logically distinct, they certainly are not physically distinct. They cannot be reduced in either direction in the sense that one underlies the other.

Statement of the Problem

A review of the literature revealed a developing relationship between psychology and biology. Professionals in both areas have said that they are laboring in each other's backyards, and the mutual interest and enthusiasm in the two fields is high. However, throughout the literature, the intersection between psychology and biology is not well defined, though its importance to the other is of great interest.

When considering the physiological or biological aspects of the human body, it can be seen to have a positive or negative effect on the human mind (i.e., stress, feelings, emotions, thoughts). The body is also affected by the mind through a process called psychosomatics—the relationships of social, psychological, and behavioral factors to bodily processes. Therefore, biological psychology presumes that the mind and body have an interdependent relationship, and that behavior is fueled by sensory perceptions based on physiology.

Once Andrews University seminarians complete their schooling, and work out in the field, like many pastors they will need to counsel people with psychological issues such as depression, anxiety, substance abuse, relationship problems, and chronic psychopathology as part of their daily functions (Rayburn, 2000). It is not clear how seminarians perceive psychology because the literature includes no research into their knowledge base or feelings on the subject. Understanding how seminarians perceive psychology is important not only because there might be those in the religious realm who do not approve or believe in psychotherapy as a valid or even a spiritual means to treat people with psychological problems, dilemmas, and afflictions, but also because a pastor's job may be greatly affected by his or her opinion on the matter.

Purpose of the Study

The purpose of this study was to examine perceptions of psychology among seminary and biology students at Andrews University.

General Research Questions

The questions addressed by this research are as follows:

1. What are Andrews University seminary and biology students' perceptions about psychology?

2. Are there differences in perceptions of psychology between seminary and biology students at Andrews University?

Importance of the Study

This study considers the work performed by pastors and biologists, and how their professions require knowledge in the science of psychology, which focuses on how the mind affects behaviors. The duty of a pastor involves frequent interaction with individuals. These contacts often involve conversations that deal with an individual's feelings and behaviors. This is not all that different from the research biologists perform as they learn about the brain. Because of the interrelatedness between these two professions, it is useful to gain insight into their perceptions of psychology, as this may affect their work.

This study is important because it is the first research-based analysis that identifies the perceptions of psychology among Andrews University seminary and biology students.

Examining perceptions between these two groups of students may help educators teaching in these areas better understand how the attitudes and beliefs their students hold can affect learning.

Rationale for the Study

The information gathered by this study may influence professors in the areas of theology and biology to consider implementing more psychological training in their

curricula. This training can provide essential tools that both future pastors and biologists can use as they work out in their respective fields.

Students graduating from the Andrews University Seminary will work around the world in Seventh-day Adventist (SDA) churches. Within the United States, there are a number of Seventh-day Adventist church members who may need psychological services (Crosby, Freed, & Gabriel, 2006; Dudley, Mutch, & Cruise, 1987). Research to understand their perceptions about psychology is vital to serving this unique culture.

Biology graduates from Andrews University will also need to have training in the area of psychology and its interactions with the mind. Whether they are working in laboratories doing research, or teaching in a classroom, their perceptions of psychology can affect their views of human beings.

Definition of Terms

Seventh-day Adventist: “‘Adventist’ reflects our passionate conviction in the nearness of the soon return (‘advent’) of Jesus. ‘Seventh-day’ refers to the biblical Sabbath, which from Creation has always been the seventh day of the week, or Saturday” (General Conference of Seventh-day Adventists, 2012).

Psychology: The study of the mind and behavior (American Psychological Association, 2012).

Belief: An acceptance that a statement is true or that something exists.

Seminarians: People who are preparing to be pastors or are pastors studying at the graduate level.

Biology: Studying the science of living matter and life itself, as well as the forms and phenomena associated with them, with special attention given to its origin, growth, reproduction, structure, and behavior (“Biology,” 2012).

CHAPTER II

LITERATURE REVIEW

Purpose of Literature Review

The literature review will address general beliefs about psychology and biology as well as the beliefs of the Seventh-day Adventist (SDA) church and Ellen G. White concerning psychology.

Sources of Material

Most of the literature was found through web sources including Google Scholar, EBSCO, the PsychInfo database, and other searches at the Andrews University library. Key words used in the searches included *Seventh-day Adventist, psychology, biology, psychotherapy, religion, clergy, pastors, beliefs, utilization, seminarians, and theology.*

Origins of Psychology

Psychology became a science in 1879 when the first psychological research laboratory was founded at the University of Leipzig, Germany (Bernstein, Penner, Clarke-Stewart, & Roy, 2006). During the 19th century, many concepts about the mind were developed, including phrenology and mesmerism.

Phrenology was a method used at the beginning of the 19th century to interpret functions within the brain. Phrenologists believed the brain contained specific areas whose primary activities included functions such as combativeness, wonder, or

cautiousness, and that the exterior of the head represented the development of the interior. The quality of the individual was determined by the size of the brain. The “bumps” on the head were like a directory that could be read. After scientists started to investigate the brain, phrenology became classified as a pseudoscience.

Franz Anton Mesmer, who developed the theory of mesmerism, specialized in psychological causes. Mesmer used trances and séances to treat his clients, especially ones who had neuroses such as hysterical blindness and hysterical pains. Later, this trance treatment, which was a form of psychological control over another, was called hypnosis. Mesmer was one of the earliest people to use this treatment technique (Leahey, 1992).

Also, during this period of time, Darwin developed an important concept in the area of psychology. In his book *On the Origin of Species*, Darwin introduced the concept that human beings and animals were different on a graduated scale, and that humans shared inborn characteristics such as self-preservation, cognition, and emotions, but had the additional survival element of moral development. Darwin’s theory put science above God’s creation, causing belief in God to appear unnecessary (Brennan, 1998).

Sigmund Freud, a physician from Vienna, became known for his theory of the unconscious after learning about and applying a hypnosis technique. He found that women were more comfortable relating traumatic life events under hypnosis, and theorized that when unconscious conflicts were brought to awareness by using free association, hypnosis, and dream analysis, he could demonstrate the influence of these impulses. Freud’s theory became the first contemporary theory of psychoanalysis (Bernstein et al., 2006; Kosslyn & Rosenberg, 2004).

Today, scientists and psychologists pursue scientific methods by cautious observation, testing, and analysis. Psychology is an impressively diverse field. Psychologists implement both basic and applied investigation, serve as consultants to groups of people and associations, diagnose, treat people, and lecture to future psychologists and students in related educational fields of study. They also assess intelligence and personality. Many psychologists work in the medical field as health care providers. They evaluate behavior, mental function, and well-being, as well as examine how people relate to each other and technology, in an effort to improve these relationships. Psychologists help society to understand the cultural diversity that exists in the world today, and to develop skills for integration of various groups of people (Bray, 2010).

Psychologists work autonomously and with other specialists such as scientists, physicians, lawyers, human resources, computer experts, engineers, policymakers, and administrators. They are also employed in laboratories, hospitals, courtrooms, schools and universities, community health centers, prisons, and corporate offices (Bray, 2010).

There are many well-known theories currently being practiced in the field of psychology. The most common of these are Adlerian therapy, existential therapy, person-centered therapy, gestalt therapy, behavioral therapy, cognitive behavioral therapy, reality therapy, feminist therapy, postmodern approaches, and family systems therapy. These and other theories are responsible for the work and activities mentioned above. These therapies have different approaches from their predecessors. For example, cognitive behavioral therapies are based on a structured psychoeducational model that highlights the role of homework. The process involves comprehensive and interactive thinking,

judging, deciding, and doing. It is based on the foundation of the interconnectedness of thinking, feeling, and behaving (Corey, 2009).

The postmodern theory is an approach with a focus on the quality of the therapist and client relationship. The focus-solution theory is based on an optimistic view that people are healthy, competent, resourceful, and possess the ability to reconstruct and improve their lives. It concentrates on creating client solutions, with some of the main techniques being miracle questions, exception questions, and scaling questions (Corey, 2009). Both the postmodern and focus-solution theories arose during the 21st century. In order to better understand the relationship between psychology, theology, and biology, a look at the theology history is important.

Origins of Theology

Theology is the study of God and His nature. One must understand the theological rationale behind Christianity in order to fully comprehend the nature and beliefs of the Christian faith. These doctrines are rooted in God's revelation of Himself throughout the Bible (Kurian, 2012).

Christianity originated in Jerusalem, specifically in the Judea region, located in Palestine. It is considered a continuation of Judaism and conventionally associated with Palestine, although it rapidly spread to other places around Palestine. Christian theology is divided into four periods: the “patristic period, *c.* 100 – 451; Middle Ages and Renaissance, *c.* 1000 – *c.* 1500; Reformation and post-Reformation periods, *c.* 1500 – *c.* 1700; and the modern period, *c.* 1700 to the present day” (McGrath, 1994, p. 4).

During the patristic period, Christianity existed mainly in the Mediterranean world and parts of Asia, Africa, and Europe (Cairns, 2009). During this time, Christian

doctrines as well as many other religious practices were developed. Many of these are still taught in today's theological seminaries throughout the world. Also during this time, Christians were persecuted by the state, and theological topics were not openly discussed. The culture was Greco-Roman, but the political influence was the Roman Empire (Cairns, 2009).

During the Middle Ages and Renaissance, Christian theological thinking and thinkers transferred from the Mediterranean to Europe. By the 11th century, after the fall of the Roman Empire, three other theological powers arose: Byzantium, Western Europe, and the Caliphate (Islamic region). Respectively, their languages and influences were Greek, Latin, and Islamic. During this phase, tension arose between Constantinople and Rome in the way of political rivalry and increased authority for the Roman Pope. The Roman Catholic Church reached the peak of its power throughout this time period (Cairns, 2009).

During this time, Christian theology began to concentrate in central France and Germany. The study of theology became a central focus in many medieval universities, as well as the study of art, medicine, and law (McGrath, 1994). The 14th and 15th centuries brought the Renaissance period to Italy along with a renewed interest in literacy and artistic focus. Newman (1904) stated that anti-Romanist Christians during the Middle Ages could be classified into Dualistic parties, Pantheistic parties, Chiliastic parties, Evangelical separatists, and Churchly reforming parties. These groups were made up of individuals who thought progressively and approached life differently from previous cultures.

The Reformation and Post-Reformation era started in Western Europe with individuals such as Martin Luther, Huldrych Zwingli, and John Calvin. These individuals

concentrated on reforming the moral, theological, and institutional problems that were found in the Christian church in that region. The 1700s saw this movement spread globally into North America. With the establishment of the American colonies, the Lutherans, Anabaptists, and Reformed churches played a decisive role in new theological thinking. The United States of America soon became a leading center of Christian theological teaching and research within their established seminaries. Since the teachers were originally from Europe, they maintained their traditional teaching style. The modern period was the start of other religious movements that still exist today.

During the 19th century, the term “Enlightenment” was created with the objective to destroy old myths. This period also saw the rise of some anti-rational movements such as mesmerism and Masonic rituals. Throughout this period other theological movements rose up such as black theology, dialectical theology, evangelicalism, feminism, liberalism, liberation theology, modernism, postmodernism, and Romanticism (McGrath, 1994). In order to better understand the correlation between psychology, theology, and theology, a look at the history of biology is important.

Origins of Biology

Biology is the study of the nature, structure, function, behavior, and environment of living things (“Biology,” 1996). Biology, as with other sciences, has developed through various periods in time. These different stages will be presented in the following paragraphs.

Mayr (1961) proposes that biology began in the 19th century. His reasoning is that Bacon, Descartes, Leibniz, and Kant all wrote about science around that time, and many

new ideas were developed. Biology, at that time, was used mainly in medicine (including anatomy and physiology), natural history, and botany.

The *Encyclopedia Britannica* (“Biology,” 2012) states that early humans had knowledge about animals and plants that they used in everyday life. According to Serafini (1993), however, the concepts of physics, chemistry, and biology were not well developed. They did have some notions about medical techniques, which were closely linked with plants, food, and clothing, as these played a crucial role in their lives.

Early records from 1700 BC indicated that Egyptians had treatments and diagnoses for diseases and could verify the circulatory system and treat broken bones (Serafini, 1993). Beaver and Noland (1970) mention that Egyptians were skillful not only in the use of medicinal plants, but also in raising food plants and domestic animals. They also used chemicals in the mummification process to preserve the bodies of pharaohs. The Babylonians learned about sexual reproduction by observing the date palm; the pollen would be taken from the male palm tree and transported to the female tree to be fertilized (“Biology,” 2012).

Later on, with the appearance of Greek culture and its philosophers, the credibility of scientific investigation improved. Deduction and rational thought influenced how they approached the world. There were several philosophers during this time who developed new ideas and ways of scientific investigation. Hippocrates compared the body organs of animals and men, demonstrating in his studies the similarities between the two. Aristotle wrote about the psyche in humans as well as in animals. Galen was known as the most accomplished medical researcher of antiquity, and made great contributions to the study of anatomy, physiology, pathology, pharmacology, and neurology, as well as philosophy and logic.

From the third century to the 12th century, science declined in Greece and Rome. This period was considered the Middle or Dark Ages. Throughout this unproductive time, mythology and superstition dominated society with little emphasis on biological facts (Beaver & Noland, 1970). However, there was progress made in the field of biology: the Arabians translated Greek documents on biology, which furthered their knowledge in this field.

The period from AD 1200 to 1600 was known as the Renaissance period (Beaver & Noland, 1970). Botany, anatomy, and the craft of printing (“Biology,” 2012) were three very important developments that occurred during this time period. Mathematics and astronomy were studied extensively by Pythagoras (Serafini, 1993). Leonardo da Vinci, known for his empirical methods of research, applied his knowledge of human anatomy, botany, and human emotions to create paintings that are famous even today.

At the end of the 16th century, the microscope was invented by Zaccharias Jansen and his son Hans. This created a biological revolution. Other significant discoveries occurred around this time as well. Carl Linnaeus (1707-1778), known as the father of taxonomy, classified plants and animals. His famous book was *Systema Naturae*. The 19th century saw another landmark discovery in Charles Darwin’s theory of evolution, presented in his book *Origin of Species*. The circulation of blood was discovered by William Harvey, an Englishman. The cell theory was also developed during this time by Matthias J. Schleiden, a German botanist. His friend related his study of animals and zoology, and built a theory that animals and plants are built by cells (“Biology,” 2012).

If the 19th century was an age of cellular biology, the 20th century became an age of molecular biology. Cells were studied using modern methods such as X-ray diffraction and electron microscopy. Genetics, biochemistry, DNA, vitamins and coenzymes,

hormones, the properties of living organisms, physics, and chemistry are themes that are being explored by our modern-day biologists. As the body was studied on a more micro-level, new emphasis was placed on the mind and how its processing worked. Thought processes were often associated with how one related to God, so the interrelation between the workings of the mind and its connection to religion were of great interest, though often viewed with distrust or skepticism.

The Relationship Between Theology and Psychology: Perceptions and Challenges

Religious institutions have sometimes viewed the emerging psychology profession as a threat. There are Christians who emphatically reject all types of psychological theory and therapy, labeling it with disapproval as an enemy of religion (Passantino & Passantino, 1995). In addition, Bobgan and Bobgan (1987) state that psychotherapy becomes “psychoheresy” when it is joined with Christianity. The process of blending psychology and psychiatry with Christianity may damage the belief system for these adversaries (Adams, 1979; Bobgan & Bobgan, 1987; Hunt & McMahon, 1985; Kilpatrick, 1985).

Carl Rogers said, “Yes, it is true, psychotherapy is subversive. . . . Therapy, theories and techniques promote a new model of man contrary to that which has been traditionally acceptable” (as cited in Bergin, 1980, pp. 7–8). Jones and Butman (1991) introduced the idea that psychological therapies are a visualization of men that is in direct rivalry with the Christian faith. Genuine Christianity, according to Kilpatrick (1983), does not combine with psychology. Another author adds that psychology and psychiatry do not have utility (Billheimer, 1977). Passantino and Passantino (1995) maintain that psychology is one of the most controversial divisive issues in the church today.

Vitz (1977) states that psychology is pervasive in the United States and is decidedly anti-Christian. Psychology is supported by the government and taxpayers, which includes Christians. Not only does government support psychology, but schools, universities, and social programs do as well. Vitz mentions that this secular and destructive religion will soon be understood and everyone will know of its danger to society.

In studying the relationship between psychology and Christianity, Oppenheimer, Flannelly, and Weaver (2004) found that young adults categorized clergy as superior to psychologists in interpersonal ability, including affection, caring, solidity, and professionalism. But when considering opposing views, it is found that many view religion and psychology in a very different light.

According to Ellis (1980), conservative religion is directly contrary to emotional health and essentially consists of masochism, other-directedness, unempirical thinking, needless reserve, and person-abasement. In addition, Ellis (1980) claims that religion is pure neurosis and a harmful, illogical approach to existence. Psychologists have usually viewed religion as pathological guilt, neediness, and self-absorption (Ellis, 1980; Spilka, 1986).

Freud claimed that religion was an invention (1953/1964). This kind of system was invented to go toward the mindful (Suyemoto & MacDonald, 1996). “The religion of mankind must be classed among the mass-delusions [of pathology]” (Freud, 1930/1961, p. 81). Bobgan and Bobgan (1987) state that religions are delusionary and consequently malevolent. Like other behaviorists, Skinner (1953) believed that religion existed only because of reinforcement agents, such as a pastor or minister. Through its set of rules, the pastor, institution, and larger community benefit.

It has been proposed that clergy have limitations in their evaluation and recommendation skills (Weaver, 1995; Weaver & Koenig, 1996). Domino (1985, 1990), Weaver (1992), and Milstein and Bruce (2000) point out that clergy have difficulty identifying (a) emotional concerns or suicide; (b) people who are potential risks to others; and (c) people with schizophrenia or severe personality disorders. Working with the same idea, Clinebell (1966) mentions that clergy have knowledge of the Scriptures, religious history, liturgy, and church, but they possess little or no knowledge about human beings.

Religion does not possess religious saving value, says Vetter (1958). He also had several unenthusiastic observations about religion such as the following: in the world of politics and society, the correlation with institutions is negative; in the name of religion there have been many wars throughout history; religious institutions consume time, funds, and vigor from their members; and religious people demonstrate disappointing moral conduct in their observed behaviors. Chesen (1972) affirms that religion represses individuals rather than unchaining them from the constraints of mental disorder. He also states that the more inflexible and conviction-focused the person, the more disturbed guilt religion creates.

Bulkley (1997), a Christian psychiatrist, writes that those who disagree with psychology and psychiatry are “Pharisees, hypocrites, and legalists.” He adds that congregations who deliver the message of “hellfire and brimstone” in fact produce schizophrenia (Bulkley, 1997, p. 14). An initiator of Rational-Emotive Behavioral Therapy (REBT) criticized religion by saying that “devout faith tends to foster human dependency and increase emotional disturbance” (Ellis & Bernard, 1985, p. 22). Ellis (1980) affirms that all kinds of religious beliefs are pathological and lead to psychosis.

As a result of these criticisms of religion by psychology, many theologians are less than enthusiastic about the role it plays in religion. Clergy have considered psychology to be a false gospel that creates false expectations and guides people into fake harmony. Being able to join together the often-opposing views of theology and psychology is becoming more essential to understanding the mind.

Integrating Psychology Into Seminary Programs at Tertiary-Level Institutions

The history of psychology and Christian theologians shows that tensions have been common, although rapprochement has occurred in recent years. Efforts have been made to integrate psychology and Christian theology. Johnson and Jones (2000) write, “Integration is a process by which elements of psychology and a Christian system of thought and practice are adapted to one another to form a somewhat new system of Christian thought and practice; the resulting system can also be called integration” (p. 138). This advances the melding of the two areas.

Bulkley (2010) mentions that Denver Seminary, Talbot Seminary, Trinity Evangelical Divinity School, Liberty University, Moody Bible Institute, Fuller Theological Seminary, and a multitude of other Christian schools are confident that psychology and the system of religion can work together.

Major universities have recognized the importance of psychology and have been integrating psychotherapy into their seminary programs. Carter and Narramore (1979) write that students of psychology and theology are concerned about the well-being of humankind and apply these two fields to their discipline in hopes of enhancing life on earth without forgetting their Christian obligation and conscientiousness. Seminary students who desire to become pastors or who are already pastors are required to develop

counseling skills by taking at least one introductory course in counseling that is considered integrative. Wister (1994) writes that the major element of the seminary curriculum is spiritual formation, but spiritual formation needs spiritual direction, which he classifies as counseling. Part of the seminarian's training includes mastery of issues around psychosexual maturity, addictions, and spiritual direction, as well as psychotherapy, canon law, psychological testing, and diversity.

Psychology professionals teaching these integrative classes design the coursework in such a way that students learn how to incorporate psychology and spiritual matters as they work with those in their church. The goal of these courses is to help seminarians reduce apprehension in the religious community regarding psychology. They train pastors to have knowledge of spiritual and emotional maladjustment, to eliminate the shame of seeking specialists help for personal problems, to encourage ministers and theologians to provide attention to the entire individual (including the emotional side of life), and to encourage younger Christians to view psychology as a possible field for Christian service (Eck, Hill, & Stevenson, 2007). Integrating the two areas of psychology and theology at the tertiary-level seminary institutions is important. But it is also significant to understand the perspectives and challenges between psychology and biology.

The Relationship Between Psychology and Biology: Perspectives and Challenges

Human beings have numerous commonly qualified biological and psychological properties, both in common sense and in science. Piaget (1979) emphasizes that psychology holds a key place in the family of sciences. The sciences of biology and psychology have much to tell one another because they are building on each other. But how do they interrelate?

All the activities that you do, including feeling and thinking, are considered forms of biological activity in your body, with your brain being the central focus. As you are reading right now, your eyes are moving and generating biological activity (Bernstein et al., 2006). The sphere of biology and psychology “is the study of the cells and organs of the body and the physical and chemical changes involved in behavior between your body and your mind, your brain and your behavior” (Bernstein et al., 2006, p. 58).

The human brain is composed of billions of cells, with approximately 10 billion being neurons whose function is to transmit electric impulses. Neurons have two ways of communicating with cells: the first is through electrical impulses, and the second is with chemical synapses or neurotransmitters (Kimble, 1977). Some neurotransmitter systems are responsible for particular functions, such as emotion or memory, and challenging issues, such as Alzheimer’s disease (Bernstein et al., 2006). The thousands of lightning-swift electrical impulses that occur each second are what produce our thoughts, feelings, perceptions, and consciousness (Kimble, 1977).

Is the sex of a person perhaps determined by those thoughts and feelings? Do the physical environment and society play a role as well? Our culture has passed through numerous transitions regarding what is appropriate behavior for males or females. These behaviors have been studied for years by psychologists and physicians as a way of examining the differences between the genders (Bardwick, 1971; Maccoby, 1966; Maccoby & Jacklin, 1974). Kimble (1977) posits seven variables of sex, which are used by those who work with gender identity. These seven aspects are related to the body, mind, culture, and behavior. The first is *external genital morphology*, which is identified by examining the genitals to determine whether it is a boy or a girl. The second is *sex chromosome pattern*, whether the person has XY or XX chromosomes. The third,

gonadal sex as determined by morphology, is whether cells have the structure of ovarian cells or testicular cells. The fourth is *hormonal sex, correlated with associated secondary sex characteristics*; normally the male sex hormones produce facial hair, large shoulders, and heavy muscles, while female hormones produce large breasts, a pelvic structure designed for childbirth, and hairless faces. Fifth is the *internal accessory reproductive structures*: in females these will form fallopian tubes, uterus, and the upper part of the vagina, while males will develop the vas deferens, seminal vesicles, and ejaculatory tube.

The sixth variable is *sex assignment and rearing: the cultural factor*, or the significant impact of culture and the environment on a child. The differences between male and female appear to begin developing prior to birth, but some tendencies are responsive to external stimuli in complex relations (Bardwick, 1971). Self-perceptions correlated to gender will be developed during this stage. In some cultures, parental gender preference can affect the life a child leads, even to the point of killing the child if it isn't of the preferred gender. The seventh variable is *gender identity*, which society can greatly influence. The way that people present their self-perceptions will demonstrate their identity. Bernstein et al. (2006) wrote that heredity and the environment often influence our intelligence, personality, mental disorders, and other characteristics. Some characteristics of self-perceptions are related to what the person says, how they dress, erotic dreams, and fantasies (Kimble, 1977).

In short, there are many sources that reveal how mental experiences, and our identity as human beings, are rooted in biology and the psychological process. Training students to do research and consider both of these areas can be an important part of curriculum at universities.

Integrating Psychology Into Tertiary-Level Institutions

In order for future graduates to have a well-developed understanding of the central role psychology can play in the many areas of life, many universities, like the University of Michigan and University of North Carolina Chapel Hill, are integrating psychology and biology in their graduate programs. Specialists in this area see value in how behavior and biology can complement each other and can lead to a better understanding of human behavior.

Graduate students pursuing research in subjects such as brain and behavior relationships, evolution of behavior, psychological stress, and cardiovascular and immune health can find a correlation to the integration of psychology and biology. Programs such as “behavioral neuroscience, sensory processes, motivation and emotion, hormones and behavior, learning and memory, and neuropsychology” cover these two areas (Sarter, 2012, p. 4). The University of Howard has a graduate program in psychology with specializations in biopsychology, social psychology, personality, neuropsychology, and developmental, experimental, and clinical psychology. These courses demonstrate that there exists an integration of psychology and biology in graduate programs (Manaye, 2012).

At Andrews University, the graduate program in biology offers two classes as electives that integrate psychology with biology: BIOL450 Neuropsychopharmacology with an emphasis on the nervous system and drugs to treat behavioral and clinical disorders, and ZOOL475 Neurobiology, based on behavior with an emphasis on the human nervous system.

Designing university curriculum to include courses teaching the connection between the brain and psychology encourages research in the area. The brain itself fulfills

many different types of functions, such as physiological, regulative, hormonal, sensory, motor, and psychological. It can easily be described as an organ that processes information, but in relation to psychology, how the brain uses biology to process psychological functions is often not as clear.

The brain takes input or information from the environment and performs multifaceted transformations with that data. The brain will then produce either data structures (representations) or behavior as output. In cognitive psychology, the performance of the brain is seen as a method of information processing (Barkow, Cosmides, & Tooby, 1992). How the brain functions and how it processes information aid in the understanding of how psychological input and output can affect behavior.

Psychology is portrayed as pushing forward the effort to integrate psychology and biology (Barkow et al., 1992). There are two specific reasons for this apparent lack of integration. The primary reason is a bias related to some parts of biology itself (Mundale & Bechtel, 1996). This first issue is related to the difference between final and proximate clarification of a trait. This is an evolutionary explanation of the trait's origin through a process of natural selection (Mayr, 1961). The second aspect is neuroscience, which tries to reduce psychological phenomena to biology, which in turn reduces the credibility of psychology (Mundale & Bechtel, 1996).

Psychology plays a crucial role in the field of neuroscience. Mapping the brain is an area of neuroscientific research that is highly useful and has been made possible by further research in psychology. Composite systems within the brain control verbal communication, recollection, feeling, and perception. When practical considerations at the psychological level direct neurological investigations, areas inside the brain that are physically different and disparate are put together into complicated systems which

themselves are not clear at the merely neurophysiologic stage (Mundale & Bechtel, 1996).

Campbell (1975), Hinde (1987), and Symons (1979) wrote on other issues relating to these sciences. Evolutionary biology, psychology, psychiatry, and anthropology remain segregated from each other to some degree even to this day. Unlike the natural sciences, those fields do not share and understand the fundamentals of one another. Lack of attention to conceptual integration in these fields of multidisciplinary compatibility is unfortunately the professional norm. As a result of this lack of integration, evolutionary biologists have proposed cognitive procedures, but were not successful at resolving the adaptive difficulties. Reduction is another theory that needs to work on scientific integration.

Nagel (1961), writing about the reduction theory, uses the term “the unity of science.” Scientists do not process information by using the reduction theory, but instead redirect the power of current theory to a lower level. This has helped to stimulate an anti-biological spirit in conservative science.

Churches often teach this separation of psychology, theology, and biology, maintaining that their integration with one another will cause a “watering down” of religious beliefs within the church system.

The Impact of SDA Beliefs About Psychology on the Perceptions of Psychology Among Believers/Adherents

The SDA church believes that every person is created free and is an indivisible unity of body, mind, and soul. Man and woman were made in the image of God with individuality. God gave them the power and liberty to think and to do. They were made with freedom and each one with an indivisible unity of body, mind, and spirit. Both were

dependent on God for life, breath, and everything else (General Conference of Seventh-day Adventists, 2010b). E. White (1977) mentions that the mind and the body are intimately related, and that in order to achieve an elevated standard of moral and rational attainment, we should heed the laws that control our bodies.

The SDA church has a mission of healing the whole person, which includes the body, mind, and spirit. Christ teaches about the complete human being. Following His pattern, the SDA mission includes a ministry of caring for the whole human being—body, mind, and spirit. Some aspects of this ministry include care and compassion for the unwell and the suffering (General Conference of Seventh-day Adventists, 2010b).

Ellen G. White's Views on Psychology

The book *Mind, Character and Personality* (E. White, 1977) reflects what Ellen G. White thought about psychology issues during her lifetime (1827–1915). This book is a compilation, but “no preconceived views held by the compilers are represented here” (E. White, 1977, p. 2). White used the word *counselor* early on in her writings, though the word officially came into use later than the word *psychology*.

White, in her writings, observed that those who lack life experience should be guided by wise counsel when tested with temptation. Unwavering and well-directed effort will reward those who are diligent in spiritual things (E. White, 1977).

According to Burt (2008), White agreed that God used men to counsel others. God designed people to help the sick, the unfortunate, and those possessed by evil spirits to hear his voice. Through human beings, he desired to be the comfort that the world had never before seen. By saying this, White was demonstrating the necessity of counselors.

In another passage, she mentioned the need for very well prepared counselors and some of their characteristics:

It is of great importance that the one who is chosen to care for the spiritual interests of patients and helpers be a man of sound judgment and undeviating principle, a man who will have moral influence, who knows how to deal with minds. He should be a person of wisdom and culture, of affection as well as intelligence. He may not be thoroughly efficient in all respects at first; but he should, by earnest thought and the exercise of his abilities, qualify himself for this important work. The greatest wisdom and gentleness are needed to serve in this position acceptably yet with unbending integrity; for prejudice, bigotry, and error of every form and description must be met. (E. White, 1880/1884, p. 766)

These are important characteristics for those in the counseling profession: moral influence, judgment, undeviating principles, knowing how to deal with the mind, wisdom, culture, intelligence, and so forth. White also mentions that when a person goes to give counsel or admonition, their own example may be an influence for good. This can benefit the counseled person through the transforming grace of God.

Burt (2008) emphasized that a soul in crisis needs someone to have a sincere interest in them, and effective Christ-based counsel may persuade them to consider a more emotionally secure course in life. When God places individuals in our path who need guidance, neglect of this work will demand an explanation when they might have blessed, strengthened, upheld, and cured (Burt, 2008).

During Ellen White's lifetime, psychology was just starting to come into popularity. Mesmerism and phrenology were the embryonic forms of that science. White was against those concepts, calling them a technique used to control people's minds. In 1862, she wrote, "The sciences of phrenology, psychology, and mesmerism are the channel through which he [Satan] comes more directly to this generation and works with that power which is to characterize his efforts near the close of probation" (Burt, 2008, p. 3). Relating to control of the mind, E. White (1977) also wrote that it is dangerous to

place one's mind under another's control; it may provide temporary relief, but the mind may be permanently altered. White goes on to say that these practices should never be used in any SDA institution:

We do not ask you to place yourself under the control of any man's mind. The mind cure is the most awful science which has ever been advocated. Every wicked being can use it in carrying through his own evil designs. We have no business with any such science. We should be afraid of it. Never should the first principles of it be brought into any institution. (E. White, 1977, p. 330)

Another point White made in her writings was about Christians being counseled by non-Christians: she believed it might be dangerous for them to share secrets and problems with non-Christians. She mentioned from her writings that we should continue following Jesus' instructions and not put our confidence in those who do not know God or be open to their counsels. Emphatically, she stated that when we depend on counsel that is not guided by the Holy Spirit, we dishonor God and are disloyal to the gospel.

Burt (2008) concludes by saying that White supported counseling and her statements against psychology were based on her opposition to mesmerism and phrenology. According to Burt, SDA members still accept White's ideas about psychology, counseling, and mental health issues. However, do SDA pastors accept new concepts in psychology and counseling?

The Seventh-day Adventist Church's Official Stance on Psychology

In 1977, the General Conference of the SDA Church produced a document describing what the church believes about psychology, titled *Seventh-day Adventist Concepts of Psychology*. This document was written in combination with two church-organized commissions: the Members of Adventist Psychology (Definition Study Committee) and the Members of Adventist Approach (Psychology Committee). The

official document does not list the name of a chairperson for the mentioned project or even any involved school or institution.

The document put forth four main beliefs regarding psychology: (a) psychology is “recognized as a foundation for professions dealing with man”; (b) “true principles of psychology are found in the Bible and are further defined by the writings of the Spirit of Prophecy,” Ellen G. White; (c) the SDA church has its own specific philosophy and psychology concepts, and origin, nature, and destiny come from Scripture; and (d) SDA institutions should teach psychology from an Adventist viewpoint (General Conference of Seventh-day Adventists, 1977, p. 1). The main point of this document is related to the mind and the total person. It states that the SDA church considers the human being to be a whole person, a multidimensional unity. The authors agree that the mind’s central organ is the brain. This organ is responsible for organizing the life of the human being in a meaningful way relating to the past and future. Spiritual, physical, and social factors affect the mind. Cashwell and Young (2005) and Kelly (1995) associated this concept with our contemporaneous psychology, which agrees that body, mind, and soul are associated and influence each other.

The foundation of the church’s belief about psychology is its philosophical and theological understanding of human nature. The SDA church believes in the “fallen” state of humanity. It holds that humanity is deeply sinful and is born in sin, and that only when people understand and accept God’s gift of salvation can they be aware of their own personal worth and true potential.

While there is recognition of the fallen state of humanity; no redemption is obtained by that recognition alone. Therefore all consideration of our fallen nature must be accompanied by expressions, verbal and otherwise, of the high value God places on His children and on their potential for good through God’s grace. (General Conference of Seventh-day Adventists, 1977, p. 4)

Secular psychologists believe it is possible to heal a human being by their methods. However, do Andrews University seminary and biology students agree?

This church document gives advice about psychology and its components. It says that any practice that may come to control the mind or “that would lessen man’s capacity for self-determination violates the Creator’s intention” (General Conference of Seventh-day Adventists, 1977, p. 5). Examples of mind control and exploitation given in the church’s declaration include the following:

1. Misuse of psychotropic drugs
2. Brainwashing and mind control
3. Forced programming and behavior modification
4. Manipulative indoctrination
5. Subliminal indoctrination
6. Transcendental meditation
7. Yoga
8. “Charismatic” experiences
9. Rock-type music festivals
10. Extreme emotional manipulation in public religious meetings
11. Inordinate fostering of dependency in a counseling situation
12. Hypnosis (General Conference of Seventh-day Adventists, 1977, p. 5)

While the church mentions the subjects above to protect its members, each individual has the freedom to make independent choices.

Writings of SDA Authors About Psychology

In the past, SDA leaders viewed psychology as hypnotism and, as such, associated it with influence from the devil (Harding, 1987). The church condemned psychology and taught that it should be avoided. However, Harding (1987) states that psychology does have its place in the church; examining the relationship between the mind and body and how it can affect our interactions with others and with God can be beneficial. Though Harding does indicate that psychology is gradually being more accepted in the church, this cannot be supported by any empirical research. Also, whether church members feel alienated when they are involved in psychological services has not been proven through research.

In earlier years, psychology often involved mind control, brainwashing, or hypnosis. Because of this, older statements put out by the SDA church viewed psychology with suspicion (Rayburn, 2000; Walters, 2002). Members who have been in the church for many years subscribe to this way of thinking, and are often unwilling to be involved in psychology (Walters, 2002).

Parks (2007) suggests that mental health issues are a result of sin and warns SDA members not to participate in either psychology or counseling. Throughout her book, she appears to have an inaccurate understanding of the science and theory behind psychology.

There has been evidence that a need exists within the church for SDAs to utilize psychology as a resource. How this is to be accomplished within the tenets of the SDA faith is not well stated. Ouro (1997) outlined seven pillars in his *Towards an Adventist Paradigm of Psychology* theory based on Scripture and Ellen White:

1. The Creationist Pillar—God created the universe, as outlined in Gen 1-2.

2. The Monist Pillar—the mind and body are one and whole.

3. The Metahumanist Pillar—the objective is the biblical model of redemption.

“A personal relationship with God is His method to achieve human development” (p. 231).

4. The Semi-Naturalist Pillar—nature operates within the laws of nature, with the acceptance that an “Intelligent Supreme Being” intervenes in the minds of all living things on the planet.

5. The Experimentalist Pillar—using research to further the study of psychology.

6. The Neocognitivist Pillar—merged from the Bible and EGW writings; it describes basic cognitive processes of perception, thinking, motivations, beliefs, and attributions.

7. The Prospectivist Pillar—the process of continuous observation, analysis, evaluation, and critique of scientific psychology.

Brown (1994) outlines the following four models created by Miller (1991), summarizing the relation between psychology and theology:

1. The 'Against' Model: Psychology and theology are mutually exclusive and, in most cases, mutually antagonistic.

2. The 'Of' Model: Psychology is used to explain what its believers in religion have failed to explain satisfactorily [*sic*]. Human beings are born neither good nor bad but they develop as they interact with their environment.

3. The Parallel Model: Psychology and theology are separate but equal. They seek the same answers by traveling different routes. In this model theology usually finds itself in a second cousin relationship to psychology.

4. The Integrated Model: Psychology and theology exist to serve one another as mutual partners in the pursuit of knowledge with the understanding that all academic disciplines handled honestly lead to the Creator. (p. 72)

Brown (1994) proposes that Adventists should accept the sixth model. He states that the Waverley Institute for Christian Counseling identified six major helping stances that should be considered:

1. The anti-Christian counselor: This person is overtly opposed to the Bible and Christianity both in counseling practice and in the personal life of the client.
2. The non-Christian counselor: This person is not a Christian, but holds no brief against Christianity. S/he does not prevent clients from joyfully espousing their faith.
3. The 'Christianized' counselor: Such a person has no systematic theology of counseling, rather distributes texts rather freely and rather randomly.
4. The secular counselor who is a Christian: This is the person who separates personal Christian piety from professional psychological practice.
5. The Christian counselor: Such a person is a committed Christian whose basic aim is to draw others toward spiritual maturity, and bases his/her approach on Scripture alone.
6. The integrated Christian counselor: This is a Christian psychologist or psychiatrist who seeks to integrate the best principles of psychology with those of Scripture and attempts to help people toward better mental health by an integration of both. (Brown, 1994, p. 73)

Brown recommends that SDA counselors adopt the sixth.

Within SDA universities, Brown (1994) recommends that psychologists consider taking a course in pastoral counseling. This will give them training on the philosophy that the church takes towards psychology, but also helps them focus on the proven techniques and theories of counseling rather than a “certain school of thought” (p. 74). Despite the move towards better integration, the following paragraphs show that challenges still exist between the studies and practices of theology and psychology.

Possible Impact of SDA Beliefs About Science on the Perceptions of Andrews University Seminarians

Ellen G. White (1827–1915) was instrumental in founding the Seventh-day Adventist (SDA) movement during the 19th century. Seventh-day Adventists believe that White had the spiritual gift of prophecy (Rev 19:10). Though Ellen White was not a

trained scientist, she mentioned scientific matters often in her writings, which may have had an impact on SDAs' beliefs about science. For example, according to Coon (1996), White wrote that the use of cosmetics could be fatal for people. Coon cited her saying, "Seeds of death/paralysis in every pot/jar of these supposedly innocent mixtures. Some who used have experienced sudden severe illness, others go through life permanently disfigured with bad complexion" (p. 3). In White's day, many cosmetics were prepared with toxic substances and no governmental regulating body monitored the activity of manufacturers; however, today those industries are making billions of dollars and their products are carefully tested for safety.

White also wrote about pharmacology. She was opposed to the drugs being distributed by physicians during her time, many of which caused dependencies and had various side effects. She wrote, "Drugs are too often promised to restore health, and so the sick are thoroughly drugged with quinine, morphine, or some strong health-and life-destroying substance" (Anderson, 2012, p. 2). These writings demonstrated some of White's concerns about the functions of the body and human health in general. The functioning of the mind and how drugs affected it were additional subjects on which she expressed inspiration.

Another point cited by Coon (1996) from the writings of Ellen White was on the use of artificial hair and pads or wigs:

Covering of the head causes the brain to overheat, which excites spinal nerves. Blood then rushes the brain, causing unnatural activity, tends to recklessness in morals, heart/mind in danger of being corrupted. Moral/intellectual powers become servants of animal nature. Almost impossible to arouse moral sensibilities. Victim loses power to discern sacred things. This congestion causes natural hair to fall out, producing baldness. Many have lost their reason, became hopelessly insane by following this deforming fashion. They suffer horrible disease, premature death, because their desire to be in fashion of the day. (p. 2)

The material used for fake hair or wigs today is different from during White's day. The material used back in her time was fibrous bark, which often was infested with insects and led to infections, disease, and possibly death (Coon, 1996).

Masturbation, or the "secret vice" or "solitary vice," was another area that White wrote on. It was stated that this practice affected mental, physical, and moral health (Coon, 1996). Abramson and Mosher (1975) wrote that masturbation has psychosomatic effects and the symptoms are the result of psychological factors, which may cause feelings of shame, guilt, and anxiety.

Other areas White covered in her writings were the amalgamation of man and beast, lung disease, leprosy from eating pork, the dangers of cheese, and the proliferation of the antediluvians/fossil record. Science today has confirmed that much of what she wrote about was based on facts that are even now being discovered.

Possible Impact of SDA Beliefs on Andrews University SDA Biology Students' Attitudes Toward Psychology

During Ellen White's lifetime, she received 2,000 visions and dreams from God, and she wrote books and articles to instruct others in many areas of life. SDA members believe that God inspired the writings of White, but that these writings are not to be substituted for Scripture or placed at a level above the Bible (A. L. White, 2000).

SDA Christians know White as a fervent woman of faith as well as a visionary. Throughout her lifetime, White wrote more than 5,000 articles and 40 books, but today, including compilations from her 50,000 pages of manuscript, more than 100 titles are available in English. She is considered the most translated woman writer in the entire history of literature, and the most translated American author of either gender. White's writings cover a wide variety of subjects, including religion, education, psychology,

social relationships, evangelism, prophecy, publishing, nutrition, and management (A. L. White, 2000).

In *Mind, Character, and Personality* (1977), E. White writes that there exists a perfect agreement between the Bible and true science, and that psychology is a science that studies the mind and human behavior. She mentions that the true values of psychology are found in the Bible, and that Satan tries to influence our minds with his desires: “If permitted, the evil angels will work [captivate and control] the minds of men until they have no mind or will of their own” (p. 10). Satan is trying to confuse the minds of men and women so that they cannot hear the voice of God. She also wrote:

Satan often finds a powerful agency for evil in the power which one human mind is capable of exerting on another human mind. This influence is so seductive that the person who is being molded by it is often unconscious of its power. God has bidden me speak warning against this evil. (E. White, 1977, p. 23)

White was writing about giving the mind to others; when guided by Satan, this process may destroy the human capability to think and make contact with God. Satan especially desires to attack the minds of the young.

White wrote about the human mind and how it related to God and Satan. She was given instructions about how to prevent Satan from gaining access to people’s minds. For White, the mind was central to human thinking and action. “Satan comes to us with worldly honor, wealth, and the pleasures of life. These temptations are varied to meet men of every rank and degree, tempting them away from God to serve themselves more than their Creator” (E. White, 1977, p. 25). Although Satan cannot control the individual mind or intelligence unless we yield it to him, the temptation may occur wherever we are, such as at school, at home, shopping, or even in a religious place.

The writings of White appeal to all kinds of people regardless of their social, intellectual, or academic status. They can exert influence in a variety of areas or on a specific topic for students, according to what they are studying. Students may be influenced by the writings in school, through lectures from teachers, or during chapel moments when a speaker reads them. They may hear her words through a devotional book during their home worship. Another kind of contact with White's writings is in conversation, when colleagues may mention something that they have read about.

CHAPTER III

METHODOLOGY

Research Design

This is considered a quantitative study due to its use of survey data to obtain information. Quantitative studies objectively use numbers to measure a phenomenon, and after statistical analysis of the data, collective conclusions are drawn from the data. I examined seminary and biology students' perceptions about psychology and performed a quantitative comparative analysis of the data.

Population and Sample

This study was conducted on the Andrews University campus using the seminary and biology student population living on campus. According to fall 2012 registration records, there were 1,102 seminary students, 436 of whom are in the Master of Divinity program. Out of the 436 students, 293 are within the first two years of their 3-year program. The biology student population for fall 2012 included 82 junior and senior biology majors. The survey was conducted during the spring 2013 semester. The selected sample for this study comprised seminarians in their first and second years (293 students) and junior and senior biology majors (82 students).

Procedures

The steps that were followed are as follows: (a) I sought the approval of the IRB to conduct this study; (b) on receiving IRB approval, a letter was sent to the two deans representing the College of Arts and Sciences and the Seminary, requesting permission for their students to participate in this study; (c) upon receiving approval from the respective deans, I sent a letter to the sampled students with instructions about the study and the survey; (d) the students' responses were collected via Survey Monkey; (e) once all surveys were received, I proceeded with the statistical analysis.

Specific Research Questions

1. Is there a difference between seminary and biology students at Andrews University regarding
 - a. Utilization of psychology services? (D-4).
 - b. Type of the psychology services? (D-5).
 - c. Their perceptions of psychology? (D-6).
 - d. Their positive belief about psychology? (Questions 1-13, Section 1).
 - e. Their positive affect about psychology? (Questions 14-18, Section 1).

2. Do the differences between seminary and biology students at Andrews University vary by
 - a. Degree of exposure to the writings of Ellen G. White? (D-7).
 - b. Knowledge about the writings of Ellen G. White on psychology? (D-8).
 - c. Knowledge of the writings of Adventist writers on psychology? (D-9).

Null Hypotheses

1. There is no difference between seminary and biology students at Andrews University in their utilization of psychology services.
2. There is no difference between seminary and biology students at Andrews University in the types of psychology services utilized.
3. There is no difference between seminary and biology students at Andrews University in their perceptions of psychology.
4. There is no difference between seminary and biology students at Andrews University in their positive beliefs about psychology.
5. There is no difference between seminary and biology students at Andrews University in positive affect about psychology.
6. There is no difference between seminary and biology students at Andrews University in the degree of their exposure to the writings of Ellen G. White.
7. There is no difference between seminary and biology students at Andrews University in knowledge about the writings of Ellen G. White on psychology.
8. There is no difference between seminary and biology students at Andrews University in their knowledge of the writings of Adventist writers on psychology.

Variables of Study

The independent variables for this study include degree of utilization of psychology services, type of psychology service used, understanding perceptions about psychology, exposure to the writings of Ellen G. White, knowledge of the writings of Ellen G. White on psychology, knowledge of Adventist writings on psychology, degree of positive belief about psychology, and positive affect about psychology. The dependent

variables include cognitions, behaviors, and affect concerning psychology. A complete variable matrix was created that defines each variable of the survey conceptually, instrumentally, and operationally (see Appendix B).

Instrumentation

Koeppe (2012) created a detailed survey, variable matrix, and analysis matrix that are very well structured to collect the data and identify the perceptions of Andrews University seminary and biology students. This survey is an adequate measure of the variables for this study. A short version of Koeppe's instrument was used. This version contains 27 questions related to perceptions of psychology. It takes approximately 10 minutes to complete.

The survey has two sections, namely: (a) questions on perceptions about psychology and (b) demographic questions. A 5-point Likert scale was used for each item. The survey was sent to the participants via email using SurveyMonkey. The survey has a title page and each section includes instructions to guide participants (see Appendix C).

Data Collection

The data were collected during the 2013 spring semester via SurveyMonkey. Responses from each survey were entered into a database using SPSS. Comments on the back of the survey were typed up and identified by the individual's code number for reference. In order to ensure confidentiality, no identity information of participants was included in the survey.

Data Analysis

The data gathered by the survey were analyzed using descriptive statistics, a Chi-Square Test and Mann Whitney *U* Test. In order to reject or accept the null hypotheses, the significance must be below .05.

CHAPTER IV

DATA ANALYSIS RESULTS

Sample Description

The data gathered from the responses of biology and seminary students at Andrews University to the Perceptions of Psychology Questionnaire was analyzed through the SPSS statistical procedures. Descriptive statistics tables are provided to show measures of central tendency and variability of perceptions of psychology. Tables 1, 2, and 3 describe the demographic data of seminary and biology students.

Table 1

Programs of Study

	Program	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Seminary	89	73.0	73.6	99.2
	Biology	31	25.4	25.6	25.6
	Other	1	.8	.8	100.0
	Total	121	99.2	100.0	
Missing	System	1	.8		
Total	122	100.0			

Table 2

Sample Description—Age for Seminary and Biology Students

Program	18 – 25	26 – 35	36 and older	Total
Seminary	11 (12.50%)	32 (36.36%)	45 (51.14%)	88
Biology	28 (96.55%)	1 (3.45%)	0 (0.00%)	29
Total Responses	33	33	45	117

Table 3

Sample Description—Gender for Seminary and Biology Students

Program	Male	Female	Total
Seminary	74 (84.09%)	14 (15.91%)	88
Biology	12 (41.38%)	17 (58.62%)	29
Total Responses	86	31	117

The total of students researched was 122. Out of those, 31 were biology students and 89 were seminary students. More than 50% (51%) of the seminary students were 36 years old and above. Describing biology students, it was found that about 96% were 25 years old or younger. As seen in Table 3, the majority of seminary students were male (84%). This is also true regarding the biology students (58.62%).

The data reported in Table 4 show the sample description of the students' perceptions about psychology.

The data confirmed shown in Table 4 that:

1. About 52% of seminary students and 45% of biology students agreed that psychology was used to understand how the mind works. About 2% of seminary student and 6% of biology students disagreed with this statement. About 10% of seminary students and 6% of biology students indicated a “neutral” response to the item.

2. About 21% of seminary students and 6.45% of biology students agreed that psychology is only safe when practiced by a person dedicated to God’s service. About 25% of seminary students and 58% of biology students disagreed with this statement. About 27% of seminary students and 22% of biology students indicated a “neutral” response to the item.

Table 4

Sample Description – Perceptions About Psychology

Statement	Program	(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree	Mean Score	SD
1. Psychology is used to understand how the mind works.	Seminary	6 (6.82%)	2 (2.27%)	9 (10.23%)	25 (52.27%)	25 (28.41%)	3.93	1.048
	Biology	1 (3.23%)	2 (6.45%)	2 (6.45%)	14 (45.16%)	12 (38.71%)	4.10	1.012
2. Psychology is only safe when practiced by a person dedicated to God's service.	Seminary	8 (8.99%)	22 (24.72%)	24 (26.97%)	19 (21.35%)	16 (17.98%)	3.15	1.239
	Biology	4 (12.90%)	18 (58.06%)	7 (22.58%)	2 (6.45%)	0 (0.00%)	2.23	0.762
3. Ellen G. White was not supportive of psychology during the time in which she lived.	Seminary	12 (13.64%)	33 (37.50%)	31 (35.23%)	10 (11.36%)	2 (2.27%)	2.51	0.947
	Biology	2 (7.14%)	4 (14.29%)	21 (75.00%)	1 (3.57%)	0 (0.00%)	2.75	0.645
4. The study of psychology is in harmony with biblical principles.	Seminary	1 (1.12%)	7 (7.87%)	17 (19.10%)	45 (50.56%)	19 (21.35%)	3.83	0.895
	Biology	0 (0.00%)	0 (0.00%)	4 (13.33%)	19 (63.33%)	7 (23.33%)	4.10	0.607
5. Psychology helps a person understand what it means to be human.	Seminary	1 (1.21%)	5 (5.62%)	14 (15.73%)	59 (66.29%)	10 (11.24%)	3.81	0.752
	Biology	0 (0.00%)	3 (10.00%)	1 (3.33%)	21 (79.00%)	5 (16.67%)	3.93	0.785
6. All psychology is of the devil.	Seminary	62 (70.45%)	21 (23.86%)	3 (3.41%)	0 (0.00%)	2 (2.27%)	1.38	0.666
	Biology	27 (87.10%)	4 (12.90%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1.13	0.341
7. All theories about psychology should be taught in Adventist colleges.	Seminary	13 (14.77%)	28 (31.82%)	19 (21.59%)	15 (17.05%)	13 (14.77%)	2.85	1.291
	Biology	1 (3.23%)	4 (12.90%)	6 (19.35%)	10 (32.26%)	10 (32.26%)	3.77	1.146
8. There are many theories of psychology, which can explain human behavior.	Seminary	1 (1.12%)	1 (1.12%)	9 (10.11%)	61 (68.54%)	17 (19.10%)	4.03	0.665
	Biology	0 (0.00%)	1 (3.33%)	1 (3.33%)	20 (66.67%)	8 (26.67%)	4.17	0.648
9. Ellen G. White was not supportive of the theories and practice of psychology.	Seminary	9 (10.47%)	36 (41.86%)	33 (38.37%)	7 (8.14%)	1 (1.16%)	2.48	0.836
	Biology	2 (6.90%)	5 (17.24%)	21 (72.41%)	1 (3.45%)	0 (0.00%)	2.72	0.649

Table 4 – *Continued.*

Statement	Program	(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree	Mean Score	<i>SD</i>
10. Psychology is used to restore balance to both the mind and body.	Seminary	1 (1.14%)	3 (3.41%)	17 (19.32%)	59 (67.05%)	8 (9.09%)	3.80	0.697
	Biology	0 (0.00%)	4 (13.79%)	4 (13.79%)	19 (65.52%)	2 (6.90%)	3.66	0.814
11. Ellen G. White would not be supportive of psychology as it is practiced today.	Seminary	9 (10.23%)	36 (40.91%)	31 (35.23%)	10 (11.36%)	2 (2.27%)	2.55	0.909
	Biology	3 (10.34%)	7 (24.14%)	15 (51.72%)	4 (13.79%)	0 (0.00%)	2.69	0.850
12. The true principles of psychology are found in the Holy Scriptures.	Seminary	2 (2.27%)	32 (2.27%)	13 (14.77%)	33 (37.50%)	38 (43.18%)	4.17	0.925
	Biology	0(0.00%)	1 (3.33%)	13 (43.33%)	8 (26.67%)	8 (26.67%)	3.77	0.898
13. Psychology offered in Adventist colleges must be taught from an Adventist point of view.	Seminary	4 (4.65%)	13 (15.12%)	9 (10.47%)	31 (36.05%)	29 (33.72%)	3.79	1.199
	Biology	1 (3.45%)	16 (55.17%)	3 (10.34%)	4 (13.79%)	5 (17.24%)	2.86	1.246
14. I am concerned my spiritual issues would be ignored if I receive treatment from a psychologist.	Seminary	14 (16.09%)	33 (37.93%)	16 (18.39%)	21 (24.14%)	3 (3.45%)	2.61	1.124
	Biology	2 (6.90%)	12 (41.38%)	2 (2.90%)	13 (44.83%)	0 (0.00%)	2.90	1.081
15. I would feel ashamed to seek treatment for my emotional problems from a psychologist.	Seminary	28 (32.56%)	33 (38.37%)	14 (16.28%)	10 (11.63%)	1 (1.16%)	2.10	1.029
	Biology	5 (17.86%)	12 (42.86%)	4 (14.29%)	5 (17.86%)	2 (7.14%)	2.54	1.201
16. I am afraid my SDA beliefs would be compromised if I receive treatment from a psychologist.	Seminary	35 (40.23%)	37 (42.53%)	6 (6.90%)	8 (9.20%)	1 (1.15%)	1.89	0.970
	Biology	9 (32.14%)	16 (57.14%)	3 (10.71%)	0 (0.00%)	0 (0.00%)	1.79	0.630
17. If I were experiencing emotional problems, I am confident that I can be helped by a psychologist.	Seminary	0 (0.00%)	4 (4.60%)	15 (17.24%)	49 (56.32%)	19 (21.84%)	3.95	0.761
	Biology	2 (6.90%)	7 (24.14%)	9 (31.03%)	9 (31.03%)	2 (6.90%)	3.07	1.067
18. I would feel uncomfortable seeking psychological services because of what others might think.	Seminary	22 (25.29%)	32 (36.78%)	15 (17.24%)	17 (19.54%)	1 (1.15%)	2.34	1.098
	Biology	2 (6.90%)	11 (37.93%)	2 (6.90%)	14 (48.28%)	0 (0.00%)	2.971	1.085

3. About 11% of seminary students and 3% of biology students agreed that Ellen G. White was not supportive of psychology during the time in which she lived. About 37% of seminary students and 14% of biology students disagreed with this statement. About 35% of seminary students and 75% of biology students indicated a “neutral” response to the item.

4. About 50% of seminary students and 63% of biology students agreed that the study of psychology is in harmony with biblical principles. About 8% of seminary students and none of the biology students disagreed with this statement. About 19% of seminary students and 13% of biology students indicated a “neutral” response to the item.

5. About 66% of seminary students and 79% of biology students agreed that psychology helps a person understand what it means to be human. About 6% of seminary students and 10% of biology students disagreed with this statement. About 16% of seminary students and 3% of biology students indicated a “neutral” response to the item.

6. About 2.27% of the seminary and no biology students agreed that all psychology is of the devil. About 94.31% of seminary students and 100% of biology students disagreed with this statement. About 3% of seminary students and 0% of biology students indicated a “neutral” response to the item.

7. About 17% of seminary students and 32% of biology students agreed that all theories about psychology should be taught in Adventist colleges. About 32% of seminary students and 13% of biology students disagreed with this statement. About 21% of seminary students and 19% of biology students indicated a “neutral” response to the item.

8. About 68% of seminary students and 67% of biology students agreed that there are many theories of psychology that can explain human behavior. About 1% of seminary students and 3% of biology students disagreed with this statement. About 10% of seminary students and 3% of biology students indicated a “neutral” response to the item.

9. About 8% of seminary students and 3.45% of biology students agreed that Ellen G. White was not supportive of the theories and practice of psychology. About 42% of seminary students and 17% of biology students disagreed with this statement. About 38% of seminary students and 72% of biology students indicated a “neutral” response to the item.

10. About 67% of seminary students and 65% of biology students agreed that psychology is used to restore balance to the mind and body. About 3% of seminary students and 14% of biology students disagreed with this statement. About 19% of seminary students and 14% of biology students indicated a “neutral” response to the item.

11. About 11% of seminary students and 14% of biology students agreed that Ellen G. White would be supportive of psychology as it is practiced today. About 41% of seminary students and 24% of biology students disagreed with this statement. About 35% of seminary students and 52% of biology students indicated a “neutral” response to the item.

12. About 37% of seminary students and 27% of biology students agreed that the true principles of psychology are found in the Holy Scriptures. About 2% of seminary students and 3% of biology students disagreed with this statement. About 15% of seminary students and 43% of biology students indicated a “neutral” response to the item.

13. About 36% of seminary students and 14% of biology students agreed that psychology offered in Adventist colleges must be taught from an Adventist point of view.

About 15% of seminary students and 55% of biology students disagreed with this statement. About 10% of seminary students and 10% of biology students indicated a “neutral” response to the item.

14. About 24% of seminary students and 45% of biology students agreed that they were concerned that their spiritual issues would be ignored if they received treatment from a psychologist. About 38% of seminary students and 41% of biology students disagreed with this statement. About 18% of seminary students and 3% of biology students indicated a “neutral” response to the item.

15. About 12% of seminary students and 18% of biology students agreed that they would feel ashamed to seek treatment for their emotional problems from a psychologist. About 38% of seminary students and 43% of biology students disagreed with this statement. About 16% of seminary students and 14% of biology students indicated a “neutral” response to the item.

16. About 9% of seminary students and none of biology students agreed that they were afraid their SDA beliefs would be compromised if they received treatment from a psychologist. About 42% of seminary students and 57% of biology students disagreed with this statement. About 7% of seminary students and 11% of biology students indicated a “neutral” response to the item.

17. About 56% of seminary students and 31% of biology students agreed that if they were experiencing emotional problems, they would be confident that they could be helped by a psychologist. About 5% of seminary students and 24% of biology students disagreed with this statement. About 17% of seminary students and 31% of biology students indicated a “neutral” response to the item.

18. About 19% of seminary students and 48% of biology students agreed that they would not feel uncomfortable seeking psychological services because of what others think. About 37% of seminary students and 38% of biology students disagreed with this statement. About 17% of seminary students and 7% of biology students indicated a “neutral” response to the item.

Table 4 presents results that can be used to draw important conclusions. The table shows the mean (or average) score and standard deviation for each statement in section 1. Questions 1-13 list scores measuring students' positive perceptions about psychology, while questions 14-18 lists results for the positive affect about psychology.

A relevant point was that seminary students had a “neutral” response to psychology as being only safe when practiced by a person dedicated to God’s service (question 2, mean 3.15), while biology students disagreed (mean 2.23). We can see here the background study influencing the perceptions for both groups. Considering the question that all psychology is of the devil, seminary students had a mean of 1.38 and biology students had a mean of 1.13. Even though both groups disagreed on this topic, biology students had no (3) neutral, (4) agree, or (5) strongly agree answers for their sample, while seminary students had neutral and strongly agree from their sample, which may indicate that there may exist more seminary students who believe all psychology is of the devil.

Another important finding was that seminary students agreed and strongly agreed that psychology offered in Adventist colleges must be taught from an Adventist point of view (question 13) with a mean score 3.79, while biology students had a “neutral” response with a mean of 2.86. Their background field of study may influence their

responses to this question. Seminary students have more Seventh-day Adventist coursework than do biology students.

More than half (56.32%) of seminary students agreed that if they were experiencing emotional problems, they would be confident that they could be helped by a psychologist (question 17, mean 3.95) without fear that their SDA beliefs would be compromised if they received treatment from a psychologist (question 16). Also they would not feel uncomfortable seeking psychological services (question 18, mean 2.34). Biology students indicated a “neutral” response to the item. If they were experiencing emotional problems, they would be confident that they could be helped by a psychologist (question 17, mean 3.07) and not be afraid their SDA beliefs would be compromised if they received treatment from a psychologist (question 16, mean 1.79), although they would feel uncomfortable seeking psychological services (question 18, mean 2.97).

Hypothesis Testing

In this segment, the research questions and/or null hypotheses specified in Chapter 3 are restated and results are indicated for individual items. All hypotheses were examined at the .05 level of significance.

Question 1a: Is there a difference between seminary and biology students at Andrews University regarding utilization of psychology services? (D-4 - survey section 1).

Null Hypothesis 1. There is no difference between seminary and biology students at Andrews University in their utilization of psychology services.

A Chi-square test indicated a significant difference between seminary and biology students in their utilization of psychology services, $\chi^2 (df=1, N = 117) = 13.922, p = 0.000$

(Table 4) an alpha level of 0.05 was adopted for this and all subsequent statistical tests. Seminary students were found to be more likely to utilize psychology services than biology students were. See Table 5.

Table 5

Utilization of Psychology Services

	Statement	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	No (if no, please proceed to question D-6)	66	54.1	55.9	55.9
	Yes (if yes, please continue to question D-5)	52	42.6	44.1	100.0
	Total	118	96.7	100.0	
Missing	System	4	3.3		
Total		122	100.0		

Note. $X^2 = 13.922$; $df = 1$; $p = .000$.

The number 13.922 (Table 5) is the Chi-Square statistic value. This statistic involves comparing your actual results with the results you would expect to have if there were no difference between groups in terms of the other variable's groups.

The null hypothesis was rejected, $p < .05$, since there is a significant difference on utilization of psychology services among seminary and biology students.

Question 1b: Is there a difference between seminary and biology students at Andrews University in the types of psychology services utilized? (D-5 – survey section 1).

Null Hypothesis 2. There is no difference between seminary and biology students at Andrews University in the types of psychology services utilized.

The chi-square test showed no significant difference between seminary and biology students in the types of psychology services utilized, $\chi^2 (df=5, N = 51) = 8.811, p$

= 0.117 (Table 6). Both groups, seminary and biology students, would use similar types of psychology services when they felt the need. See Table 6.

Table 6

Types of Psychology Services Utilized

	Pastoral Counselor	Psychologist	Licensed Counselor	Psychiatrist	Marriage Counselor	Other
Seminary	5 (10.25%)	17 (34.69%)	14 (28.57%)	1 (2.04%)	7 (14.29%)	5 (10.20%)
Biology	0 (0.00%)	0 (0.00%)	2 (50.00%)	1 (25.00%)	0 (0.00%)	1 (25.00%)

Note. $\chi^2 = 8.811$; $df = 5$; $p = .117$.

In this case, the null hypothesis was accepted ($p > 0.05$) because no significant difference was found among seminary and biology students in the types of psychology services utilized.

Question 1c: Is there a difference between seminary and biology students at Andrews University in their perceptions of psychology? (D-6 – survey section 1).

Null Hypothesis 3. There is no difference between seminary and biology students at Andrews University in their perceptions of psychology. See Table 7.

The chi-square test showed no significant difference between seminary and biology students in their perceptions of psychology, $\chi^2 (df = 4, N = 114) = 2.284, p = 0.684$ (Table 7). The mean in Table 7 indicates that the perceptions among seminary (mean 3.06) and biology students (mean 3.39), in relation to psychology, are similar.

Table 7

Level of Perceptions About Psychology

		Novice– I have minimal perception about psychology	Beginner– I have some working perception about the key aspects of psychology	Competent-- I have a good working perception of psychology	Proficient– I have a deep understand- ing of psychology	Expert– I am an authority on the writings of Ellen G. White	Mean
Program	None						
Seminary	4 (4.65%)	9 (10.47%)	31 (36.05%)	31 (36.05%)	11 (12.79%)	0 (0%)	3.06
Biology	0 (0.00%)	4 (14.29%)	11 (39.29%)	11 (39.29%)	2 (7.14%)	0 (0%)	3.39

Note. $X^2 = 2.284$; $df = 4$; $p = .684$.

The same table also shows that both groups regard themselves at the beginner level concerning their working perception on the key aspects of psychology. There is no significance of variance in the way that seminary and biology students perceive psychology. Some of these relate to psychology as a method of understanding how the mind works, the harmony between psychology and the Bible, and understanding humankind using psychology. Others are various psychological theories which can explain the human behavior, psychology restoring balance to both mind and body, and the perception that one’s SDA beliefs may be compromised by seeking treatment from a psychologist. Null hypothesis 3 was accepted ($p > 0.05$) because there is no significant difference between seminary and biology students in their perceptions of psychology.

Question 1d: Is there a difference between seminary and biology students at Andrews University in their positive belief about psychology? (Questions 1–13, Section 1).

Null Hypothesis 4. There is no difference between seminary and biology students at Andrews University in their positive beliefs about psychology.

A Mann-Whitney U test was conducted to evaluate the hypothesis that there is no difference between seminary and biology students at Andrews University in their positive beliefs about psychology. The test was performed on the 13 statements (questions 1–13) measuring the positive beliefs of both groups of students about psychology. The results of the test were significant for four statements only (2, 7, 12, and 13); test statistics and p -values are shown in Table 8.

The Mann-Whitney U test is used to compare differences between two independent groups when the dependent variable is either ordinal or interval/ratio, but not normally distributed. In this research, the dependent variables are ordinal (measured on a 5-point Likert scale). So this test can be used to understand whether students' positive beliefs about psychology, where positive beliefs are measured on an ordinal scale, differ based on the program they are enrolled in; that is, the dependent variable would be "positive beliefs about psychology" and the independent variable would be "program," which has two groups: "seminary" and "biology" students.

Table 8 is the first table that provides information regarding the output of the actual Mann-Whitney U test. Specifically, it provides the U value as well as the asymptotic significance (2-tailed) p -value.

From these data, it can be concluded that there is a statistically significant difference between the seminary and biology students' median positive beliefs about psychology, represented by statements 2, 7, 12, and 13, where seminarians are more likely to accept that psychology is only safe when practiced by a person dedicated to God's service ($p = .000$, $p < 0.05$), psychology offered in Adventist colleges must be taught from an Adventist point of view ($p = .001$, $p < .05$), and the true principles of

Table 8

Positive Beliefs About Psychology

Statement	Mann-Whitney <i>U</i>	Wilcoxon <i>W</i>	<i>Z</i>	Assumption Sig. (2-tailed)
1. Psychology is used to understand how the mind works.	1220.000	5136.000	-.951	.342
2. Psychology is only safe when practiced by a person dedicated to God's service.	779.000	1275.000	-3.719	.000
3. Ellen G. White was not supportive of psychology during the time in which she lived.	986.500	4902.500	-1.693	.090
4. The study of psychology is in harmony with biblical principles.	1145.000	5150.000	-1.278	.201
5. Psychology helps a person understand what it means to be human.	1187.000	5192.000	-1.089	.276
6. All psychology is of the devil.	1127.000	1623.000	-1.897	.058
7. All theories about psychology should be taught in Adventist colleges.	820.500	4736.500	-3.370	.001
8. There are many theories of psychology, which can explain human behavior.	1188.000	5193.000	-1.095	.273
9. Ellen G. White was not supportive of the theories and practice of psychology.	977.000	4718.000	-1.886	.059
10. Psychology is used to restore balance to both the mind and body.	1187.500	1622.500	-.669	.503
11. Ellen G. White would not be supportive of psychology as it is practiced today.	1118.000	5034.000	-1.059	.290
12. The true principles of psychology are found in the Holy Scriptures.	959.500	1424.500	-2.364	.018
13. Psychology offered in Adventist colleges must be taught from an Adventist point of view.	758.000	1193.000	-3.268	.001

psychology are found in the Holy Scriptures ($p = .018$, $p < 0.05$). Considering the responses from biology students, their perceptions are more likely to accept that all theories about psychology should be taught in Adventist colleges ($p = .001$, $p < 0.05$). It can be concluded that this null hypothesis should be rejected.

Question 1e: Is there a difference between seminary and biology students at Andrews University in their positive affect about psychology? (Questions 14–18, Section 1).

Null Hypothesis 5. There is no difference between seminary and biology students at Andrews University in positive affect about psychology.

A Mann-Whitney U test was conducted to evaluate the hypothesis that there is no difference between seminary and biology students at Andrews University in their positive affect about psychology. The test was performed on the five statements measuring the positive affect of both groups of students about psychology. The results of the test were significant for two statements only (17 and 18); test statistics are shown in Table 9.

Table 9

Positive Affect About Psychology

Statement	Program	N	Mean Rank	Mean	Sum of Ranks
14. I am concerned my spiritual issues would be ignored if I receive treatment from a psychologist.	Seminary	87	56.39	2.61	4905.50
	Biology	29	64.84	2.90	1880.50
	Total	116			
15. I would feel ashamed to seek treatment for my emotional problems from a psychologist.	Seminary	86	54.67	2.10	4702.00
	Biology	28	66.18	2.54	1853.00
	Total	114			
16. I am afraid my SDA beliefs would be compromised if I receive treatment from a psychologist.	Seminary	87	57.76	1.89	5025.50
	Biology	28	58.73	1.79	1644.50
	Total	115			
17. If I were experiencing emotional problems, I am confident that I can be helped by a psychologist.	Seminary	87	65.37	3.95	5687.00
	Biology	29	37.90	3.07	1099.00
	Total	116			
18. I would feel uncomfortable seeking psychological services because of what others might think.	Seminary	87	54.06	2.34	4703.00
	Biology	29	71.83	2.97	2083.00
	Total	116			

Table 9 shows how seminary and biology students rate their positive affect about psychology:

1. Biology students are neutral with a mean of 2.90 relating to their concern that spiritual issues would be ignored if they received treatment from a psychologist, where as seminary students disagreed, with a mean of 2.61.

2. Seminary students (mean of 2.10) and biology students (mean of 2.54), aren't ashamed to seek treatment from a psychologist for their emotional problems.

3. Seminary students (mean of 1.89) and biology students (mean of 1.79) did not feel that their SDA beliefs would be compromised if they received treatment from a psychologist.

4. Confidence that psychological services would be beneficial to helping emotional problems was measured, with seminary students showing a mean confidence score of 3.95. Biology students were more neutral though with only a mean score of 3.07.

5. Biology students were neutral (mean 2.97) in regards to feeling uncomfortable seeking psychological services because of what others might think. Seminarians on the other hand had a mean of 2.34, which demonstrated disagreement with the statement. They were comfortable with, and sought out, psychological services without regard to what others may think.

Table 10 presents p values showing the difference between seminary and biology students at Andrews University and their positive affect about psychology.

From these data, it can be concluded that there is a statistically significant difference between the seminary and biology students in their median positive affect about psychology, represented by statements 17 and 18, $p < .05$, where seminary students are more likely to be confident that they could be helped by a psychologist if they were experiencing emotional problems ($p = .000$, $p < 0.05$) and mean score 3.95, while biology students reached a 3.07 mean score for the same statement.

We can also conclude that seminary students were more likely to be comfortable seeking psychological services because of what others might think ($p = .010$, $p < 0.05$) and mean score 2.34, while biology students had a 2.97 mean score for the same

Table 10

Positive Affect About Psychology–Mann Whitney U Test

Statement	Mann-Whitney <i>U</i>	<i>Z</i>	Assumption Sig. (2-tailed)
14. I am concerned my spiritual issues would be ignored if I receive treatment from a psychologist.	1077.500	-1.230	.219
15. I would feel ashamed to seek treatment for my emotional problems from a psychologist.	961.000	-1.679	.093
16. I am afraid my SDA beliefs would be compromised if I receive treatment from a psychologist.	1197.500	-.145	.884
17. If I were experiencing emotional problems, I am confident that I can be helped by a psychologist.	664.000	-4.109	.000
18. I would feel uncomfortable seeking psychological services because of what others might think.	875.000	-2.572	.010

statement. Because two items are statistically significant among seminary and biology students, the null hypothesis was rejected.

Question 2a: Do the differences between seminary and biology students at Andrews University vary by the degree of exposure to the writings of Ellen G. White? (D-7 – survey section 2).

Null Hypothesis 6. There is no difference between seminary and biology students at Andrews University in the degree of their exposure to the writings of Ellen G. White.

Table 11 presents Andrews University seminary and biology students' degree of exposure to the writings of Ellen G. White.

A Mann-Whitney *U* test was conducted to evaluate the null hypothesis that there is no difference between seminary and biology students at Andrews University in the degree of their exposure to the writings of Ellen G. White. Comparing a mean of 3.90 for seminary students against a mean of 3.10 for biology students indicated that seminary

students did have more exposure to the writings of Ellen G. White. This doesn't necessarily correspond with an equivalent exposure to her writings on psychology, however. Table 11 shows that the results of the test were significant, $z = -4.291, p < 0.05$. Seminary students had a mean rank of 65.01, while biology students had a mean rank of 37.22. The higher rank may be related to the coursework that seminary students are required to take. As pastors, it is necessary they be prepared for ministry in the SDA church, part of which is knowledge about the church's roots. Biology students take only basic religion classes since their focus is more on mankind as a biological being.

The groups' median scores regarding their exposure to the writings of Ellen G. White on psychology were also statistically significant different, $z = -4.291, p < .05$. Therefore, we can conclude that seminary students have significantly higher levels of exposure to the writings of Ellen G. White on psychology than do biology students. For this null hypothesis we can conclude that it was rejected ($p = .000, p < 0.05$).

Question 2b: Do the differences between seminary and biology students at Andrews University vary by their knowledge about the writings of Ellen G. White on psychology? (D-8 – survey section 2).

Null Hypothesis 7. There is no difference between seminary and biology students at Andrews University in their knowledge about the writings of Ellen G. White on psychology.

Table 11

Exposure to the Writings of Ellen G. White

Program	None	Novice – I have minimal exposure to the writings of Ellen G. White	Beginner – I have some exposure to the writings of Ellen G. White	Competent - I have read several of the writings of Ellen G. White	Proficient – I have read most of the writings of Ellen G. White	Expert – I am an authority on the writings of Ellen G. White	Mean	Mean Rank
Seminary	3 (3.49%)	2 (2.33%)	12 (13.95%)	52 (60.47%)	17 (19.77%)	0 (0.00%)	3.90	65.01
Biology	1 (3.45%)	7 (24.14%)	9 (31.03%)	12 (41.38%)	0 (0.00%)	0 (0.00%)	3.10	37.22

Note. Mann-Whitney $U= 644.500$; $Z= -4.291$; $p= .000$.

A Mann-Whitney U test was conducted to evaluate the null hypothesis that there is no difference between seminary and biology students at Andrews University in their knowledge about the writings of Ellen G. White on psychology. Table 12 presents that seminary students rate themselves as being competent (mean 2.89), with a good working knowledge of what Ellen G. White wrote in regard to psychology. Biology students rated their level of knowledge at only a mean of 1.72, which places them at beginner level with minimal knowledge of her writings on psychology. The results of the test were significant, $z = -4.611$, $p < 0.05$. Seminary students had a mean rank of 66.04, while biology students had a mean rank of 34.16.

The groups' median scores regarding their knowledge about the writings of Ellen G. White on psychology were also statistically significant, $z = -4.611$, $p < .05$. Therefore, we can conclude that seminary students have significantly higher levels of knowledge about the writings of Ellen G. White on psychology than do biology students. This null hypothesis was rejected ($p = .000$, $p < 0.05$).

Table 12 presents Andrews University seminary and biology students' knowledge about the writings of Ellen G. White on psychology.

Question 2c: Are there differences between seminary and biology students at Andrews University in their knowledge of the writings of Adventists on psychology? (D-9 – survey section 2).

Null Hypothesis 8. There is no difference between seminary and biology students at Andrews University in their knowledge of the writings of Adventists on psychology.

Table 13 presents the seminary and biology students' knowledge of the writings of Adventists on psychology.

Table 12

Knowledge About the Writings of Ellen G. White on Psychology

Program	None	Novice –	Beginner –	Competent –	Proficient –	Expert –	Mean	Mean Rank
		I have minimal knowledge of the writings of Ellen G. White on psychology	I have some working knowledge about the writings of Ellen G. White on psychology	I have a good working knowledge about the writings of Ellen G. White on psychology	I have a deep understanding of the writings of Ellen G. White on psychology	I am an authority on the writings of Ellen G. White on psychology		
Seminary	10 (11.63%)	18 (20.93%)	33 (33.37%)	21 (24.42%)	4 (4.65%)	0 (0.00%)	2.89	66.04
Biology	19 (65.52%)	2 (6.90%)	6 (20.69%)	1 (3.45%)	1 (3.45%)	0 (0.00%)	1.72	34.16

Note. Mann-Whitney $U = 555.500$; $Z = -4.611$; $p = .000$.

A Mann-Whitney U test was conducted to evaluate the null hypothesis that there is no difference between seminary and biology students at Andrews University in their knowledge about the writings of Adventists on psychology. Results showed that seminary students had a lower knowledge of the position of Adventist authors on psychology (mean 2.50) than they did regarding Ellen G. White's writings. This placed them with only beginner knowledge in this area; biology students rated themselves even lower with a mean of 1.79. The results of the test were significant, $z = -3.124$, $p < 0.05$. Seminary students had a mean rank of 63.42, whereas biology students had a mean rank of 41.93.

The groups, median scores regarding their knowledge about the writings of Adventist writers on psychology were also statistically significant, $z = -3.124$, $p < .05$. Therefore, we can conclude that seminary students have significantly higher levels of knowledge about the writings of Adventists on psychology than do biology students. This null hypothesis was rejected ($p = 0.002$, $p < 05$).

Table 13

Knowledge of the Writings of Adventists on Psychology

Program	None	Novice – I have minimal knowledge of the writings of Adventists on psychology	Beginner – I have some working knowledge of the writings of Adventists on psychology	Competent – I have a good working knowledge of the writings of Adventists on psychology	Proficient – I have a deep understanding of the writings of Adventists on psychology	Expert – I am an authority on the writings of Adventists on psychology	Mean	Mean Rank
Seminary	16 (18.60%)	27 (31.40%)	30 (34.88%)	10 (11.63%)	3 (3.49%)	0 (0.00%)	2.50	63.42
Biology	15 (51.72%)	6 (20.69%)	7 (24.14%)	1 (3.45%)	0 (0.00%)	0 (0.00%)	1.79	41.93

Note. Mann-Whitney $U=781.000$; $Z=-3.124$; $p=.002$.

CHAPTER V

SUMMARY, CONCLUSIONS, LIMITATIONS, AND
FUTURE STUDIES

Summary

The purpose of this study was to examine the perceptions of psychology among seminary and biology students at Andrews University.

For this survey, 122 participants responded. Summary statistics of demographic and background data as well as students' perception about psychology were obtained using the Frequencies procedure in SPSS. Descriptive statistics tables were provided to show measures of central tendency and variability of perceptions of psychology.

At the 0.05 level of significance, the chi-square test showed no significant difference among seminary and biology students in their types of psychology services utilized and in their perceptions of psychology. However, the chi-square test showed significant difference between the two groups in their utilization of psychology services. A Mann-Whitney *U* test found significant difference among those two groups in their positive beliefs about psychology, positive affect about psychology, exposure to the writings of Ellen G. White on psychology, knowledge about the writings of Ellen G. White on psychology, and knowledge about the writings of Adventist writers on psychology.

Conclusions

Even though the survey responses gathered from both groups of students were similar in many respects, there were some important differences as well.

When considering each of the null hypotheses, it was found that in Null Hypothesis 1 there existed differences relating to the use of psychology services. Seminarians are found to be more likely to utilize psychology services than are biology students, which indicates that seminary students are likely to believe and approve the usage of psychology services in their realm of work.

This finding becomes very relevant when it is related to the problem statement of this investigation and compared to the literature as described in the introduction of this research.

The answers obtained from question D4 (Are you currently in counseling or have you attended counseling in the past?) are somewhat consistent with the findings reported by Hung (2010), Blunt (2007), and Peters (1999), that pastors are open to referring church members to psychologists and value psychology as a profession that treats people with psychological and emotional problems, considering that the majority (53%) of seminary students answered yes to the question above, a possible indication of their acceptance and endorsement of psychology. It could be reasonable to assume that individuals who receive or have received counseling also value psychology.

Null Hypothesis 3 also showed no significant difference between seminary and biology students and their perceptions of psychology. Both groups regard themselves at the beginner level concerning their working perception on the key aspects of psychology. These two groups have more perceptions in common than not. They both agree that:

psychology is a method of understanding how the mind works; there is harmony between psychology and the Bible; psychology helps people understand what it means to be human; various psychological theories can explain human behavior; and psychology restores balance to both mind and body. Also they both disagree that one's SDA beliefs may be compromised by seeking treatment from a psychologist.

Null Hypothesis 4 indicated several interesting similarities and differences between the two fields of study. The following comments and observations are based on the sum of the columns 1 and 2 (strongly disagree and disagree) and columns 4 and 5 (agree and strongly agree) shown in Table 4. It was found that both groups agree with the following statements:

1. Psychology is used to understand how the mind works.
2. The study of psychology is in harmony with biblical principles.
3. Psychology helps a person understand what it means to be human.
4. All theories about psychology should be taught in Adventist colleges.
5. There are many theories of psychology which can explain human behavior.
6. Psychology is used to restore balance to both the mind and body.
7. The true principles of psychology are found in the Holy Scriptures.

However, these two groups also disagree that all psychology is of the devil.

It was also found that they had significant differences:

1. Biology students disagreed (71%) that psychology is only safe when practiced by a person dedicated to God's service, whereas close to 40% of the seminary students agreed.

2. Although the majority (75%) of the biology students were neutral regarding the statement that Ellen G. White was not supportive of psychology during the time she lived, slightly over half (51%) of seminary students disagreed.

3. Although the majority (72%) of the biology students were neutral regarding the statement that Ellen G. White was not supportive of psychology during the time she lived, slightly over half (52%) of seminary students disagreed.

4. Although the majority (51%) of the biology students were neutral regarding the statement that Ellen G. White was not supportive of psychology during the time she lived, slightly over half (51%) of seminary students disagreed.

5. Slightly over half (52%) of the biology students were neutral regarding to the statement that Ellen G. White was not supportive of psychology at is it practiced today. Basically, the same percentage (51%) of seminary students disagreed.

6. Although the majority (59%) of the biology students disagreed that psychology offered in Adventist colleges must be taught from an Adventist point of view, the majority (70%) of seminary students agreed.

Seminary students agreed that psychology is used to understand how the mind works and that psychology is not from the devil. Seminarians agreed also that the true principals of psychology are found in the Holy Scripture and it is in harmony with biblical principals.

It is important to note that although they agreed on these issues, they also agreed that not all theories about psychology should be taught in the Adventist colleges, which seems to be a contradiction. Why would one believe that psychology is useful, is not satanic, and is in harmony with the Bible and at the same time not agree that certain

psychological theories could be taught in Adventist colleges? The data collected does not seem to provide us with a good answer. Thus, it is interesting to observe that seminary students accepted psychology as a valid practice, but with restrictions.

These results also merit the question as to why the majority (70%) of seminary students believe that psychology offered in SDA colleges must be taught from an Adventist point of view if they (84%) also believe that psychology is used to understand how the mind works, psychology is not from the devil, and that psychology explains human behavior.

It is intriguing again, then, that seminary students were neutral regarding the statement that psychology is safe only when practiced by a person dedicated to God's service.

The results also show that half of the seminary students believe that Ellen G. White was supportive of psychology in general as exposed by questions 3, 9, and 11, although between 39% and 40% were neutral, a similar result obtained from the biology students.

The biology students were more coherent when approached with this matter. The great majority agreed with statements 1 and 7, that is, psychology is used to understand how the mind works and all the theories should be taught in Adventist colleges, and disagreed with statement 2, that is, psychology is safe only when practiced by a person dedicated to God's service.

Biology students' answers to questions 12 and 13 reinforce their coherence to this issue. More than half (56%) of them believe that the true principals of psychology are found in the Bible, but disagree (59%) that psychology offered in SDA colleges must be

taught from an Adventist point of view. This renders the conclusion that biology students are more consistent in their perception of psychology than are seminary students regarding the issues discussed above.

Null Hypothesis 5 did indicate some interesting differences between the two fields of study. It was found how seminary and biology students rated their positive affect about psychology:

1. Biology students are neutral, with a mean of 2.90, concerning their spiritual issues, and whether they would be ignored by receiving treatment from a psychologist, whereas the seminary students disagreed, with a mean of 2.61.

2. Seminary and biology students aren't ashamed to seek treatment from a psychologist for their emotional problems.

3. Both groups don't believe their SDA beliefs would be compromised if they received treatment from a psychologist.

4. Seminary students showed more confidence that psychological services would be beneficial to helping emotional problems than did biology students.

5. Biology students were neutral in regard to feeling uncomfortable seeking psychological services because of what others might think. Seminary students, on the other hand, demonstrated disagreement with the statement. They were comfortable with, and sought out, psychological services without regard to what others may think.

These results indicate that the seminary students were more coherent than biology students regarding their positive affect about psychology. Overall, the results allow one to conclude that although seminary students accept psychology as a means to treat

emotional problems, they prefer to seek Adventist psychologists and believe that psychology offered in Adventist colleges must be taught from an Adventist point of view.

A conclusion from Null Hypothesis 6 was that seminary students have significantly higher levels of exposure to the writings of Ellen G. White than do biology students, even though this doesn't necessarily correspond with an equivalent exposure to her writings on psychology. This higher level of exposure, compared with biology students, may be related to the coursework that seminary students are required to take. As pastors, it is necessary they be prepared for the ministry in the SDA church, part of which is knowledge of the church's roots. Biology students take only basic religion classes since their focus is more on mankind as a biological being.

For Null Hypothesis 7, it was concluded that the seminarians have significantly higher levels of knowledge about the writings of Ellen G. White on psychology than do biology students, which is a result of their exposure to the writings of Ellen G. White because of their coursework.

It was found from Null Hypothesis 8 that seminary students have a better level of knowledge about the writings of Adventists on psychology than do biology students, as biology students were less exposed to the writings of Adventist writers about psychology.

Several important themes that this study sought to analyze were related to perceptions of psychology, and how that perception was taught in the writings of Ellen G. White and other Adventist writers. Overall, respondents in both groups tended to have similar answers to the questions relating to perceptions of psychology. Differences did arise though, when asked specifically about how Ellen G. White and Adventist writers approached the subject.

Survey questions that showed a strong congruency between both seminary and biology students were as follows: understanding the mind using psychology; using psychology to help understand mankind; and explaining human behavior using theories of psychology. It was also apparent that over half the participants felt comfortable seeking psychological services, though it was weighted more towards students from the seminary. This further indicated a general acceptance of the ability of psychology and counseling to help heal. Seeking psychological help when needed was more important to the respondents than any perceived shame of doing so.

Another area that participants were surveyed on was exposure to the writings of Ellen G. White and Adventist writers. Knowledge of these teachings relating to psychology differed between the groups, with seminary students scoring significantly higher in this area. Since biology students were more likely to think both Ellen G. White and the Adventist church are not supportive of psychology and its theories, it can be concluded that a lack of exposure to these writings caused a perception that was opposed to the practice. Neutral answers were also frequently given, which may be indicative of this lack of exposure.

In conclusion, seminary and biology students were similar in their positive perceptions of psychology and seeking services from these professionals. The differences between the two groups, in respect to writings on the subject, are likely due to differences in educational training. Seminary students are required to study coursework covering both Ellen G. White and many different Adventist authors. This would naturally raise their awareness for what was written relating to psychology.

Limitations of the Study

The population in this study was restricted to two groups, which were selected from one university. The results should not be generalized to similar groups in multiple universities.

Directions for Future Research

Based on the findings and conclusions of this study, future research may help to enrich the data collected. Some suggestions are as follows:

1. Replicate this study with a larger sample size.
2. Compare responses from seminary and biology students attending other SDA universities in the United States.
3. Study the perceptions of psychology among seminary and biology students who attend SDA institutions outside of the United States.

APPENDIX A

LETTER

March 20, 2013

To: Survey Participants
Re: Survey Questionnaire for Research Study

Dear Survey Participant:

The purpose of this email is to request your participation in a research project for the completion of my Master's thesis. My research will compare perceptions of psychology among biology and seminary students at Andrews University.

The survey can be accessed on Survey Monkey and should take approximately 5-10 minutes to complete. Please also note that all questions are voluntary. You must be 18 years old or older to participate. Your participation is greatly appreciated.

Thank you for your time and contribution in this project. Please click on the following link.

Sincerely,

Sandro Moraes,
M.A. Educational Psychology Candidate
Andrews University

APPENDIX B

INFORMED CONSENT

Andrews University

Department Graduate Psychology and Counseling

TITLE OF THE STUDY: Perceptions of Psychology Among Seminary and Biology Students at Andrews University

Dear Participant,

If this consent form contains language that is unclear, please contact the investigator with your questions or concerns. To participate in this survey you must be at least 18 years old.

PURPOSE OF THE STUDY

The purpose of this study is to examine the perceptions about psychology among seminary and biology students at Andrews University. It intends to add to the knowledge base in the science of psychology by investigating how the perceptions of psychology affect the academic and professional careers of seminarians and biologists at Andrews University.

SUBJECT PARTICIPATION

Your participation involves completing a short survey about your perception on psychology. There are no costs for participating in this study other than the time you will spend completing the survey.

Your answers to the survey items will be strictly confidential. However, information from the study may be reviewed or copied for research or legal purposes by Andrews University. The findings from this study may be presented at meetings or published in papers. Further, only summary results of the study will be reported; results will not be reported at the school classroom levels.

It is your personal choice to participate in this study or not. You may stop at any time without any penalty. You may also choose not to answer a particular question that is asked in the survey. You may withdraw from the study at any time, for any reason, without any consequence from AU.

In the future if you have questions about your participation in this study, you may contact:

Principal Investigator

Sandro Moraes

M.A. Educational Psychology

269.471.6802

Email: pr.sandromoraes@yahoo.com.br

By selecting "Yes" below, I acknowledge that I have read and agree with the terms listed in the informed consent.

YES

NO

APPENDIX C

VARIABLE MATRIX

Variable	Conceptual Definition	Instrumental Definition	Operational Definition
1. Gender	Difference between the sexes of the participant.	This variable will be determined by response to the following question: What is your gender? (D-1) 1) Male 2) Female	Responses will be categorized as the nominal scale as follows: Male=0 Female=1
2. Age	The length of time the participant has existed.	This variable will be determined by response to the following question: What is your age? _____(D-2)	Responses will be categorized as a whole number.
3. Educational Level	The amount of schooling participated by the participant.	This variable will be determined by response to the following question: What is your education level? (D-3) 1. Some high school 2. High school diploma 3. Some college 4. Associates degree 5. Bachelor's degree 6. Masters degree Doctorate degree	Responses will be categorized as an ordinal scale as follows: Some high school=1 High school diploma=2 Some college=3 Associates degree=4 Bachelor's degree=5 Masters degree=6 Doctorate degree=7

4. Utilization of Psychological Services	Indicates whether the participant has engaged in mental health services.	This variable will be determined by response to the following question: Are you currently in counseling or have attended counseling in the past? (D-8) 1. Yes 2. No	Responses will be categorized as a nominal scale as follows: Yes=0 No=1
5. Type of the Psychological Service Used	Indicates the discipline of mental health services utilized by the participant.	This variable will be determined by response to the following question: If Yes, what type of counselor did you use? (D-9) 1. Pastoral counseling 2. Psychologist 3. Licensed counselor 4. Psychiatrist 5. Marriage counselor 6. Other	Responses will be categorized as a nominal scale as follows: If choice is circled=1 If choice is blank= 0
6. Understanding perceptions about psychology.	Indicates the current level of information about the study of an individual's thoughts, emotions, and behaviors held by the participant.	This variable will be determined by response to the following question: What is your level of perception about psychology? (D-11) 1. None 2. Novice—I have minimal perception about psychology. 3. Beginner—I have some working perception about the key aspects of psychology.	Responses will be categorized as an ordinal scale as follows: None=1 Novice—I have minimal perception about psychology. =2 Beginner—I have some working perception about the key aspects of psychology.=3 Competent—I have a good working

- | | |
|--|---|
| 4. Competent—I have a good working perception of psychology. | perception of psychology.=4 |
| 5. Proficient—I have a deep understanding of psychology. | Proficient—I have a deep understanding of psychology. = 5 |
| 6. Expert—I am an authority on psychology. | Expert—I am an authority on psychology. = 6 |

7. Exposure to the writings of Ellen G. White. Indicates the current level of contact the participant has with the writings of the prophet of the Seventh-day Adventist church.

This variable will be determined by response to the following question:

What has been your exposure to the writings of Ellen G. White? (D-12)

- | | |
|--|---|
| 1. None | None=1 |
| 2. Novice—I have minimal exposure to the writings of Ellen G. White. | Novice—I have minimal exposure to the writings of Ellen G. White.=2 |
| 3. Beginner—I have some exposure to the writings of Ellen G. White. | Beginner—I have some exposure to the writings of Ellen G. White.=3 |
| 4. Competent—I have read several of the writings of Ellen G. White. | Competent—I have read several of the writings of Ellen G. White.=4 |
| 5. Proficient—I have read most of the writings of Ellen G. White. | Proficient—I have read most of the writings of Ellen G. White.=5 |
| 6. Expert—I am an authority on the writings of Ellen G. White. | Expert—I am an authority on the writings of Ellen G. White=6 |

Responses will be categorized as an ordinal scale as follows:

8. Knowledge about the writings of Ellen G. White on psychology.

Indicates the current level of information held by the participant concerning the prophet of the Seventh-day Adventist church's writings about the study of an individual's thoughts, emotions and behaviors.

This variable will be determined by response to the following question:

What is your knowledge about the writings of Ellen G. White on psychology? (D-13)

1. None
2. Novice—I have minimal knowledge of the writings of Ellen G. White on psychology
3. Beginner—I have some working knowledge about the writings of Ellen G. White on psychology.
4. Competent—I have a good working knowledge about the writings of Ellen G. White on psychology.
5. Proficient—I have a deep understanding of the writings of Ellen G. White on psychology.
6. Expert—I am an authority on the writings of Ellen G. White on psychology.

Responses will be categorized as an ordinal scale as follows:

- None=1
Novice—I have minimal knowledge of the writings of Ellen G. White on psychology.=2
Beginner—I have some working knowledge about the writings of Ellen G. White on psychology.=3
Competent—I have a good working knowledge about the writings of Ellen G. White on psychology.=4
Proficient—I have a deep understanding of the writings of Ellen G. White on psychology.=5
Expert—I am an authority on the writings of Ellen G. White on psychology.=6

9. Knowledge of the writings of Adventists on psychology.

Indicates the current level of information held by the participant concerning writers of the Seventh-day Adventist church's writings about the study of an individual's thoughts, emotions and behaviors.

This variable will be determined by response to the following question:

What is your knowledge of the writings of Adventist writers on psychology? (D-14)

- 1) None
- 2) Novice—I have minimal knowledge of the writings of Adventists on psychology
- 3) Beginner—I have some working knowledge of the writings of Adventists on psychology.
- 4) Competent—I have a good working knowledge of the writings of Adventists on psychology.
- 5) Proficient—I have a deep understanding of the writings of Adventists on psychology.
- 6) Expert—I am an authority on the writings of Adventists on psychology.

Responses will be categorized as an ordinal scale as follows:

- None=1
Novice—I have minimal knowledge of the writings of Adventists on psychology.=2
Beginner—I have some working knowledge of the writings of Adventists on psychology.=3
Competent—I have a good working knowledge of the writings of Adventists on psychology.=4
Proficient—I have a deep understanding of the writings of Adventists on psychology.=5
Expert—I am an authority on the writings of Adventists on psychology.=6

10. Degree of positive belief about psychology.

Indicates the current level of agreement with thoughts about the study of the mind in terms of an individual's cognitive process, emotions, and behaviors.

This variable will be determined by responses to survey questions:

Psychology is defined as the study of the mind in regards to a person's thoughts, emotions, and behaviors.

Likert Scale Key: 1=Strongly disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly agree

1) There are many theories of psychology which can explain human behavior. (PP-8)

1 2 3 4 5

2) Psychology is used to understand how the mind works. (PP-1)

1 2 3 4 5

3) Psychology helps a person understand what it means to be human. (PP-5)

1 2 3 4 5

4) All psychology is of the devil. * (PP-6)

1 2 3 4 5

5) God has given man the gift of healing of the mind through psychology. (PP-15)

1 2 3 4 5

6) The study of psychology is in harmony with biblical principles. (PP-4)

1 2 3 4 5

Each question will be scored as follows:

1=1

2=2

3=3

4=4

5=5

Except in the case of reverse scoring

where the responses are scored as follows:

1=5

2=4

3=3

4=2

5=1

Responses will be tabulated as an exact interval score. The sum score for this variable will be between the ranges of 13-78 and will be divided by the number of questions (13) to obtain the mean score for this variable.

7) The principles of psychology are based on scientific research. (PP-18)

1 2 3 4 5

8) All theories about psychology should be taught in Adventist colleges. (PP-7)

1 2 3 4 5

9) Psychology is used to restore balance to both the mind and body. (PP-10)

1 2 3 4 5

10) The study of modern psychology does not conflict with Adventist beliefs. (PP-16)

1 2 3 4 5

11) The theories of psychology created from the mind of man are wrong.*(PP-20)

1 2 3 4 5

12) Psychology is not necessary to understand the mind, the Bible is enough.* (PP-21)

1 2 3 4 5

13) All psychology corrupts the mind*(PP-14).

1. 1 2 3 4 5

11. Positive affect about psychology.

Indicates the current level of agreement with emotions toward participating in the treatment of mental health problems through communication and relationship with a mental health provider held by the membership of the SDA church.

This variable will be determined by responses to survey questions:

Psychology is defined also as the treatment of mental health issues through a relationship with a trained professional such as (but not limited to) a psychologist and therapist.

Likert Scale Key: 1=Strongly disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly agree

- 1) If I were experiencing emotional problems, I am confident I would find relief in psychology. (CCA-37)
1 2 3 4 5
- 2) I am afraid my SDA beliefs would be judged if I participated in psychology.*(CCA-36)
1 2 3 4 5
- 3) I am concerned my spiritual issues would be ignored if I participated in psychology.* (CCA-3)
1 2 3 4 5
- 4) I would feel ashamed to participate in psychology. *(CCA-28)
1 2 3 4 5

Each question will be scored as follows:

- 1=1
- 2=2
- 3=3
- 4=4
- 5=5

Except in the case of reverse scoring where the responses are scored as follows:

- 1=5
- 2=4
- 3=3
- 4=2
- 5=1

Responses will be tabulated as an exact interval score. The sum score for this variable will be between the ranges of 5-25 and will be divided by the number of questions (5) to obtain the mean score for this variable.

- 5) I would feel uneasy about participating in psychology because of what others might think.* (CCA-39)
- 1 2 3 4 5

Each question will be scored as follows:

1=1

2=2

3=3

4=4

5=5

Responses will be tabulated as an exact interval score. The sum score for this variable will be between the ranges of 8-48 and will be divided by the number of questions (8) to obtain the mean score for this variable.

***= Reverse scoring applied**

APPENDIX D

SURVEY



Perceptions of Psychology

This questionnaire seeks to capture your perceptions about psychology. All responses will be treated with the utmost confidentiality and will in no way be traceable to you once the survey process has been completed. **Your participation is greatly appreciated.**

Section 1

Instructions: Please circle the number that indicates the closest to your belief about psychology. **Psychology** is defined as the study of the mind in regards to a person's **thoughts, emotions, and behaviors.**

Use the following scale for each statement:

1=Strongly disagree 2=Disagree 3= Neutral

4= Agree 5= Strongly agree

1 Psychology is used to understand how the mind works. 1 2 3 4 5

- 2 Psychology is only safe when practiced by a person dedicated to God's service. 1 2 3 4 5
- 3 Ellen G. White was not supportive of psychology during the time in which she lived. 1 2 3 4 5
- 4 The study of psychology is in harmony with biblical principles. 1 2 3 4 5
- 5 Psychology helps a person understand what it means to be human. 1 2 3 4 5
- 6 All psychology is of the devil. 1 2 3 4 5
- 7 All theories about psychology should be taught in Adventist colleges. 1 2 3 4 5
- 8 There are many theories of psychology which can explain human behavior. 1 2 3 4 5
- 9 Ellen G. White was not supportive of the theories and practice of psychology. 1 2 3 4 5
- 10 Psychology is used to restore balance to both the mind and body. 1 2 3 4 5
- 11 Ellen G. White would not be supportive of psychology as it is practiced today. 1 2 3 4 5
- 12 The true principles of psychology are found in the Holy Scriptures. 1 2 3 4 5
- 13 Psychology offered in Adventist colleges must be taught from an Adventist point of view. 1 2 3 4 5
- 14 I am concerned my spiritual issues would be ignored if I receive treatment from a psychologist. 1 2 3 4 5
- 15 I would feel ashamed to see treatment from my emotional problems from a psychologist. 1 2 3 4 5
- 16 I am afraid my SDA beliefs would be compromised if I receive treatment from a psychologist. 1 2 3 4 5
- 17 If I were experiencing emotional problems, I am confident that I can be helped by psychologist. 1 2 3 4 5

- 18 I would feel uncomfortable about participating in psychology because of what others might think. 1 2 3 4 5

Please continue to Section 2

Section 2

The next questions are about your background. Please circle the number that best describes you. **These answers are strictly confidential.**

D-1 What is your gender?

1. Male
2. Female

D-2 What is your age?

1. 18 – 25
2. 26 – 35
3. 36 and older

D-3 What is your education level?

1. Some high school
2. High school diploma
3. Some college
4. Associate's degree
5. Bachelor's degree
6. Master's degree
7. Doctorate degree

D-4 Are you currently in counseling or have you attended counseling in the past?

1. Yes (if yes, please continue to question D - 5)
2. No (if no, please proceed to question D - 6)

D-5 If yes, what type of counselor did you use?

1. Pastoral counselor
2. Psychologist
3. Licensed counselor
4. Psychiatrist
5. Marriage counselor
6. Other

D-6 What is your level of perception about psychology?

1. None

2. Novice—I have minimal perception about psychology.
3. Beginner—I have some working perception about the key aspects of psychology.
4. Competent—I have a good working perception of psychology.
5. Proficient—I have a deep understanding of psychology.
6. Expert—I am an authority on psychology.

D-7 What has been your exposure to the writings of Ellen G. White?

1. None
2. Novice—I have minimal exposure to the writings of Ellen G. White.
3. Beginner—I have some exposure to the writings of Ellen G. White.
4. Competent—I have read several of the writings of Ellen G. White.
5. Proficient—I have read most of the writings of Ellen G. White.
6. Expert—I am an authority on the writings of Ellen G. White.

D-8 What is your knowledge about the writings of Ellen G. White on psychology?

1. None
2. Novice—I have minimal knowledge of the writings of Ellen G. White on psychology
3. Beginner—I have some working knowledge about the writings of Ellen G. White on psychology.
4. Competent—I have a good working knowledge about the writings of Ellen G. White on psychology.
5. Proficient—I have a deep understanding of the writings of Ellen G. White on psychology.
6. Expert—I am an authority on the writings of Ellen G. White on psychology.

D-9 What is your knowledge of the writings of Adventist writers on psychology?

1. None
2. Novice—I have minimal knowledge of the writings of Adventists on psychology.
3. Beginner—I have some working knowledge of the writings of Adventists on psychology.
4. Competent—I have a good working knowledge of the writings of Adventists on psychology.
5. Proficient—I have a deep understanding of the writings of Adventists on psychology.
6. Expert—I am an authority on the writings of Adventists on psychology.

This completes the survey. Thank you for taking the time to assist me with my research. If you have any other information or thoughts concerning the questions you have answered, please use the space below:

Again, thank you for your time. Your contribution to this study is greatly appreciated.

APPENDIX E

ANALYSIS MATRIX

Null Hypotheses	Variables	Measurement level	Test
Gender, attendance in counseling, knowledge of psychology, knowledge of EGW views on psychology and knowledge of Adventist writers on psychology are not significant predictors of positive beliefs about psychology.	A. Gender	A. Nominal	Categorical Regression
	B. Attendance in counseling	B. Nominal	
	C. Knowledge of psychology	C. Ordinal	
	D. Knowledge of EGW views on psychology	D. Ordinal	
	E. Knowledge of Adventist writers on psychology	E. Ordinal	
	F. Positive beliefs about psychology	F. Exact interval	
Gender, attendance in counseling, knowledge of psychology, knowledge of EGW views on psychology and knowledge of Adventist writers on psychology are not significant predictors of positive attitudes towards counseling.	A. Gender	A. Nominal	Categorical Regression
	B. Attendance in counseling	B. Nominal	
	C. Knowledge of psychology	C. Ordinal	
	D. Knowledge of EGW views on psychology	D. Ordinal	
	E. Knowledge of Adventist writers on psychology	E. Ordinal	
	F. Positive beliefs towards counseling.	F. Exact interval	
Gender, attendance in counseling, knowledge of psychology, knowledge of EGW views on psychology and knowledge of Adventist writers on	A. Gender	A. Nominal	Categorical Regression
	B. Attendance in counseling	B. Nominal	
	C. Knowledge of psychology	C. Ordinal	
	D. Knowledge of EGW views on	D. Ordinal	
		E. Ordinal	
		F. Exact interval	

psychology are not significant predictors of positive beliefs about mental health issues.

psychology
E. Knowledge of Adventist writers on psychology
F. Positive beliefs about mental health issues.

Exposure to EGW writings is not a significant predictor of positive beliefs about medical care.

A. Exposure to EGW writings
B. Positive beliefs about medical care

A. Exact interval
B. Exact interval

Simple Regression

Beliefs of psychology are not significantly correlated to beliefs of medical care.

A. Positive beliefs about psychology.
B. Positive beliefs about medical care

A. Exact interval
B. Exact interval

Correlation

Beliefs about scientific research, beliefs about the principles of the church, attitudes towards counseling, beliefs towards mental health issues, beliefs about medical care are not significant predictors of the belief about psychology.

A. Beliefs about scientific research.
B. Beliefs about the principles of the church.
C. Attitudes towards counseling.
D. Beliefs toward mental health issues.
E. Belief about psychology.

A. Exact interval
B. Exact interval
C. Exact interval
D. Exact interval
E. Exact interval

Categorical Regression

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