5-2012

Determining Multidimensional Gender: Development and Psychometrics of a Measurement Instrument

Karyl Lounsbery
University of Arkansas, Fayetteville

DETERMINING MULTIDIMENSIONAL GENDER: DEVELOPMENT AND PSYCHOMETRICS OF A MEASUREMENT INSTRUMENT

DETERMINING MULTIDIMENSIONAL GENDER: DEVELOPMENT AND PSYCHOMETRICS OF A MEASUREMENT INSTRUMENT

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Counselor Education

By

Karyl L. Lounsbery
Bachelor of Science in Psychology, 2004
Black Hills State University
Masters of Science in Community Counseling, 2007
South Dakota State University

May 2012
University of Arkansas

ABSTRACT

Gender identity is often thought of only as a binary construct, masculine and feminine, despite the fact that there are many people who do not see themselves as fitting this dichotomy (Rochman, 2006). Within the counseling field, it is likely that every counselor will eventually see someone who will be struggling with issues of gender identity (Ehrensaft, 2011). The introduction of the Arkansas Multidimensional Gender Scale (AMGS) will show there is a much broader scope of gender identity, more in line with the idea that *all* gender identities are normal and that there are as many gender identities as there are people that exist (Nucciteli, n.d., Phillips & Stewart, 2008). The AMGS will show which of the 8 major categories a person falls into with room to move among those varying gender categories, thereby expanding the binary system to a multidimensional construct that takes into account genetics, biology, emotional, and mental aspects of gender identity (Calhoun, 2001).

Two hundred and thirty-seven complete assessments were received as part of the validation of this tool. Data analysis of the AMGS shows that this instrument has moderate internal consistency with sufficient variability to find overall cutoff scores for the assessment. Three factors were found as hypothesized by the writer but they did not break into the three scales surmised by the researcher. The AMGS does not display convergent validity with the Bem Sex-Roles Inventory (BSRI) as hypothesized by the author but does show discriminant validity with the Functions of Identity Scale (FIS).

Discussion of each of the specific research questions provides details of the positives and negatives of each data analysis. Limitations of the research design are presented as well as implications for counselors, social workers, psychologists, and other helping professionals.

This dissertation is approved for recommendation
to the Graduate Council

Dissertation Director:

_____

Dr. Kristin Higgins

Dissertation Committee:

_____

Dr. Roy Farley

_____

Dr. Mike Miller

_____

Dr. Jacquelyn Wiersma

DISSERTATION DUPLICATION RELEASE

I hereby authorize the University of Arkansas Libraries to duplicate this dissertation when needed for research and/or scholarship.

Agreed _____

Karyl Lounsbery

Refused _____

Karyl Lounsbery

ACKNOWLEDGEMENTS

I would like to acknowledge all those that have assisted me throughout my journey to a doctorate degree. First, I'd like to thank Dr. Kristin Higgins, my dissertation committee chairperson for all of her support, comments, suggestions, and answers to my endless questions. I'd like to thank the rest of my committee members, Dr. Roy Farley, Dr. Michael Miller, and Dr. Jackie Wiersma for their tireless energy on reading my drafts, their suggestions and feedback, and for supporting me during this long process. To all of them, I owe my utmost respect and gratitude.

I would also like to acknowledge and thank my cohorts in crime in the GA office, Dr. Betsy Nesbit, Dr. Bea Keller-Dupree, and Dr. Kelly Dunbar. Without these three lovely ladies, I would have never finished school, let alone this dissertation. Without your kind words, your listening ears, and your willingness to see me through some difficult personal and educational times, I wouldn't be here today. I miss all those hours laughing and crying in the GA office as we all led our lives, loved, lost, toiled, and succeeded.

To Jerry Leach, thanks for providing me a place to live when my world fell apart and I was facing living in my car. I appreciate the support in helping me get my life together to finish this degree and to live life to the fullest.

My thanks to Kelli Langan-Blackford who was my SAS go to gal whenever I got stuck on writing my code. Thanks for helping me find those pesky errors!!

To Dr. Dianna L. Knox, who encouraged me to make the most of myself. It took me fifteen years, but I did it, Di Lady!!

Finally, to my parents for loving me despite the difficulties we have had and the chasm we struggle to cross. We close this gap a little more each day.

DEDICATION

This dissertation is dedicated to David Eugene Walker-Crawford. What can I say? Thank you for eighteen years of wonderful friendship. Thanks for being there every time I needed you; emotionally, physically, spiritually, and financially. You are the best friend I could ever have and I will love you always. You mean the world to me and I never could have done this without you.

TABLE OF CONTENTS

LIST OF TABLES

Chapter One: Introduction

"Sex" is traditionally thought of as a dichotomous variable consisting of "male" and "female" (Drescher, 2009; Peate, 2008; Stoller, 1964). Throughout history this dichotomy, based on the presentation of outer genitalia, has been considered the normal societal expectation (Peate, 2008). Because of this societal expectation, people usually only think of two different genders, masculine and feminine (Stoller, 1964). Invariably, then, the terms "sex" and "gender" have been used interchangeably. There is evidence to suggest that someone's biological presentation of sex is not necessarily consistent with the person's gender identity, and, in fact, may have little to do with observed genitalia (Dreger, 2009; Lurye, Zosuls, & Ruble, 2008; Peate, 2008; Prince, 2005).

Worldwide, an estimated one out of every 1000-2500 people struggle with their gender identity (Campo, Nijman, Merckelbach, & Evers, 2003; Winters, 2008). When taking into account people who are born with an intersex condition, approximately .08% of the worldwide population may question their gender identity. Yet, only a fraction of this population (1 of every 30,000 adult males and 1 of every 100,000 adult females), receives psychiatric assistance or medical treatment related to their gender identity (APA, 2000). Although this number is relatively small in comparison to other psychiatric disorders such as schizophrenia (with an estimated worldwide prevalence of 1.1% [51 million people]) (APA, 2000), the treatment for gender dysphoria is more expensive and more stigmatizing than that of schizophrenia. The cost of providing services to someone with GID runs from $25,000 to $100,000 for the surgical and cosmetic procedures, and mental health treatments necessary to make the image of the body fit with that of the image of the mind (Horton, 2008; Tulayaphanich, 2010). This estimate does not include ongoing hormone replacement therapy or mental health treatment that comes from

dealing with stigma attached to being gender variant. These figures also do not include the costs of mental health services or cosmetic services for those who never undergo sexual reassignment surgery (SRS) procedures. It also does not include those who fall along a spectrum of gender identities for which no treatment is readily available (or even always desired). Unlike the costs of treating schizophrenia, which are generally covered by medical insurance, the costs of SRS is usually paid out of a person's individual pocket (Israel, 2001).

When looking at gender identity only in terms of a binary system of masculine and feminine, many people who do not lie at either end of this linear dichotomy feel unsure of where they fit into the world (Prince, 2005). These people may see SRS as the only logical option to "correct" their gender identity (Olsson & Möller, 2006). However, it is not always beneficial for someone questioning their gender identity to take such drastic measures, nor is it always the right decision to do so. It is estimated that anywhere from 2% - 30% of people who go through SRS later regret having the procedures (Conway, 2007; Lawrence, 2003; Lindemalm, K'orlin, & Uddenberg, 1986; Olsson & Möller, Pfäfflin, 1992).

Due to the costs associated with SRS, and the later regrets that may resort from surgery for some people, it is crucial that counselors, therapists, social workers, medical professionals, and other people in helping professions learn to think outside the binary gender system (Fraser, 2009; Hoffman, 2001; Rachlin, 2002). The expansion of the gender identity continuum could help people who struggle with gender identity gain a new understanding of their gender and possibly prevent them from having to pay for surgical corrections that may not be necessary to improve their mental well-being in regard to gender identity (Feder, 2009; Lombardi, 2009). A validated measure could help professionals further understand the gender continuum by showing the fluidity of gender rather than only the traditional binary construct. It could also benefit those

who do not fit within the traditional dichotomy by providing them a broader gender construct with which to identify.

Statement of the Problem

Gender identity is often thought of only as a binary construct, masculine and feminine, despite the fact that there are many people who do not see themselves as fitting this dichotomy (Rochman, 2006). Within the counseling field, it is likely that every counselor will eventually see someone who will be struggling with issues of gender identity (Ehrensaft, 2011). Because of the likelihood of facing this type of situation, it is important for counselors to be educated as to what other gender identities are possible (Fraser, 2009; Hoffman, 2001; Rachlin, 2002). Also, because gender variations have been seen throughout all cultures and times (Rosario, 2011), it is likely gender variance is normal and not something to be pathologized (Rachlin, 2002). Further, gender identity is a complex issue with a much broader presentation than just the typical masculine and feminine binary system (Rachlin, 2002; Sell, 2001). There are at least eight major categories of gender identity suggested in the literature: masculine, feminine (Hoffman, 2001), masculine-feminine (Hall, 2008; Sell, 2001), feminine-masculine, transman, transwoman, poly-gendered, and agendered (Lev, 2004; Nucciteli, n.d; Sell, 2001).

Crystallizing alternatives to the traditional masculine and feminine dichotomy would occur if there were a way to measure these alternatives. Currently, there are no assessment instruments available to counselors, social workers, therapists, or other medical professionals that assist in broadening gender identities (Hoffman, 2001). Available assessment tools, such as the Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ; Deogracias, Johnson, Meyer-Bahlburg, Kessler, Schober, & Zucker, 2007), present gender identity on the same bipolar schema as the traditional representation of gender by presenting a

dysphoric score that represents how far from the "normal" a person falls. For example, on the GIDYQ, participants receive one score on the 27-item assessment. The range of scores can fall between one and five, with one being severely gender dysphoric and five being not gender dysphoric. It was determined that men who are not gender dysphoric would score above a three on the GIDYQ and men who are experiencing trouble with their gender identity would score less than a three on the GIDYQ (Deogracias, et al., 2007) . The GIDYQ therefore does not separate other possible gender identities, it only says whether someone is or is not struggling with their gender identity. The introduction of the Arkansas Multidimensional Gender Scale (AMGS) will show there is a much broader scope of gender identity, more in line with the idea that *all* gender identities are normal and that there are as many gender identities as there are people that exist (Nucciteli, n.d., Phillips & Stewart, 2008). The AMGS will show which of the 8 major categories a person falls into with room to move among those varying gender categories, thereby expanding the binary system to a multidimensional construct that takes into account genetics, biology, emotional, and mental aspects of gender identity (Calhoun, 2001).

Within the transgender community, and within a variety of mental health groups, there is a movement to remove Gender Identity Disorder (GID) from the Diagnostic and Statistics Manual for the planned 2012 edition on the basis that GID diagnoses continue the stigmatization and discrimination of those who are gender non-conforming by pathologizing gender variance (Ault & Brzuzy, 2009; Drescher, 2009; Sennott, 2011). The stigmatization comes because of the belief that the gender binary of masculine and feminine are the only two acceptable presentations of gender (Ault & Brzuzy, 2009; Corbett, 1998; Sennott, 2011). Broadening the gender identity scope to include something besides these two options will allow for those who do not fit within

this box to be able to accept their differences, perhaps without the help of mental health professionals (Feder, 2009).

Background of the Study

Historical background.

Throughout history, people have largely perceived sex and gender as relative terms with only two polar outcomes, male and female, masculine or feminine (Rose, 2004; Stoller, 1964). However, there are many humans that fall outside the "vagina + XX chromosomes = woman / penis + XY chromosomes = man dichotomy—a dichotomy that is perhaps even more false than it is popular" (Rose, 2004, p. 79). History backs up Rose's claim that the XX and XY dichotomy of male and female is false. If the traditional male and female categories are not a true dichotomy, it only stands to reason that masculine and feminine cannot be a true dichotomy either.

What exactly creates biological males and females is not a cut and dry answer. Generally, males have an X and a Y chromosome, which is the traditional definition of a biological male. Females generally have two X chromosomes and this is the traditional definition of a biological female. Nevertheless, there are many situations which do not fit these traditional chromosomal recipes. An estimated 1:1500 to 1:2000 children are born every year with an intersex condition (MacKenzie, Huntington, & Gilmour, 2009).

Many other genetic compositions exist that further confound sexual organ presentation, which in turn, clouds the presentation of gender identity. Some of these conditions are inherited, genetic adaptations, or other genetic conditions. Any number of these conditions can cause genital presentation of one sex despite biological evidence of the child being the opposite sex. Further, these conditions are varied and complicated to understand.

Some people never realize they have an intersex condition (Hester, 2004; Reis, 2005) and live their entire lives believing they are one biological sex or the other. Often times, these people may have a vague notion that they do not fit well into their bodies but are so conditioned, socially, to be that sex, that they do not fully recognize the mismatched discomfort they feel being their biological sex when their genital sex does not match (Hester, 2004; Reis, 2005). Others are perfectly comfortable being their stated genital sex despite genetic evidence that he/she is the opposite sex (Hester, 2004; Reis, 2005). These feelings of comfort or discomfort over their bodies are part of what makes up their gender identity. This concept of comfort or discomfort over one's gender identity has been around since at least Biblical times.

The earliest known reference (approximately 7th Century B.C. E.) to cross-dressing on which current ideas of gender identity are based is found in Deuteronomy 22:5; The woman shall not wear that which pertaineth unto a man, neither shall a man put on a woman's garment: for all that do so are abomination to the Lord thy God (KJV) (Nelson, 2002; Vedeler, 2008). Further, within the Bible, there are many references to eunuchs, which are castrated males. These verses demonstrate that gender identity and struggles with gender identity are certainly not new concepts in human history.

In many other cultures and countries, there have also been other notations of gender variant people. The cinaedos of ancient Rome, the berdache of the early New World (now known as the Two-Spirit of various Native American tribes), and the mujerados of 19th century New Mexico are all historical examples of men who lived as women, dressed as women, or served in roles that women normally were in (Rosario, 2011). In the late 1860s, these types of people began to be classified into one neuropsychiatric diagnosis: sexual inversion (Rosario, 2011). Thus began the official pathologizing of gender variance. It was not until the Diagnostic

and Statistics Manual – Third Edition in 1980 (APA, 1980) however, that gender variance became an established psychiatric diagnosis (Rosario, 2011).

Theoretical background.

Those that follow a social constructionist point of view define gender very differently than those who use the dichotomous point of view. Dornan (2004) states there are six assertions that interweave through time to create gender and gender identity: 1) Gender is socially constructed and is maintained or altered via a complex interaction between structure and agent, 2) Gender is related to biological sex but is not simply correlated with it, 3) Gender construction is perpetuated by a gender ideology which garners a "norm" for gender interaction, 4) There can be multiple gender ideologies which compete with each other, 5) These gender ideologies can be maintained or changed by everyday practices and the symbols that represent those practices, and finally, 6) Gender ideology changes will alter social, economic, and political systems (Dornan, 2004).

It is these six assertions that largely drive this research project, particularly assertion number four, which states there can be multiple gender ideologies which compete with each other. For this research, the assertion is not as much that these gender ideologies compete with each other, but that they ebb and flow for each person with some gender ideologies being more readily accessible in consciousness than another ideology at any given point. For some, this predominate ideology is relatively fixed and rarely changes (Sell, 2001). This is how gender identity becomes seen as stable by those who are cisgender (do not question their gender identity). For others, the ideology is more flexible and changes frequently (Sell, 2001). Those who identify as polygender, are able to fluidly change their gender identity (i.e. their gender

ideology) seemingly at will (Sell, 2001). For those whose ideology states they are the opposite sex, their gender identity needs to be made congruent with physical presentation.

Purpose of the Study

The purpose of this research is to explore gender as a multidimensional construct and to validate a multidimensional measure of gender that will give a clearer perspective of gender identity along a continuum rather than as the socially expected dichotomous construct. This dissertation discusses historical interpretations of gender identity, genetic, biological, emotional, and cognitive aspects of gender identity, and presents a table (see Appendix A) of these concepts from which questions were derived for constructing the multidimensional measure of gender identity. Legal implications for gender variance are discussed. Different options for gender terms along a spectrum are also presented.

Research Questions

1) Is the measurement instrument developed by the author valid for finding the eight categories of gender identity proposed by the author?
    a. Does the Arkansas Multidimensional Gender Scale show adequate internal consistency?
    b. Does the Arkansas Multidimensional Gender Scale demonstrate three underlying factors as proposed by the author?
    c. Does the instrument display convergent validity with an already established gender identity measure, the Bem Sex-Role Inventory?
    d. Does the instrument display discriminant validity when compared to an instrument measuring a different construct, the Functions of Identity Scale?

2) Does the Arkansas Multidimensional Gender Scale show sufficient variability to determine cutoff scores for the eight hypothesized gender categories?
    a. Is there sufficient variability within the sample to attain cutoff scores for each scale as compared to self-reported gender identity and biological sex?
    b. Is there sufficient variability within the sample to attain overall cutoff scores for the entire instrument?

Definitions of Terms

Agender – Perceiving one's self as neither masculine nor feminine in gender identity (Stringer, 2009).

Cisgender – Perceiving one's self as the gender that fits ones sex (i.e men perceive themselves as masculine, women perceive themselves as feminine) (Gorton, Buth, & Spade, 2005).

Female – Someone whose biological, genetic, and hormonal components matches that of an XX person and whose genitalia match that underlying biological structure (Dragowski, Scharrón-del Río, & Sandigorsky, 2011).

Feminine – Perceiving oneself as embodying the traditional female roles and characteristics (Lev, 2004).

Feminine masculine – A man perceiving oneself as more feminine than masculine in gender identity (Banks, 2009; Lev, 2004).

Gender – The sense of masculinity or femininity that is based on societal expectations of how men and women should behave. This is not based entirely on biology, genetics, or hormonal components (Dragowski, Scharrón-del Río, & Sandigorsky, 2011).

Gender identity – A person's internal sense of being masculine or feminine, whether or not the biological, chromosomal, or hormonal structure matches that sense of self (Ross-Gordon, 1999).

Gender variant – Any gender presentation or identity that transgresses the traditional binary system of gender presentation (Stringer, 2009).

Intersex – A person whose genitals, hormones, or chromosomes do not match the traditional XY/XX presentation of sex. This includes people who were born with genital ambiguity, internal organs of both sexes, or some variation of chromosomal make-up such as any type of Kleinfelter's Syndrome, Fragile X Syndrome, or 46, XX Syndrome. Formerly called 'hermaphrodite', which has fallen out of favor (Bess, 2006).

Male – Someone whose biological, genetic, and hormonal components matches that of an XY person and whose outer genitalia match that underlying biological structure (Dragowski, Scharrón-del Río, & Sandigorsky, 2011).

Masculine – Perceiving one's self as embodying the traditional male roles and characteristics (Lev, 2004).

Masculine feminine – A woman perceiving one's self as more masculine than feminine in gender identity (Banks, 2009).

Polygender – Having a gender identity that can continually change from masculine to feminine and anywhere in between (Stringer, 2009).

Sex – The biological, chromosomal, and hormonal structure of a person that leads to the categorization of male or female at birth. This is based on the presentation of outer genitalia and may later be determined to be incorrect based on further genetic or hormonal testing not generally performed if the genital presentation is traditional for a male or female (Lev, 2004).

Sexual Reassignment Surgery – A surgery, or series of surgeries, that remove the male or female genitalia and facial/chest characteristics of men and women and reconstructs these features to be those of the opposite sex. Common surgical procedures include breast removal/breast enhancement, chest reconstruction, facial feminization, tracheal shaving, phalloplasty, and vaginoplasty (American Psychological Association [APA], 2006).

Transgender – An umbrella term encompassing anyone whose gender identity does not fall within the traditional masculine or feminine categories for the sex that he/she was born. Those who were born female and who identify as feminine would not be considered transgender (vice versa for men who identify as masculine) (Pettitt, 2007).

Transman – A person who was born genetically, biologically, and hormonally female but identified as masculine in gender identity. This person may have undergone sexual reassignment surgery(ies) in order to make his body match his gender identity (Veale, Lomax, & Clarke, 2010).

Transwoman – A person who was born genetically, biologically, and hormonally male but identified as feminine in gender identity. This person may have undergone sexual reassignment surgery(ies) in order to make her body match her gender identity (Veale, Lomax, & Clarke, 2010) .

Summary

Gender identity has long been conceptualized as a dichotomous position, consisting of only masculine and feminine, and is generally based on genital presentation. However, history has shown that many cultures have had people who do not identify as either masculine or feminine but rather identify somewhere in between or as neither. Current measures of gender identity do not adequately encompass the broad varieties of gender identity that exist. Instead,

they measure the traditional dichotomy and whether or not someone is upset about a gender identity that does not fit within that dichotomy. Current literature supports the idea of a multidimensional view of gender identity for which no measures exist. The Arkansas Multidimensional Gender Scale (AMGS) will provide a multidimensional view of gender identity by expanding beyond the traditional masculine and feminine to include eight separate categories for gender identity.

Chapter Two

Literature Review

Historical context of sex and gender.

Throughout time.

Throughout history, people have largely perceived sex and gender as relative terms with only two polar outcomes, male and female, masculine or feminine (Rose, 2004; Stoller, 1964). Whether or not some people believe that many humans fall outside the "vagina + XX chromosomes = woman / penis + XY chromosomes = man dichotomy—a dichotomy that is perhaps even more false than it is popular" (Rose, 2004, p. 79), history shows otherwise.

The earliest known person to perhaps display cross-gender behavior is a late Stone Age man recently found in the Czech Republic (Mail Foreign Service [MFS], 2011). The Stone Age man was found just outside of Prague and is believed to be roughly 5000 years old (MFS, 2011). He was buried in a typically female style, lying on his left side with his head facing west (MFS, 2011). A typically male burial would have comprised of the man lying on his right side with his head pointing east (MFS, 2011). He also would have been buried with knives, tools, food, and drink (MFS, 2011). Women were buried with household jugs and an egg shaped pot, as was this body (MFS, 2011). Katerina Semradova, an archaeologist on the team that made the find, was quoted as saying "What we see here doesn't add up to traditional Corded Ware cultural norms" (MFS, 2011, para. 10). Further, she went on to say, "We believe this is one of the earliest cases of what could be described as a 'transsexual' or 'third gender grave in the Czech Republic'" (MFS, 2011, para. 14). She also stated that this burial was unlike the Mesolithic Age female buried as a warrior or the burials of shamans in Siberia (MFS, 2011).

The earliest known reference (approximately 7th Century B.C. E.) to cross-dressing on which current ideas of gender identity are based is found in Deuteronomy 22:5; The woman shall not wear that which pertaineth unto a man, neither shall a man put on a woman's garment: for all that do so are abomination to the Lord thy God (KJV) (Fraser, 2009; Nelson, 2002, p. 262). This one verse of the Bible documents at least some form of dressing as the other sex as far back as 9000 years ago, which is part of the current foundational definition of gender identity. Currently, the American Psychiatric Association's Diagnostic and Statistics Manual of Mental Disorders Revised 4th Edition (DSM-IV-TR, APA, 2000), bases part of its definition of Gender Identity Disorder on the presumption that people who experience dysphoria regarding their gender identity will prefer wearing clothing stereotypically meant for the other sex. Finding references to cross-dressing throughout antiquity into modern times, means that this behavior is not a new concept in the world.

One of the most famous historical people associated with gender identity problems/cross-dressing, is Joan of Arc. Joan of Arc, best known for hearing voices and seeing visions she believed were from God, dressed as a man and went to visit King Charles VII at his place of exile and eventually helped him win back the throne of France in 1429 (Pernoud, 1962; Richey, 2003). Recent studies suggest she may have suffered from complete androgen insensitivity syndrome (CAIS) and may have actually been genetically male (Warren, 2009). One thing is certain though, Joan of Arc was burned at the stake in 1431 with one of her named crimes being that she dressed as a man (Pernoud, 1962; Richey, 2003). Joan of Arc was later "Sainted" in the Catholic Church for her role in freeing France from England's reign (Richey, 2003). If someone from this time in history looked female, and, at the very least, cross-dressed, and perhaps had a

genetic disorder that made her genetically male, this leads one to question: What defines "gender" in any day and age?

Other words used in the current gender identity movement have also been around for several centuries. For example, the word “tomboy,” which is often used to describe a girl or woman who acts manly, has been around since at least the 16th century (Hall, 2008) and potentially since the 13th century (Grahn, 1984). Some words, such as “femme” and “butch” have been around for more than a century, but only became associated with gender and sexuality in the mid-1900s (Webster, 2011).

Serious study of transgenderism began in the late 19th century (Drescher, 2010). At that time, homosexuality and transgenderism were linked as being the same issue (Drescher, 2010). One of the most famous psychiatrists of the time, Richard von Krafft-Ebbing, determined that transgenderism was psychopathological in nature (Drescher, 2010). This led to a long era of persecution by mental health professionals toward those who were transgender, resulting in blaming the transgender person (Conway, 2006).

In the 1920s transgenderism and homosexuality began to be separated into distinct issues when Magnus Hirschfeld distinguished between the two (Drescher, 2010; Rosario, 2011). Also in the 1920s, doctors in various European countries began experimenting with the first sexual reassignment surgery procedures (Drescher, 2010). However, it wasn’t until the 1950s that sexual reassignment surgery really gained steam when George Jorgensen went to Denmark as a biological man and returned as Christine Jorgensen, a female (Drescher, 2010; Rosario, 2011).

Current.

Transgender is a relatively new term in the scope of gender research (Devor, 2002). The term was originally coined by Virginia Prince in the 1970s (Devor, 2002). Since then, the

transgender movement, and research about those who are transgender, has been growing (Lombardi, 2009). Prior to the coining of the term transgender, many doctors (urologists, psychiatrists, gynecologists, and general practitioners) thought those who were transsexual were neurotic or psychotic (Green, 1969). In 1980, the Diagnostic and Statistics Manual, Third Edition (DSM-III, APA, 1980), the terms transsexual and gender identity disorder took root in the mental health field (Rosario, 2010).

It was at roughly this same time that researchers began to understand that children as young as two and a half years old were already cognizant of gender roles and were able to place themselves in a sex category of boy or girl (Zucker & Bradley, 2005). Children may also start experiencing discomfort with their gender roles and gender identity as early as age two (Giordano, 2007; Peate, 2008). Children are the ones who suffer the most when mental health providers do not understand all the ways gender can be expressed (Hill, Menvielle, Sica, & Johnson, 2010). But, to understand what children or adults need from mental health providers, it is necessary to first explore what even makes up ones gender identity. This includes all of the biological, genetic, chromosomal aspects as well as the emotional and thought processes involved.

Theories of Gender Identity Development

Biological components of sexual development are not disputed. However, their role in gender identity is often entwined with psychosocial factors in such a way that makes it difficult to separate the two components successfully (Kessler, 1990). Biological components known to affect gender identity include such things as hormonal and androgen contributions to fetal development, malformed genitals in those who are intersex, and the chromosomal make-up of an individual (Kessler, 1990). Further, doctors determine, for infants who are intersex, which sex

to assign them at birth based on genital presentation and chromosomal and hormonal make-up at time of delivery in an attempt to match the sex with the probable gender identity of the child (Kessler, 1990). Even this decision, however, is based on cultural views of what an acceptable penile length at birth is and what a culturally normal vaginal presentation is, and not solely on genetic factors (Kessler, 1990). It is hoped that by correcting the sexual organ presentation to the chromosomal make-up, the child will grow up to hold a gender identity that matches their sexual presentation. Doctors feel that gender identity is malleable until approximately 18 months of age at which time it solidifies (Kessler, 1990). It is this short window of opportunity to mold a child's gender identity to that of his or her sexual presentation that is the crux of why doctors perform genital corrective surgery in infancy (Kessler, 1990). Discussed below are some of the different ways genetics and biology can influence sexual presentation and therefore gender identity.

Genetic variations.

Genetic sex, the basis of where gender identity is formed, is a very complex issue. Within the genetic realm, there are any number of conditions that fall outside of the traditional XY/XX presentation of sex. Some of these genetic, biological, or inherited conditions that may possibly affect genital presentation include Kleinfelter's Syndrome (the most widely diagnosed sex chromosome problem in men) (Toubai, et al., 2004), 46 XX males (Dorsey, Hsieh, & Roth, 2009; Vorona, Zitzman, Gromoll, Schüring, & Nieshlag, 2007), Fragile X Syndrome in both males and females (Cornish, Turk, & Hagerman, 2008), XY/XXY (Bojesen, Juul, Birkebæk, & Gravholt, 2006; Robboy & Jaubert, 2007; Vorona, Zitzman, Gromoll, Schüring, & Nieshlag, 2007) in presumed biological males, Turner's Syndrome (Rolstad, Möller, Bryman, & Boman, 2007) in presumed biological females, Complete Androgen Insensitivity Syndrome (CAIS) (Lux,

Kropf, Kleinemeier, Jürgensen, Thyen, & DSD Network Working Group, 2009) predominately found in biological females, Kallman's Syndrome (Meyenburg & Sigusch, 2001) found in both sexes, Partial Androgen Insensitivity Syndrome (PAIS) (Lux et al., 2009) found predominately in biological females, Congenital Adrenal Hyperplasia (CAH) (Dressens, Slijper, & Drop, 2005) found predominately in biological females, and Micropenis (Ravish, Nerli, & Kamat, 2007), also found in those thought to be biologically female.

Any one of these conditions can cause problems with gender identity, some of which start in infancy when the parent(s) are forced to decide which genital presentation the infant should have (Kessler, 1990; MacKenzie, et al., 2009). Traditional treatment for an intersex child presenting with ambiguous genitalia, or both sets of fully formed genitalia, is to surgically "correct" the condition so the child only has one set of genitalia (Kessler, 1990; MacKenzie et al., 2009; Reis, 2005). Unfortunately, the parent(s) do not always tell the child that he or she has an intersex condition, which later creates its own set of problems (MacKenzie et al., 2009). Many of these children grow up with a nagging sense of gender dysphoria. Some end up having SRS later in life to correct what has already been "corrected" (Reis, 2005).

Fetal development.

Another biological factor that may play into these genetic conditions and gender identity as a larger concept stems from research that shows that all fetuses initially start out with the capacity to become either male or female within intrauterine development. A fetus has both Wolffian ducts (the "male plumbing" ducts) and Müllerian ducts (the "female" plumbing ducts) (Wang, Dicken, Lustbader, & Tortoriello, 2009). At about eight weeks of development, a Müllerian-inhibiting substance (MIS) is produced in order to regress the Müllerian ducts, which is necessary for development of male fetuses (Wang et al., 2009). Sometimes, this process goes

wrong and males are born with remnants of Müllerian ducts, which may or may not cause problems for them later on (Wang et al., 2009). However, given the problems that can occur when the MIS does not function correctly, it is necessary to take into account situations such as this when trying to define gender.

One other interesting piece of the genetic/biological puzzle is that males who experience GID are two and a half times more likely to be left-handed than other men (Veale, Clarke, & Lomax, 2010; Zucker, Beaulieu, Bradley, Grimshaw, & Wilcox, 2001). How this piece fits in the context of gender identity is, as of yet, undetermined although it is believed that handedness is a function of androgen levels in prenatal development (Veale et al., 2010). However, it provides one more biological/genetic component for determining gender identity in a multidimensional manner.

Related to handedness is the ratio of the second and fourth finger lengths (2D:4D) (Manning, Churchill, & Peters, 2007). This ratio is thought to be a result of exposure to testosterone in uterine development and is a sexually dimorphic trait that changes very little later in life, unlike other dimorphic traits like height or waist-to-hip ratio (Manning et al., 2007). These ratios are generally different between men and women, particularly on the right hand (Manning et al., 2007). Men usually have a shorter second finger than the fourth finger. Women tend to have a second and fourth finger that are equal in length or the second finger slightly longer than the fourth finger (Manning et al., 2007). A lower ratio in women means that their hands are more masculinized (Manning et al., 2007). Men with a higher ratio means their hand are feminized (Manning et al., 2007). These ratios in men have been shown to be correlated with sexual orientation, particularly with those who are of European American decent (Manning et al., 2007). There is not as much correlation in these ratios in regard to women (Manning et al.,

2007). With these additional pieces of the puzzle, one is able to see how much more convoluted determining gender from just a socially constructed dynamic may be.

Importance of biological sex.

As a result of modern scientific inquiry has come the assumption that physical features tell us something about the internal experience of a person (Nicholson, 1994). Presentation of genital attributes largely drive gender assignment at birth (Reis, 2005). Unfortunately, this assignment at birth can be harmful to those who are gender variant, causing emotional and cognitive responses that do not match their biological sex. This leads to the notion that some of gender identity must be constructed, otherwise, every person would feel that the body he or she is in matches their own internal view of themselves.

Social Constructivist Theories of Gender Identity

Recognition of biological sex.

Several emotional responses, along with a variety of cognitive responses, shape a person's gender identity. It is difficult to know if these emotional and cognitive thoughts are a response to differences in biological and genetic differences or are a result of environment. Within the context of gender identity, there are three main patterns that exist in shaping one's identity; 1) the person recognizing himself/herself as a man or woman in terms of biology, 2) how the person feels about their biological/genetic sex, and 3) how the sense of identity affects the person's ability to cope in the world (Lurye et al., 2008; Peate, 2008; Stoller, 1964).

Within these internal processes, people may have very different experiences. Some "men" may realize they are biologically/genetically male, may like being a man, and determine being a man is important to them, and therefore they do well in the world because their identity is congruent in all areas (Sell, 2001). This is someone whose gender identity is "masculine".

However, other men may realize they are biologically/genetically male but feel and think they are *not* like men, but rather are more congruent with being feminine (Sell, 2001). Being a male is not important to them because they see themselves as women. Because of these incongruent thoughts and feelings connected to their biological/genetic sex (also called dysphoria), this group may have mixed abilities to cope in the world (Sell, 2001). This group may end up as cross-dressers, transvestites, and/or drag queens (Sell, 2001). A third group may *not* realize they are biologically/genetically men, think and feel as if they are women, feel that being a woman is important, and may have difficulty in the world as *other people* see them as being male when internally they do not fit that criteria (Peate, 2008; Sell, 2001). In this situation, a person is most likely to be diagnosed with Gender Identity Disorder (GID) and could potentially end up having sex reassignment surgery to transition to a woman (Peate, 2008).

These same types of situations are also found in women. In this context, women who feel more masculine but still recognize they are female, and do not think being female is important, will most likely end up as the "tomboy" in childhood, which may possibly carry into adulthood (Hall, 2008). The women who carry the “tomboy” persona into adulthood may be cross-dressers or drag kings, and generally identify as lesbian with very few heterosexual women cross-dressing or carrying the tomboy/butch identity into adulthood (Zevy, 2004). Many women who were tomboys as a child often grow up to be heterosexual, reiterating that sexual orientation is separate from gender identity (Peplau, Garnets, Spalding, Conley, & Veniegas, 1998). Those women who are born female but do not recognize they are biologically/genetically female, who think/feel they are men, and who think it is important to be a man, will probably end up having SRS to transition to a man and being diagnosed with GID (Peate, 2008).

Within these situations are others that lie somewhere in between. While most people tend to think of gender identity as falling in the dichotomy of masculine and feminine, the author proposes a continuum, more of a conical interpretation of gender (See Figure B.1, Appendix B). At the narrow end of the cone would be cisgendered (being genetically male or female and identifying as masculine or feminine accordingly) (Gorton, Buth, & Spade, 2005). The reason these would be at the narrow end is because this is the dichotomous, therefore most narrowly defined, concept of gender. It is estimated that 99.9% of adults fit into this category (Robinson, 2007). On the slightly wider edges of the cone, would fall the concepts of feminine masculine men and butch feminine women. These run down the outside edge of the cone as they are more broadly defined. On the outermost part of the cone, the widest part, is the concept of transman and transwoman. These are the most broadly defined, therefore the furthest away from cisgendered people. Halfway through the cone are the concepts of agendered (meaning feeling as if the person has no gender) and poly-gendered (feeling as if the person is both/many genders). These concepts are the most difficult to define and the least recognized of all the gender identities. Therefore, they are on the inner side of the cone, most hidden from the outer world. Running through the center of the cone, affecting each concept of gender identity, is the biological/genetic portion of gender. This portion includes those who are biologically male, those who are biologically female, and those who are biologically and/or genetically intersex. This portion is internal as these biological and genetic conditions are unalterable at the cellular level.

Because gender identity is so complex, it does not present in a linear fashion with dichotomous end-points. Rather, the conical shape allows for both narrow and broad definitions of gender with the biological/genetic components woven through the center of each identity

presentation. Because agender and poly-gender still present as their biological/genetic sex, at least some of the time, they are also placed in the middle of the cone.

With the concept of gender defined as an ever broadening cone, questions related to gender for an assessment, must follow the same conical shape. Some questions must be very narrow while others must be very broad. Potential questions that may help measure gender on a spectrum of concepts are: I am biologically a male; I am biologically a male and I like being a male; I am biologically a male, I like being a male, and being male is important to me; I am biologically a male but I feel more like a female; and, I do not see myself as a biological male, I feel like a female, and being female is important to me. While these are potential questions, it is important to note that a variety of conditions must be met to assure these questions are measuring what it is the author is trying to capture.

Feelings about biological sex.

Feelings about one's biological sex are derived from their understanding of gender roles and the gender schema taught via society (Bem, 1981b). This gender schema becomes an internal motivator for a child to try and fit into what society thinks he or she should be (Bem, 1981b). It is in childhood that the first inklings of gender variance may start to occur. For example, Corbett (1998) recalls a conversation he had with one of his male clients as the client was relating his childhood gender experiences, "I never believed I was a girl, but I had trouble believing I was a boy. You only have two options, after all. So how do you decide?" (p. 353). Many children who recognize they are gender variant experience loneliness, are ashamed of themselves and think that they are freaks (Peate, 2008). Other children, especially those who later grow up to be transsexuals, often feel this same sense of dissonance with their biological sex, but on a deeper level than those who are just gender variant (Morgan & Stevens, 2008). For

example, Morgan & Stevens (2008) recount Rick's (a pseudonym) story of when his baby brother was born and he realized he was a little girl, not the boy he thought he was. Rick is a female-to-male (FtM) transsexual:

> "There was just this blunt realization that my body does not have a penis. That doesn't necessarily mean gender, but it says that there's just something that feels different about my body that's not there. So what I struggle with now, as an adult, has been well, penis doesn't equal masculinity, but yet it still feels like a missing component." (p. 588).

Still others often experience anger and confusion over their sex when compared to their internal sense of who they are. In recounting Jonathon's story (another FtM transsexual with a pseudonym), Morgan and Stevens (2008) relate Jonathon's confusion when people called him a girl, "The earliest I can remember is probably around four or five years old. I was being called a girl. In my mind, I was male and I didn't understand why they were telling me I'm a girl. I'm not a girl, I'm not a girl" (p. 589).

Others, particularly at adolescence, feel a sense of repugnance and humiliation at their bodies (Morgan & Stevens, 2008). Sean (a FtM transsexual with a pseudonym) related to Morgan and Stevens (2008) his view of adolescence, "It's puberty when your body is your traitor" (p. 589).

While these are the more extreme presentations of a person's feelings toward his or her gender identity, not everyone has such extreme feelings related to their gender identity. Those who may measure as masculine feminine may only experience a "feeling of difference" (Gottschalk, 2003, p. 46). Also, they may identify with the tomboy persona and react when someone questions that. For example, Sell (2001) relates the story of one of her participants when the participant was confronted by her mother for her tomboy proclivities at age 11. The participant answered her mother's confrontation of not being able to be a tomboy forever with,

"Oh yeah? Watch me!" (p. 101). Further, those who may measure as feminine masculine may feel a low sense of masculine self-image (Gottschalk, 2008). This is demonstrated by one of Sell's (2001) other participants when a male-born person who identified as feminine masculine stated "I have been drawn to the feminine and have enjoyed playing in the feminine, and maybe even wanted to *feel* like a girl but I didn't want to *become* a girl" (p. 104, italics in original). Others who identify as neither male nor female as an adult have made comments like "[I] never clearly identified with either" or "[I] never really felt like either one" (Sell, 2001, p. 105). The complexity of feelings that go along with the multitude of biological presentations that exist, are the crux of gender identity. It is important to fully understand these situations for a variety of reasons; to receive appropriate mental health treatment, to obtain surgical treatment when necessary, and to prevent legal conundrums that may come with gender variant presentation.

Legal Considerations

Historical legal cases.

Within the United States, the earliest known court documents related to gender identity are from 1629 in Colonial Virginia (Reis, 2005; Rose, 2004). In this case, Thomas or Thomasine Hall (names by which this person went) was declared by the General Court to be both male and female when more than 10 people were unable to agree on his/her biological sex and she/he repeatedly changed gender roles from masculine to feminine (Rose, 2004). The courts then dictated what type of clothing T. Hall must wear for the remainder of his/her life, including men's apparel but on his head he should wear a "Coyfe [a close-fitting cap] and Crosecloth [a type of headdress worn by women at the time] with an apron before him" (as quoted in Rose, 2004, p. 93).

As this case demonstrates, determining biological sex can be almost as difficult as determining gender identity. Within the debate of what makes up gender identity, is the complex process of determining biological sex. Because biological sex and genetics are connected, the two issues are examined together.

In 1845 South Carolina, a court ruled that people who were hermaphrodites were unable to marry because they could not be an opposite sex to either a man or a woman (Rose, 2004). Also in the 1800s, there were two separate marital cases where one spouse claimed the other spouse was a hermaphrodite (Rose, 2004). One in New Jersey (Van Arsdalen v. Van Arsdalen) featured an 80 year old man who claimed his wife was a hermaphrodite (Rose, 2004). Apparently, the husband said many peculiar things about his wife, who was only 35 at the time of the marriage, when he asked for financial support from her when the marriage ended. The case was resolved in favor of the wife (Rose, 2004).

The other case (Piepho v. Piepho) took place in Illinois when a man stated his wife was incapable of making love with a man because she was a hermaphrodite. However, this man had lived with his wife for thirteen years with her in this condition, therefore the court determined that he must have accepted her condition and could not now claim it was so much of a burden to him that he now needed out of the marriage (Rose, 2004).

These legal cases represent the rocky start to obtaining equality for those who are gender variant. While these cases are not directly applicable to the research at hand, they are related to what it is that defines gender, whether it be legal, medical, or psychological in nature. Since one of the primary purposes of this research is to expand the definition of gender identity, it is crucial to have a clear understanding of where gender identity has been and where it currently is going.

Current legal cases.

The legal definition of transgender, as defined by the Supreme Court in Farmer v. Brennan in 1994, is "one who has '[a] rare psychiatric disorder in which a person feels persistently uncomfortable about his or her anatomical sex,' and who typically seeks medical treatment, including hormonal therapy and surgery, to bring about a permanent sex change" (Womack, 2010, p. 1367). This definition misses the subtleties inherent in the gender identity of many people. This means that many people who are gender variant may not be covered under the laws as they currently stand. Current legal cases involving people with gender variance involve topics such as the legality of marriages (Minter, 1999), custody of children (National Center for Lesbian Rights, 2010), discrimination in employment (Smith, Grambrell, & Russell, 2006) and issues related to education for students, both at the K – 12 level and the collegiate level (Gay, Lesbian, and Straight Education Network [GLESN]; Womack, 2010). Further, for those who are transsexual, other legal matters need attention, such as changes of sex on birth certificates, passports, driver's licenses, and social security forms (Brill & Pepper, 2008). As demonstrated by the following cases, those who are gender variant still have a long fight ahead of them to gain equality. Assuring that mental health workers are well versed in the intricacies of gender variance could go a long way toward equality, hence the need to further educate them as to what other presentations of gender variance exist.

In 1976, a New Jersey court decided a case between J. T. and M. T. and the legality of their marriage (Robson, 2007). This case upheld the right of M. T. and J. T. to be married even though M. T. had transitioned from female to male via SRS and J. T. remained male. In this case, the court decided favorably for the marriage because it was determined that sexual capacity

of the two men was still able to be performed in a satisfactory manner because M. T. was still emotionally a woman (Robson, 2007).

In another case in Texas (Littleton v. Prange), the Texas Court of Appeals ruled against the wife of a deceased person (Littleton) to be able to sue the physician (Prange) for wrongful death. In this case, the court determined that Christie Littleton because she was born a male and her birth certificate was originally filed as male, could not sue even though she had had a sex change and the birth certificate amended to reflect her new sex and name (Robson, 2007). The court stated that since she was born male, that was "just the way things are" and she could not "will into being" a new sex (Robson, 2007, p. 61).

As one can see, there are still contradictory outcomes in case law as to gender identity and the rights of those who are gender variant. Perhaps if there were an adequate measure to show the variety of gender presentations, the courts would have a better understanding of the needs of gender variant people. Throughout history, many such measurement instruments have been created. Some of the main instruments are explored below.

Measurements Throughout Time

Early 20th century.

Throughout the 20th Century, several tests were constructed to measure masculinity and femininity (Hoffman, 2001). In 1936, the idea of masculine and feminine as polarized personality traits was formalized in a book by Lewis Terman and Catharine Miles called Sex and Personality: Studies in Masculinity and Femininity (Hoffman, 2001). In that book, they developed a measurement tool to identify masculine and feminine traits by using intelligence testing ideas (Hoffman, 2001). They called this tool the Attitude-Interest Analysis Survey

(AIAS) (Hoffman, 2001). Terman and Miles used this name to cut down on the possibility that the answers would be influenced by people knowing the purpose of the test (Hoffman, 2001).

Attitude-Interest Analysis Survey.

In 1936, Terman and Miles wrote a book called "Sex and Personality: Studies in Masculinity and Femininity". In this book, Terman and Miles posited the measurement of masculinity and femininity via the Attitude-Interest Analysis Survey (AIAS). This measurement instrument was based on intelligence testing constructs popular at that time in history.

In the AIAS (Terman & Miles, 1936), the premise was that if there was a difference between a person's biological sex and psychological sex, this difference would connote homosexuality in those who had incongruities between the two. Further, since the belief was that marriage took a "feminine" woman and a "masculine" male to work, Terman and Miles thought the AIAS would be a good predictor of marital adjustment (Hoffman, 2001).

This measurement tool had some significant problems in its structure and utility. The instrument was normed on elementary and high school children despite the fact that it was meant to be used on adults (Hoffman, 2001). Also, Terman and Miles (1936) did not offer any definitions for the terms they used based on theory. Instead, the definitions were only based on sex differences (Hoffman, 2001). The AIAS was also fraught with racist and sexist language (Hoffman, 2001). Terman and Miles acknowledged the deficiencies in their measurement tool. Despite that, the AIAS became the primary prototype for further measures of masculinity and femininity (Hoffman, 2001).

Masculinity-Femininity Scale of the Strong Vocational Interest Blank.

Prior to Terman and Miles' AIAS (1936), another masculinity/femininity scale had been developed by E. K. Strong in 1927 (Strong, 1938) as part of his vocational interest inventory. As

part of this vocational inventory, the masculinity-femininity scale was meant to distinguish between traditionally male and female occupationally related interests.

The Strong Vocational Interest Blank (SVBI) (Strong, 1938) was, and currently is, used to help people decide which career area may be best for them to go into. Since its inception, the SVBI has had some form of masculinity and femininity scale to it that was used to detect differences in masculine and feminine occupational interests (Hoffman, 2001). Similar to Terman and Miles, Strong used sex differences as the basis for his scale. Unlike Terman and Miles, Strong included all items that showed any amount of differentiation between masculine and feminine (Hoffman, 2001). Strong eventually realized that men and women have more similarities than they had dissimilarities as men and women answered the same on 86.5% of the questions (Hoffman, 2001). However, he highlighted the differences that did exist between the two sexes and used these differences to support the dichotomous theme of masculinity and femininity (Hoffman, 2001).

The GAMIN Inventory Masculinity Scale.

In 1936, Joy Paul Guilford created the Guilford-Martin Inventory of Factors GAMIN Inventory but did not publish it until 1943 (Guilford & Martin, 1943). This scale was comprised of five categories; *g*eneral activity, *a*scendance vs. submission, *m*asculinity vs. femininity, confidence vs. *i*nferiority feelings, and calmness vs. *n*ervous (Hoffman, 2001-italics in original). This instrument was created as an attempt to measure basic personality dimensions. The masculinity-femininity scale was used to measure a sex-difference factor but Guilford and his colleagues questioned whether it might instead measure a masculine ideal (Hoffman, 2001). This scale had 40 items and six subscales. The subscales included Inhibition of Emotional

Expression, Masculine Vocational Interests, Masculine Avocational Interests, Disgustfulness, Fearfulness, and Sympathy (Constantinople, 1973; Hoffman, 2001).

Minnesota Multiphasic Personality Inventory Masculinity-Femininity Scale.

In the late 1943, a psychologist and psychiatrist at the University of Minnesota created the Minnesota Multiphasic Personality Inventory (MMPI) (Brannick, n. d). As part of this instrument, they created separate scales meant to measure psychiatric problems. Later, the masculinity/femininity (Mf) scale was added (Brannick, n. d.). This scale was designed initially to be able to differentiate between heterosexual and homosexual men (Brannick, n. d.). However, it did not accurately predict this difference so the scale was changed (Brannick, n. d.). The new scale was meant to measure "femininity" in men and "masculinity" in women (Brannick, n. d.; Hoffman, 2001). It remains one of the most utilized scales today by mental health professionals, researchers, and by employment screeners (Hoffman, 2001).

Contradictory evidence of the way validation of this scale has been presented in the literature. Constantinople (1973) states the validation encompassed two separate parts. The first part was to retain all items from the original MMPI pool that discriminated between men and women. The next step included discarding items which did not discriminate between 13 gay men and an unspecified number of men who scored high on the Terman Inversion Scale. Both Hoffman (2001) and Brannick (n. d.) report the validation of this scale took place on only 13 gay men, and not a representative sample of men. Constantinople (1973) states that the validation of the m/f scale was unclear in the MMPI manual.

When the MMPI-2 came out in 1990, the Mf scale had been altered from its original design. Four questions were deleted for being "potentially offensive" (Hoffman, 2001).

However, the test manual does not explain what was potentially offensive about the questions or which four questions were even dropped (Hoffman, 2001).

In addition to the Mf scale being altered, two new scales were added as an alternative to the bipolar schema of the masculinity-femininity scale of the MMPI (Woo & Oie, 2008). The Masculine Gender role (Gm) and the Feminine Gender role (Gf) scales were developed to measure traditional masculine and feminine roles that people may espouse and are meant to differentiate between masculine, feminine, androgynous, and undifferentiated gender types (Gordon, 2011). For example, women are measured on whether they like things such as plants, flowers, cooking, playing house, or poetry. Men are measured on whether they like things such as science, technology, rough play, or adventure (Gordon, 2011). The Gm scale has 47 items and the Gf scale has 46 items.

The Femininity Scale (Fe) of the California Psychological Inventory (CPI).

In 1956, Harrison Gough created the California Psychological Inventory (CPI) (Aiken, 2004). This instrument, based on the MMPI, was meant to measure the folk-concepts that everyday people had about people around them (Aiken, 2004). The Fe scale of the CPI was meant to differentiate between male from female participants and to discriminate between those who had deviant sexual interests from those without deviant sexual interests (Gough, 1952). This scale generally measured the same construct of masculine and femininity that other scales of the time used, based on stereotypes of gendered behavior (Constantinople, 1973).

The one common theme that all these measures have is that they were based on the stereotypes of what men and women should be like and on the dichotomous view of gender and sex. Measures in the 20th century do a better job of expanding beyond the binary view of gender

by including androgyny and undifferentiated categories of gender identity, starting in the 1970s. However, much more is needed to fully expand the view of gender identity.

Late 20th century to current.

Starting in the 1970s, there was a change in the way gender was viewed. It was no longer a bipolar construct based on differences in men and women. Researchers realized that it was possible for healthy men and women to have similar characteristics (Hoffman, 2001). New measures were created with this new understanding of men and women's characteristics.

Bem Sex-Role Inventory.

In 1974, Susan Bem published the Bem Sex-Roles Inventory (BSRI) (Bem, 1974) that she created to facilitate the ability to measure psychological androgyny (Hoffman, 2001). Bem challenged the traditional bipolar schematic of masculinity and femininity by theorizing that they were conceptually and empirically distinct from each other (Hoffman, 2001). Further, she posited that sex-typing was, in part, a result of the individual person accepting the cultural stereotypes of what makes a man or woman (Hoffman, 2001). Those who test out as androgynous or undifferentiated refuse to accept these stereotypes for themselves. This was the first time that gender identity was recognized to come from within the person and not from society onto the person (Hoffman, 2001). The BSRI (Bem, 1974) has a separate masculine scale and feminine scale. Bem defined masculinity and femininity in terms of culturally desirable traits that men and women should have (Hoffman, 2001). It is the most widely used scale in measuring gender related concepts since it was developed (Hoffman, 2001).

The BSRI (Bem, 1974) is made up of 60 items based on personality characteristics (Hoffman, 2001). Respondents rate themselves on a 7-point Likert scale ranging from 1 (never or almost never true) to 7 (always or almost always true) (Hoffman, 2001). Twenty items

measure masculinity, based on stereotypical issues like having a strong personality, having leadership abilities, and assertiveness (Hoffman, 2001). Twenty other items measure femininity and are also based on stereotypical issues like loving children, being compassionate, or being tender (Hoffman, 2001). Twenty items were neutral, intended to measure socially desirable answers by respondents (Hoffman, 2001).

Originally the BSRI (Bem, 1974) had only three categories it was trying to measure; masculinity, femininity, and androgyny (Hoffman, 2001). Bem included instructions that if the femininity score was significantly above the masculinity score for an individual, then that person was feminine, regardless of their biological sex (Hoffman, 2001). The opposite was also true if the masculinity score was significantly higher than the femininity score, then the person was masculine (Hoffman, 2001). Androgyny was the diagnosis if the masculine and feminine scores were not significantly different (Hoffman, 2001). However, these scoring instructions did not include any room for both the masculine and feminine score to be high or low at the same time (Hoffman, 2001). Bem corrected this problem by incorporating a median-split so that each person could determine which of the four quadrants they fit into. The new quadrants that resulted include masculine, feminine, androgynous, and undifferentiated (Hoffman, 2001). Someone who scored high on either the masculine or feminine scale and scored low on the opposite one would be categorized into the scale he or she scored highest on (Hoffman, 2001). If a participant scored high on both masculine and feminine, he or she was said to be androgynous (Hoffman, 2001). If an individual scored low on both the masculine and feminine scales, he or she was said to be undifferentiated (Hoffman, 2001).

This first version of the BSRI (Bem, 1974) had trouble with its psychometric properties so a short form was created later. Several items on the long form were deleted from the short

form because they were socially undesirable (Lippa, 1985). This means that the absolute scores of the short form on the femininity scale can be significantly higher compared to the long form so it is not possible to compare the two forms' absolute scores and median scores (Lippa, 1985). People who purchase the BSRI Short Form still get all 60 items, the first 30 of which constitute the short form (Hoffman, 2001). Therefore, the use of the original form is still widespread despite the better psychometrics of the short form (Hoffman, 2001).

Bem (1981a) stated the theoretical thinking behind her measurement instrument was based on the motivational dynamics and cognitive processes of both sex-typed individuals and those who are androgynous. Unfortunately, despite its wide usage, this scale was not formed using any of the common measurement construction techniques like total item correlation or factor analysis (Lippa, 1985). It does have good internal validity, however, with correlations of .75 - .87 for men and women on the femininity and masculine scales (Lippa, 1985). Correlations for the short form are slightly higher for the femininity scale and in line with the long form's masculinity scale (Lippa, 1985). Correlation between the BSRI and the short form are very good (approximately .90) (Lippa, 1985). Further, there is little evidence of discriminant validity for the BSRI compared to other measures (Lippa, 1985).

The Personal Attributes Questionnaire.

Also in 1974, Janet Spence, Robert Helmreich, and Joy Stapp created the Personal Attributes Questionnaire (PAQ) (Hoffman, 2001; Spence, Helmreich, & Stapp, 1974). The PAQ was developed using gender stereotypes and gender attitudes (Hoffman, 2001). The PAQ initially had 24 items which divided people into one of four categories; feminine, masculine, androgynous and undifferentiated (Hoffman, 2001). Spence was one of the primary people to call out Bem on the lack of the BSRI to differentiate between androgyny and undifferentiated

(Hoffman, 2001). Spence was able to use undifferentiated in the PAQ before Bem made it part of the BSRI (Hoffman, 2001).

The PAQ (Spence et al., 1974) was different than the BSRI (Bem, 1974) in several key areas. The PAQ (Spence et al., 1974) used items that were socially desirable like the BSRI (Bem, 1974). However the PAQ (Spence et al., 1974) used items that were more typical of one sex or the other, making some of her items independent of gender (Hoffman, 2001). This also allowed her to create a third scale within the PAQ (Spence et al., 1974) that was able to measure those items which represented the items that were socially desirable contingent on one's sex (Hoffman, 2001). Spence (1974) also claims that the PAQ measures expressiveness and instrumentality rather than masculinity and femininity.

Cross-Gender Questionnaire.

The Cross-Gender Questionnaire was created in 1992 by Richard Docter and James Flemming. It is a 55-item questionnaire meant to measure cross-gender behavior in biological males. The items are based on items from the masculinity-femininity scale on the MMPI (Docter & Flemming, 1992). The questionnaire originally started as 113 items when they began studying the instrument and was pilot studied on twenty men who identified as either transvestites or transsexuals (Docter & Flemming, 1992).

The questionnaire was distributed nationally to men with transsexualism or transvestitism via support groups, a national mailing list for men with these issues, and via snowball sampling (Docter & Flemming, 1992). The instrument asked the men to describe their cross-gender behavior using an 11-point descriptive scale (Docter & Flemming, 1992). This process was meant to break the participants into one of three different groups: transvestites, marginal transvestites, and transsexuals (Docter & Flemming, 1992). In their sample, 76% (n = 518) were

heterosexual episodic transvestites with varying degrees of cross-dressing (Docter & Flemming, 1992). Another 11% (n = 78) were described as marginal transvestites, which were men who described themselves as transsexuals but who were not living as women but who periodically dressed as women (Docter & Flemming, 1992). The final group, 13% (n = 86) were transsexuals. The biological men lived full-time as women, whether they had any steps of sexual reassignment (Docter & Flemming, 1992). It is important to note that this group was a non-clinical sample and would adequately represent the majority of cross-dressers and transsexuals (Docter & Flemming, 1992).

The total number of participants' responses (N = 692) were divided into two equal groups of 346 participants (Docter & Flemming, 1992). One sample became the validation sample and the other became the cross-validation sample (Docter & Flemming). The 113 items were meant to measure various constructs related to cross-dressing and transsexual behavior. Constructs included sexual arousal, gender identity, periodic vs. sustained cross-gender behavior, sexual orientation, desire for sex reassignment, role behavior while in cross-gender mode, strength of masculine identity, and commitment to feminize the body (Docter & Flemming, 1992).

The initial factor analysis of the items resulted in 57 items being dropped from the questionnaire for a total of 56 items. The cross-validation factor analysis resulted in another item being dropped, for a total of the final 55-item form (Docter & Flemming, 1992). The exploratory factor analysis prior to rotation showed a four factor solution: Arouse (eigenvalue of 5.1 & 9.1% of the variance), Femin (eigenvalue of 4.65 & 8.3% of the variance), Ident (eigenvalue of 4.04 & 7.2% of the variance), and Role (eigenvalue of 4.25 & 7.6% of the variance) (Docter & Flemming, 1992). The full names of the factors are Cross-gender Arousal,

Cross-gender Feminization, Cross-gender Identity, and Cross-gender Social/Sexual Role (Docter & Flemming, 1992).

Along with the factor analysis, the authors checked for goodness of fit using different summary measures, the Measures of sampling adequacy (MSA), and Kaiser's index of factor simplicity (IFS). The measures showed excellent goodness of fit with all items on the MSA showing a level > .90 and an overall MSA score of .99 (Docter & Flemming, 1992). For the IFS, the items had a median score of .90 and an overall IFS score of .89, which is considered "meritous" (Docter & Flemming, 1992, p. 22).

The Cross-gender Arousal factor has a total of 16 items. It is meant to measure the level of past or present sexual arousal associated with cross-gender behavior, with higher scores denoting more arousal (Docter & Flemming, 1992). The Cross-gender Feminization scale (13 items) measures the level of desire to feminize the body to match the cross-genders. Higher scores mean a higher desire to feminize the body (Docter & Flemming, 1992). The Cross-gender Identity scale (14 items) measures cross-gender self-perceptions and identity. High scores are predictive of sustained commitment to cross-gender behavior (Docter & Flemming, 1992). The Cross-gender Social/Sexual Role scale (12 items) is meant to measure the commitment to cross-gender roles in real life situations. High scores represent substantial role enactment beyond the realm of fantasy or future actions (Docter & Flemming, 1992). The four scales show rather high reliability coefficients with Ident = .88, Femin = .92, Arouse = .88, and Role = .86 using a corrected total score (Docter & Flemming, 1992). After the final cross-validation rotations, the corresponding reliability coefficients remained the same with the exception of the Arouse scale which went up to .90 (Docter & Flemming, 1992). The correlations between the scales were predominately negative and low, ranging from -.013 to .505. Four of the correlations were

significant: Ident with Femin (.505), Ident with Arouse (-.341), Arouse with Femin (-.426), and Role with Femin (.399) (Docter & Flemming, 1992).

Overall, this measure is a good assessment for those who are transvestites and/or transsexuals. However, it does not extend to other forms of gender identity. Because of this, there is limited utility to this measure for the majority population and for others who may be struggling with their gender identity. This is particularly true for women since this measure does not address women at all.

GIDYQ-AA.

The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ-AA) (Deogracias et al., 2007) was created in roughly 2007 by Joseph Deogracias and his colleagues. The GIDYQ-AA was developed to assess gender identity in a dimensional manner. However, the items were created based on the dichotomous birth sex for ease of understanding. This led to a female form and a male form of the GIDYQ-AA.

Deogracias et al. (2007) utilized two groups of participants. The first group was 462 (197 males, 265 females) students from a Toronto university, some of whom were specifically recruited because they identified as part of the LGBT community on campus. The second group was a mix of adults (n = 39) and adolescents (n = 34) who were pre-screened for existing gender dysphoria. Students received either $5 remuneration for participation or credit in their psychology class. The non-university adults were given $10 in remuneration for participating.

The GIDYQ-AA (Deogracias et al., 2007) consists of 27 items, which were actually developed by the North American Task Force on Intersexuality Research Protocol Workgroup. They attempted to capture a range of dynamic areas including the subjective, social, somatic, and sociolegal. Respondents answered based on a 5-point Likert scale ranging from 1 – Always to 5

– Never. Respondents were supposed to answer based on the last 12 months of experience, not their entire lifetime. Most of the subjects answered electronically via Survey Monkey with the rest answering on a hard copy of the instrument.

The factor analysis of the scale resulted in a one-factor solution being the best fit. Corrected item-total correlation scores ranged from .33 to .94 with a Cronbach's alpha of .97. The scale score was then calculated by adding the participants' answers on each Likert item and dividing by 27. The GIDYQ-AA (Deogracias et al., 2007) was able to accurately delineate between those diagnosed with GID compared to those without GID for both men and women with a sensitivity of 90.4% for those with gender dysphoria and a specificity of 99.7% for the control group.

While this list is not entirely comprehensive, these are the most well-known and most utilized measures of gender identity found in the literature. As can be seen by the reviews, some of these measures attempt to get at a multidimensional concept of gender identity. Unfortunately, they base their measures on the bipolar schema of sex in order to create their instruments. They did not take the instrument construction far enough to include psychosocial factors and emotional/cognitive factors that play a role in gender identity development. Creating a valid instrument requires many steps, which are discussed in chapter three.

Summary

Gender identity is a complex construct made up of biological, hormonal, chromosomal, and socially constructed components. These components are difficult to separate into cause and effect or beginning and end. Both biology and all of its components are equally responsible for gender identity as are social constructions of what gender identity is. Because of this complexity, one cannot look at gender identity in a unidimensional manner (i.e. "just" biology,

or “just” social construction). Three facets of gender identity are utilized to define gender identity, 1) the person recognizing himself/herself as a man or woman in terms of biology, 2) how the person feels about their biological/genetic sex, and 3) how the sense of identity affects the person's ability to cope in the world (Lurye et al., 2008; Peate, 2008; Stoller, 1964). It is only by including all three of these factors, can gender identity truly be understood.

Further, the expansion of gender identity beyond the traditional dichotomy is important for a variety of legal reasons, including the legality of a marriage, the custody of children, educational issues, and employment discrimination. With the ever changing realm of gender identity and with sexual reassignment becoming typical all around the world, the legal system lacks behind, requiring measurements that can expand the dichotomy of masculine and feminine. It is up to the mental health field to help expand that dichotomy. Past measurement instruments are examined as a foundation for the AMGS.

Chapter Three

Methods

Research design.

This study was a validation study to assess the psychometrics of the Arkansas Multidimensional Gender Scale (AMGS). The study used measurement theories as set forth by Crocker and Algina (1986) in the design of the assessment tool and in the validation of the instrument. Those design components consisted of showing face validity as measured by having questions that matched various theories presented in the literature surrounding gender identity (i.e. the social constructionist ideas of whether a person recognizes himself/herself as a man or woman in terms of biology, how the person feels about their biological/genetic sex, and how their sense of identity affects the person's ability to cope in the world), content validity as measured by an index of item-object congruence (IIOC) worksheet completed by at least three experts in the field of gender identity, internal reliability as measured by Cronbach's alpha, capturing three inherent factors as measured by a principal component analysis of the data, and showing convergent validity as measured by comparing the AMGS with another already validated measure of gender identity. Research questions were taken from the literature about gender identity and feedback received as part of another research project and one pilot studies.

Participants.

Participants were found via a snowball technique on various internet listservs, social media groups, and email recruitment with a special attempt made to obtain at least 30% respondents who identify as transgender. The researcher attempted to gain a 50% male and 50% female mix of participants with an age spread representative of the US population. Further, the researcher attempted to gather a racial distribution across the spectrum of the US population. A

sample size of 250 participants was preferred to assure adequate ability to run factor analysis and provide sufficient variability in the respondents based on Nunnally and Bernstein's (1967) recommendation of 5-10 people per item to assess factors properly. Of those, the researcher gained 74 participants who identify as transgender or gender variant, which accounted for 30% of the sample to assure sufficient variability among the respondents.

Sampling procedure.

Items on the AMGS were constructed by writing questions that appeared to hold face validity for the three factors being measured; recognizing ones biological sex, feelings about biological sex, and role in society as a result of their recognition of biological sex and feelings about that biological sex (Lurye et al., 2008; Peate, 2008; Stoller, 1964). Items were written in a straightforward manner without double bind questions, ambiguous questions, or double negative questions, as recommended by Dillman, Smyth, and Christianson (2009). Other considerations taken to demonstrate validity and reliability, such as factor analysis and index of item-objective congruence are discussed under the pilot study in further detail.

Convergent validity.

Another consideration when it creating the instrument was convergent validity, which means that your assessment measures the same construct another already validated assessment measures (Crocker & Algina, 1986). After running an IIOC evaluation with the experts, it is necessary to take the current draft of the assessment and run an initial data collection with both the new assessment and an already validated assessment. Once the data is collected, a correlation between the two assessments is computed to determine how closely the two assessments are measuring the same construct (Crocker & Algina, 1986). The higher the correlation (usually higher than .7) between the new instrument and the already validated

instrument, the more likely it is that the new instrument is measuring the same (or a similar) construct as the other instrument (Trochim, 2006). Campell and Fiske (1959), however, suggest a correlation greater than .85 to assure convergent validity. This helps the test developer know that the construct he or she is working with is indeed the same as other instruments already shown to be measuring the same construct.

For the purpose of this research, convergent validity was explored using the AMGS and the Bem Sex-Roles Inventory (BSRI: Bem, 1974). The BSRI is an already established measure of gender identity with sound psychometric properties. The two instruments were part of the online survey sent to participants. Once both instruments were completed, correlation between the two instruments was run. A correlation of .85 or higher would be expected (Campell & Fiske, 1959) if the AMGS and the BSRI(Bem, 1974) are indeed measuring the same underlying constructs.

The flip side of convergent validity is discriminant validity, whereby two instruments purporting to measure differing constructs are compared (Crocker & Algina, 1986). Discriminant validity is important to assure an instrument is not measuring a construct that is not intended to be measured. For the course of this dissertation, a related construct (the function of gender identity) was measured alongside the perceived gender identity. While closely related, the two constructs are different, thereby assuring that the AMGS will be measuring a person's perceived gender identity and not how well that gender identity serves the person. In order to show discriminant validity, the two measures should have little correlation, less than .70, when compared (Trochim, 2006).

Reliability.

Reliability is the ability of an instrument to measure the same construct, in the same way, over time (Crocker & Algina, 1986). An instrument can be reliable without being valid (Crocker & Algina, 1986). However, validity is considered the more important of the two constructs and should be given more weight in the long run (Crocker & Algina, 1986). For this dissertation, internal consistency reliability was run.

Internal consistency reliability utilizes the method of comparing items from the same instrument that are supposed to measure the same construct and comparing how well they do on yielding similar results (Trochim, 2006). For example, if you had six items that were supposed to measure the same construct, you could average all the correlations between those six items to get one correlation score for those items (Trochim, 2006). The higher the average correlation between those six items, the better the reliability is (Trochim, 2006). You could also compute a total score for those six items, and then use the total score of the six items as an additional factor in the correlation between the six items to obtain a slightly different correlation score for reliability (Trochim, 2006). For this research, all items on each theorized scale were correlated with a hoped for correlation between the items of .85 or higher.

Instruments.

Arkansas Multidimensional Gender Scale.

Participants completed the Arkansas Multidimensional Gender Scale (AMGS) via Survey Monkey. The AMGS is based on the literature surrounding gender identity and feedback received during other research projects. Three distinct areas make up a person's gender identity: identification as the biological sex of birth, importance of the biological sex, and liking the biological sex. These three areas were the three separate scales on the AMGS. Each of these

scales had varying cut-off scores which, in combination with each of the other scales, will show where a person falls on the eight categories of gender identity.

The AMGS has19 items on which participants rated themselves via a 1 (Almost always) to 7 (Almost never) Likert style scale (See Appendix D). Items were calculated into an overall score utilizing all 19 items and three separate scale scores. The combination of scale scores determined where each person lies on the gender identity continuum between masculine and feminine and which of the eight hypothesized broad categories he or she fell into by determining where they are in relationship to the three overarching components that make up gender identity.

Bem Sex-Roles Inventory.

Individuals also received the Bem Sex-Roles Inventory (BSRI) (Bem, 1974) to complete, for which a license was purchased from Mind Garden, a publisher of measurement assessments (See Appendix E). The BSRI short form (Bem, 1974) will be utilized as this form has better psychometric properties than the long form. The short form consists of 30 questions that measure four constructs: masculinity, femininity, androgyny, and undifferentiated. Respondents rate themselves on a 7-point Likert scale ranging from 1 (never or almost never true) to 7 (always or almost always true) (Hoffman, 2001). Questions include such things as: “Defend my own beliefs”, “Sensitive to needs of others”, and “Having leadership abilities”. Someone who scores high on either the masculine or feminine scale and scores low on the opposite one would be categorized into the scale he or she scored highest on (Hoffman, 2001). If a participant scores high on both masculine and feminine, he or she is said to be androgynous (Hoffman, 2001). If an individual scores low on both the masculine and feminine scales, he or she is said to be undifferentiated (Hoffman, 2001). This measure provided convergent validity of the AMGS as it

is an already established measure of gender identity that has shown good internal consistency with correlations of .75 - .87 overall.

The Functions of Identity Scale.

The Functions of Identity Scale (FIS) is a fifteen-item scale developed by Serafini, Maitland, and Adams in 2006. The scale measures how a well-constructed identity functions in a person's life rather than on how that identity is constructed (Serafini, Maitland, & Adams, 2006). The FIS has 5 subscales, Structure, Harmony, Goals, Future, and Personal Control, each measuring a theorized function of identity (Serafini, Maitland, & Adams, 2006). Internal consistency for these subscales is as follows: Structure, α = .80; Harmony, α = .77; Goals, α = .80; Future, α = .82; and Personal Control, α = .65 (Serafini, Maitland, & Adams, 2006). Recipients are asked to choose a response on a five-point Likert type scale that best describes them with "one" being "never" and "five" being "always". Questions include things like: "My values and beliefs reflect who I am", "I have a good idea of what my future holds for me", and "I feel a sense of peace with myself and my identity."

The purpose of including this instrument was two-fold. First, this instrument is a compliment to the first two instruments being utilized. However, it is significantly different in its purpose so served as a form of divergent/discriminant validity. It is related enough to meld well with the other two instruments so participants will not feel as if this instrument is just thrown into the mix for its intended discriminant validity purpose. Secondly, this instrument could provide further insight as to how well differing gender identities function for people in their day-to-day lives. While that purpose will not be studied during this dissertation, it leads to an avenue for further research related to gender identity in general.

Demographic Sheet.

Each participant completed a demographic sheet consisting of their biological sex, age range, ethnicity, and self-identified gender identity. A copy of the demographic sheet is in Appendix H.

Pilot study.

The instrument was developed by writing questions that matched the literature as to their content regarding the three construct areas of gender identity. Once questions were initially written, they were passed onto several people who have significant knowledge regarding gender identity to gain their feedback as to whether or not the questions needed to be re-written, added to, or changed in some way. The people suggested changes, which were then made to the instrument. Following these changes, an initial pilot study was conducted using the instrument (See Appendix C for the initial version of the AMGS, originally called the Lounsbery Multidimensional Gender Scale).

Twenty-three people (10 males, 13 females), of various ethnic identities, completed the corresponding forms of the instrument. The participants were a combination of my friends, classmates, and co-workers. One person in the pilot study was specifically asked to participate based on the fact that he had already undergone sexual reassignment surgery. This individual completed a survey based on his biological sex at birth and one on his current sex. All other participants had gender identities unknown to me but some were hypothesized to fall along the continuum suggested by the literature and which the measurement is designed to identify.

The initial pilot study had 22 total valid responses that were used in the factor analysis. Twenty-three responses were collected but one had to be thrown out due to three-fourths of the questionnaire not being completed. Of these remaining responses, twelve were from women and

ten were from men. Overall question means ranged from 1.77 to 5.68 with standard deviations ranging from 1.30 to 2.29.

For the initial factor analysis, based on the wording of the questions, items number one, two, twelve, thirteen, fourteen, fifteen, sixteen and seventeen should load together as the "Feelings about biological sex" scale. Items three, four, six, seven, nine, and ten should load together as the "Recognition of biological sex" scale. Then, items five, eight, and eleven would load together to create the "Role in society" scale.

Using exploratory factor analysis, and following Crocker and Algina's (1986) rule that any factor with an eigenvalue greater than one be retained in the model, three factors (eigenvalues of 9.9355, 1.6977, and 1.0836) were found in the initial analysis. A three factor solution also accounted for 75% (factor one 58%, factor two 10% and factor three 6%) of the variance in the model. Closer inspection of the analysis showed 15 of the questions loaded onto factor one with one question each loading onto the other two factors. Question seven loaded onto factor two and question ten loaded onto factor three. On factor one, three questions loaded negatively (q1 = -.87715, q3 = -.81911, and q14 = -.90905). Each of the two questions that loaded onto a different factor loaded negatively onto those factors.

The initial factor analysis was a simple factor analysis without any type of rotation and not using any type of preset notion of how many factors there should be. Theorizing that all of the items are highly correlated, another factor analysis was run, this time starting with the assumption that there are three factors and using an oblique, promax rotation. This time, using the oblique rotation factor analysis, the questions showed a better fit to the three factor solution, with twelve questions (1-6, 8, 9, 12-15) loading onto factor one, four questions (7, 11, 16, and

17) loading onto factor two, and question ten loading onto factor three. See Appendix F for initial factor loadings.

Questions five, eight, and eleven, which should have all loaded on the same factor, loaded on two different factors. Five and eight loaded together on factor one while eleven loaded on factor two. Questions one, two, twelve, thirteen, fourteen, fifteen, sixteen and seventeen should have all loaded together. Instead, one, two, twelve, thirteen, fourteen, and fifteen all loaded on factor one. Questions sixteen and seventeen loaded on factor two. Questions three, four, six, seven, nine, and ten should have all loaded together on one factor. Instead, this set of questions was the most spread out as it had questions load on all three factors. Questions three, four, six, and nine all loaded onto factor one. Question seven loaded onto factor two and question ten loaded onto factor three. Question ten was the only question to load onto factor three.

Four questions (1, 3, 7, & 14) loaded negatively onto their factors. This suggests that these questions will need to be reverse scored when entered for the final data analysis unless the questions are rewritten. Ironically, three of the four questions are not negatively-worded and loaded negatively anyway. Their negatively-worded counterparts loaded positively. Question seven is the only negatively-worded question that loaded negatively onto its factor.

While this rotation shows a better fit on the data into the three factors theorized, it still falls far short of what the researcher had hoped would happen with the data. However, there were only 22 valid assessments for the pilot data and therefore these results should be viewed with caution. Nunnally suggest having five to ten times the number of subjects to number of items to be analyzed. Using this calculation, the researcher should have had at least 85 – 170 participants to get valid and reliable results from the factor analysis. Crocker and Algina (1986)

suggest having a minimum of 200 participants. Therefore, it is highly likely that these results are not as valid as they could be.

Item-index of objective congruence.

After the initial pilot study, questions were re-written based on the information gained in the data analysis. Then, four experts in gender identity were asked to complete an item-index of objective congruence (IIOC) form on the new 19-item assessment. An IIOC form asks each person to rate every item on whether the question is clearly measuring a construct by noting a "+1" if the expert feels the items measures the construct, "0" if the items unclearly measure the construct, or "-1" if the items clearly do *not* measure the construct (Crocker & Algina, 1986). Raters are not told which construct each item is supposed to measure (Turner & Carlson, 2003). Once the rating is done, the scores are combined and calculated to determine the score for each item (Turner & Carlson, 2003). Scores can range from -1 to 1, with high positive scores on the objective the item is supposed to measure being the desired outcome for each item (Turner & Carlson, 2003). An acceptable cutoff score would result in a score of .75 or higher on each item for its valid objective (Turner & Carlson, 2003). Further, since these items are multidimensional in nature, a multidimensional formula created by Turner and Carlson (2003) for calculating the IIOC value was utilized. See Appendix G for calculated IIOC values.

Of the 19 items, only three items (8, 12, and 17) appear to be good measures of their respective constructs as shown by scores greater than .75 as recommended by Turner and Carlson (2003). The other 16 items appear to fall woefully short of construct validity as shown by scores ranging from -.30 to .5625. However, since these constructs are theorized to be highly correlated, it is difficult to place the questions into categories that can be clearly separated. It is possible that all of the questions should fit all three of the factors and that there is no distinction

between the three factors. Therefore, the questions will remain as they are with possibility for revision as more research on this instrument is conducted.

Statistical analysis.

All statistical analysis was done using SAS 9.2. Principal component analysis, Cronbach's alpha, Pearson's product moment correlation, and descriptive statistics of central tendency were run. As the three scales are theorized to be correlated, a promax rotation was used in the final analysis of the data. IIOC values have already been calculated to determine the construct validity of items. These statistics were utilized to verify several different components of instrument validity.

Principal component analysis was utilized to verify the three factors hypothesized to make up gender identity; Person recognizes him/herself as biological man or woman, what the person feels about his/her biological sex, and how that sense of identity affects the persons role in society. Cronbach's alpha provided a measure of internal consistency for the AMGS. Because these three factors are highly correlated, a promax rotation provided the best fit of the three factors. Pearson's product moment correlation determined convergent validity between the AMGS and the BSRI (Bem, 1974) to assess if the two instruments were measuring similar constructs. Pearson's product moment correlation was run between the AMGS and the FIS (Serafini, Maitland, & Adams, 2006) to determine if the two instruments are measuring different constructs to verify discriminant validity.

Derivation of General Research Questions and Specific Research Questions.

This section discusses each research question in the study and each specific question tested as part of the study.

Research question one: Is the measurement instrument developed by the author valid for finding the eight categories of gender identity proposed by the author?

A variety of validity and reliability tests were conducted to determine if the AMGS has sufficient psychometric properties to be used as a valid instrument.

Specific research question 1a: ***Does the Arkansas Multidimensional Gender Scale show adequate internal consistency?*** For this dissertation, each scale was correlated using Cronbach's alpha to determine internal consistency of the scale. Then, the entire instrument was be checked for internal consistency, also using Cronbach's alpha. According to Campell and Fiske (1959), a correlation of .85 is desirable as evidence of sufficient reliability while Trochim (2006) recommends a score higher than .7 as sufficient for reliability. Scores lower than .7 suggest unreliability of the instrument.

Specific research question 1b: Does the Arkansas Multidimensional Gender Scale demonstrate three underlying factors as proposed by the author? To answer this question, a principal component analysis was run on the data with the assumption that there are three underlying factors. A promax rotation was also used due to the assumption that the three factors are highly correlated. Eigenvalues greater than one were sought based on the recommendation of Crocker and Algina's (1986) recommendation that eigenvalues greater than one account for the greatest amount of variance in an instrument. The three factors sought were 1) Internal Sense of Self, 2) Liking One's Gender Identity, and 3) Impact on Role in Society. The following questions were hypothesized to fit factor one: questions three, four, six, seven, eight, nine, ten, and eleven. Questions for factor two include one, two, twelve, seventeen, eighteen, and nineteen. Questions for factor three include five, thirteen, fourteen, fifteen, and sixteen.

Specific research question 1c: Does the instrument display convergent validity with an already established gender identity measure, the Bem Sex-Role Inventory? Convergent validity demonstrates that an already established instrument which measures the construct of the new instrument correlates highly with the new instrument, thereby suggesting the two instruments are measuring the same construct. The Bem Sex-Role Inventory (Bem, 1974) is an established measure of gender identity and has been in use for nearly four decades. It has good psychometric properties with internal validity correlations of .75 - .87 for men and women on the femininity and masculine scales (Lippa, 1985). For this research, a correlation of greater than .85 between the BSRI and the AMGS was hoped for, in accordance with Campell and Fiske's (1959) recommendation but a correlation of .70 would also be acceptable according to Trochim (2006).

Specific research question 1d: Does the instrument display discriminant validity when compared to an instrument measuring a different construct, the Functions of Identity Scale?

The Functions of Identity Scale (FIS) (Serafini, Maitland, & Adams, 2006) is an instrument that measures how a well-constructed identity functions for a person in their day-to-day life. The FIS(Serafini, Maitland, & Adams, 2006) has good internal consistency with a range of .65 - .80 on its five scales. Because it is related to the construct of identity but does not directly measure gender identity, the FIS (Serafini, Maitland, & Adams, 2006) provided an opportunity to measure discriminant validity from the AMGS. It was expected that the two instruments will not be highly correlated because they theoretically measure two different constructs, therefore a Cronbach's alpha correlation of less than .70 would be expected between the two instruments.

Research question two: Does the Arkansas Multidimensional Gender Scale show sufficient variability to determine cutoff scores for the eight hypothesized gender categories?

The mean and standard deviation of each question was determined and was used to visually inspect the responses for variability, as well as for any outliers that do not appear to fall within the overall range of scores.

Specific research question 2a: Is there sufficient variability within the sample to attain cutoff scores for each scale as compared to self-reported gender identity and biological sex?

To answer this question, the responses were analyzed to determine if specific cutoff points could be found to detect each of the eight theorized categories of gender identity. Each scale was analyzed separately to determine where respondents answered compared to their self-reported sex and gender identity to determine if there is sufficient variability and if this variability splits along the self-reported gender identity responses. This then allowed for scale cutoff points to be set for future testing of the AMGS to facilitate further norming of the instrument. These scores were calculated based on the means and standard deviations for each question. Seven cutoff scores will be calculated for each scale.

Specific research question 2b: Is there sufficient variability within the sample to attain overall cutoff scores for the entire instrument? Once the scale cutoff scores were calculated, overall instrument cutoff scores were calculated for each of the eight gender identities. These cutoff scores took into account each of the scale scores for each gender identity and were based on the overall means and standard deviation of the instrument. Seven cutoff scores were determined for the instrument.

Summary

This chapter discusses the specific details of conducting the research necessary for this dissertation. How the research will be conducted, where the participants will be solicited from, and statistical analysis procedures are discussed. A description of the three assessments being utilized is presented. The results from an initial pilot study and the item-index of objective congruence study are shared. Each research question is discussed in detail.

Chapter Four

Results

Demographics

A convenience sample of two hundred- fifty participants was sought to provide a large enough sample size to adequately determine validity of the new measurement instrument. Respondents were drawn from various Facebook groups dedicated to LGBT interests, counseling listservs, and psychology listservs. Two hundred-fifty people did answer at least part of the questionnaire sent. Of the two hundred fifty returned responses, two hundred thirty-seven were valid, with two hundred thirty-six answering all questions on all three instruments and the demographics information. Eight participants only answered the questions on the AMGS and did not complete the BSRI (Bem, 1974), the FIS (Serafini, Maitland, & Adams, 2006) , or the demographic information. Five more answered the questions for the AMGS and BSRI (Bem, 1974) but did not answer the questions for the FIS (Serafini, Maitland, & Adams, 2006) and demographics. One participant had one data point missing from the AMGS but was included in the data analyses as the participant identified as intersex, of which there were only two in the entire study.

Of the respondents, forty-four identified as biological males (19%), one hundred-ninety one as biological females (81%), and two as intersex (less than 1%). Gender identities reported by participants can be seen in Table One.

Table 1

Gender Identity Breakdown

		Self-Reported Gender Identity							
Sex	Total	Masculine	Feminine	Masculine feminine	Feminine Masculine	Agender	Polygender	TM*	TW*
Male	44	27	2	10	3	0	1	0	1
Female	191	1	134	23	25	3	0	4	1
Intersex	2	0	1	0	1	0	0	0	0
Percent	100%	12%	58%	14%	12%	1%	.42%	2%	1%

**TM = Transman, TW = Transwoman: Percentages add to more than 100% due to rounding.*

Seventy-four, or 31% self-reported having a gender identity other than the traditional masculine or feminine, thereby meeting the researcher's predetermined number for sufficient variance to determine validity of the instrument. Ironically, one self-identified biological female reported being a transwoman and one self-identified biological male reported being a transman. As this is technically impossible via every definition of a transwoman and transman, it is unknown what these people's true gender identity is. Table two presents the race/ethnicity breakdown and age range breakdown.

Table 2

Race/ethnicity and Age Ranges

Age Range	Age Totals and Percent	Hispanic	Caucasian	African American	Native American	Pacific Islander	Hawaiian Native	Alaskan Native	More than one ethnicity
		14 (5.9%)	194 (81.8%)	13 (5.4%)	1 (.4%)	2 (.8%)	0	0	13 (5.4%)
18-25	29 (12%)	3	20	1	0	0	0	0	5
26-35	104 (44%)	6	85	7	1	2	0	0	3
36-45	41 (17%)	1	34	3	0	0	0	0	3
46-55	41 (17%)	3	34	2	0	0	0	0	2
56-65	17 (7%)	0	17	0	0	0	0	0	0
65 +	5 (2%)	1	4	0	0	0	0	0	0

Percentages for "Age Totals" add to less than 100% due to rounding.

Of the respondents, twelve percent claimed the 18 - 25 year old range, fifty-one percent the 26 - 35 range, seventeen percent the 36 - 45 range, seventeen percent the 46 - 55 range, seven

percent the 56 - 55 range, and two percent the 65 and over range. At least one of the participants identifying as "Pacific Islander" contacted the author and stated she identifies as Asian American, not Pacific Islander, but that the author had not given that option in the demographic section.

Internal consistency.

Arkansas Multidimensional Gender Scale.

The AMGS was assessed for internal consistency, using Cronbach's Alpha. The entire scale showed only moderate internal consistency with an alpha score of .54. This is too low to provide reliability as an instrument must have a Cronbach's alpha of at least .7, according to Trochim (2006), or .85 according to Campell and Fiske (1959).

All of the three scales were also tested for internal consistency. The "internal sense of self scale", consisting of items three, eight, and eleven showed very low internal consistency with a Cronbach's alpha of -.01. See table three for correlation between items, individual item alpha levels, and item correlation with the total.

Table 3

Means, Std., Correlation with total, and Inter-item correlation

Item	Mean	Std	Alpha	CWT*	AMGS3	AMGS8	AMGS11
AMGS3	4.52	1.91	.65	-.30	1.00		
AMGS8	2.30	1.77	-.54	.18	-.31	1.00	
AMGS11	3.67	2.15	-.88	.21	-.21	.49	1.00

*CWT = Correlation with total

The "liking one's gender identity scale", consisting of questions one, two, twelve, thirteen, fourteen, fifteen, sixteen, and seventeen, displayed a Cronbach's alpha score of -.76, meaning that most of the items were negatively correlated. Questions one and two were opposites, twelve and thirteen, fifteen and sixteen, and fourteen and seventeen. See table four for correlation between items, individual item alpha levels, and item correlation with the total.

Table 4

Means, Std., Correlation with total, and Inter-item correlation

Item	M	Std	Alpha	CWT*	A1	A2	A12	A13	A14	A15	A16	A17
AMGS1	5.06	1.86	-.17	-.50	1.00							
AMGS2	2.71	1.90	-.69	-.14	-.85	1.00						
AMGS12	4.37	2.29	-.42	-.28	.45	-.42	1.00					
AMGS13	2.51	2.06	-.53	-.23	-.75	.73	-.57	1.00				
AMGS14	4.91	2.14	-.07	-.52	.81	-.74	.46	-.66	1.00			
AMGS15	2.33	1.85	-1.70	.34	-.23	.20	.01	.11	-.29	1.00		
AMGS16	3.42	2.23	-1.47	.16	-.16	.17	-.18	.16	-.30	.42	1.00	
AMGS17	2.39	1.98	-.95	.01	-.68	.63	-.38	.55	-.65	.33	.25	1.00

*CWT = Correlation with total

The “impact on role in society scale”, consisting of items four, five, six, seven, nine, and ten show low internal consistency as well, with a Cronbach’s alpha of .19. See table five for correlation between items, individual item alpha levels, and item correlation with the total.

Table 5

Means, Std., Correlation with total, and Inter-item correlation

Item	M	Std	Alpha	CWT*	A4	A5	A6	A7	A9	A10
AMGS4	2.81	2.07	-.14	.39	1.00					
AMGS5	3.22	2.07	-.25	.47	.55	1.00				
AMGS6	2.56	2.02	-.08	.34	.56	.81	1.00			
AMGS7	4.61	2.32	.59	-.49	-.33	-.55	-.65	1.00		
AMGS9	3.49	2.21	.15	.09	.14	.20	.26	-.20	1.00	
AMGS10	3.06	2.11	.23	-.00	.15	-.08	-.14	.20	-.144	1.00

*CWT = Correlation with total

Overall, the internal consistency of the scales and the instrument itself is low, with the “liking one’s gender identity” being the only one that has an internal consistency within the acceptable level of .7 needed for reliability, according to Trochim (2006) or .85 according to Campell and Fiske (1959), though it is -.76. Further re-writing of questions is necessary to raise the internal consistency of the scales and the instrument as a whole. Also, reverse scoring several items may also increase internal consistency of the assessment and its three scales. Therefore specific research question 2a is not answered successfully.

Table 6

Internal Consistency of the AMGS and its Scales

AMGS	AMGS1	AMGS2	AMGS3
.54	-.01	-.76	.19

Bem Sex-Roles Inventory.

The Bem Sex-Roles Inventory (BSRI) showed sufficient overall internal consistency with an alpha level of .77. While this level is adequate for reliability according to Trochim (2006), it is not satisfactory according to Campell and Fiske (1959). A level higher than .85 would provide better evidence of the BSRI's (Bem, 1974) reliability. However, as the BSRI (Bem, 1974) is already established and the alpha level of .77 is within the internal consistency ranges published for the instrument, this level is acceptable for this author.

Functions of Identity Scale.

The Functions of Identity Scale (FIS) had the highest internal consistency of all three of the instruments tested with a Cronbach's alpha of .90. It is important to note that the higher the internal consistency, the more reliable the instrument. Therefore, the FIS (Serafini, Maitland, & Adams, 2006) is a highly reliable assessment tool. However, it has not established efficacy specifically for those who identify as transgender. Research into the appropriateness of the FIS (Serafini, Maitland, & Adams, 2006) for those who are transgender will be undertaken at a later point.

Principal Components Analysis

The AMGS was tested to determine if it had three factors as suggested by the author. Using a promax rotation due to theorizing all questions having high correlation, three factors were found, both using no preset theory of factors and using a predetermined theory of three factors. See table six for factor loadings using a preset determination of three factors. Three

factors accounted for 71% of the variability in the assessment instrument. The eigenvalues for the three factors were as follows: 8.13, 3.47, and 1.98, respectively. As the instrument broke into three factors, specific research question 1b is answered positively, despite the factors not aligning with the scales set by the author.

Table 7

Factor Loadings Using Promax Rotation

Item	Factor One	Factor Two	Factor Three
AMGS1	-.95		
AMGS2	.94		
AMGS3	-.85		
AMGS4	.73		
AMGS5	.93		
AMGS6	.91		
AMGS7	-.73		
AMGS12	-.75		
AMGS13	1.00		
AMGS14	-.88		
AMGS17	.71		
AMGS9		1.00	
AMGS11		.95	
AMGS16		.98	
AMGS18		.99	
AMGS8			.63
AMGS10			1.00
AMGS15			.90
AMGS19			.91

Convergent Validity

The AMGS was evaluated for convergent and discriminant validity. The AMGS was compared with the BSRI (Bem, 1974) to determine convergent validity. It was theorized that the BSRI (Bem, 1974) and AMGS are measuring the same underlying construct of gender identity. Both instruments were scored using t-scores. When the two instruments were correlated, there was virtually no correlation between the two instruments (r = -.15). Specific research question 1c is answered negatively.

Discriminant Validity

To determine discriminant validity, the AMGS was compared to the FIS(Serafini, Maitland, & Adams, 2006). As the FIS (Serafini, Maitland, & Adams, 2006) could only be tested via its individual scale, not an overall instrument score, the three scales of the AMGS were compared against the five scales of the FIS (Serafini, Maitland, & Adams, 2006) for correlation purposes. See table seven below for the correlation matrix between the scales. Specific research question 1d is answered positively.

Table 8

Correlation between the AMGS and FIS scales

	AMGSS1	AMGSS2	AMGSS3	FISS1	FISS2	FISS3	FISS4	FISS5
AMGSS1	1.00							
AMGSS2	.39	1.00						
AMGSS3	.46	.11	1.00					
FISS1	-.07	-.09	-.12	1.00				
FISS2	-.01	.03	-.09	.68	1.00			
FISS3	-.04	-.08	-.06	.34	.38	1.00		
FISS4	-.08	-.16	-.04	.46	.44	.59	1.00	
FISS5	-.07	-.05	-.08	.48	.55	.53	.55	1.00

For comparative purposes, the FIS(Serafini, Maitland, & Adams, 2006) and BSRI (Bem, 1974) were also correlated via their various scales, to determine if they were also showing discriminant validity as the two are theorized to be measuring differing constructs. Interestingly, the masculine scale of the BSRI (Bem, 1974) is highly correlated with all of the five scales of the FIS (Serafini, Maitland, & Adams, 2006) with significance levels at the $p = .0001$ level for all. The feminine scale, however, is not significantly correlated with any of the FIS (Serafini, Maitland, & Adams, 2006) scales. See table eight for the correlation matrix.

Table 9

Correlation between the BSRI scales and FIS scales

	BSRIM	BSRIF	FISS1	FISS2	FISS3	FISS4	FISS5
BSRIM	1.00						
BSRIF	-.02	1.00					
FISS1	.24	.18	1.00				
FISS2	.30	.17	.68	1.00			
FISS3	.27	.10	.34	.38	1.00		
FISS4	.28	.18	.46	.44	.59	1.00	
FISS5	.34	.16	.48	.55	.53	.55	1.00

This means that it is probable that the BSRI (Bem, 1974) and the FIS (Serafini, Maitland, & Adams, 2006) are more highly correlated as a whole than are the AMGS and the FIS(Serafini, Maitland, & Adams, 2006), or the AMGS and the BSRI(Bem, 1974). However, it is unknown how correlated the FIS (Serafini, Maitland, & Adams, 2006) and BSRI (Bem, 1974) truly are so it is difficult to assess if they are measuring a similar construct or two different ones as the author supposes. It is safe to say that the AMGS is not correlated with either instrument and therefore is apparently measuring a different construct than both of them.

Cutoff Scores

Scale cutoff scores.

Internal sense of self scale.

The final few pieces of validating the AMGS for this research include determining cutoff scores for each of the three scales based on answers provided by the participants on their self-reported gender identity, and the means, and standard deviations on the scales. The “internal sense of self” scale is meant to measure whether the person identifies as his or her biological sex

or as another sex; male, female, or intersex. It is expected that people whose gender identity is vastly different from their biological sex will score lower on this scale and those whose gender identity most closely matches their biological sex will score higher on this scale. Looking at the answers of the participants, the deviations from the mean seen in table nine were found for scale one "internal sense of self scale", based on self-reported gender identity by sex comparisons. The overall mean for this scale was 10.48 with a standard deviation of 3.36.

Table 10

Breakdown of Mean/Standard Deviations by Gender Identity and Sex

Sex	Gender Identity	Mean	Std from Overall Mean
Male	Masculine	6.90	-1.07
	Feminine	2.83	-2.28
	Masculine/Feminine	10.67	.06
	Feminine/Masculine	12.15	.50
	Polygender	11	.16
	Transman	18	2.24
Female	Masculine	3	-2.23
	Feminine	10.21	.08
	Masculine/Feminine	13.04	.77
	Feminine/Masculine	12.70	.66
	Polygender	13.83	1.00
	Transwoman	9	-.44
	Transman	11	.16
Intersex	Feminine	9	-.44
	Feminine/Masculine	13	.75

Liking of one's gender identity.

The "liking of one's gender identity" scale is meant to measure how one feels about their gender identity assigned at birth based on genital presentation compared. It is theorized that those whose gender identity assigned at birth is similar to their biological sex will score higher on this scale while those whose identity is most dissimilar to their biological sex will score lower on this scale. Table ten delineates the breakdown of sex and gender identity means and deviation from the overall scale means. The mean for this scale is 27.68 with a standard deviation of 4.57.

Table 11

Breakdown of Mean/Standard Deviations by Gender Identity and Sex

Sex	Gender Identity	Mean	Std from Overall Mean
Male	Masculine	27.47	.05
	Feminine	21.00	-1.46
	Masculine/Feminine	28.88	.26
	Feminine/Masculine	27.83	.03
	Polygender	38.00	2.26
	Transman	37.00	2.04
Female	Masculine	20.00	-1.68
	Feminine	26.86	-.18
	Masculine/Feminine	31.25	.78
	Feminine/Masculine	29.52	.40
	Polygender	30.50	.62
	Transwoman	25.50	-.48
	Transman	24.00	-.80
Intersex	Feminine	19.00	-1.90
	Feminine/Masculine	20.00	-1.68

Impact on Role in Society

The "impact on role in society" scale is meant to measure how the person presents himself or herself in society, and executes their roles in society, based on their personal sense of biological sex and gender identity. Those whose biological sex and gender identity are congruent would be expected to score higher on this scale compared to those who have some sort of disconnect between their biological sex and gender identity. Table eleven shows the means and deviation from the overall mean based on sex and gender identity. The mean for this scale is 19.75 with a standard deviation of 5.60.

Table 12

Breakdown of Mean/Standard Deviations by Gender Identity and Sex

Sex	Gender Identity	Mean	Std from Overall Mean
Male	Masculine	23.99	.76
	Feminine	11.50	-1.47
	Masculine/Feminine	26.30	1.17
	Feminine/Masculine	23.50	.67
	Polygender	33.00	2.37
	Transman	31.00	2.01
Female	Masculine	30.00	1.83
	Feminine	17.08	-.48
	Masculine/Feminine	23.66	.70
	Feminine/Masculine	20.08	.06
	Polygender	27.67	1.41
	Transwoman	28.50	1.56
	Transman	14.00	-1.03
Intersex	Feminine	20.00	.05
	Feminine/Masculine	16.00	-.67

The three scales in general do not show sufficient variability to determine adequate cutoff scores therefore specific research question 2a is answered negatively. It is possible, based on visual inspection of the variability in the data, that the overall assessment cutoff scores will be enough to determine the eight categories as hypothesized by the author. The overall cutoff scores are discussed below.

Overall cutoff score.

The overall cut off score could potentially be determined using the self-reported gender identities by sex and the standard deviations from the mean. The range of possible raw scores on the AMGS is from 19 – 133. The mean of raw scores on this particular research project was 63.625 with a standard deviation of 12.898. Breaking down the mean scores by self-reported gender identity and biological sex led to the following results in table twelve of the standard deviation from the overall mean.

Table 13

Breakdown of Mean/Standard Deviations by Gender Identity and Sex

Sex	Gender Identity	Mean	Std from Overall Mean
Male	Masculine	64.15	.04
	Feminine	41	-1.76
	Mascline/Femine	75.73	.94
	Feminine/Masculine	68.33	.37
	Polygender	90	2.04
	Transman	100	2.82
Female	Masculine	55	-.67
	Feminine	58.69	-.38
	Masculine/Feminine	77.36	1.07
	Feminine/Masculine	69.51	.46
	Polygender	80.67	1.32
	Transwoman	69.75	.47
	Transman	52	-.90
Intersex	Feminine	51	-.98
	Feminine/Masculine	53	-.82

Summary

This chapter provided the results of the data analysis for the initial psychometrics on the Arkansas Multidimensional Gender Scale (AMGS). Two hundred thirty-seven valid responses were received and analyzed. Participants were predominately female and Caucasian though thirty percent of the respondents did identify as having non-traditional gender identities. The AMGS showed only moderate internal consistency with an alpha level of .54. Three factors were found during the principal components analysis though they did not break into the three scales hypothesized by the author. Convergent validity was not shown between the AMGS and BSRI (Bem, 1974) with only a minimal correlation of .15. It was not possible to correlate the FIS (Serafini, Maitland, & Adams, 2006) and AMGS by total score to show discriminant validity. Instead, the scales were correlated and did show discriminant validity with very little correlation between the scales on the AMGS and the scales on the FIS (Serafini, Maitland, &

Adams, 2006). Two of the three scales (Internal Sense of Self and Liking of One's Gender Identity) of the AMGS did not show enough variability to determine cutoff scores. The third scale (Impact on Role in Society) did have sufficient variability to determine cutoff scores. The AMGS overall did have enough variance to set cutoff scores based on gender identity and sex. Specific research questions 1a, 1c, and 2a were answered negatively. Specific research questions 1b, 1d, and 2b were answered positively.

Chapter Five

Discussion

This chapter focuses on elucidating results in depth and recognizing the limitations of the current research methods. Further, it discusses future research directions. Lastly, it will provide the final pieces to tie the research together into a cohesive package.

Demographics.

Overall, the demographics were not normally distributed. The majority of participants identified as Caucasian (81.8%), biological females (81%), or in the 26-35 age range (43.8%). This may skew the results as there is less representation by diverse racial/ethnic groups and self-identified males as well as people in other age ranges. As most of the participants were drawn as a convenience sample from counseling and/or psychology related professions, it makes sense that the majority of people would be female and Caucasian as these two professions are largely female and Caucasian in nature (Dickson, Jepsen, & Barbee, 2008; Greason & Cashwell, 2009; Smith, Robinson, & Young, 2007). Future studies will need to draw from samples with more men and more racial and ethnic diversity in order to make the instrument usable for a large variety of people. Ideally, a large random sample from within the United States would provide the best diversity for accurate results.

Also, one participant contacted the author to report that the category of Asian/Asian American was inadvertently left off the demographic portion of the instrument. She stated she had to choose Pacific Islander despite the fact that she was not from the Pacific Islands. One other person also identified as Pacific Islander but may, in fact, be Asian or Asian American. This was an oversight on the author's part and will be corrected for further testing of the instrument.

Thirty one percent of the sample did meet the criteria of having non-traditional gender identities that the author set in order to obtain sufficient variability. One category that was under-represented and would need further study is people who know they are intersex. This population as a whole is under studied in the transgender literature as their numbers are so small in general and are probably even less in the transgender realm (MacKenzie, Huntington, & Gilmour, 2009). However, they may provide a deeper understanding of how biology and social expectations come together to form gender identity as a whole due to the blurring of biological components that the majority of people do not have.

Research Question One

Specific research question 1a: Internal consistency.

Overall internal consistency.

The overall internal consistency was moderate at .54. While this is not acceptable to assure reliability, it shows that the scale is well on its way toward being valid and reliable. It is notable that many of the individual items were negatively correlated with each other because they were opposites. For example, "I like being feminine" was negatively correlated with "I do not like being feminine," which is to be expected. As liking being feminine increases, not liking being feminine would decrease. This could draw down the overall internal consistency as these questions may cancel each other out. Further research will examine reverse scoring negative items to determine if this increases internal consistency.

Internal sense of self scale.

This scale showed very low internal consistency with an alpha value of -.01. Items three and eight were significantly correlated at the .0001 level, as were items eight and eleven. Items three and eleven were correlated at the .001 level. Deleting item three would raise the internal

consistency to .65, which is significantly higher than the .54 correlation currently seen in the AMGS and would almost raise the AMGS to sufficient internal consistency. Deleting item eleven would put the AMGS into the acceptable internal consistency by raising it to -.88. However, this is a negative correlation and is not what the author intended. Further research will be needed to determine if these variables need to be re-written in order to be included in the assessment as the overall internal consistency is so low. Items will also be reversed scored during the next phase of testing to determine how this influences the internal consistency of the scale.

Liking of one's gender identity scale.

The liking of one's gender identity scale had the highest internal consistency of the three scales with an alpha level of -.76. While this is a negative correlation and not what the author intended, it is likely that these items only need mild revision to bring the score into the positive range. Most likely doing some reverse scoring would provide this change.

Item one was significantly correlated with items two, twelve, thirteen, fourteen, and seventeen at the $p = .0001$ level. Items fifteen and sixteen appear to be problematic as they do not correlate significantly with any other items except each other and item fourteen. Removing items fifteen and sixteen would increase the overall internal consistency to a level outside the possible range of acceptable correlations, which ranges from -1.00 to 1.00. If those two items were removed, internal consistency would be -1.70 and -1.47, respectively. As this is statistically impossible, both items should remain in the scale with significant revisions.

Removing item seventeen would raise the internal consistency of the AMGS to -.95, which is within the range of acceptable internal consistencies to prove reliability. However, as

this is a negative correlation, more study needs to be done to determine how to make the correlation positive in nature. Most likely, many items need to be reverse scored or re-written.

Impact on role in society.

This scale also had a low internal consistency with an alpha level of .19. Items four, five, six, and seven were all correlated at the $p = .0001$ level. Item nine was correlated with item six at the $p = .0001$level. Item ten was not significantly correlated with any other item ($p = .025$ - .19). Removing any of these items would decrease the overall internal consistency of the assessment. Removing item ten would lower the internal consistency of the instrument to -.003 so must remain in the scale despite not being correlated with any other item. Rewriting these questions may be necessary to increase the internal consistency of the scale and therefore the internal consistency of the instrument as a whole.

Specific research question 1b: Principal component analysis.

While three factors were found, the items did not line up into the three factors the author theorized. Items one, two, twelve, thirteen, fourteen, fifteen, sixteen and seventeen should have all loaded as one factor. Items four, five, six, seven, nine and ten should have loaded as a second factor. Items three, eight, and eleven should have loaded as the third factor. Instead, items one, two, three, four, five, six, seven, twelve, fourteen, and seventeen loaded onto factor one. Items nine, eleven, sixteen, and eighteen loaded as a second factor. Items eight, ten, fifteen and nineteen loaded as the third factor. Using these items to create three scales, internal consistency was revisited. The scale consisting of items one, two, three, four, five, six, seven, twelve, thirteen, fourteen, and seventeen provided an alpha level of -1.36, which is statistically impossible. Reverse scoring negative items on the assessment yielded a score within the acceptable range of +1 to -1 (.09). This is very low internal consistency for this scale. The other

two scales provided high internal consistency levels. The scale with items nine, eleven, sixteen, and eighteen showed an alpha level of .93. Reverse scoring showed no changes in internal consistency for this scale. The scale with items eight, ten, fifteen, and nineteen had an alpha level of .75. Reverse scoring made this alpha level negative but otherwise did not affect it. Because the items broke into three factors, though not the factors the author surmised, specific research question 2b was answered positively.

The questions that loaded onto factor one do not make logistical sense as the author understands the underlying factors. Those questions are a mix of questions about liking one's sense of self and one's roles in society. The questions that loaded onto factor two from the principal component analysis make sense to some degree as they all ask about being masculine and feminine in some way, shape or form. However, so do all the questions that fell into factor three on the analysis. Again, all of these questions are a mix of question related to roles in society and internal sense of self. Additional research needs to be conducted to understand why these questions load together. It is possible that reverse scoring some of these items will take care of this issue, as well why the first factor scale has an alpha level outside the statistically appropriate levels.

Specific research question 1c: Convergent validity.

The AMGS did not correlate highly with the BSRI (Bem, 1974) as the author hypothesized it would. There was only a .15 correlation between the two instruments. There could be several reasons there is low correlation between the AMGS and the BSRI (Bem, 1974). The first possibility is the most obvious; they are measuring completely different constructs. This could indeed be the situation, in which case the AMGS would need to be completely revamped to measure the same construct as the BSRI (Bem, 1974).

A second reason the correlation could be so low is that the AMGS is measuring a more in-depth version of gender identity than what the BSRI (Bem, 1974) is measuring. The BSRI (Bem, 1974) is measuring gender roles, which is a part of gender identity but does not encompass all the components that the AMGS does. Therefore it is possible that both the BSRI(Bem, 1974) and AMGS are still measuring gender identity, just different versions of it. It is conceivable, therefore, that there is no other assessment that would provide convergent validity for the AMGS as all other instruments currently in use to measure gender identity are based on the BSRI (Bem, 1974).

A third reason the two instruments are not highly correlated could be because the BSRI (Bem, 1974) is nearly thirty years old and the definition of gender identity has started to change since then. The BSRI (Bem, 1974) measures traditional masculine and feminine roles. In the past thirty years, there has been a blurring of roles between men and women (Jones & Heesacker, 2011). It is possible that the BSRI (Bem, 1974) is incapable of grasping the newer enmeshed gender roles seen in today's world. Though this is a possibility, it is highly unlikely as the BSRI (Bem, 1974) is still used today and still produces valid results in the determination of those with gender identity disorder.

The most likely reason the two instruments are not highly correlated is that the two assessments are indeed measuring two different constructs. It is left to the researcher to determine what differing constructs are being measured in future endeavors. It is most likely that the AMGS needs to be revamped prior to it becoming a valid and reliable assessment tool.

Specific research question 1d: Discriminant validity.

None of the scales of the AMGS correlate highly with the scales of the FIS. Almost all of the scales of the AMGS negatively correlate with those of the FIS (Serafini, Maitland, &

Adams, 2006). Only scale two of the AMGS (the liking one's gender identity scale) correlates positively with any of the scales of the FIS (scale two – the harmony scale). While the three scales of the AMGS were all significantly correlated with each other (p = .0001), none were significantly correlated with any of the FIS scales (p ranging from .02 - .93). All of the FIS scales were significantly correlated with each other (p = .0001).

While this is not an ideal way to determine discriminant validity of the two instruments, it is fair to assume that with little correlation between the scales, there would be little correlation between the two assessments. In order for the assessments to be correlated, the scales should have shown correlations significant at the p = .05 level, at the very least. In the future, the researcher will find another instrument with which to determine discriminant validity where there is an overall score to correlate with the overall score of the AMGS.

Research Question Two

Specific research question 2a: Scale cutoff scores

Internal sense of self scale.

Each scale was analyzed to determine if cutoff scores could be found to illicit each of the eight gender identities posited by the researcher. In the internal sense of self scale, using a half standard deviation score (1.68) from the mean (10.475) to determine ranges it was determined that seven of the gender identity (by sex) groups fell within this one standard deviation range (8.80 – 12.15). Those who identify as female and masculine-feminine, feminine-masculine, and polygender, as well as those who identify as intersex and feminine-masculine fell in the next highest range (12.15 – 13.83). There were no groups that fell in the 13.83 – 15.51 or the 15.51 – 17.19 ranges. People who identified as male and transman fell into the 17.19 – 18.87 range. There were no groups who fell in the next level down (7.12 – 8.80). People who identify as male

and masculine fell in the next lower level down (5.44 – 7.12). No group fell in the next group down (3.67 – 5.44). People who identify as male and feminine and female and masculine fell in the lowest group (2.09 – 3.67).

While this scale shows very little variation overall, it clearly delineates those who are male and identify as feminine and those who are female who identify as masculine as both of those scores are more than two standard deviations below the scale mean. This is ideally where those two groups would fall based on the idea that they would be the most dissatisfied with their knowledge of who they are in terms of sex. Ironically, those who identify as female and transman should score even lower on their mean but do not. Instead, they fall within .16 standard deviations from the mean. Further, men who identify as masculine score, on average, more than one standard deviation below the scale mean rather than in the mean range as the author expected. Those who are cisgender should have the clearest sense of internal identity. Females who identified as cisgender did fall within the mean range as expected. Unfortunately, many other groups that were expected to fall further out from the mean did not show sufficient variability to overcome the mean range. Males who identify as feminine-masculine, masculine-feminine, and polygender, as well as females who identify as feminine, transman, and transwoman, and those who identify as intersex feminine all fall within the one standard deviation from the mean range. The author expected that males who identify as feminine-masculine and polygender, and females who identify as transman and transwoman should have showed greater variability and been outside of this range.

Females who identify as masculine-feminine, feminine-masculine, and polygender, and those who identify as intersex feminine-masculine fall just outside the one standard deviation from the mean range. Again, the author would have expected more variation within these groups

to show greater variability within the scale overall. It is probable that this particular scale needs more work to attain this variability.

Liking of one's gender identity scale.

On the liking of one's gender identity scale, six of the gender identities fell within half of a standard deviation (2.29) above and below (25.39 – 29.97) the mean (27.68). Both males who are masculine and females who are feminine fell within this range, as did males who identify as masculine-feminine, feminine-masculine, and females who identify as feminine-masculine, and transwoman. No groups fell in the next range down (23.10 – 25.39). Males who identify as feminine and females who identify as masculine fell in the next lower range (20.81 – 23.10). People who are intersex who identify as feminine and feminine-masculine fell in the next lower category (18.53 – 20.81). Females who identify as masculine-feminine fell into the next category above the mean range (29.97 – 32.26). No groups fell into the next two higher categories (32.26 – 34.54 and 34.54 – 36.83, respectively). Males who identify as polygender or transman fell into the highest category (36.83 – 39.11).

Most likely, this scale needs only slight revamping to have it exhibit more variability. This is particularly true for the identities that could be easily blurred, such as females who are masculine-feminine or feminine-masculine, where it is a matter of slight degree versus large degree of difference between the two identities. This scale already easily identifies those who fall the furthest from the cisgender identification (ie., males who identify as feminine, females who identify as masculine, etc.).

Impact on Role in Society Scale.

The impact on role in society scale shows far more variability than the other two scales. Continuing the theme of starting with a half standard deviation above and below the mean, only three gender identities fall within the beginning range (16.95 – 22.54) , females who identify as feminine, feminine-masculine, and people who are intersex that identify as feminine. In the next lower range (14.15 – 16.95), are people that are intersex who identify as feminine-masculine. In the next lowest range (11.35 – 14.15) are males who identify as feminine. Going above the average range, (22.54 – 25.34) are males who identify as masculine or feminine-masculine and females who identify as masculine-feminine. At the next level up (25.34 – 28.14) are males who identify as masculine-feminine and females who identify as polygender. Still further up, (28.14 – 30.94) are females who identify as masculine. Last up on the scale (30.94 – 33.74) are those males who identify as polygender and transman.

This scale shows greater variability and therefore how gender identities impact society roles. There is a pattern where the majority of feminine gender identities fall at or below the mean range and the majority of masculine gender identities fall above the mean range. Males who identify as feminine-masculine are the exception to this general trend. It is possible that men who identify as feminine-masculine are closer to those females who identify as masculine-feminine in how their gender identities impact society roles.

The author proposed that males who are masculine would fall in the mean range of scores rather than above the mean range. Why this breaks down like it does needs further study. Perhaps it speaks to differences in the way males and females interpret society expectations about their roles in general and the pressure to conform to societal expectations. This would be an avenue for further study.

Specific Research Question 2b: Overall Cutoff Scores

Using half a standard deviation (6.45) on either side of the mean as the starting point, the categories of sex and gender identity that fall within that one standard deviation range (57.18 – 70.08) include females that identify as feminine, transman, or feminine-masculine, and males who identify as masculine, or feminine-masculine. Going one-half standard deviation below the original range (50.73 – 57.18) includes those who are female identifying as masculine or transwoman and those who are intersex who identify as feminine or feminine-masculine. Going yet another half standard deviation below (44.28 – 50.73) yields no results in this range. In the final lower half standard deviation range (37.83 – 44.28) are males who identify as feminine.

In the upper ranges, starting at 70.08 – 76.52, there are males who identify as masculine feminine. The next level up (76.52 – 82.97) includes females who identify as masculine-feminine or polygender. The next range (82.97 – 89.42) yields no results. Males who identify as polygender fall into the next category (89.42 – 95.87). Finally, males who identify as transman score in the final category (95.87 – 102.32).

Using these results, a trend is evident in that those who identify more feminine tend to score below the overall mean while those who identify as more masculine identify above the mean. Those who are cisgender tend to fall closer to the mean. There are, however, a couple of deviations from this trend. Those who are female who identify as transman fall in the mean range when it would be expected by the remainder of the data for this group to fall in the upper ranges of the scores. It is possible that this group of people sees themselves as cisgender due to an overwhelming identification with the masculine gender identity and the male sex, which would be expected in someone who wishes to obtain SRS at some point in life.

Interestingly, those who identify as feminine-masculine also fall within the range of those who identify as cisgender. This is not what would be expected from the other gender identity

scores and deviations from the mean. One would expect this population to score lower than half a standard deviation from the mean, potentially within the 50.73 – 57.18 range. Why this population falls within the normal range is unknown and would need to be looked at in further research.

Females who identify as masculine fall on the lower part of the scale when it would be expected they would land higher than the mean based on other scores in the data. Further study needs to be done to examine why this population scores on the low end of the scale. It could have to do with some scores needing to be reversed in the analysis process.

Those who identify as male transman and female transwoman go against what the author has defined for transwoman (a male who wishes to become a female) and transman (a female who wishes to become a male). It is unknown how the two participants understood the questions and/or definitions presented. It is possible these two individuals simply used the wrong definition and meant to use male transwoman and female transman. If this is the case, then the person who identified as male transman is an outlier as his score is one of the highest and should be one of the lowest. If, however, he truly is male and somehow feels as if he is transman, then his score is within the boundaries expected for those who identify more masculine. This would also be true for the female who identifies as transwoman. If she truly is a female and somehow feels she is a transwoman, her score is within the expected range for those identifying as feminine. On the other hand, if this woman means to say she feels like a transman, her score is outside the expected range for those who identify as masculine.

Overall, it is clear to see that there is sufficient variability within the scores to safely identify cut off points for most of the differing gender identities. Those who are cisgender would be expected to have scores in the range of 57 – 70 as an overall raw score. Those who identify as

feminine-masculine, regardless of their sex, and females who identify as transman would also fall in this range. Then, those who identify as intersex and feminine or feminine-masculine, as well as females who identify as masculine or transwoman would fall in the 51 – 57 range. Those who identify as male and feminine would expect to have raw scores within the last range of scores (38 – 44). Males who identify as masculine-feminine start the upper levels of scores with raw scores expecting to fall in the 70 – 77 range. Females who identify as polygender or masculine-feminine climb to the next higher half standard deviation with raw scores predicted to fall into the 77 – 83 range. Males who identify as polygender come next with raw scores expected to fall in the 89 – 96 score range. Finally, males who identify as transman would be expected to score in the 97 – 102 score range. Cleaning up the individual scales so they provide sufficient variability should round out the cutoff scores for the overall instrument. Therefore, specific research question 2b is answered positively though there is room for improvement in the ability of the assessment to accurately classify individuals into one of the eight gender identity categories hypothesized by the author.

Limitations

No research is ever without its limitations and this research is no different. The main limitation of this research is that it was a small, convenience sample rather than a random sample. A convenience sample is limited in its ability to present an accurate reflection of the general population as a whole due to the narrow scope of sex, race, and age in this sample. The general population is composed of approximately 50% males and females, 69% White, 12.5% Hispanic, 12.6% Black, 4.9% other race, 3.6% Asian, 1.6% two or more races, .75% Native American, and .13% Native Hawaiian (Social Science Data Analysis Network [SSDAN], 2011). Roughly 3.5% would be in each of the 18-20, 20-24, 25-29, 45-49 range, 3.6% in the 30-34

range, 4% in the 35-39, and 40-44 range, 3.1% in the 50-54 range, the 2.4% in the 55-59 range, and less than 2% of every category over age 60 (SSDAN, 2011). This particular sample had 81% females, 81.8% Caucasians, and 44% in the 26 – 35 year old age range. This clearly does not match the population as a whole and could have changed the results significantly as women would be expected to answer differently than men on these questions. Women may be more in tune with slight variations in gender identity and therefore may give more variability in their answers than men would. Also, people of color would also be expected to answer in the cisgender range than Caucasian people due to pressure from their own race or ethnic group to present as "normal".

Further, it was limited to those who were from the helping professions and those known to identify as transgender. This may have skewed the results as those in the helping professions may be more in tune with their gender identity than the average population and could have answered questions accordingly. However, as this research showed that the majority of people did answer as expected (in the cisgender range), it is probable that this did not affect the results much. Further, it is unknown if people in the helping professionals actually do know more about their own gender identity as research on the issue appears to be non-existent. Those who are transgender know about their own gender identity but may not be educated as to the broader scope of gender identities. The author will assess people's knowledge of gender identity in later research to determine if this impacts how they respond on the assessment.

Suggestions for Further Research

Research into the gender identity schematic is a blossoming area. This research presented in this dissertation leads to other possible studies to provide greater understanding in the dynamics of gender identity. Research could be conducted on different groups to determine

how their stories differ from others in different areas. For example, it would be an interesting juxtaposition to use this scale to assess those in urban areas compared to those in rural areas. It would be expected that those in urban areas may feel freer too express and accept any variances they have in gender identity due to anonymity in larger areas that may create a sense of safety compared to the rural area where people know more about each other's business.

Secondly, it would be nice to look at those who are older versus those who are younger to see if there are any differences in gender identity between those two groups. Again, as young people are living in an environment that is rapidly becoming more tolerant of those who are different, one could expect there to be large differences between those who are older and those who are younger on how they view their gender identity. However, as the world does become more accepting, those older people who felt unable to live as they really wanted due to the pressures and constraints of society, may become the next largest group to express their true gender identities.

Thirdly, the AMGS could be written so that it could be used with children. Children are the ones who suffer the most when mental health providers do not understand all the ways gender can be expressed (Hill, Menvielle, Sica, & Johnson, 2010). Because children as young as age two can start to feel discomfort over their gender identity, (Giordano, 2007; Peate, 2008), it would be especially critical to be able to have this instrument available to helping professionals who work with child populations. It is therefore an area that definitely needs to be expanded in future research in order to meet the needs of the children who may be suffering with unanswered questions regarding their gender identity.

Finally, a qualitative component of this instrument could be used to help understand why some of the answers from this study did not quite match what the author expected, namely the

one person who identified as female in biology and yet had a self-identified gender identity as "transwoman". From current research already on the subject of gender identity, this is an impossible combination and yet here it is in this research. It is clear that there is a long way to go in understanding gender identity, just from this one anomaly.

Implications for Helping Professionals

Helping professionals (counselors, psychologists, social workers, etc.) will most likely counsel people who struggle with their gender identity (Ehrensaft, 2011). While most educational programs for those in the helping professionals require multicultural competency, some do not specifically include gender identity among that multicultural definition (American Psychiatric Association, 2009; American Psychological Association, 2004; Counsel for Accreditation of Counseling and Related Educational Programs [CACREP], 2009; Counsel on Social Work Education [CSWE], 2008). It is crucial that people in the helping professionals become competent in working with those with non-traditional gender identities as this population continues to seek treatment for a variety of everyday problems and mental health issues. Once this assessment is validated it will provide those whose careers encompass providing assistance in mental health situations with a deeper understanding of where people fall along the three-dimensional scope of gender identity. These professionals can then better explain options for treatment for those struggling with accepting their non-traditional gender identities. Professionals can educate their clients that SRS is not necessarily required, that the client is normal with their non-traditional gender identity, regardless of what their biological sex is. Professionals then may also be able to better delineate those who truly do need SRS from those who do not, thereby cutting down on the number of people having SRS that later have regret. This, in turn, will cut down the cost of overall mental health services for people with differing

gender identities as they will not have to meet the two year minimum mandatory counseling for SRS patients. People with other gender identities will be free to leave treatment sooner if they do not really need SRS.

As helping professionals, it is also necessary to engage in changing policies and antiquated laws surrounding issues our clients may be facing. Helping professionals could play a large part in changing laws related to divorce, identification documents, marriage, child custody, and employment. Counselors, psychiatrists, psychologists, and social workers will likely work with people with gender identity issues (Ehrensaft, 2011) and probably will help their clients with the above named issues at some point. Imagine if the world came to a place where a person who has undergone SRS could marry their opposite sex partner without question or sue the doctor for wrongful death of their spouse without having to fight a lengthy legal battle to do so (Robson, 2007). Or, better yet, a day when gender identity is no longer defined by the court as "one who has '[a] rare psychiatric disorder in which a person feels persistently uncomfortable about his or her anatomical sex,' and who typically seeks medical treatment, including hormonal therapy and surgery, to bring about a permanent sex change" (Womack, 2010, p. 1367). Or the best still, when the courts no longer define gender identity at all but instead it is left to each person to decide for themselves.

The final implication for counselors is in helping children. With this instrument expanding gender identity and increasing the knowledge and awareness of helping professionals, children who are experiencing discomfort due to gender identity issues will likely find more counselors and helping professionals who are better equipped to assist them on their journeys. Once the child meets with a counselor, social worker, psychiatrist, or other helping professional who understands the complexity of gender identity, the child should then get better care and

treatment for whatever gender identity issues are identified and this child will hopefully have a better outcome than if he or she had seen someone without this knowledge.

Summary

This chapter has delineated each of the specific research questions in detail, looking at problems within the research design and the problems in each of the analyses. The AMGS, overall, is well on its way to being a valid instrument. It does need some further revisions to attain validity and reliability at a standard acceptable to the scientific world. Limitations of the research at hand are discussed. Suggestions for future research are outlined. Implications for counselors, counselor educators, psychologists, psychiatrists, social workers, and other helping professionals are discussed.

References

Aiken, L. R. (2004). *Psychological Testing and Assessment*. New York, NY: Allyn and Bacon.

American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of Mental Disorders: DSM-III* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR* (4th ed., text revision). Washington, DC: Author.

American Psychiatric Association. (2009). *Guidelines and Principals for Accreditation of Programs in Professional Psychology.* Washington, D. C.: Author. Retrieved from http://www.apa.org/ed/accreditation/about/policies/guiding-principles.pdf

American Psychological Association. (2004). *Developing and Evaluating Standards and Guidelines Related to Education and Training in Psychology: Context, Procedures, Criteria, and Format.* Washington, D. C.: Author. Retrieved from http://www.apa.org/education/grad/beaguidelines-04final.pdf

American Psychological Association. (2006). *Answers to Your Questions About Transgender Individuals and Gender Identity.* Washington, D.C: Author.

Ault, A. & Brzuzy, S. (2009). Removing Gender Identity Disorder from the Diagnostics and Statistics Manual of Mental Disorders: A call for action. *Social Work, 54,* 187 - 189.

Banks, A. J. (2009). Explaining butch and femme classifications. Helium. Retrieved from http://www.helium.com/items/270746-explaining-butch-and-femme-classifications

Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Clinical and Consulting Psychology, 42,* 155 - 162. doi: 10.1037/h0036215

Bem, S. L. (1981a). Bem *Sex-Role Inventory: Professional manual*. Palo Alto, CA: Consulting Psychologist Press.

Bem, S. L. (1981b). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88,* 354 - 364. doi:10.1037/0033-295X.88.4.354

Berk, R. A. (1984). Conducting the item analysis. In R. A. Berk (Ed.*), A Guide to Criterion-referenced Test Construction,* (p. 97 - 143). Baltimore, MD: The John Hopkins Press.

Bess, J. A. (2006). The experiences of transgendered clients in therapy. *ProQuest Dissertations and Theses.* UMI no: 3247525

Bojesen, A., Juul, S., Birkebæk, N. H., & Gravholt, C. H. (2006). Morbidity in Klinefelter Syndrome: A Danish register study based on hospital discharge diagnoses. *Journal of Clinical Endocrinology & Metabolism, 91,* 1254 – 1260. doi: 10.1210/jc.2005-0697

Brannick, M. (n.d.). MMPI: Everything you ever wanted to know about the Minnesota Multiphasic Personality Inventory. Retrieved from http://luna.cas.usf.edu/~mbrannic/files/tnm/mmpi.htm

Brill, S. A., & Pepper, R. (2008). *The Transgender Child*. San Francisco, CA: Cleis Press.

Cabral, M. (2007). Gender expression and human rights. Retrieved from http://www.iglhrc.org/cgibin/iowa/article/publications/reportsandpublications/25.html

Calhoun, C. (2001). Author greets critic: Thinking about the plurality of genders. *Hypatia, 16*, 67 - 74.

Campell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105. doi: 10.1037/h0046016

Campo, J., Nijman, H., Merckelbach, H., & Evers, C. (2003). Psychiatric comorbidity of Gender Identity Disorders: A survey among Dutch psychiatrists. *American Journal of Psychiatry, 160*, 1332 - 1336. doi:10.1176/appi.ajp.160.7.1332

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245 – 276.

Constantinople, A. (1973). Masculinity-femininity: An exception to a famous dictum? *Psychological Bulletin, 80*, 389 - 407. doi:10.1037/h0035334

Conway, L. (2006). Basic TG/TS/IS information. Retrieved from http://ai.eecs.umich.edu/people/conway/TS/TS-II.html#anchor471864

Conway, L. (2007). A warning for those considering MtF SRS. Retrieved from http://ai.eecs.umich.edu/people/conway/TS/Warning.html

Corbett, K. (1998). Cross-gendered identifications and homosexual boyhoods: Toward a more complex theory of gender. *American Journal of Orthopsychiatry, 68*, 352 - 360.

Counsel for Accreditation of Counseling and Related Educational Programs [CACREP]. (2009). *2009 Standards.* Alexandria, VA: Author. Retrieved from http://www.cacrep.org/doc/2009%20Standards%20with%20cover.pdf

Counsel on Social Work Education [CSWE]. (2008). *Educational Policy and Accreditation Standards.* Alexandria, VA: Author. Retrieved from http://www.cswe.org/File.aspx?id=13780

Cornish, K., Turk, J., & Hagerman, R. (2008). The fragile X continuum: New advances and perspectives. *Journal of Intellectual Disability Research, 54*, 469 – 482. doi: 10.1111/j.1365-2788.2008.01056.x

Crocker, L., & Algina, J. (1986). *Introduction to classical & modern test theory*. New York, NY: Holt Rinehart Winston.

Deogracias, J. J., Johnson, L. L., Meyer-Bahlberg, H. F. L., Kessler, S. J., Schober, J. M., & Zucker, K. J. (2007). The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults. *Sex Research, 44*, 370 - 379. PMid:18321016

Devor, H. (2002). Where are "we"? Where sexual orientation meets gender. *Journal of Gay and Lesbian Psychotherapy, 6*, 5 - 21. doi:10.1300/J236v06n02_02

Dickson, G. L., Jepsen, D. A., & Barbee, P. W. (2008). Exploring the relationships among multicultural training experiences and attitudes toward diversity among counseling students. *Journal of Multicultural Counseling, 36*, 113 – 126. doi: 10.1002/j.2161-1912.2008.tb00075.x

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design model.* (3rd ed). Hoboken, NJ: John Wiley & Sons.

Docter, R. F., & Flemming, J. S. (1992). Dimensions of transvestitism and transsexualism: The validation and factorial structure of the Cross-Gender Questionnaire. *Journal of Psychology & Human Sexuality, 5*, 15 - 37.

Dornan, J. (2004). Blood from the moon: Gender ideology and the rise of ancient Maya social complexities. *Gender & History, 16*, 459 – 475. doi: 10.1111/j.0953-5233.2004.00348.x

Dorsey, F. Y., Hsieh, M. H., & Roth, D. R. (2009). 46, XX SRY-Negative true hermaphrodite siblings. *Urology, 73*, 529 - 531. doi: 10.1016/j.urology.2008.09.050

Dragowski, E. A., Scharrón-del-Rio, M. R., & Sandigorsky, A. L. (2011). Childhood identity…disorder? Developmental, cultural, and diagnostic concerns. *Journal of Counseling & Development, 89*, 360 – 366.

Dreger, A. (2009). Gender Identity Disorder in Childhood: Inconclusive Advice to Parents. *Hastings Center Report, 39*, 26 - 29.

Drescher, J. (2009). Queer diagnoses: Parallels and contrasts in the history of homosexuality, gender variance, and the Diagnostic and Statistical Manual. *Archives of Sexual Behavior, 39,* 427 - 460. doi: 10.1007/s10508-009-9531-5

Dressens, A. B., Slijper, F. M. E., & Drop, S. L. S. (2005). Gender dysphoria and gender change in chromosomal females with Congenital Adrenal Hyperplasia. *Archives of Sexual Behavior, 34,* 389 – 397. doi: 10.1007/s10508-005-4338-5

Ehrensaft, D. (2011). "I'm a Prius": A child case of gender/ethnic hybrid. *Journal of Gay & Lesbian Mental Health, 15,* 46 - 57. doi: 10.1080/19359705.2011.530571

Fraser, L. (2009). Depth psychotherapy with transgender people. *Sexual and Relationship Therapy, 24,* 126 - 142. doi: 10.1080/1468199090300387

Feder, E. K. (2009). Imperatives of normality: From "intersex" to "disorders of sex development". *GLQ: A Journal of Lesbian and Gay Studies, 15,* 225 - 247. doi: 10.1215/10642684-2008-135

Gay, Lesbian, Straight Education Network (GLESN). (2011). Guide to legal matters. Retrieved from http://www.glsen.org/cgi-bin/iowa/all/library/record/1742.html

Giordano, S. (2007). Gender atypical organisation in children and adolescents: Ethico-legal issues and a proposal for new guidelines. *International Journal of Children's Rights, 15,* 365 – 390. doi: 10.1163/092755607X262793

Gorton, R. N., Buth, J., & Spade, D. (2005). *Medical therapy and health maintenance for transgender men: A guide for health care providers*. San Francisco, CA: Lyon-Martin Women's Health Services.

Grahn, (1984*). Another Mother Tongue: Gay Words, Gay Worlds*. Boston, MA: Beacon Press

Green, R. (1969). Attitudes toward transsexualism and sex reassignment procedures. In R. Green & J. Money (Eds.). *Transsexualism and Sex Reassignment*. pp. 235 – 251. Baltimore: The John Hopkins University Press.

Gordon, R. M. (2011). Definitions of MMPI/MMPI-2 supplementary scales. Retrieved from http://www.mmpi-info.com/mmpi-2/mmpidict4.html

Gorton, R. N., Buth, J., & Spade, D. (2005). *Medical therapy and health maintenance for transgender men: A guide for health care providers*. San Francisco, CA: Lyon-Martin Women's Health Services.

Gottschalk, L. (2003). Same-sex sexuality and childhood gender non-conformity: A spurious connection. *Journal of Gender Studies, 12,* 35-50. doi: 10.1080/0958923032000067808

Gough, H. G. (1952). Identifying psychological femininity. *Educational and Psychological Measurement, 12*, 427 – 439. doi: 10.1177/001316445201200309

Greason, P. B. & Cashwell, C. S. (2009). Mindfulness and counseling self-efficacy: The mediating role of attention and empathy. *Counselor Education and Supervision, 49,* 2 – 19. doi: 10.1002/j.1556-6978.2009.tb00083.x

Guilford, J. P. & Martin, H. G. (1943). *An Inventory of Factors GAMIN*. Beverly Hills, CA: Sheridan Supply.

Hall, J. M. (2008). Tomboys: Meanings, marginalization, and misunderstandings. *Issues in Mental Health Nursing, 29,* 55 – 565. doi: 10.1080/01612840802048691

Hester, D. J. (2004). Intersexes and the end of gender: Corporeal ethics and postgender bodies. *Journal of Gender Studies, 13,* 215 – 225. doi: 10.1080/0958923042000287830

Hill, D. B., Menvielle, E., Sica, K. M., & A. (2010). An affirmative intervention for families with gender variant children: Parental ratings of child mental health and gender. *Journal of Sex & Marital Therapy, 36,* 6 - 23. doi: 10.1080/00926230903375560

Hoffman, R. M. (2001). The measurement of masculinity and femininity: Historical perspective and implications for counseling. *Journal of Counseling Development, 79,* 472 – 485.

Horton, M. A. (2008, September). The cost of transgender health benefits. Presented at Out and Equal Workplace Summit Conference, Austin, Texas.

Israel, G. E. (2001). *Insurance-funded genital reassignment surgery*. Diane Wilson Webpage. Retrieved from http://www.firelily.com/gender/gianna/insurance.html

Jones, K. D., & Heesacker, M. (2011). Addressing the situation: Some evidence for the significance of microcontexts with the gender role conflict construct. *Psychology of Men & Masculinity.* doi: 10.1037/a0025797

Kessler, S. J. (1990). The medical construction of gender: Case management of intersexed infants. *Signs, 16,* 3 - 26. doi: 10.1086/494643

Lawrence, A. A. (2003). Factors associated with satisfaction or regret following male-to-female sex-reassignment-surgery. *Archives of Sexual Behavior, 32,* 299 - 315.

Lev, A. I. (2004). *Transgender emergence: Therapeutic guidelines for working with gender-variant people and their families.* New York, NY: Haworth Clinical Practice Press.

Lindemalm, G., K'orlin, D., & Uddenberg, N. (1986). Long-term follow up of "sex change" in 13 male-to-female transsexuals. *Archives of Sexual Behavior, 15*, 187 – 210.

Lippa, R. (1985). Review of the Bem Sex-Roles Inventory. *The Ninth Mental Measurements Yearbook*. Lincoln, NE: Buros Center for Testing

Lombardi, E. (2009). Varieties of transgender/transsexual lives and their relationship with transphobia. *Journal of Homosexuality, 56*, 977 - 992.

Lurye, L. E., Zosuls, K. M., & Ruble, D. N. (2008). Gender identity and adjustment: Understanding the impact of individual and normative differences in sex typing. In M. Azmitia, M. Syed, & K. Radmacher (Eds.), *The intersections of personal and social identities. New Directions for Child and Adolescent Development, 120,* 31 – 46. doi:10.1002/cd.214

Lux, A., Kropf, S., Kleinemeier, E., Jürgensen, M., Thyen, U., & The DSD Network Working Group. (2009). Clinical evaluation study of the German network of disorders of sex development (DSD)/intersexuality: Study design, description of the study population, and data quality. *BMC Public Health, 9*, np. doi:10.1186/1471-2458-9-110 Retrieved from http://www.ncbi.nlm.nih.gov/pmc/issues/175724/

MacKenzie, D., Huntington, A., & Gilmour, J. A. (2009). The experiences of people with an intersex condition: A journey from silence to voice. *Journal of Clinical Nursing, 18,* 1775 – 1783. doi: 10.1111/j.1365-2702.2008.02710.x

Mail Foreign Service (MFS). (2011). The gay caveman: 5000-year-old is 'outed' by the way he was buried. Mail Online – Science & Tech, 4/6/2011. Retrieved from http://www.dailymail.co.uk/sciencetech/article-1374060/Gay-caveman-5-000-year-old-male-skeleton-outed-way-buried.html#ixzz1Im3mUjAz

Manning, J. T., Churchill, A. J. G., & Peters, M. (2007). The effects of sex, ethnicity, and sexual orientation on self-measured digit ratio (2D:4D). *Archives of Sexual Behavior, 36,* 223–233.

Meyenburg, B., & Sigusch, V. (2001). Kallman's syndrome and transsexualism. *Archives of Sexual Behavior, 30,* 75 - 81.

Minter, S. (1999). Diagnosis and treatment of gender identity in children. In M. Rottnek *Sissies and Tomboys: Gender Nonconformity and Homosexual Childhood*. New York, NY: New York University Press.

Morgan, S. W., & Stevens, P. E. (2008). Transgender identity development as represented by a group of female-to-male transgendered adults. *Issues in Mental Health Nursing, 29,* 585 - 599. doi: 10.1080/01612840802048782

National Center for Lesbian Rights. (2010). Legal recognition of LGBT families. Author. Retrieved from http://www.nclrights.org/site/DocServer/Legal_Recognition_of_LGBT_Families_04_2008.pdf?docID=2861

Nelson, R. D. (2002). *Deuteronomy: A Commentary*. Louisville, KY: Westminster John Knox Press.

Nicholson, L. (1994). Interpreting gender. *Signs: Journal of Women in Culture & Society, 20*, 79 - 109

Nuccitelli, D. (n.d.). A genderqueered FAQ: A primer. Retrieved from http://www.polygender.co.uk/polygenfaq.htm

Nunnally, J. C. & Bernstein, I. H. (1967). *Psychometric Theory (3rd ed).* New York, NY: McGraw Hill.

Olsson, S-E. & Möller, A. (2006). Regret after sex reassignment surgery in a male-to-female transsexual: A long-term follow-up. *Archives of Sexual Behavior, 35*, 501-506. doi: 10.1007/s10508-006-9040-8

Peate, I. (2008). Understanding key issues in gender-variant children and young people. *British Journal of Nursing, 17*, 114 - 118.

Pernoud, R. (1962). *Joan of Arc: By Herself and Her Witnesses*. Translated from French by Edward Hyams. New York, NY: Stein and Day.

Peplau, L., Garnets, L., Spalding, L., Conley, T. & Veniegas, R. (1998). A critique of Bem's "exotic becomes erotic" theory of sexual orientation, *Psychological Review, 105*, 387 – 394.

Pettitt, J. (2007). Facing trans: Inclusion, advocacy, and empowerment workbook, guide, and resource packet. Retrieved from http://www.jessicapettitt.com/images/FacingTransPacket.pdf

Pfäfflin, F. (1992). Regrets after sex reassignment surgery. *Journal of Psychology & Human Sexuality*, 5, 69 – 85

Phillips, L., & Stewart, M. R. (2008). "I'm just so glad you are alive": New perspectives on non-traditional, non-conforming, and transgressive expressions of gender, sexuality, and race among African-Americans. *Journal of African American Studies, 12*, 378 - 400. doi: 10.1007/s12111-008-9053-6

Prince, V. (2005). Sex vs. gender. *International Journal of Transgenderism*, *8*(4), 29 – 32. doi: 10.1300/J485v08n04_05

Rachlin, K. (2002). Transgender individuals' experience of psychotherapy. *The International Journal of Transgenderism*, 6, 1-19.

Ravish, I. R., Nerli, R.B., & Kamat, S.M. (2007). Severe hypospadias with micropenis, case of confused sex, psychosocial changes and treatment. *Archives of Andrology, 53*, 9 – 12. doi: 10.1080/01485010600889068

Reis, E. (2005). Impossible hermaphrodites: Intersex in America 1620-1960. *The Journal of American History, 92*, 411 – 441.

Richey, S. W. (2003). *Joan of Arc: The Warrior Saint*. Westport, CT: Praeger.

Robboy, S. J., & Jaubert, F. (2007). Neoplasms and pathology of sexual developmental disorders (intersex). *Pathology, 39,* 147 – 163. doi: 10.1080/00313020601137359

Robinson, B. A. (2007). *Transgenderism, Transsexualism, and Gender Identity Glossary of Terms Starting with "A" to "S"*. Kingston, ON: Ontario Consultants on Religious Tolerance. Retrieved from http://www.religioustolerance.org/transsexu1.htm

Robson, R. (2007). A mere switch or a fundamental change? Theorizing transgender marriage. *Hypatia, 22*, 58 - 70.

Rochman, S. (2006). Life in the T zone. *The Advocate*. Retrieved from http://www.advocate.com/article.aspx?id=21818

Rolstad, S. G., Möller, A., Bryman, I., & Boman, U. W. (2007). Sexual functioning and partner relationships in women with Turner's Syndrome: Some empirical data and theoretical considerations regarding sexual desire. *Journal of Sex & Marital Therapy, 33*, 231 - 247. doi: 10.1080/00926230701267886

Rosario, V. A. (2011). Gender variance: An ongoing challenge to medico-psychiatric nosology. *Journal of Gay & Lesbian Mental Health, 15*, 1-7. doi: 10.1080/19359705.2011.530565

Rose, K. C. (2004). A history of gender-variance in pre-20th century Anglo-American law. *Texas Journal of Women & the Law, 14*, 77 - 119.

Ross-Gordon, J. M. (1999). Gender development and gendered adult development. *New Directions for Adult and Continuing Education, 84*, 29 – 37. doi: 10.1002/ace.8404

Schneider, M., Bockting, W. O., Ehrbar, R. D., Lawrence, A. A., Rachlin, K. L., & Zucker, K. J. (2006). *Answers to Your Questions About Transgender Individuals and Gender Identity.* Washington D. C.: American Psychological Association.

Sell, I. M. (2001). Third gender: A qualitative study of the experience of individuals who identify as neither being man nor woman. *ProQuest Dissertations and Theses.* UMI no: 3011299.

Sennott, S. L. (2011). Gender disorder as gender oppression. *Women and Therapy, 34*. 93 - 113. doi: 10.1080/02703149.2010.532683

Serafini, T. E., Maitland, S. B, & Adams, G. R. (2006, March). The Functions of identity scale: Revisions, validation and model testing. Poster presented at the Biennial Meeting of the Society for Research on Adolescence, San Francisco, California. Retrieved from http://w3.fiu.edu/srif/IdentityMeasures.htm

Smith, Grambrell, & Russell, LLP. (2006). Sex discrimination, gender identity and Title VII: No limits, or new boundaries? *Trust the Leaders, 17*. Retrieved from http://www.sgrlaw.com/resources/trust_the_leaders/leaders_issues/ttl17/824/

Smith, H. L., Robinson, E. H., III, & Young, M. E. (2007). The relationship among wellness, psychological distress, and social desirability of entering master's-level counselor trainees. *Counselor Education and Supervision, 47*, 96 – 109. doi:10.1002/j.1556-6978.2007.tb00041.x

Social Sciences Data Analysis Network [SSDAN]. (2011). *Censusscope.* Retrieved from http://www.ssdan.net/content/censusscope

Spence, J. T., Helmreich, R. I., & Stapp, J. (1974). The personal attributes questionnaire: A measure of sex-roles stereotypes and masculinity and femininity. *JSAS Catalog of Selected Documents in Psychology, 4*, 43 - 433.

Stoller, R. J. (1964). The hermaphroditic identity of hermaphrodites. *Journal of Nervous and Mental Disease, 139*, 453 - 457.

Stringer, J. A. C. (2009). *The Trans and Queer Wellness Initiative*. Retrieved from http://genderqueercoalition.org/terms

Strong, E.K. (1938). *Vocational Interest Inventory for Men (revised)*. Palo Alto, CA: Stanford University Press.

Terman, L. M., & Miles, C. C. (1936). *Sex and Personality: Studies in Masculinity and Femininity.* New York, NY: McGraw-Hill.

Tulayaphanich, C. (2010). *Package Price List*. Retrieved from http://www.chet-plasticsurgery.com/price.html

Toubai, T., Tanaka, J., Ota, S., Miura, Y., Toyoshima, N., Asaka, M., …Imamura, M. (2004). Allogeneic bone marrow transplantation from an unrelated donor for the treatment of chronic myelogenous leukemia in blast crisis in a patient with Kleinfelter's Syndrome. *Leukemia & Lymphoma, 45*, 829 - 831.

Trochim, W. M. K. (2006). *Types of Reliability.* Retrieved from http://www.socialresearchmethods.net/kb/reltypes.php

Turner, R. C. & Carlson, L. (2003). Indexes of ítem-objective congruence for multidimensional items. *International Journal of Testing, 3*, 163 - 171. doi:10.1207/S15327574IJT0302_5

Veale, J. F., Clarke, D. E., & Lomax, T. C. (2010). Biological and psychosocial correlates of gender of adult gender-variant identities: New findings. *Personality and Individual Differences, 49*, 252 - 257.

Veale, J. F., Lomax, T. C., & Clarke, D. E. (2010). Identity-defense model of gender variant development. *International Journal of Trangenderism*, 12, 125 - 138. doi: 10.1080/15532739.2010.514217

Vedeler, H. T. (2008). Reconstructing meaning in Deuteronomy 22:5: Gender, society, and transvestitism in Israel and the ancient near east. *Journal of Biblical Literature, 127*, 459 - 476.

Vorona, E., Zitzman, M., Gromoll, J., Schüring, A. N., & Nieshlag, E. (2007). Clinical, endocrinological, and epigenetic features of the 46,XX male syndrome, compared with the 47, XXY Klinefelter patients. *Journal of Clinical Endocrinology & Metabolism, 92*, 3458 – 3465. doi: 10.1210/jc.2007-0447

Wang, J., Dicken, C., Lustbader, J. W., & Tortoriello, D. V. (2009). Evidence for a Müllerian-inhibiting substance autocrine/paracrine system in adult human endometrium. *Fertility & Sterility, 91*, 1195 – 1203. doi: 10.1016/j.fertnstert.2008.01.028

Warren, P. N. (2009). Was Joan of Arc genetically male? *Gay & Lesbian Review Worldwide, 16*, 24 - 28.

Webster, M. (2011). *Online Dictionary.* Retrieved from http://www.merriam-webster.com/dictionary/butch?show=0&t=1301085834 and http://www.merriam-webster.com/dictionary/femme

Winters, K. (2008). Issues of GID diagnosis for transsexual men and women. *GID Reform Advocates*. Retrieved from http://www.gidreform.org/gid30285.html

Womack, K. A. (2010). Please check one—male or female?: Confronting gender identity discrimination in collegiate residential life. *University of Richmond Law Review, 44*, 1365 - 1397.

Woo, M. & Oie, T. P. S. (2008). Empirical investigations of the MMPI-2 gender-masculine and gender-feminine scales. *Journal of Individual Differences, 29*, 1-10. doi: 10.1027/1614-0001.29.1.1

Zevy, L. (2004). Lesbian tomboys and "evolutionary butch". *Journal of Lesbian Studies, 8*, 143 - 158. doi: 10.1300/J155v08n01_09

Zucker, K. J., Beaulieu, N., Bradley, S. J., Grimshaw, G. M. & Wilcox, A. (2001). Handedness in boys with gender identity disorder. *Journal of Child Psychology and Psychiatry, 42*, 767 – 776.

Zucker, K. J. & Bradley, S. J. (2005).Gender identity and psychosexual disorders. *Focus: The Journal of Lifelong Learning in Psychiatry, 3*, 598 - 617.

Appendix A

Table A1

Rubric of "Gender" (Hypothesis): By Karyl Lounsbery

	Biological	Genetic	Feelings	Thoughts
Male	Male genitalia present enlarged breasts smaller testicles larger testicles Taller Thinner Lots of body hair Little body hair No body hair	XY XXY XY/XXY XXXY XXXXY XXXXXY Fragile X 46,XX males Kleinfelter's Syndrome	Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	I know I'm male and I like being male and being male is important to me. I am a male, and I don't like being a male but being male is important to me. I am a male, I like being male, but being male is not important to me. I am male, I don't like being male, and being male is not important to me. Even though I have male genitalia, I am female and being female is important to me. Even though I have male genitalia, I want to be female but being male is important to me. Even though I have male genitalia, I am female but being female is not important to me.

	Biological	Genetic	Feelings	Thoughts
Female	Female genitalia present	XX Fragile X X (Turner's Syndrome) Kallman's Syndrome Congenital Adrenal Hyperplasia (CAH)	"Tomboy" activities acceptable until puberty Tomboys may be lesbian or heterosexual Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	I know I'm female and I like being female and being female is important to me. I am a female, and I don't like being a female but being female is important to me. I am a female, I like being female, but being female is not important to me. I am female, I don't like being female, and being female is not important to me. Even though I have female genitalia, I am male and being male is important to me. Even though I have female genitalia, I want to be male but being female is important to me. Even though I have female genitalia, I am male but being male is not important to me.

	Biological	Genetic	Feelings	Thoughts
Transgender Transexual Feminine masculine Masculine feminine	Cannot be overcome with psychological treatment Psychosocial factors do not appear to have a function in causation GnHRas to suppress oestrogen/testosterone development (completely reversible) Androgen replacement/Cross-sex hormones (partially reversible) Surgical interventions (irreversible)	Any genetic composition	Cross-dressing Desire to be the other sex Hatred for bodily sexual functions and characteristics Shame/Guilt Preference for cross-sex activities and behaviors (usually) Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	Body-Mind Dissonance from a young age Feels that he/she was born into the wrong body and is actually genetically/biologically female/male. Thinks she is more masculine than feminine. Thinks he is more feminine than masculine.

	Biological	Genetic	Feelings	Thoughts
Western Transvestite (Drag Queens, Female Impersonators, Fetishistic Heterosexuals) Autogynephilia Femifile ("lover of the feminine")	Male	XY Other genetic compositions possible but probably unknown to person	Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	Pretends to be a female for the purpose of entertaining others or meeting sexual needs.

	Biological	Genetic	Feelings	Thoughts
Polygendered	Male Female Intersex	Any genetic composition	Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	May think they are equally masculine and feminine. May split time living as both genders.

	Biological	Genetic	Feelings	Thoughts
Androgynous/ Agendered	Male Female Intersex	Any genetic composition	Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	May think they have no gender at all, or that no gender adequately represents them. May think they have no sex.

	Biological	Genetic	Feelings	Thoughts
Intersex	46XX – External Female Genitalia, Internal absent or more masculine genitalia (CAIS) Testes (CAIS) No menses (CAIS) Normal or high levels of testosterone (CAIS) Sparse/Absent body, genital, axillary hair and virilization (CAIS) External Genitalia is variable (PAIS) Testes - descended or undecended (Micropenis) Urethral meatus at the tip of the glans penis (Micropenis) Stretched penile length 2.5 SD below age/stage of development Botched circumcision negating surgical restructuring to female	CAIS - AR gene mutation, 46,XY karyotype PAIS – Difficult to find AR gene mutation 46,XX/Micropenis Kleinfelter's Syndrome Kallman's Syndrome Fragile X Syndrome Congenital Adrenal Hyperplasia (CAH)	Normal sex drive, hypersexual drive, low sex drive, no sex drive Prefers men but will sleep with women Prefers women but will sleep with men Prefers both men and women equally Prefers men exclusively Prefers women exclusively Prefers no sexual partners	May not know of intersex condition. May have vague notion that their body does not match their gender identity but may not know why. May have cognitive functioning problems depending on which intersex condition is present.

Appendix B

FigureB.1. Three Dimensional Interpretation of Gender Identity

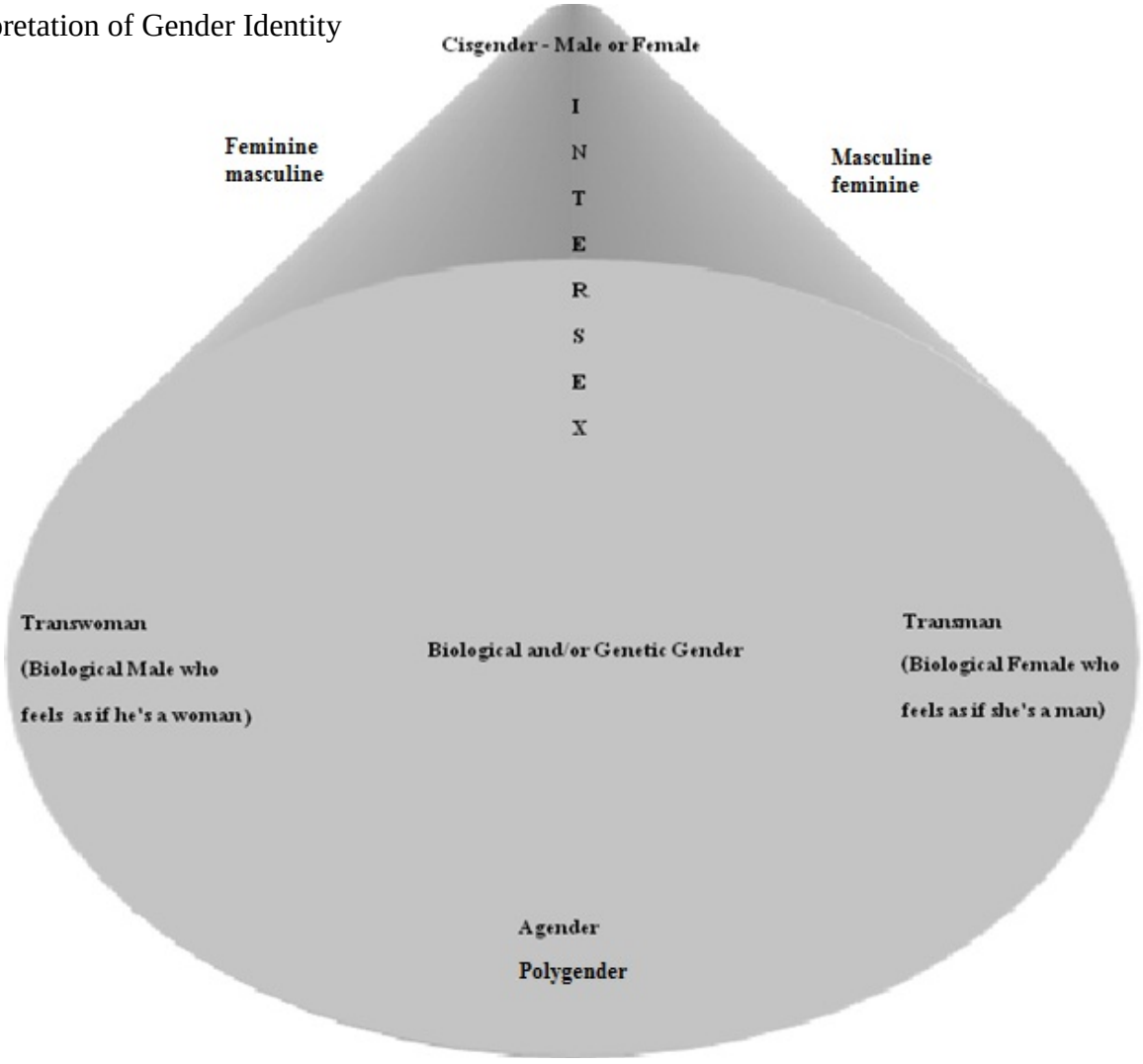

Figure 1. Multidimensional gender identity conceptualized as an ever-widening cone, starting with the narrowest concepts of gender identity (cisgender) and continuing to the broadest concepts of gender identity (transgender) with all levels of masculine and feminine represented on the outer side of the cone as it widens. Throughout the interior of the cone, underlying biological and genetic components play a role in shaping gender identity, including all forms of biological and genetic intersex. The center of the widest part of the cone depicts the most flexible representations of gender identity; bi-gender and agender.

Appendix C

Lounsbery Multidimensional Gender Scale

This scale was developed to measure eight hypothesized gender identity categories that people could experience. Gender identity categories range from the traditional male and female to transman and transwoman. Other categories proposed include bi-gendered, agendered, butch female and feminine male. While each person experiences some characteristics of each sex, the ***internal*** reaction and process of identification with one sex or the other is what determines each person's gender identity. This identification process is a complex developmental system which incorporates biological, genetic, and environmental factors. While the majority of people rarely think about their gender identity and fall into the traditional two categories of male and female, other people do not fit so neatly into these categories. Transgender is a broad category that includes anyone who does not see their gender identity as male or female but somewhere else along a continuum.

Gender identity should not be confused with gender presentation. Gender presentation is the manner in which a person dresses or presents him or herself to the ***outside world*** as a reflection of societal norms or dictation. Gender identity is the way in which a person would ***prefer*** to live given an ideal situation, both in gender presentation, and mindset.

This scale has been developed with the intention of broadening the continuum and potentially defining some of these other identities more clearly.

Answer the following questions based on your ***internal*** perception of yourself the majority of the time. There are not any right or wrong answers. This scale is strictly to identify gender identities along a continuum. Honest answers would be the most beneficial to determine if this scale is measuring the categories accurately.

1) I like being female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

2) I do **not** like being female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

3) Being female is important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

4) Being female is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

5) I would like living as a male.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

6) Even though I have female genitalia, being male is important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

7) Even though I have female genitalia, being male is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

8) Even though I have female genitalia, I am **neither** male **nor** female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

9) Being **both** male and female is important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

10 Being male or female is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

11) I am **both** male and female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

12) As a biological female, I would change my genital presentation to male.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

13) As a female, given an ideal world, I would live as male.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

14) I want to live as a female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

15) As a female, given the opportunity, I would live as **neither** male **nor** female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

16) As a female, given the opportunity, I would be **both** male and female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

17) As a female, in an ideal world, I would live as **both** male and female.

|_____|_____|_____|_____|_____|_____|
1 7
(Almost Never) (Almost Always)

Appendix D

Arkansas Multidimensional Gender Scale

This scale was developed to measure eight hypothesized gender identity categories that people could experience. Gender identity categories range from the traditional male and female to transman and transwoman. Other categories proposed include polygendered, agendered, masculine feminine and feminine masculine. While each person experiences some characteristics of each sex, the ***internal*** reaction and process of identification with one sex or the other is what determines each person's gender identity. This identification process is a complex developmental system which incorporates biological, genetic, and environmental factors. While the majority of people rarely think about their gender identity and fall into the traditional two categories of masculine and feminine, other people do not fit so neatly into these categories. Transgender is a broad category that includes anyone who does not see their gender identity as masculine or feminine but somewhere else along a continuum.

Gender identity should not be confused with gender presentation. Gender presentation is the manner in which a person dresses or presents him or herself to the ***outside world*** as a reflection of societal norms or dictation. Gender identity is the way in which a person would ***prefer*** to live given an ideal situation, both in gender presentation, and mindset.

This scale has been developed with the intention of broadening the continuum and potentially defining some of these other identities more clearly.

Answer the following questions based on your ***internal*** perception of yourself the majority of the time. There are not any right or wrong answers. This scale is strictly to identify gender identities along a continuum. Honest answers would be the most beneficial to determine if this scale is measuring the categories accurately.

1) I like being feminine.

|_____|_____|_____|_____|_____|_____|

1 (Almost Never) 2 3 4 5 6 7 (Almost Always)

2) I do **not** like being feminine.

|_____|_____|_____|_____|_____|_____|

1 (Almost Never) 2 3 4 5 6 7 (Almost Always)

3) Being feminine is important to me.

|_____|_____|_____|_____|_____|_____|

1 (Almost Never) 2 3 4 5 6 7 (Almost Always)

4) Being feminine is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

5) I would like living as masculine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

6) Being masculine is important to me.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

7) Being masculine is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

8) I am **neither** masculine **nor** feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

9) Being **both** masculine and feminine is important to me.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

10 Being masculine or feminine is **not** important to me.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost
(Almost Always)
Never)

11) I am **both** masculine and feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

12) I would **not** like living as masculine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7(Almost Always)
(Almost Never)

13) I want to live as masculine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

14) I want to live as a feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

15) I want to live as **neither** masculine **nor** feminine.

|_____|_____|_____|_____|_____|_____|
1 (Almost Never) 2 3 4 5 6 7 (Almost Always)

16) I want to live as **both** masculine and feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

17) I would **not** like living as a feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

18) I would like living as **both** masculine and feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

19) I would like living as **neither** masculine **nor** feminine.

|_____|_____|_____|_____|_____|_____|
1 2 3 4 5 6 7 (Almost Always)
(Almost Never)

Appendix E

Bem Sex Role Inventory
Original Form, Short Form, and Scoring Guide
by Sandra Lipsitz Bem
Distributed by Mind Garden, Inc.
Info@mindgarden.com
www.mindgarden.com

Appendix F

Factor loadings of the Arkansas Multidimensional Gender Scale

Question	*Factor One*	*Factor Two*	*Factor Three*
I like being male/female **(q1)**	-.86*		
I do **not** like being male/female **(q2)**	.92		
Being male/female is important to me. **(q3)**	-.85*		
Being male/female is **not** important to me. **(q4)**	.85		
Even though I have male/female genitalia, I am male/female. **(q5)**	.63		
Even though I have male/female genitalia, being male/female is important to me. **(q6)**	.95		
Even though I have male/female genitalia, I am **neither** male **nor** female. **(q8)**	.51		
Even though I have male/female genitalia, being **both** male and female is important to me. **(q9)**	.70		
As a biological male/female, given the opportunity, I would change my sex to male/female. **(q12)**	.63		
As a male/female, given an ideal world, I would live as male/female. **(q13)**	.66		
As a male/female, given an ideal world, I would live as a male/female. **(q14)**	-.81*		
As a male/female, given the opportunity, I would be **neither** male **nor** female. **(q15)**	.86		
Even though I have male/female genitalia, being male/female is **not** important to me. **(q7)**		-.79*	
Even though I have male/female genitalia, I am **both** male and female. **(q11)**		.62	
As a male/female, given the opportunity, I would be **both** male and female. **(q16)**		.84	
As a female, in an ideal world, I would live as **both** male and		.79	

female. **(q17)**	
Even though I have male/female genitalia, being male or female is **not** important to me. **(q10)**	.93

* = Items that loaded negatively and need to be examined for reverse scoring.

Appendix G

Index of Item Objective Congruence Values

Item	*Index of Item Objective Congruence*	*Objectives*		
		1	2	3
1	.45	0.00	.75*	.50
2	.45	0.00	.75*	.50
3	.15	.50*	.75	.75
4	.15	.50*	.75	.75
5	.2833	.50	.75	.25*
6	.15	.50*	.75	.75
7	.15	.50*	.75	.75
8	.9375	1.00*	.25*	0.00
9	.20	.25*	.75	.50
10	-.30	0.00*	.75	.75
11	.5625	.75*	0.00*	0.00
12	1.00	.500	.75*	.25*
13	.20	.25	1.00	.75*
14	.20	.25	1.00	.50*
15	0.00	.50	1.00	.50*
16	.05	.25	1.00	.50*
17	1.00	.50	.75*	.25*
18	.335	.67	.67*	0.00*
19	.165	.33	.33*	0.00*

* *denotes which objectives the author thinks the question fits*

Appendix H

Demographic Sheet

1. Biological Sex
    a. Male
    b. Female
    c. Intersex
2. If you had to choose a gender identity, which identity listed below most closely fits you?
    a. Masculine
    b. Feminine
    c. Masculine feminine
    d. Feminine masculine
    e. Agender (no gender)
    f. Polygender (many genders)
    g. Transman
    h. Transwoman
3. Race/Ethnicity
    a. Hispanic/Hispanic American
    b. Caucasian/European American
    c. African/African American
    d. Native American
    e. Pacific Islander
    f. Hawaiian Native
    g. Alaskan Native
    h. More than one race/ethnicity

4. What range is your age in?
    a. 18 – 25
    b. 26 – 35
    c. 36 – 45
    d. 46 – 55
    e. 56 – 65
    f. 66 +

Appendix I

November 29, 2011

MEMORANDUM

TO: Karyl Lounsbery
Kristin Higgins

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 11-11-304

Protocol Title: *Determining Multidimensional Gender: Development and Psychometrics of a Measurement Instrument*

Review Type: ☒ EXEMPT ☐ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 11/29/2011 Expiration Date: 11/28/2012

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (http://vpred.uark.edu/210.php). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 250 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210

Administration Building, 5-2208, or irb@uark.edu.