DIFFERENTIATING IDENTITIES FOR SEX AND GENDER

by

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of a thesis submitted in partial fulfillment
of the requirements for the degree of
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ABSTRACT

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Sex and gender are two concepts which researchers, for many years, have understood to be different. However, these two concepts are often thought of as existing within a single identity. Some researchers have hypothesized that individuals possess distinct identities for each of these concepts. With this study we seek to take first steps in understanding whether individuals differentiate sex and gender conceptually. Using a free card sort, participants sorted a list of terms considered to be defining of sex and gender into distinct categories that the participants themselves created and labeled. Using multiple approaches the data from this study were examined to determine whether individuals make a distinction between variables relating to sex and variables relating to gender. Results indicated that a significant portion of individuals did utilize a sorting method which differentiated the terms relating to sex and gender as separate constructs. In conclusion it was found that nearly half of the sample conceptualized sex and gender as different constructs.
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CHAPTER 1
NATURE AND SCOPE OF THE STUDY

Rationale

Sex and gender are two words used frequently, both in casual conversation and within research (Muehlenhard & Peterson, 2011). Often the two terms are used interchangeably within the context of common language (Diamond, 2002). However, over the last 60 years there has been a continuously growing trend to differentiate between these terms (Diamond, 2002; Muehlenhard & Peterson, 2011). As differentiation between them has become more prominent, research has shown the presence of two distinct concepts (Muehlenhard & Peterson, 2011): the biological concept of sex and the behavioral concept of gender (Diamond, 2002; Diamond, 2006; Money & Ehrhardt, 1972; Muehlenhard & Peterson, 2011). It stands to reason that if these two concepts are different, then individuals may relate to them differently. How an individual relates to categories or labels is called identity (Pfafflin, 2011). It follows then that if sex and gender are different concepts, then individuals may relate to them differently, and therefore have a different identity for each concept (Diamond, 2002; Diamond, 2006). The question then becomes whether individuals have a different concept for the biological construct of sex than they do for the behavioral construct of gender.

Purpose of the Study

The current psychological literature rarely recognizes a different identity for sex and gender (Diamond, 2002; Diamond, 2006; Hoffman, Borders, & Hattie, 2000; Singh et. al., 2007). Instead behavior and biology are melded together into a single identity, which is labeled gender identity (Halim, Ruble, & Amodio, 2011; Hoffman, Borders, & Hattie, 2000; Schweizer et. al., 2009; Singh et. al., 2007). This synthesis of behavior and biology may be a problem because...
Sex identity and how individuals feel about their behaviors, and how they feel about their biology often do not always align in a way that allows for a single identity (McConaghy & Zamir, 1995; Wiseman & Davidson, 2012). Evidence of this can be seen in most schools where children label those who do not meld these concepts together as "tom boys" or "sissies" (McConaghy & Zamir, 1995). Individuals who do not sufficiently meld gender and sex together are said to be gender non-conforming because they do not conform their sex and gender to the expectations of their culture. This cultural expectation is referred to as the gender norm. Further, more complex examples of individuals who are gender non-conforming can be seen in the form of intersex or transsexual individuals (Benjamin, 1966; Diamond, 2006; Dittman, 1998). Individuals from these groups may have complex identities for sex and gender (Diamond 2002; Diamond, 2006; Hines, 2006). For example, an individual may identify with the sexual anatomy of one sex while embracing behaviors associated with the other sex. Trying to label these individuals with a single identity neglects a significant part of who they are, which creates a barrier that prevents these concepts from being fully understood (Kuper, Nussbaum, & Mustanski, 2012). Assuming a single identity leads to an incomplete comprehension of these populations as well as the individuals who compose them (Coleman et al., 2011; Kuper, Nussbaum, & Mustanski, 2012). This author believes that the limited use of a single identity for sex and gender, leads to poorly generated hypotheses, misinterpretation of results, and inaccurate assumptions about populations, as well as individuals, thereby setting up unrealistic expectations of how individuals should act and think. Fortunately, in therapeutic practice, these expectations are already being challenged, and now it is time that research begins to challenge the root of the problem (Coleman et al., 2011; DeCuypere, Knudson, & Bockting, 2010).
Though gender non-conforming individuals compose a relatively small portion of the population, they may illustrate the concept that identity is comprised of more than just male and female (Coleman et al., 2011; Sax, 2010). A close inspection of sex and gender may reveal a broader asynchrony between these two identities. Most, if not all, people have some portion of their lives in which they deviate from the gender norm. For the sake of understanding those who do not conform to society and those who do, science must explore different identities for both sex and gender.

It was the purpose of this study to understand whether or not individuals differentiate concepts of sex and gender. This will help to establish a foundation for future exploration of the identities associated with these concepts.
CHAPTER 2

REVIEW OF THE LITERATURE

Differentiating Sex from Gender

The distinction in the psychological literature between sex and gender has become more prominent in the last 50 to 60 years, in part due to the research of John Money and his colleagues (Muehlenhard & Peterson, 2011). Money and Ehrhardt (1972) wrote a book in which they distinguished sex and gender using the terms "sex" and "gender role". According to Money and Ehrhardt (1972), sex refers to the physical characteristics of an individual relative to the reproductive systems. These physical characteristics may include chromosomes, gonads, hormones, or other physiological structures related to reproduction. They defined "gender roles" as consisting of the things individuals do or say relating to their status as a man or woman (Money & Ehrhardt, 1972). This distinction between biological factors and behavioral factors became important because it allowed researchers to explore the effects of these factors separately from one another (Muehlenhard & Peterson, 2011).

The use of the terms sex and gender has become varied (Muehlenhard & Peterson, 2011). Some authors describe sex as being categories based on the chromosomes, hormones, or reproductive anatomy of the individual, with an emphasis on the categories (Muehlenhard & Peterson, 2011). Other authors may describe sex as a set of traits and characteristics that arise from chromosomes, hormones, or sexual anatomy, with an emphasis on the individual components (Muehlenhard & Peterson, 2011). In contrast, gender may be described as the amount of masculinity or femininity that an individual expresses, or social categories, or as traits and characteristics arising from socialization (Muehlenhard & Peterson, 2011). Despite the various ways in which authors define these two terms, the distinction between biological factors
as a defining characteristic of sex and behavioral factors as a defining characteristic of gender is typically upheld (Muehlenhard & Peterson, 2011). With the diversity of uses of these two words, it has become apparent that these terms should be well defined within writings such as this one so that readers can understand the intent of the writing (Muehlenhard & Peterson, 2011).

Sex

Various authors may recognize sex as differences that may arise from or are directly based on chromosomes, hormones, reproductive anatomy, or other physiological differences (Muehlenhard & Peterson, 2011). In more common interactions, individuals are not likely to have access to information such as another individual's chromosome composition or hormone levels. Sex in these types of interactions becomes a classification of individuals based on their anatomical features related to the reproductive system (Diamond, 2002; Money & Ehrhardt, 1972; Muehlenhard & Peterson, 2011). Typically, these will fall into two dichotomous designations of male and female; in some cases, however, sex is less clear and may fall into a middle category.

For the majority of individuals, their anatomy follows the genetic path set by their chromosomes (Benjamin, 1966; Diamond, 2002; Diamond, 2006). This means that an individual's reproductive anatomical features will most often follow the expected dichotomy of male or female chromosome patterns (Benjamin, 1966; Diamond, 2002). Typically, individuals with an XY chromosome pattern will express male anatomical features, and individuals with an XX chromosome pattern will express female anatomical features (Benjamin, 1966; Diamond, 2002). Sex chromosomes, however, do not always fall into two neat categories. Some individuals are born with rarer sex chromosome distributions (e.g. XXY, XXYY, XXXXY) (Benjamin, 1966). Furthermore some individuals may have the XX and XY sex chromosome
patterns but not express those anatomical features typically associated with them (Diamond 1994; Diamond, 2002). These chromosomal complexities cause confusion when trying to categorize individuals based on chromosomes because an individual's chromosomes may not match the expected anatomical features.

Anatomical features related to sex are categorized in two ways: primary sex characteristics and secondary sex characteristics (Haeberle, 1983). The primary sex characteristics are those anatomical components that are directly related to reproduction. These include the primary sex organs: the penis and testes in males, and the vagina and ovaries in females. Secondary sex characteristics are those anatomical components which are differentiated between sexes but are not directly related to reproduction. In males these often include development of coarse facial hair, a shoulder to hip ratio that favors broader shoulders, an increase in size of the larynx resulting in deeper voice, and pubic hair growth extending up toward the navel. For females, secondary sex characteristics may include development of prominent rounded breasts, enlargement of the nipples, and a shoulder to hip ratio that favors broader hips (Haeberle, 1983). The biological functions of ejaculation in males and menstruation in females are also important features in differentiating males and females (Haeberle, 1983). An individual's sex is often characterized by the development of the primary and secondary sex characteristics, as well as the sexual functions mentioned above.

Individuals are typically assigned to one of the two common designations of male or female at birth based on the presence of either a penis or a vagina, respectively. In the past, those individuals who were born with genitalia that were less easily identifiable would have the genitals surgically altered; often the genitals were altered to resemble the vagina as this was an easier surgery (Diamond, 1994; Money & Ehrhardt, 1972). Parents were then encouraged to
raise their children according to the sex designated by the altered genitalia (Diamond, 1994). Evidence that this practice may be psychologically harmful for individuals has helped steer surgeons away from performing these surgeries (Diamond, 1994).

Those individuals who have anatomy that is not easily identifiable as male or female may be referred to as neuter, androgynous, or intersex (Diamond, 2003). The term "hermaphrodite" has also been used to refer to these individuals but is considered to be inaccurate as well as derogatory (Dredger et. al., 2005).

Gender

Various authors describe gender differently; some may refer to gender as social categories, others may refer to an individual's masculinity or femininity, and some may refer to gender as traits that arise from social origins (Muehlenhard & Peterson, 2011). Diamond (2002) highlights the behavioral nature of gender in his statement, "It can be said that one is a sex and does a gender" (p. 323). The implication of this statement is that gender is something that individuals do, and to do something implies an action. In psychology, when an individual performs an action, it is said that the individual is engaging in a behavior or a set of behaviors. Diamond (2002) uses the term gender role to refer to those behaviors that are set up by culture, and that serve to define for individuals the behaviors that belong to specific sex categories (Muehlenhard & Peterson, 2011). An example of this is that most males are taught to play sports, and most females are taught to care for infants.

The basic categories of gender follow the dichotomous view of sex so that males are labeled men or boys and females are labeled women or girls (Diamond, 2002). As with sex not all individuals fall neatly into the category of man or woman (Bem, 1974; McConaghy & Zamir, 1995). Those individuals who exhibit behaviors that differ too much from the behaviors expected
of their sex are often assigned other labels, many of which are considered derogatory (McConaghy & Zamir, 1995). Some examples of this would be males who avoid "rough and tumble play" being labeled "sissies," or females who dress in a more masculine fashion and enjoy highly physical activities being labeled "tomboys" (McConaghy & Zamir, 1995). It is out of labels that identity becomes apparent.

**Identity**

Identity may be thought of as how individuals relate to categories and labels (Pfafflin, 2011). The term has its roots in philosophy where it is understood as the connection between the individual and the general, or how an individual relates to concepts within the general world (Pfafflin, 2011). An example of this would be a person's sense of membership as part of a particular nation (e.g. National Identity). Individuals identify themselves with any number of categories, including those of sex and gender.

Pfafflin (2011) asserts that identity is only thought about when it is questioned. Until individuals have their relatedness to a concept questioned, their identity for that concept is assumed both by that individual and by others (Pfafflin, 2011). This is of particular interest to the study of sex and gender because it is from those who question their identity that the differentiation of these terms has been made. When John Money and his colleagues began to differentiate sex and gender it was because they were seeing discrepancies between biology and behavior among intersex individuals (Money & Ehrhardt, 1972). From their work, Money and his colleagues promoted the separation of sex and gender and then developed the concept of gender identity (Muehlenhard & Peterson, 2011; Pfafflin, 2011).
Gender Identity

According to Money and Ehrhardt (1972), gender identity is "one's individuality as male, female, or ambivalent... especially as it is experienced in self-awareness and behavior"; they also describe it as "the private experience of gender role" (p. 4). Since the work of Money, the use of the term "gender identity" has become more prominent, but also more varied. It is from this mixed definition presented by Money and his colleagues that many current researchers base their conceptualizations of gender identity.

Another major influence on the measurement of gender identity came from conceptualizations of gender roles proposed by Sandra Bem (1974). According to Bem (1974), individuals who possess predominantly male associated characteristics are described as masculine; those who possess predominantly female associated characteristics are described as feminine; and those who equally possess characteristics of both males and females are described as androgynous. In Bem's measure of gender identity, individuals rate themselves on a Likert-type scale for a number of characteristics that culture has labeled as masculine, feminine, or neutral (Bem, 1974). These ratings are averaged across each category to produce a single numerical score for each category (Bem, 1974). These scores represent how individuals perceives themselves in relation to cultural expectation (Bem, 1974). Though Bem (1974) did not directly equate this conceptualization to gender identity, these conceptual categories have greatly influenced the measurement of gender identity.

Often current researchers' conceptualizations of gender identity are similar to the one presented by Money and his colleagues (Money & Ehrhardt, 1972). They include elements of sex by defining gender identity as how individuals feel about themselves as male and female.
(Halim, Ruble, & Amodio, 2011; Schweizer et. al., 2009). The use of the terms "male" and "female" implies that gender identity is derived from an individual's sex. However, tools used to measure or describe gender identity present a conceptualization that is based on gender roles, masculinity and femininity, or behaviors, but not sex. This mismatch of definition and measure makes it difficult to understand what gender identity really is.

The difficulty in understanding gender identity is exacerbated by measures of gender identity that contain questions relative to both sex and gender without differentiating between them. The Hoffman Gender Scale (Hoffman, Borders, & Hattie, 2000) and the Gender Identity/Gender Dysphoria Questionnaire (Singh et. al., 2007) are examples of such measures. In these measures, questions are asked concerning an individual's feelings and cognitions about both behaviors and biological sex. These measures assume that these concepts are intrinsically linked.

Kuper, Nussbaum, and Mustanski (2012) sought to measure how individuals within the transgender community define their gender identity. These authors composed a list of identities individuals possess who fall under the transgender spectrum. This resulted in a range of identities along a spectrum ranging from being completely based on the concept of sex to being completely based on the concept of gender with any number of identities falling between. They labeled all of these identities as subcategories of gender identity (Kuper, Nussbaum, & Mustanski, 2012).

These conceptualizations of gender identity share a common problem. There is an underlying assumption that individuals identify with their sex in the same way that they do with their gender. If sex and gender are different concepts, as they are often treated in the literature, and identity is how individuals relate to different categories and concepts, then it follows that
there should be different identities for sex and gender. Several researchers have recognized that there is a problem with current conceptualizations of gender identity when applied to gender non-conforming populations (Kuper, Nussbaum, & Mustanski, 2012; McConaghy & Zamir, 1995; Wiseman & Davidson, 2012). Often these researchers offer solutions that expand the conceptualization within gender identity, or offer a new form of identity that also has its roots in behavior, but they fail to recognize the need to separate sex and gender. There are, however, a few researchers who do recognize this need (Diamond, 2002; Dozier 2005).

Sex Identity

Diamond (2002) suggested that researchers should acknowledge an identity for sex separate from that of gender identity (Diamond, 2006). In order to establish that there are separate identities for these concepts and to understand what those differences are, it is necessary to investigate these concepts further. The first step in examining for such a difference is to explore these concepts so that they may be operationalized. In his argument, Diamond (2002) offers definitions of each concept (Diamond, 2006). He described gender identity as the "recognition of perceived social gender attributed to a person" (Diamond, 2002, p. 323; Diamond, 2006). In contrast, he described an identity for sex as "the way one views him or herself as a male or female" (Diamond, 2002, p 323). It should be noted that Diamond (2002) did not use the term sex identity to refer to this concept. Instead he used a similar term "Sexual Identity" that has a meaning in the context of sexual orientation within psychology. To avoid confusion, the term "Sexual Identity" will not be used here.

The description of sex identity provided by Diamond (2002) is essentially the same that other authors have used to describe gender identity (Halim, Ruble, & Amodio, 2011; Schweizer et. al., 2009). The difference is how Diamond (2002) separates sex identity from gender identity.
and redefines gender identity as a perception of social gender. This definition of gender identity is more in line with the way many authors understand and measure it. By redefining gender identity, there is opportunity for sex identity to become a distinct concept. Unfortunately this distinction has not been used, to date, among the academic community.

Given the aforementioned discrepancies between sex and gender, the author of the current research proposes one possible reason why sex identity has not been distinguished from gender identity. The academic community assumes that individuals in common context perceive sex and gender as synonymous (Diamond, 2002). In the current study we investigate whether individuals perceive the components of sex and gender differently, and when given the opportunity to categorize them, will sort them into separate categories.

**Categorization and Identity**

Organizing objects, images, thoughts, abstract concepts, and ideas into groups seems to be a process which humans engage in naturally (Pothos et al., 2011). The process of grouping is known as "categorization" (Pothos et al., 2011). Through categorization, humans are able to understand a wide array of stimuli as a single concept (Pothos et al., 2011). Categorization is an important part of identity because it allows for a differentiation of concepts as they relate to the individual (Goodyer & Okitikpi, 2007).

Once individuals are aware of a difference between two concepts, it is a natural response for them to relate those concepts to themselves. A simple example of this would be a child who is introduced to the concept of ice cream. Now that the child is aware of ice cream, she will understand ice cream as fundamentally different from other foods. She will also form a distinct way of relating to that concept. So in this example, the child may enjoy the taste of ice cream. From this point on, the child's identity includes being an individual who likes ice cream. As
more differentiation occurs the child's identity will begin to include various sub categories so that the child may be an individual who likes ice cream, but she specifically likes chocolate ice cream and not other flavors. Now the child's identity includes being a person who likes chocolate ice cream. The increasing complexity of identity in this example shows that differentiation of identities is relative to differentiation of concepts for the individual.

Many researchers understand identity to be directly related to categorization. For example, Wong (2002) proposed a theory of how social identities change which centers specifically on the change in categorization of different social groups. Wong (2002) sees identity as an individual's perception and acceptance of belonging to a category. In their work exploring the racial/ethnic identities of mixed race children, Goodyer and Okitikpi (2007) found social identities to be products of "selected or ascribed categories" (p90). If identity is a product of categorization, then to answer the research question proposed for this study, it must be understood how individuals categorize sex and gender. Do individuals perceive sex and gender as one single concept or as different concepts?

The process of how humans engage in categorization has been studied across a wide spectrum, including age of the individual doing the categorization, type of stimuli being grouped, and contexts that affect groupings (Pothos et al., 2011). There are a number of sorting tasks that researchers use to study these factors. However, for research relating to how individuals differentiate for the purpose of identity, it is necessary that researchers do as little as possible to bias individuals' categorizations. This may be achieved by giving individuals a compiled list of terms (Appendix A) and having the individuals sort them into categories that they create. This allows participants to freely make their own groups of items on the list. This is known as a categorization task (free sort; Guastavino, C., 2007; Guerrero et al., 2012; John & Sujan, 1990;
Rugg & McGeorge, 2005). This type of task has been shown to be effective at measuring how individuals conceptualize stimuli intuitively without supervision (Pothos et al., 2011).

The categorization task has been used in a variety of ways to measure how individuals categorize various stimuli (Guastavino, C., 2007; Guerrero et al., 2012; John & Sujan, 1990; Rugg & McGeorge, 2005). For example, Guerrero et al. (2012) asked participants to sort words related to innovation and tradition into different groups within the context of foods (Guerrero et al., 2012). Gustavino (2007) wanted to know how individuals categorize certain environmental sounds in real world environments. She asked participants to sort sounds based on similarity of the sound (Gustavino, 2007). Chollet, Lelievre, Abdi, and Valentin (2011) wanted to see if trained beer tasters were more discriminative of their categorization of beer tastes than general consumers were. They had participants from both groups categorize a variety of beers based on taste (Chollet et al., 2011). These studies help to show the diversity of uses that the categorization task has been used for previously.

Utilizing the categorization task for the present study, it should be possible to determine if individuals will sort the elements of sex and gender into significantly different conceptual categories. If these categories represent separate concepts that individuals relate to, then based on the definition of identity, they also represent separate identities. It is hypothesized that individuals do categorize these as separate concepts, and on a categorization task, participants will sort the terms related to the academic construct of sex and those related to the academic construct of gender into different categories rather than the same categories.
CHAPTER 3

METHODOLOGY

Participants

Participants included 12 males and 59 females between the ages of 18 and 51 ($M = 20.93$, $SD = 5.64$) enrolled in undergraduate classes at the University of Central Missouri (UCM). The number of participants chosen was based on normal and effective ranges for the types of analyses being conducted. The Multidimensional Scale Analysis (MDS) typically calls for between 20 to 30 participants, and the $t$-test calls for approximately 60 participants in order to provide sufficient predictive power.

Examination of the demographic information provides further information about the sample. Participants identified their sex as either male or female, while no participants identified as transsexual, intersex, or androgynous. The majority of individuals identified their gender as either man or woman, only one participant identified as genderqueer, and none of the participants identified as transgender or androgynous. The percentage of study participants identifying as heterosexual (straight) was 90.1%, while 8.5% identified as homosexual (gay), and 1.4% identified as other (non-specified). The majority of the sample, 83.1%, identified as white (Non-Hispanic), 14.1% identified as African American or Black, 1.4% identified as Asian, and 1.4% identified as Hispanic. Of the participants, 18.3% reported having been in a class which discussed human sexuality.

Participants were solicited in one of two ways. They were either solicited by SONA research system announcements (Appendix B), or through recruitment fliers passed out to classrooms and campus organizations (Appendix C). SONA is an online research solicitation and credit program used by the University of Central Missouri (UCM) to facilitate research.
Students at UCM may be required or encouraged to accrue a certain number of SONA credits by their professors. SONA credits were issued for this study to students who completed the measure and followed the appropriate instructions for receiving credit.

Participants who responded to the solicitation were given a link to the study which was hosted online at SocialSci.com. Those participants who utilized the SONA system were given the link through the SONA system once they had registered for the study. Participants who chose to email the researcher were sent a link to the study via the email that they used to contact the researcher.

**Materials**

**Categorization Task**

Participants were given a list of words associated with sex and gender and asked to sort them into categories that they created. The word list sorted was intended to be representative of the diversity of terms describing sex and gender (Appendix A).

The Bem Sex Role Inventory (BSRI) provides a convenient list of gendered terms used to establish a pool of gender terms (Bem, 1974). The BSRI contains 20 terms related to masculinity and 20 related to femininity; however, not all of these terms were suitable for the current study. These 40 terms were reduced to 16 terms using three criteria. The first criterion was to eliminate phrases. Phrases, such as “willing to take a stand”, were occasionally used in the BSRI in place of terms. Given the format of the categorization task it would be awkward as well as confusing to include these phrases. Another criterion was to eliminate terms which have different possible meanings outside of the context of sex and gender. Such as “Warm” or “Conventional”. The final criterion was to eliminate terms which were synonymous or similar enough in meaning to be redundant. Such as “tender” and “gentle”.
Sex can be characterized by chromosomes, anatomy, and endocrinology. Because of this, it is important that these elements were represented within the word pool. Chromosomes and endocrinology are complex systems of which the majority of individuals are not well versed. However, because our participant sample was comprised of students at the college level, they should have been familiar enough with the most basic elements of these systems to understand their relationship to sex. The following terms were assumed to be sufficiently familiar to represent the concepts of chromosomes and endocrinology within the word pool: XX chromosomes/XY chromosomes, and testosterone/estrogen. Anatomy can also be complex; however, most individuals are familiar with the sexually differentiated anatomy between males and females. Thus, the word pool also included elements described as the primary and secondary sex characteristics.

The words from both the construct of sex and the construct of gender were presented in a single list that was randomized to help reduce bias. Participants were able to create and name as many categories as they saw fit. The final word list was revised to reflect feedback provided by professionals in the fields of gender and human sexuality who had reviewed the word list (B. Brinkman, personal communication, July 10, 2013; P. Estep, personal communication, July 8, 2013).

**Demographic Questionnaire**

The Demographic Questionnaire (Appendix E) requested the following information: age, sex, gender, sexual orientation and ethnicity. The category of sex was an intrinsic part of the study. Participants were given several options for sex: male, female, intersex, male-to-female transsexual, and female-to-male transsexual. Though this study was primarily concerned with individuals who identify as male or female, it is useful to know if individuals fall into these other
categories. The categories of gender and sexual orientation are useful in understanding the sample and as a point of comparison for the overall data. It should be noted that the demographic questionnaire was presented after the sorting task to reduce confounds, because it included both a sex and gender category.

Procedure

All administrations of the study occurred in an online format provided by SocialSci.com. Participants were provided with a link to the online study. This included the informed consent form (Appendix D) which asked participants to indicate that they were at least 18 years of age and agree to participate in the study. They were then forwarded to the study which displayed instructions for how they could receive SONA credit at the top of the page. Below the SONA instructions were the instructions for the categorization task and the categorization task itself. The website presented participants with the word bank (Appendix A) on the left portion of the screen, instructions above, and a button to create and name categories that appeared to the right of the word bank (Appendix A). Instructions (Appendix A) informed participants how to utilize the category creation feature and to drag items from the word bank on the left to the category they wished to put the item into on the right. Once participants had completed this task, they clicked the appropriate button, taking them to the Demographic Questionnaire (Appendix E). After filling out the questionnaire and clicking on the next button, they were given a debriefing message with a statement about the purpose of the study (Appendix F). Within the debriefing and the informed consent statements, participants were provided contact information for the University Counseling Center should they desire counseling as a result of this research. They were also given information about how to inquire concerning the results of the study should they so choose. All data were recorded anonymously.
Analysis

Results of the categorization task were coded with each unique category that respondents created being sorted into one of sixteen general categories. The sixteen general categories were created by collapsing similar unique categories into one general category that encompassed the overall significance of the categories. For example, the unique categories men, males, or male characteristics were all put into a single general category called male. Terms in the category male represent a distinction made by participants that these terms are distinct to males. Each word in the sorting task received a general category code based on which unique category individuals had placed that word.

Once each term for each participant had been given a general category code a Pearson's Chi-Square value was calculated for each pair of terms. This established a numerical distance value between any two terms based on the frequency with which they were put into the same general category by participants. Distance values ranged from -1 to 1 for each pairing of variables, with 1 representing no distance, and -1 representing a maximum distance. These distances were then analyzed utilizing a Multidimensional Scale Analysis (MDS), and an Independent Sample $t$-test. Analysis were performed using the Statistical Package for the Social Sciences (SPSS).

The MDS allowed for a visual representation of the distances between terms and allowed to see which terms were grouped together and which terms fell outside of groups. Groups of terms on the MDS represent terms which were conceptually similar. It was expected that terms belonging to the academic constructs of sex and gender would be grouped into clusters which would be separated from each other. The MDS is also useful to see which terms do not group
with expected other terms, and makes it easy to identify terms which are outliers or are conceptualized different than expected.

To calculate the Independent Samples $t$-test, the Pearson’s Chi Square values for each pair of terms were separated into two groups. These groups were based on the academic constructs of sex and gender (Appendix A). Chi Square values which represent distances between terms from the same construct, such as two terms from the construct of sex, compose the “similar group”; Values which represent distances between terms from different constructs, such as one term from the construct of sex and one term from the construct of gender, compose the “different group”. These groups of scores (“similar group” and “different group”) were compared using an Independent Samples $t$-test to establish whether or not they differ significantly from one another. If participants made a distinction between the academic constructs of sex and gender than those pairs which were separated into the "similar group" would have significantly higher Chi Square values than those pairs which were separated into the "different group". For example, if a participant used the academic constructs of sex and gender to sort the terms then they would put the terms testes and ovaries into the same category (Sex), and therefore the Chi Square value for that pair of terms would be higher. However, if a participant used male and female as the distinction to sort the terms then testes and ovaries would have been sorted into different categories and the Chi Square value for the pair of terms would be lower.
CHAPTER 4

RESULTS

Independent Samples t-test

An Independent Samples $t$-test was conducted to compare the mean of Chi-Square values for each pair of variables that were hypothesized to be in the same group (e.g., two gender terms or two sex terms) and Chi-Square values for each pair of terms that were hypothesized to be in a separate group (e.g., a gender term and a sex term). The "same group" consisted of 274 pairs of terms (e.g., Penis/Ovaries, Self-Reliant/Athletic). The "different group" consisted of 287 pairs of terms (e.g., Penis/Self-Reliant, Ovaries/Athletic). There were over 550 pairs of terms and each had a separate Chi-Square value. Though there are too many to report all of them within this document a sample of the Chi-Square chart is provided (Table 1). A Levene’s test of significance showed a violation in the homogeneity of variance. For this reason $t$-test calculations were performed with “equal variance not assumed”. A significant difference between the means of the two groups, $t(541.52) = 19.47, p<.001$ was found. The mean correlation of pairs of terms that were hypothesized to be in the “same group” was significantly higher ($M = 0.55, SD = 0.23$) than the mean correlation of pairs of terms that were hypothesized to be in a “different group” ($M = 0.19, SD = 0.20$) (Table 2). A significant result of the independent sample $t$-test indicated that the pairs of terms which were hypothesized to be similar were more often categorized by participants within the same category than those pairs of terms which were hypothesized to be separate. Results of the $t$-test include all variables. A Cohen’s effect size ($d = 1.64$) was calculated for the sample.


**Multidimensional Scale Analysis**

A MDS was performed as the Multidimensional Scaling (ALSCAL) function within SPSS. The MDS utilized Chi-Square data to calculate the distance between variables and map them within a 2x2 grid. The MDS allows for a visual representation of the distance between variables (Chollet et al., 2011). This, along with Chi-Square data, allows researchers to explore the differences between individual variables and pairs of variables that the t-test does not allow. This is useful for examining variable clustering, identifying outlying variables, and comparing the distance or correlation between pairs of variables. Based on the hypothesis of the current study, it was expected that variables within the academic constructs of sex or gender would be clustered with variables of the same construct and separate from variables of the opposite construct. Most of the variables fit the expectation of the hypothesis with the majority of gender related variables clustering below 0 on the x-axis and the majority of sex variables clustering above 0 on the x-axis (Figure 2). Sex variables tended to be more tightly clustered, with the majority falling between 1 and -1 on the y-axis as opposed to gender variables, of which the majority fell between 2 and -2 on the y-axis (Figure 1). The MDS also revealed four individual variables that did not fit the expected pattern. Two of these variables, Pubic Hair and Ejaculation, fell completely outside of the expected clusters. The other two variables, Masculine and Feminine, were expected to be clustered with gender variables; however they were more closely clustered with sex variables. Possible reasons for this are examined in the discussion section below.
Sorting Methods

In reviewing the data, three distinct sorting patterns became apparent: differentiation based on sex or gender (sex/gender method), differentiations based on male or female (male/female method), or differentiation based on a combination of sex/gender and male/female (combination method). To determine sorting mechanism the 16 general categories were collapsed into 4 groups based on distinctions made between terms. For example categories such as sex, gender, biology, and behavior were collapsed into 1 group that reflected a distinction between biological factors and behavioral factors. Likewise the categories of male and female were collapsed into a group representing a distinction between the sexes. Eight of the remaining categories were collapsed into a single group reflecting a combination of biology, behavior, and sexes as a distinction. The remaining two categories reflected a distinction between the terms based on whether they were used in reproduction or not. Only one individual used these categories. Each of these groups corresponds to a particular distinction made between terms. Each participant was assigned to a sorting method based on which categories they utilized. So a participant who only used categories of male and female were put into the male/female distinction group which was described by a male/female sorting pattern. Whereas if a participant used male, female, biology, and behavior, they were put into the combination distinction group which was described by the combination sorting method. Because only one individual used reproduction versus non-reproduction as categories their data was not considered to be a pattern and was excluded from the analysis described below.

Based on these sorting patterns participants were assigned a code to summarize which of the three patterns their particular sort fit best with. Frequency distributions were calculated to determine each of the sorting techniques used within the population. The proportion of
individuals who used each of the sorting techniques was as follows: 29 used the male/female method, 16 used the sex/gender method, and 25 used the combination method (Figure 2). Because the purpose of this study was to determine whether or not individuals conceptualize sex and gender as separate constructs it is helpful to understand that both the sex/gender sorting method and the combination method make the conceptual distinction between sex and gender. In reviewing this particular distinction it can be seen that 57.7 percent of the sample made a distinction between sex and gender when sorting variables and 42.3 percent did not make a distinction between them (Figure 3). These findings suggest that over half of the individuals within the sample conceptualized the constructs of sex and gender to be two distinct concepts rather than one single concept.

Because this study is directly related to sex and gender it is valuable to understand differences in the way males and females sorted the data. Some differences in the proportion of males and females that employed each technique were found. The proportion of males who used a sex/gender based sorting method differed from that of females. The majority of males chose to sort based on the categories male or female (50%), followed by sex or gender (41.7%), and a small proportion sorted by some combination of male/female and sex/gender (8.3%) (Figure 4). In comparison the majority of females sorted based on a combination of male/female and sex/gender (40.7%), followed closely by those sorting based on male/female comparison (39%), and only a small portion sorting specifically by sex/gender (18.6%) (Figure 5). These frequencies suggest that there may be differences in how males and females conceptualize variables within the constructs of sex and gender.
CHAPTER 5

DISCUSSION

The results of the Independent Samples \( t \)-test support the hypothesis that individuals do sort variables from the constructs of sex and gender separately. The results of the Independent Samples \( t \)-test is further supported by the Cohen’s effect size \((d = 1.64)\) for the sample which indicates a high practical significance of the difference in how individuals sorted the variables. The results of the MDS indicate the components of sex and gender form into two distinct clusters around the expected constructs lending further support to the hypothesis.

The Independent Samples \( t \)-test compared two groups of pairs of terms, the “same group” and the “different group”. These two groups represent terms that should have been sorted into similar categories versus those that should have been sorted into different categories if the hypothesis was true. Since higher Chi-Squared values reflect pairs of terms that were more similarly sorted by participants, then the “same group” should have a higher mean Chi-Squared value than the “different group”. The results of the t-test found that the “same group” did have a significantly higher mean than the “different group”.

Additionally, counts of the number of individuals utilizing various sorting methods are helpful to illuminate the formal analysis. Rather than some level of sex/gender differentiation by every participant, there was a certain proportion of participants who used sex/gender differentiation as the primary characteristic of the variables where as other participants did not use sex or gender in their differentiation of the variables at all. This is an important distinction for identity because it shows that certain individuals will have conceptual differentiation for sex and gender where as others may not.
If differentiation is tied to identity we would expect individuals who used a sex/gender sorting method to also have a differentiated identity for these concepts (Goodyer & Okitikpi, 2007; Wong 2002). This however, does not mean that they will have non-normative sex/gender identities, but rather that they recognize that these concepts are not mutually inclusive. Understanding the complexity of differentiation and identity is beyond the scope of the current study; however this study gives a foundation for future research in exploring differentiation of sex and gender relative to identity.

**Implications**

The current study is important because it takes the first steps in understanding that individuals outside of scientific research do actually differentiate between the concepts for sex and gender. Therefore, they may also have a separate identity for each of these concepts (Goodyer & Okitikpi, 2007; Wong 2002). This means that a single identity to encompass both sex and gender may be insufficient for a large portion of the general public. The current conceptualization of gender identity is a single identity for how people feel about their gender role in society and what sexual anatomy is most congruent with their self-image (Halim, Ruble, & Amodio, 2011; Schweizer et. al., 2009). Unfortunately, the implication of having these two constructs in a single identity is the assumption that one identity is representative of how an individual relates to both concepts. Within this understanding an individual declares that they identify as a woman within society it is also assumed that they identify with a female body. This assumption that an individual's identity for their sex is tied to their identity for their gender, when these may actually be separate identities, leads to miscommunication and stereotyping (Kuper, Nussbaum, & Mustanski, 2012). This study allows us to see that a significant portion of
people recognize that these things may not be linked, and it is time to differentiate our definition of gender identity to accommodate a separation of sex from gender.

**Limitations**

One of the major limitations of this study was that males were significantly underrepresented within the sample. With only 12 male participants compared to 59 female participants it is difficult to assess how well these findings apply to males within the population. Because of the focus on sex/gender within the current study it is important to understand how males and females may differ in conceptualizing these constructs. It is for this reason that the additional analyses were performed to assess the differences in how males and females within the sample sorted the variables.

Another limitation is that this study was conducted among college students. Individuals in higher education may be more likely to be exposed to sex and gender as different concepts through classes, research, and special presentations. This means that the sample used in this study may display a higher than normal differentiation of sex and gender than would be found among the general population.

There were a few limitations that presented with the task chosen for this study. Although the free sort task allowed participants to present their unbiased view of how the terms were related it also resulted in a large number and wide array of category labels. With each participant having their own “unique” category it was left to the discretion of the researchers to decipher the intent of each categories distinction and to group similar categories by intent. This was a necessary limitation because having pre constructed categories would create too strong of a bias for participants.
Another problem with the sorting task is that the results cannot be understood as directly reflective of identity. A sorting task does not measure identity, it measures a conceptual distinction, which is only part of the identity picture. This task in no way indicates how individuals may apply this distinction to themselves. Without understanding how individuals apply the distinction of the terms in this task to themselves these findings cannot provide definitive support for the distinction of sex and gender into separate identities.

Related to the limitation of the sorting method is the limitation of the analysis. With a certain amount of subjective interpretation associated with the output of the sorting task comes questions about the validity of the general categories used to determine the data for the Chi-Squared values. Further the MDS is also limited by subjective determination as it does not produce any numerical output to be significantly compared. Though the Independent Sample t-test does allow for a statistical comparison of the categories, its output is difficult to interpret and does not allow for a distinction between how or why a significant difference may have been found. It is for that reason that the additional analysis was conducted to compare the frequency of sorting methods used. This analysis is valuable in describing the data from the t-test, however it has little application beyond that.

**Additional Findings**

There were two variables within the analysis of the MDS which fell completely outside of the clusters of other variables. These variables were Ejaculation and Pubic Hair. Review of the data for these specific variables showed a great deal more variability in how individuals categorized these terms. The term Pubic Hair was the only term within the study which did not have a clear distinction between males and females. It is likely that this caused confusion for many individuals who were utilizing male and female as criteria within their sorting method.
The term Ejaculation is also somewhat unique within the study as it is both a characteristic of sex and an action, which some individuals may not distinguish from being a behavior. This may have made it difficult to distinguish as either a sex variable or a gender variable. Additionally, some individuals categorized Ejaculation as a variable relating to both males and females and others ascribed it only to males. It is possible that some participants may not have understood the term Ejaculation, and this may have made it difficult for them to categorize. These complexities in sorting may be related to the high amount of variability in the sorting of the term. It is probable that these two terms stood out on the MDS because of the variability with which they were sorted.

Two other terms also stood out in the analysis of the MDS. These terms stood out because they did not fit the pattern expected of them based on the constructs of sex and gender. The terms masculine and feminine were expected to be sorted with terms of gender; however, participants were much more likely to sort them with terms of sex. This is likely due to the complex usage of these terms within language. Both of these terms can be used to describe features of sex and gender. The use of the terms spelled as masculine and feminine, function as adjectives rather than individual constructs. Perhaps a better choice would have been to use masculinity and femininity as these are nouns and therefore refer to the respective constructs. A further examination would be prudent to understanding how terminology and context affect the interpretation of these terms as either constructs of sex or gender. Future research examining differences in conceptualizations of sex and gender may wish to avoid the use of these terms without first exploring context.
Further Investigations

Future studies will be required to understand how differentiation of these constructs affect an individual’s identity with regard to them. An important component to this will be to understand how individuals conceptualize and relate to the components of sex and gender when clear distinctions of the constructs are made. For example, how do individuals conceptualize their own gender or sex when the difference between sex and gender is described to them in detail? Do they still see these constructs as part of a single congruent identification, or do they use different identifications for each construct?

Another important area for investigation will be to understand what differences in lived gender/sex experiences have on differentiations of identity. Do the experiences of transgender and intersex individuals affect the differentiation of sex and gender into separate identities or do these individuals have the same depth of differentiation as the general population?

Conclusion

Sex and gender are two powerful concepts which impact nearly every aspect of an individual’s life, as such it is important that they be understood. To understand the impact of these concepts on individuals it is important to consider how they relate to these concepts. This study sought to further that understanding by looking at how individuals may identify with these concepts. More specifically this study has helped to understand that individuals may conceptualize the components of sex and gender separately. Although this may seem like a rather insignificant finding it actually holds great value in that it begins to question a commonly held understanding that there is only one identity for both sex and gender. In that regard it is a very significant finding which may allow for future findings to have a broader understanding of the significance of sex and gender in individual’s lives.
References


SEX IDENTITY


Table 1

<table>
<thead>
<tr>
<th></th>
<th>Penis</th>
<th>Ovaries</th>
<th>Masculine</th>
<th>Feminine</th>
<th>XX Chromosomes</th>
<th>XY Chromosomes</th>
<th>Self-Reliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penis</td>
<td>1</td>
<td>.979</td>
<td>.598</td>
<td>.539</td>
<td>.750</td>
<td>.761</td>
<td>.005</td>
</tr>
<tr>
<td>Ovaries</td>
<td>.979</td>
<td>1</td>
<td>.553</td>
<td>.505</td>
<td>.754</td>
<td>.743</td>
<td>.034</td>
</tr>
<tr>
<td>Masculine</td>
<td>.598</td>
<td>.553</td>
<td>1</td>
<td>.970</td>
<td>.538</td>
<td>.539</td>
<td>.109</td>
</tr>
<tr>
<td>Feminine</td>
<td>.539</td>
<td>.505</td>
<td>.970</td>
<td>1</td>
<td>.509</td>
<td>.497</td>
<td>.118</td>
</tr>
<tr>
<td>XX Chromosomes</td>
<td>.750</td>
<td>.754</td>
<td>.538</td>
<td>.509</td>
<td>1</td>
<td>.969</td>
<td>.207</td>
</tr>
<tr>
<td>XY Chromosomes</td>
<td>.761</td>
<td>.743</td>
<td>.539</td>
<td>.497</td>
<td>.969</td>
<td>1</td>
<td>.184</td>
</tr>
<tr>
<td>Self-Reliant</td>
<td>.005</td>
<td>.034</td>
<td>.109</td>
<td>.118</td>
<td>.207</td>
<td>.184</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: This table shows a portion of the Chi-Squared Values calculated for pairs of terms. This does not include all pairs of terms.
Table 2

*Same Group vs Different Group*

<table>
<thead>
<tr>
<th>Question</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Group</td>
<td>274</td>
<td>.55</td>
<td>.23</td>
</tr>
<tr>
<td>Different Group</td>
<td>287</td>
<td>.19</td>
<td>.20</td>
</tr>
</tbody>
</table>

Note: This table shows differences in descriptive statistics for the Chi-Square Values of variable pairs which are differentiated within academia to be in the same group (two sex terms or two gender terms), compared to those variable pairs which are differentiated to be in a different group (one sex term and one gender term).
Figure 1. The Plot Matrices for the Multidimensional Scale Analysis.
Figure 2. Participant sorting methods.
Figure 3. Participants who differentiated Sex and Gender in their sorting method.
Figure 4. The proportion of males who used the types of sorting methods.
Figure 5. The proportion of females who used the types of sorting methods.
Appendix A

Please sort the following words into categories that make sense to you. You may create as many categories as you wish. To create a category please click the + button below then label the category in the blank. Please label the categories in a way which describes why you chose to group those words. You may drag words from the list on the left to the categories you have created on the right.

<table>
<thead>
<tr>
<th>Word List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>XX chromosomes</td>
</tr>
<tr>
<td>XY chromosomes</td>
</tr>
<tr>
<td>Penis</td>
</tr>
<tr>
<td>Testes</td>
</tr>
<tr>
<td>Ovaries</td>
</tr>
<tr>
<td>Vagina</td>
</tr>
<tr>
<td>Facial Hair</td>
</tr>
<tr>
<td>Pubic Hair</td>
</tr>
<tr>
<td>Prominent Rounded Breast</td>
</tr>
<tr>
<td>Voice Deepening</td>
</tr>
<tr>
<td>Broad Shoulders</td>
</tr>
<tr>
<td>Broad Hips</td>
</tr>
<tr>
<td>Testosterone</td>
</tr>
<tr>
<td>Estrogen</td>
</tr>
<tr>
<td>Ejaculation</td>
</tr>
<tr>
<td>Menstruation</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*These words will be randomized in the list by the SocialSci.com web generator. They will not be divided by sex and gender.
Appendix B

Sona Announcement

**Study Name:** An Exploration of Categorization

**Description:** We would like to invite you to participate in a study exploring differences between how individuals categorize terms.

**Web Survey:** This is an on-line survey. To participate, sign up, and you will be sent a link to the online survey at socialsci.com

**Eligibility Requirements:** In order to participate in this study you must be at least 18 years of age.

**Duration:** 20 minutes

**Credits:** 2

**Researcher:** Evalyn Grey, evalyngrey@gmail.com
Appendix C

**Recruitment Flier**

**Study Name:** An Exploration of Categorization

**Description:** We would like to invite you to participate in a study exploring differences between how individuals categorize terms.

**Web Survey:** This is an on-line survey. If you would like to participate in this study please sign up through the SONA system or send an email to evalyngrey@gmail.com with the subject: "Categorization Study".

**Eligibility Requirements:** In order to participate in this study you must be at least 18 years of age.

**Duration:** 20 minutes

**Credits:** 2

**Researcher:** Evalyn Grey, evalyngrey@gmail.com
Appendix D

CONSENT FORM

Identification of Researchers: This project is being done by Evalyn M. Grey under supervision of Dr. Steven Schuetz. We are with the Psychology department at University of Central Missouri. This project has been reviewed and approved by the UCM IRB.

Purpose of the Study: The purpose of this study is to explore how individuals sort various terms.

Request for Participation: We are inviting you to participate in a study on categorization. It is up to you whether you would like to participate. If you decide not to participate, you will not be penalized in any way. You can also decide to stop at any time without penalty. If you do not wish to answer any of the questions, you may simply skip them. You may withdraw your data at any time by closing the web browser. Once this survey has been submitted we will not be able to remove your data from the study as we will not know which survey is yours.

Exclusions: You must be at least 18 years of age to participate in this study.

Description of Research Method: This study involves completing a brief sorting task and a brief demographic questionnaire. This study will take about 20 minutes to finish. After you finish, we will explain the purpose of the study in more detail. Please note that we cannot give you your individual results because the data are anonymous.
Privacy: All of the information we collect will be anonymous. We will not record your name, student number, or any information that could be used to identify you.

Explanation of Risks: The physical risks associated with participating in this study are similar to the risks of everyday life. However, because of the nature of this survey there is some risk of emotional distress. If at any time during or after this survey you feel emotionally distressed please contact a mental health care professional immediately. The UCM Counseling Center provides free services to students of the university. They may be contacted at (660)543-4060 or you may visit them in person in Humphreys room 131.

Explanation of Benefits: You may benefit from participating in this study by getting firsthand experience in psychological research. You may also enjoy completing the questionnaires. You may be awarded SONA credit for project participation. Instructions on receiving SONA credit will be shown on the debriefing screen.

Questions: If you have any questions about this study, please contact Evalyn Grey. She may be reached at evalyngrey@gmail.com or at (660) 429-9960. If you have any questions about your rights as a project participant, please contact the Human Subjects Protection Program at (660) 543-4621.

By agreeing to this Consent Form you are attesting that you are at least 18 years of age.
Appendix E

**Demographic Questionnaire**

What is your age in years? _____

Please select which category best describes your sex.
___ Male
___ Female
___ Intersex
___ Male-to-Female Transsexual
___ Female-to-Male Transsexual
___ Androgynous
Other (please specify):_________________

Please select which category best describes your gender.
___ Man
___ Woman
___ Transgender
___ Genderqueer
___ Androgynous
Other (please specify):_________________

Are you Hispanic or Latino?
___ Yes
___ No

Please select which categories best describes your race.
___ White (Non-Hispanic)
___ African American or Black
___ Hispanic
___ Asian
___ American Indian or Alaska Native
___ Hawaiian Native or Other Pacific Islander

Please select which category best describes your sexual identity.
___ Heterosexual (straight)
___ Homosexual (gay)
___ Bi-sexual
___ Pansexual
___ Asexual
Other (please specify):_________________
Please indicate whether you have taken or taught a class on human sexuality.

__Yes  __No

If yes then what was that class called:_______________________
Appendix F

Debriefing

Thank you for your interest in the current study. The purpose of the current study is to explore the differences in the way individuals perceive aspects of their sex and their gender. Of particular interest are those features which individuals perceive as important to each of these categories. The researchers are also interested to see how individuals relate to those features individually. The goal of the current research is to establish that individual's identify with the concepts of sex and gender differently. For questions about the research feel free to contact the lead researcher Evalyn Grey at grey@ucmo.edu.

To receive SONA credit for the current study send an email to grey@ucmo.edu with the subject "Identity study on SONA". In the body of the email please write the statement: I have participated in the study titled "An exploration of Sex Identity", followed by your UCM email address. PLEASE NOTE the email is only collected for assigning SONA credit, your email will in no way be linked with your answers on the questionnaires. You may receive SONA credit whether you choose to submit your questionnaire for use in the study or not.

Please select an option below then hit done to confirm whether or not you would like to submit your questionnaire for this study.